

TABLE OF CONTENTS

| | | | |
|--|-----|---|-----|
| How to Read Course Information | 3 | Early Childhood Education (ECE) | 129 |
| Course Descriptions | | Earth System Science (ESS) | 134 |
| Accounting (ACCT) | 6 | Economics (ECON) | 135 |
| Accounting and Information Systems (AIS) | 7 | Education (ED) | 138 |
| Aerospace Engineering (AERO) | 7 | Education: Secondary Education (EDSC) | 148 |
| Airframe and Powerplant (AFPM) | 9 | Education: Special Education (EDSE) | 152 |
| Alaska Native Languages (ANL) | 12 | Electrical Engineering (EE) | 155 |
| Alaska Native Studies (ANS) | 16 | Electronics Technology (ELT) | 160 |
| American Sign Language (ASLG) | 21 | Emergency Medical Services (EMS) | 161 |
| Anthropology (ANTH) | 22 | Engineering and Science Management (ESM) | 163 |
| Applied Arts (APAR) | 33 | Engineering Science (ES) | 164 |
| Applied Business (ABUS) | 34 | English (ENGL) | 166 |
| Applied Management (BAM) | 38 | English as a Second Language (ESLG) | 173 |
| Applied Photography (APHO) | 39 | Environmental Engineering (ENVE) | 175 |
| Arctic and Northern Studies (ACNS) | 39 | Environmental Studies (ENVI) | 176 |
| Arctic Skills (ARSK) | 46 | Ethnobotany (EBOT) | 179 |
| Art (ART) | 46 | Film and Performing Arts (FLPA) | 180 |
| Atmospheric Sciences (ATM) | 56 | Fire Science (FIRE) | 186 |
| Automotive Technology (AUTO) | 61 | First Year Experience (FYE) | 192 |
| Aviation Technology (AVTY) | 63 | Fisheries (FISH) | 193 |
| Biology (BIOL) | 66 | Foreign Languages (FL) | 200 |
| Biomedical Science (BMSC) | 77 | French (FREN) | 201 |
| Business Administration (BA) | 78 | General Studies (GENR) | 202 |
| Chemistry (CHEM) | 83 | Geological Engineering (GE) | 202 |
| Chinese (CHNS) | 90 | Geosciences (GEOS) | 205 |
| Civil Engineering (CE) | 91 | German (GER) | 217 |
| Communication (COM) | 96 | Health (HLTH) | 218 |
| Computer and Information Technology Systems (CITS) | 102 | Healthcare Management and Leadership (HML) | 222 |
| Computer Information and Office Systems (CIOS) | 105 | High Latitude Range Management (HLRM) | 222 |
| Computer Science (CS) | 106 | History (HIST) | 223 |
| Construction Management (CM) | 110 | Homeland Security and Emergency Management (HSEM) | 229 |
| Construction Trades Technology (CTT) | 111 | Honors College (HONR) | 235 |
| Counseling (COUN) | 116 | Human Services (HUMS) | 237 |
| Cross-Cultural Studies (CCS) | 119 | Humanities (HUM) | 239 |
| Culinary Arts and Hospitality (CAH) | 121 | Interdisciplinary Studies (INDS) | 239 |
| Dental Assisting (DA) | 124 | Inupiaq (INU) | 240 |
| Design Technology (DSGN) | 125 | Italian (ITAL) | 241 |
| Developmental Studies (DEVS) | 125 | Japanese (JPN) | 241 |
| Diesel Technology (DSLTL) | 127 | Journalism (JOUR) | 243 |
| Drafting Technology (DRT) | 128 | Justice (JUST) | 245 |
| | | Latin (LAT) | 249 |
| | | Law Enforcement (LE) | 249 |

| | | | |
|--|-----|---|-----|
| Leadership (LEAD) | 250 | Veterinary Medicine (DVM) | 375 |
| Library Science (LS) | 250 | Welding and Materials Technology (WMT) | 379 |
| Licensed Practical Nurse (LPN) | 250 | Wildland Fire Science (WFS) | 380 |
| Linguistics (LING) | 251 | Wildlife (WLF) | 381 |
| Marine Biology (MBI) | 257 | Women, Gender and Sexuality Studies (WGS) | 383 |
| Master of Business Administration (MBA) | 262 | Writing (WRTG) | 386 |
| Mathematics (MATH) | 266 | Yup'ik (YUP) | 388 |
| Mechanical Engineering (ME) | 282 | | |
| Mechanics-Diesel/Heavy Equipment (MECN) | 286 | | |
| Medical Assisting (MA) | 287 | | |
| Military Science (MILS) | 289 | | |
| Mineral Preparation Engineering (MPR) | 290 | | |
| Mining Applications and Technologies (AMIT) | 290 | | |
| Mining Engineering (MIN) | 291 | | |
| Museum Research Apprenticeship Program (MRAP) | 295 | | |
| Museum Studies (MSM) | 295 | | |
| Music (MUS) | 296 | | |
| Music Education (MUED) | 301 | | |
| Natural Resources Management (NRM) | 302 | | |
| Oceanography (OCN) | 308 | | |
| Paralegal Studies (PLS) | 312 | | |
| Petroleum Engineering (PETE) | 314 | | |
| Philosophy (PHIL) | 317 | | |
| Physics (PHYS) | 320 | | |
| Political Science (PS) | 327 | | |
| Process Technology (PRT) | 333 | | |
| Psychology (PSY) | 335 | | |
| Recreation (RECR) | 343 | | |
| Religion (RELG) | 350 | | |
| Rural Development (RD) | 351 | | |
| Rural Human Services (RHS) | 357 | | |
| Russian (RUSS) | 358 | | |
| Science Applications (SCIA) | 359 | | |
| Science Teaching and Outreach (STO) | 360 | | |
| Social Work (SWK) | 361 | | |
| Sociology (SOC) | 363 | | |
| Spanish (SPAN) | 364 | | |
| Sport Management (SPRT) | 366 | | |
| Statistics (STAT) | 367 | | |
| Trades And Technology (TTCH) | 369 | | |
| Tribal Governance (TG) | 371 | | |
| Undergraduate Research and Scholarly Activity (URSA) | 374 | | |

HOW TO READ COURSE INFORMATION

How to Read Course Information

This section contains complete information for all UAF courses. Unless otherwise indicated, course frequency refers to the offering of courses at the Fairbanks campus. The courses listed in this catalog are not offered at all UAF sites but may be offered if demand warrants and qualified faculty are available.

Courses are regularly offered at Bristol Bay Campus at Dillingham, Chukchi Campus at Kotzebue, Kuskokwim Campus at Bethel and Northwest Campus at Nome. Through the Interior Alaska Campus, courses are available at Fort Yukon, Galena, McGrath, Nenana and Tok.

Information about the frequency of courses can be obtained from the local UAF representative at each of these community sites .

Course Numbers

The first numeral of a course numbered in the hundreds indicates the year in which a student typically takes the course. For example, WRTG F111X is usually for first-year students and ENGL F318 is for third-year students. Freshman and sophomore students are cautioned to register for upper-division (F300- and F400-) level courses only if they have adequate preparation and background to undertake advanced study in the field in which those courses are offered.

| | |
|------------------|---|
| F000-F049 | Non-credit courses: zero-credit and CEU courses |
| F050-F099 | Developmental courses: Preparatory courses that do not apply to associate, baccalaureate or graduate degree requirements. |
| F100-F299 | Lower-division courses |
| F300-F499 | Upper-division courses: First-year and sophomore students may be required to obtain special permission to take F300- and F400-level courses unless the courses are required in the first two years of their curriculum as printed in this catalog. |
| F500-F599 | Post-baccalaureate professional courses: F500-level courses are intended as post-baccalaureate experiences for professionals to continue their education at a level distinct from graduate-level education. F500-level special topics and independent study courses (F593, F597) do not apply toward any degree, certification or credential program. F500-level courses are not interchangeable with F600-level courses for graduate degree programs. |
| F600-F699 | Graduate courses: A few well-qualified undergraduates may be admitted to graduate courses with the approval of the instructor. Students may not apply such a course to requirements for both a baccalaureate and a graduate degree. |
| F700-F799 | Graduate/Professional Courses: Courses with these numbers are primarily intended for students in doctoral-level programs and demand a level of analysis, synthesis, research or professional knowledge and skills beyond those required for F600-level courses. F700-level courses are applicable to master's and doctoral degrees and to graduate and professional certificates, in accordance with their requirements. |

CROSS-LISTED AND STACKED COURSES

Some courses are offered by an interdisciplinary program (such as Women, Gender and Sexuality Studies (<http://catalog.uaf.edu/academic-departments/womens-gender-studies/>)) with specific disciplinary content (e.g., History (<http://catalog.uaf.edu/academic-departments/history/>)). Some courses containing interdisciplinary content are sponsored by several departments (e.g., ACNS F223X/ANS F223X/MUS F223X). These courses are "cross-listed" and are designated in the class listings by "**cross-listed with____.**"

Courses are also sometimes offered simultaneously at different levels (for example F100/F200 or F400/F600) with the higher level credit requiring additional effort and possibly a higher order of prerequisites from students. Such courses are referred to as "stacked" and are designated in the class listings by "**stacked with ____.**" In the case of 400/600-level stacked courses, graduate student enrollment and a higher level of effort and performance is required on the part of students earning graduate credit.

Courses simultaneously stacked and cross-listed are designated in the class listing as "**Stacked with____ and cross-listed with____.**"

For all stacked courses, the course syllabus (not the catalog) must stipulate course content and requirements for each level. The catalog should indicate the difference in prerequisites for each level.

Graduate students may not take any F600-level courses for credit if they have already received F400-level credit for that course in their undergraduate work. Individual exceptions to this rule include those courses where there has been a major shift in focus and should be judged by the instructor and the department.

SPECIAL OR RESERVED NUMBERS

Courses with the suffix X (WRTG F111X, MATH F113X), meet specific general education requirements (<http://catalog.uaf.edu/bachelors/#generaleducationrequirementstext>).

Courses identified with these special or reserved numbers may be available at all levels (e.g., F193, F293, F393, etc.) at the discretion of any department, although offerings above the level of approved programs must be approved in advance by the Provost (e.g., F600-level offerings in areas without approved graduate programs or F300- and F400-level courses in areas without approved baccalaureate programs). These courses may be repeated for credit.

| Courses ending with: | Reserved for: |
|----------------------|---|
| 000-049 | Zero Credit Courses |
| 000C-049C | Continuing Education Course (CEU) |
| 92 | Seminar: covering various topics which may include group discussions and guest speakers |
| 93 | Special Topics: normally offered one time only |
| 94 | Trial Course: offered in anticipation of becoming a permanent course |
| 97 | Individual Study: in subject areas not normally available |
| 98 | Non-thesis Research/Project: preparing for professional practice |
| 99 | Thesis/Dissertation: preparing for scholarly or research activity |

Course Credits

A credit hour represents an amount of work that reasonably approximates not less than:

1. One hour of classroom or other faculty instruction and a minimum of two hours of out-of-class student work each week for approximately 15 weeks, or the equivalent amount of work over a different amount of time; or
2. At least an equivalent amount of work for other academic activities, including laboratory work, internships, practice, studio work and other academic work.

Laboratory classes require a minimum of 2,400 science lab minutes per credit (three hours per week per credit), or a minimum of 1,600 non-science lab minutes (two hours per week per credit) plus 800 minutes (one hour per week) of study and/or preparation outside of class. A course submission with a lab component must include a justification (in terms of required student work minutes outside of lab) if the laboratory does not require at least 2,400 lab minutes per credit.

The following standards establish the minimum requirements for an academic unit of credit:

1. 800 minutes of lecture or equivalent instructional activities plus 1,600 minutes of student work outside of class.
2. 2,400 minutes of science laboratory
3. 1,600 minutes of laboratory (non-science lab) plus 800 minutes of student work outside of class
4. 2,400-4,800 minutes of supervised practicum
5. 2,400-8,000 minutes of internship (or externship, clinical)
6. 2,400-4,800 minutes of supervised scholarly activity

Credit hours may not be divided, except half-credit hours may be granted at the appropriate rate. For short courses and classes of less than one semester in duration, course hours may not be compressed into fewer than three days per credit. Any existing semester-long course that is to be offered in a format that is compressed to less than six weeks must be approved by the college or school's curriculum council and the appropriate Faculty Senate committee. Any new course proposal must indicate the course compression format(s) in which the course will be taught. Only approved course formats will be allowed for scheduling.

Given the above information, the formula used for computing credit/contact hours is 800 minutes (13.3 hours) per credit. This equates to approximately one hour of lecture per week for a normal 14-week semester. For courses that do not employ lectures but are intended to achieve learning outcomes equivalent to those of a lecture course (e.g., some e-learning classes), 800 minutes of structured instructional activities are expected per credit, in addition to at least 1,600 minutes per credit of other work that the student completes independently. "Structured instructional activities" is not restricted to mean synchronous interaction with an instructor, but rather faculty-designed instructional activity intended to facilitate student learning.

Following the title of each course, the number of credits is listed for each semester. Thus "3 credits" means 3 credits may be earned. Credit may not be given more than once for a course unless the course has been designated as repeatable for credit. Figures in parentheses at the end of course

descriptions indicate the number of lecture, laboratory and practicum, internship or scholarly activity hours, respectively, the class meets each week for one semester. For example (2+3) indicates that a class has two hours of lecture and three of laboratory work each week. A designation of (1+0+6) indicates that the course meets for one hour of lecture each week and six hours of practicum, internship or other scholarly activity.

EXAMPLE OF 1 CREDIT HOUR FOR A 14-WEEK COURSE

| Contact Hours per Week | Type of Instruction |
|------------------------|---------------------|
| 1 | Lecture |
| 3 | Science Laboratory |
| 3 | Other |

Course Prerequisites

Course prerequisites indicate what previous preparation is needed to enroll in a course. An instructor has the right to waive a course prerequisite if the instructor documents that the student possesses the background required to succeed in the class. An instructor also has the right to drop students from the course if they do not meet the prerequisite or have not received a grade of C- or better in all prerequisite courses. Students who take a course at a higher level than a corresponding prerequisite course required for a degree program are not exempt from taking that required course.

When reading prerequisites, the semicolon (";") means "and." The comma (",") means "or." For example:

MATH F101; MATH F102 means MATH F101 AND MATH F102

MATH F101, MATH F102 means MATH F101 OR MATH F102

If a prerequisite may be taken concurrently, "(may be taken concurrently)" will be listed after the specific prerequisite course.

Identifying Courses

General education requirements (<http://catalog.uaf.edu/bachelors/#generaleducationrequirements>) have course numbers ending in **X**.

SPECIFIC DEGREE REQUIREMENTS

Courses that may be used to satisfy specific degree requirements (e.g., humanities elective for the B.A. degree, or natural science elective for the B.S. degree) are identified in the course description section by the following degree requirement designators:

h—humanities

s—social science

m—mathematics

n—natural science

an—Alaska Native-themed

For example, you may use ANTH F309 to satisfy the "social science elective" requirement for a Bachelor of Arts degree. Some courses, including all special topics and individual study courses, are not given course classifications.

Course Frequency

A frequency of offering designator such as "Offered Fall" or "Offered Alternate Spring" precedes many course descriptions. Every effort is made to ensure this designator is correct. However, students should review the current class schedule or check with the course department for the most accurate and up-to-date information on course offerings.

Accounting (ACCT)

College of Business and Security Management

Accounting Program (<https://www.uaf.edu/cbsm/programs/accounting/>)
907-474-7461

ACCT F261X Principles of Financial Accounting (s)

3 Credits

Offered Fall, Spring and Summer

During this course, we will study accounting from two different methodical approaches: the preparer approach (i.e. a look at how an accounting system is created to record, process and report accounting information) and the user approach (i.e. a look at how various people use the information generated by accountants).

Prerequisites: Sophomore standing or higher; placement, concurrent enrollment or completion of MATH at the F100-level or above.

Attributes: UAF GER Social Sciences Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACCT F262 Principles of Managerial Accounting

3 Credits

Offered Fall, Spring and Summer

Study of the generation and analysis of accounting information and its uses by managers as they engage in planning, control and decision-making activities in business and non-business organizations. Topics include product costing, cost-volume-profit analysis, relevant costs for decision-making and capital budget decisions.

Prerequisites: ACCT F261X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACCT F271 Fiscal Management for Emergency Management Operations

3 Credits

Offered Fall, Spring and Summer

Students will learn about the basic accounting and financial requirements for public organizations such as fire, police and similar functions of local governments. The major topics covered include: understanding financial reports, budgeting preparation, and grants and contracts administration.

Prerequisites: Sophomore standing or higher; placement, concurrent enrollment or completion of MATH at the F100-level or above.

Cross-listed with HSEM F271.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACCT F330 Income Tax

3 Credits

Offered Fall and Spring

Survey of basic concepts of federal taxation with emphasis on taxation of individuals and the impact of taxes on business and investment planning.

Prerequisites: ACCT F361.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACCT F342 Managerial Cost Accounting

3 Credits

Offered Fall and Spring

Cost accounting with managerial emphasis on planning, control and decision-making. Topics include cost-volume-profit analysis, costing systems, profit planning, flexible budgets, standard costs, responsibility accounting, inventory costing alternatives and relevant costs for decision-making.

Prerequisites: ACCT F262.

Special Notes: For accounting majors: No credit may be earned for more than one of ACCT F342 or ACCT F352.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACCT F352 Management Accounting

3 Credits

Business policy profit planning, resource planning, control concepts, reporting for management control and impact of public reporting on management decisions.

Prerequisites: ACCT F261X; ACCT F262.

Special Notes: For non-accounting majors only: No credit may be earned for more than one of ACCT F342 or ACCT F352.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACCT F356 Internship in Accounting

1-3 Credits

Offered As Demand Warrants

Supervised accounting work experience in an approved position related to the student's career interests. Number of credits earned depends upon the type of position and time worked. No student may count more than 9 internship credits towards an undergraduate degree, with these credits being electives.

Prerequisites: Permission of the CBSM advisor.

Special Notes: Internship credits may not be taken as one of the two required senior-level accounting electives.

Lecture + Lab + Other: 0 + 6-14 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 9 times for up to 9 credits

ACCT F361 Intermediate Accounting I

3 Credits

Offered Fall and Spring

Discussions of financial accounting topics from the perspective of both accounting practice and theory. Working capital and fixed asset accounts are emphasized. Ethical and international accounting issues are emphasized throughout the sequence.

Prerequisites: ACCT F262.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACCT F362 Intermediate Accounting II

3 Credits

Offered Fall and Spring

Discussion of financial accounting topics from the perspective of both accounting practice and theory. Long-term liabilities and stockholder's equity are emphasized. Ethical and international accounting issues are emphasized throughout.

Prerequisites: ACCT F361.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACCT F401 Advanced Accounting

3 Credits

Offered Fall and Spring

Accounting for business combinations: parent-subsidiary and home office/branch relationships, partnerships and multinational enterprises.

Prerequisites: ACCT F362.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACCT F404 Advanced Cost Accounting and Controllership**

3 Credits

Offered As Demand Warrants

Study of the controllership function with emphasis on advanced cost and managerial accounting topics related to contemporary organizations.

Prerequisites: ACCT F342.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACCT F414 Governmental and Nonprofit Accounting**

3 Credits

Offered Spring

Accounting for governmental units, public schools, colleges and universities, health care providers, voluntary health and welfare organizations and other nonprofit organizations.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COM F121X, COM F131X or COM F141X; ACCT F362; ACCT F452 or ACCT F472.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACCT F430 Advanced Taxes**

3 Credits

Offered Fall

Advanced study of income taxation, emphasizing federal taxation of corporations and partnerships.

Prerequisites: ACCT F330.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACCT F452 Auditing**

3 Credits

Offered Spring

Introduction to the professional standards and procedures applicable to an auditor's examination of financial statements. Compliance and Operational auditing, ethical and legal responsibilities, and international auditing issues are emphasized.

Prerequisites: ACCT F362; AIS F316; BA F325; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACCT F472 Internal and Government Auditing**

3 Credits

Offered Fall

Internal auditing including financial, compliance and performance audits. An overview of auditing concepts and practice is discussed with specific application to internal auditing and governmental auditing, including federal and state single audits. For auditor practitioners and students without field experience in auditing.

Prerequisites: ACCT F362; BA F325; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Accounting and Information Systems (AIS)

College of Business and Security Management

Accounting Program (<https://www.uaf.edu/cbsm/programs/accounting/>)
907-474-7461

AIS F101 Effective Personal Computer Use

1 Credit

Offered Fall, Spring and Summer

Using and understanding advanced computing software applications. Course develops conceptual and practical knowledge of advanced presentation/communications software, database programs and operating systems.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AIS F310 Management of Information Systems**

3 Credits

Offered Fall and Spring

The role information technology plays in organizations including its impact on information systems, management and business strategy. A conceptual model of system design is introduced and basic business internal controls are surveyed.

Prerequisites: AIS F101.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AIS F316 Accounting Information Systems**

3 Credits

Offered Fall and Spring

Accounting systems for business and public entities. Emphasis on internal control functions and design concepts.

Prerequisites: AIS F101; ACCT F262.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AIS F324 Advanced MS Excel**

1 Credit

Offered Fall, Spring and Summer

Advanced features of the Microsoft Excel spreadsheet program. Includes spreadsheet design and layout, customized graphics, customized reports using database features, optimization/statistical techniques and programming with the Excel macro language. Student is assumed to have basic proficiency with Microsoft Excel.

Prerequisites: AIS F101; ACCT F262.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AIS F342 MS Excel for Finance**

1 Credit

Offered Fall and Spring

In this course, students will develop proficiency in Microsoft Excel for financial analysis. This class is especially well-suited to aspiring finance and accounting professionals; it serves to reinforce material covered in financial management and introductory accounting, while building related applied expertise in Excel.

Prerequisites: AIS F101; AIS F324; BA F325 (may be taken concurrently).**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Aerospace Engineering (AERO)

College of Engineering and Mines

Department of Electrical and Computer Engineering (<https://www.uaf.edu/cem/programs/electrical-engineering/>)
907-474-6098

AERO F254 Unmanned Aircraft Systems (UAS) Investigation

3 Credits

Offered As Demand Warrants

An introductory analysis of unmanned air systems (UAS), including typical missions and performance expectations for various classes of UAS. Students investigate subsystem choices for a UAS and how these affect mission performance. Includes discussion of external factors impacting UAS design choices, including support infrastructure, flight operations and data requirements.

Cross-listed with ME F254.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AERO F256 Unmanned Aircraft Systems (UAS) Design

3 Credits

Offered As Demand Warrants

A multidisciplinary team of students will design, build, test and deliver an unmanned aircraft system (UAS) in support of university research mission requirements. Students will learn basic concepts related to the systems engineering design process. Graded events include team briefings, written reports, multimedia products and a finished UAS product.

Prerequisites: AERO F254; ME F254.

Cross-listed with CS F254 and ME F256.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AERO F258 Unmanned Aircraft Systems (UAS) Operations

3 Credits

Offered As Demand Warrants

Covers the use of unmanned aircraft systems (UAS), sensors, and support infrastructure required to conduct a selected mission set. Emphasis is on mission analysis, planning, and conduct, including definition of requirements/constraints, identification of appropriate assets, flight planning considerations, and data analysis requirements. Teams coordinate resources for mission and report results.

Cross-listed with CS F258; GEOS F258; ME F258.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AERO F450 Theory of Flight

3 Credits

Offered Fall

Airfoil theory in subsonic flow. Performance, stability and control of aircraft. Aircraft design.

Prerequisites: ES F341 (may be taken concurrently); ES F346.

Cross-listed with ME F450.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AERO F451 Aerodynamics

3 Credits

Offered Spring

Aerodynamics of non-lifting and lifting airfoils in incompressible irrotational flow, wings of finite span, the Navier-Stokes equations, boundary layers, numerical methods, supersonic and transonic flow past airfoils, rocket aerodynamics, rocket drag.

Prerequisites: ES F341 (may be taken concurrently); ES F301; ES F346.

Cross-listed with ME F451.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AERO F452 Introduction to Astrodynamics

3 Credits

Offered Fall

Geometry of the solar system, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories. Elements of orbit determination.

Prerequisites: ES F208 or ES F210; ES F301 (may be taken concurrently).

Cross-listed with ME F452.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AERO F453 Propulsion Systems

3 Credits

Offered Spring

Basic principles of propulsion: turbojet, turboprop and rocket engines. Fluid mechanics and thermodynamics of flow in nozzles, compressors, combustors and turbines. Liquid and solid propellant rockets. Heat transfer in rocket motors and nozzles. Design and testing methods for components of propulsion systems.

Prerequisites: ME F313 (may be taken concurrently); ES F341.

Cross-listed with ME F453.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AERO F654 UAS Systems Design

3 Credits

Offered Fall Even-numbered Years

Course covers the analysis of unmanned air vehicle subsystems, including support infrastructure elements comprising an unmanned air system. Course contains mission planning considerations, including flight planning and data requirements. Focus is on remote sensing missions which may be accomplished by appropriate UAS. Students participate in a UAS design/build/fly workshop.

Prerequisites: Graduate standing.

Cross-listed with AERO F654.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AERO F656 Aerospace Systems Engineering

3 Credits

Offered Fall Odd-numbered Years

A multidisciplinary team of students will perform a preliminary design study of a major aerospace system. Design considerations will include requirements for project management, aerospace vehicle design, power, attitude control, thermal control, communications, computer control and data handling.

Prerequisites: Graduate standing.

Cross-listed with EE F656; ME F656.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AERO F658 Unmanned Aircraft Systems (UAS) Operations

3 Credits

Offered Spring

Covers application of unmanned aircraft systems (UAS) to satisfy scientific research or public service missions. Students analyze mission requirements and recommend appropriate UAS vehicles, subsystems, sensors and data analysis tools to accomplish a specified mission. Students design mission profiles, conduct representative missions, produce required data products and present mission results.

Prerequisites: Graduate standing.**Cross-listed with** CS F658; EE F658.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Airframe and Powerplant (AFPM)

Community and Technical College

Airframe and Powerplant Program (<https://www.ctc.uaf.edu/programs/aviation-maintenance/>)
907-455-2800

AFPM F111 General Airframe and Powerplant

3 Credits

Offered As Demand Warrants

Shop practices, basic math, applied physics, FAA regulations, basic electricity, aircraft weight and balance, ground operations and servicing, cleaning and corrosion control, and materials and process. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam.

Prerequisites: Experience requirements of FAR 65.77.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AFPM F145 Basic Mathematics**

1 Credit

Offered Fall

Review of applied and technical mathematics related to the construction and engines of aircrafts. Common, decimal, fractions and mixed numbers; extracting square roots and raising numbers to a given power; solving ratios, proportions and percentage problems; fundamental algebraic operations.

Prerequisites: Admission to A & P program.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AFPM F146 Basic Electricity**

2 Credits

Offered Fall

Electrical theory and concepts for the aviation mechanic. Ohm's law, electrical circuits, diagrams, batteries and a variety of electrical components.

Prerequisites: Admission to A & P Program.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AFPM F147 Physics for Mechanics**

0.5 Credit

Offered Fall

Applications of mechanics; levers, sound, fluid and heat dynamics. Basic aircraft structures and aerodynamics. (Course does not fulfill natural science requirements for any degree.)

Prerequisites: Admission to A & P Program.**Lecture + Lab + Other:** 0.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AFPM F148 Aircraft Drawing**

1 Credit

Offered Fall

Basic drafting. Drawings, symbols and schematic diagrams, sketches of repairs and alterations, blueprint information, graphs and charts.

Prerequisites: Admission to A & P Program.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AFPM F149 Fluid Lines and Fittings**

0.5 Credit

Offered Fall

Rigid and flexible fluid lines and fittings, fabrication and installation.

Prerequisites: Admission to A & P Program.**Lecture + Lab + Other:** 0.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AFPM F150 Materials and Processes**

2 Credits

Offered Fall

Basic shop practices, including selection, identification and installation of aircraft hardware and materials, precision measuring tools and operations, basic heat treating processes, forms of nondestructive inspections.

Prerequisites: Admission to A & P Program.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AFPM F151 Cleaning and Corrosion Control**

1 Credit

Offered Fall

Basic aircraft cleaning materials, methods and corrosion control.

Prerequisites: Admission to A & P Program.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AFPM F152 Federal Aviation Regulations**

1 Credit

Offered Fall

Federal Aviation Regulations for maintenance of aircraft. Maintenance forms and records, publications, privileges and limitations of aircraft mechanics.

Prerequisites: Admission to A & P Program.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AFPM F153 Weight and Balance**

1 Credit

Offered Fall

Weighing procedures, weight, arms, moments, center of gravity computations and placarding. Aircraft loading, required forms, weighing.

Prerequisites: Admission to A & P Program.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AFPM F154 Ground Operations and Servicing**

0.5 Credit

Offered Fall

Starting, moving, servicing, securing and fueling aircraft.

Prerequisites: Admission to A & P Program.**Lecture + Lab + Other:** 0.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

AFPM F205 Airframe Structures

3 Credits

Offered As Demand Warrants

Aircraft wood, dope, fabric finishes, welding, sheet metal, assembly and rigging and inspection. Preparation for the FAA Mechanics Airframe Structures written, oral and practical exam.

Prerequisites: Experience requirements of FAR 65.77.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F206 Airframe System and Components

2 Credits

Offered As Demand Warrants

Aircraft electrical, hydraulic and pneumatic systems. Landing gear, instruments, fuel, communication and navigation, cabin atmosphere control, and fire protection systems. Inspection, checking, troubleshooting, repair and servicing. Preparation for the FAA Mechanics Airframe Structures written, oral and practical exam.

Prerequisites: Experience requirements of FAR 65.77.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F215 MOS Powerplant Theory/Maintenance

2 Credits

Offered As Demand Warrants

Jet engine fundamentals, analysis and testing. Inspecting turbo jets, turbo shaft and turbo fan engines. Overhaul, inspection and fundamentals of reciprocating engines. Preparation for the FAA Mechanics Airframe Structures written, oral and practical exam.

Prerequisites: Experience requirements of FAR 65.77.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F216 MOS Powerplant System/Components

3 Credits

Offered As Demand Warrants

Fuel metering, induction systems, propellers, control systems and powerplant electricity. Repair, inspection, service and troubleshooting. Preparation for the FAA Mechanics Airframe Structures written, oral and practical exam.

Prerequisites: Experience requirements of FAR 65.77.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F217 FAA Airframe & Powerplant Test Preparation

9 Credits

Offered As Demand Warrants

Preparation for the FAA Mechanics General, Airframe, Powerplant written, oral and practical exams.

Prerequisites: Must meet the experience requirements of 14 CFR 65.77 as evidenced by an approved FAA Form 8610-2.

Lecture + Lab + Other: 7.5 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F230 Aircraft Electrical Systems

2.5 Credits

Offered Spring

Wiring, control, indication and protection devices for AC and DC systems. Inspection, troubleshooting service and repair of these systems.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 2.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F231 Powerplant Electrical Systems

1.5 Credits

Offered Fall

Installation, inspection, testing, servicing engine electrical system wiring, controls, indicators and protective devices. Repair and service of electrical generating systems.

Prerequisites: Admission to A&P program.

Lecture + Lab + Other: 1.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F235 Aircraft Reciprocating Engines

4.5 Credits

Offered Spring

History and development of the aircraft reciprocating engine. Repair, overhaul and inspection of various types of engines. Operation and troubleshooting of engines.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 4.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F240 Turbine Engines

2 Credits

Offered Summer

Development, theory and operation of turbine engines. Engine design, performance, accessories and subsystems. Engine maintenance and overhaul.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F244 Lubricating Systems

1.5 Credits

Offered Spring

Identification and selection of lubricants for aircraft powerplants. Inspection, service, troubleshooting and repair of the lubrication systems and components.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 1.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F245 Ignition Systems

2 Credits

Offered Summer

Overhaul, inspection and troubleshooting of reciprocating and gas turbine ignition systems. Repair and bench testing of components.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F246 Fuel Metering Systems

2 Credits

Offered Spring

Fundamental operation of fuel metering systems in aircraft powerplants. Technical data to repair and overhaul carburetors and components. Inspecting, troubleshooting and adjusting turbine engine fuel metering systems and electronic fuel controls.

Prerequisites: Admission to the A & P Program.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F248 Induction Systems

0.5 Credit

Offered Spring

Operation and service of aircraft induction, preheat, anti-ice and supercharger systems.

Prerequisites: Admission to A&P program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F249 Powerplant Cooling Systems

0.5 Credit

Offered Spring

Inspection, service and repair of engine cooling systems -- both air and liquid cooled installations.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F250 Powerplant Exhaust Systems

0.5 Credit

Offered Spring

Inspection, service and repair of engine exhaust systems. Includes operations of turbo compounded engines, thrust reversers and noise suppressors.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F251 Fuel Systems

1.5 Credits

Offered Fall

Inspection, servicing, troubleshooting and repair of aircraft and engine fuel systems and components.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 1.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F252 Propellers

2 Credits

Offered Spring

Identification and nomenclature of aircraft propellers. Operation, control and repair of both reciprocating and turbine engine installations.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F253 Transport Category Aircraft

1 Credit

Offered Spring

Introduction to transport category aircraft systems and components.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F254 Ice and Rain Control Systems

0.5 Credit

Offered Spring

Inspection, operation and troubleshooting of de-ice and anti-ice systems.

Prerequisites: Admission to A&P program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F255 Fire Protection Systems

0.5 Credit

Offered Fall

Inspection, servicing, troubleshooting and repair of aircraft and engine fire detection and extinguishing systems.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F256 Communications and Navigation Systems

0.5 Credit

Offered Spring

Operation of aircraft avionics, autopilots and antennas, including inspection and installation.

Prerequisites: Admission to A&P program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F257 Instrument Systems

0.5 Credit

Offered Fall

Inspection, troubleshooting, removal and replacement of aircraft and engine instruments and indicating systems.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F258 Cabin Atmosphere Control Systems

1 Credit

Offered Spring

Aircraft pressurization, air conditioning, heating and oxygen systems. Operation, inspection, troubleshooting, service and repair.

Prerequisites: Admission to A&P program.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F259 Hydraulic and Pneumatic Systems

1.5 Credits

Offered Spring

Operation of hydraulic and pneumatic systems and uses in aircraft.

Identification of hydraulic fluids, seals, hydraulic and pneumatic control devices, inspection and servicing and troubleshooting.

Prerequisites: Admission to A&P program.

Lecture + Lab + Other: 1.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F260 Aircraft Landing Gear Systems

1.5 Credits

Offered Spring

Simple and complex landing gear systems. Operation, service and repair of mechanical and hydraulic retraction mechanisms. Wheel, tire and brake service. Aircraft speed and configuration warning systems, electric brake controls, anti-skid systems, landing gear position and warning systems.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 1.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F261 Nonmetallic Structures

1 Credit

Offered Summer

Inspection, service and repair of wood structures. Preliminary and secondary repair of interior and service of plastic, honeycomb, bonded, and composite and laminated structures.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F262 Aircraft Coverings

1 Credit

Offered Summer

Selection, application, inspection and testing of fabric and fiberglass coverings and methods of repair.

Prerequisites: Admissions to A & P Program.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F263 Aircraft Finishes

0.5 Credit

Offered Summer

Identification and selection of aircraft finishing materials. Application of paints, dopes, primers and trim.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F264 Sheet Metal Structures

3 Credits

Offered Spring

Aircraft sheet metal fabrication, inspection and repair, including rivets and fasteners.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F265 Aircraft Welding

1.5 Credits

Offered Summer

Contemporary welding methods on aircraft structures. Oxyacetylene, arc, inert gas and brazing techniques. Inspection of welded structure and safety procedures.

Lecture + Lab + Other: 1.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F266 Assembly and Rigging

1.5 Credits

Offered Fall

Aerodynamic theory and function of aircraft control surfaces. Fabrication and installation of control devices for fixed and rotary wing aircraft; jacking and control surface balance.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 1.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F267 Airframe Inspections

0.5 Credit

Offered Summer

Inspection and return of aircraft to service. Procedural and legal aspects of 100 hour, annual and periodic inspections.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F270 Airframe Testing

0.5 Credit

Offered Summer

Preparation for the Federal Aviation Administration written, oral and practical exams for the powerplant mechanics' license.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F271 Powerplant Inspections

0.5 Credit

Offered Summer

Methodology and record keeping for inspection of aircraft reciprocating and gas turbine engines.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F272 Powerplant Testing

0.5 Credit

Offered Summer

Preparation for the Federal Aviation Administration written, oral and practical exams for the powerplant mechanics' license.

Prerequisites: Admission to A & P Program.

Lecture + Lab + Other: 0.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AFPM F325 Inspection Authorization Preparation

2 Credits

Offered As Demand Warrants

Prepares FAA certificated Airframe and Powerplant mechanics eligible for an inspection authorization under FAR 65.91 for the FAA tests to obtain their inspection authorization. Course also includes practical aspects of the privileges and limitations of the holder of an IA.

Prerequisites: FAA A & P Certificate, meet additional requirements of FAR 65.91.

Lecture + Lab + Other: 1 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

Alaska Native Languages (ANL)

College of Rural and Community Development

Alaska Native Language Center (<https://www.uaf.edu/anlc/>)
907-474-7874

ANL F101 Introduction to Alaska Native Language Study (an)

3 Credits

Offered As Demand Warrants

This course introduces concepts and develops skills needed for language learning and the study of the form, cultural context and history of Alaska Native Languages. Survey of history and status of Alaska Native Languages, and brief introduction to learning one or more Alaska Native Languages.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANL F108 Beginning Athabascan Literacy (an, h)

1-3 Credits

Offered As Demand Warrants

Introduction to reading and writing in one of the Athabascan languages. For speakers of the language who want to become literate.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 3 credits

ANL F121 Conversational Alaska Native Language I (an, h)

1-3 Credits

Offered As Demand Warrants

Introduction to speaking and understanding one of the Alaska Native languages. Focus on communication in everyday situations.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F122 Conversational Alaska Native Language II** (an, h)

1-3 Credits

Offered As Demand Warrants

Continued introduction to speaking and understanding one of the Alaska Native languages. Focus on communication in everyday situations.

Prerequisites: ANL F121 in the same language.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F131 Unangan Language I** (h)

3 Credits

Offered As Demand Warrants

An introduction to Eastern Unangam Tunuu. Students are introduced to some basic grammar, including noun and verb formation and inflection, basic word order, postpositional phrases, simple questions, statements, and direct requests, and the expression of singular, dual, and plural number in nouns and verbs.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F132 Unangan Language II** (h)

3 Credits

Offered As Demand Warrants

A continuation of Unangan Language I. Topics include using suffixes and helping verbs to provide more precision about time, certainty, preference and quantity, nominalizations/participles, complex possessive phrases and deriving adjectives from verbs.

Prerequisites: ANL F131.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F141X Beginning Dene / Athabascan I** (an, h)

5 Credits

Offered Fall

Introduction to an Alaska Dene (Athabascan) language. Class will deal with one of the eleven Athabascan languages spoken in Alaska. Literacy and grammatical analysis for speakers. For non-speakers, a framework for learning to speak, read and write the language.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F142X Beginning Dene / Athabascan II** (an, h)

5 Credits

Offered Spring

Continued introduction to an Alaska Dene (Athabascan) language. Class will deal with one of the eleven Athabascan languages spoken in Alaska. Literacy and grammatical analysis for speakers. For non-speakers, a framework for learning to speak, read and write the language.

Prerequisites: ANL F141X in the same language.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F150 Interpretive Communication** (an, s)

1 Credit

Offered As Demand Warrants

Communication processes in Yup'ik and English speaking cultures. Solutions to identify problem areas in cross-cultural communication. Situations such as conversations, meetings, translating and interpreting. Interpreting meaning in what is communicated between people of different sociocultural backgrounds. Kuskokwim Campus only.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F151 Interethnic Communications** (an, s)

3 Credits

Offered As Demand Warrants

Understanding differences in cross-cultural interaction. Application of cross-cultural interactions to various communication settings. Concentrates on Yup'ik ways of communication. Kuskokwim Campus only.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F199 Practicum in Native Language Education** (an)

3 Credits

Offered As Demand Warrants.

Individualized work experience. Variable credit (depending on the quantity and quality of the work experience). Offered on campus and via distance delivery. When offered via distance delivery, a local mentor (usually principal or teacher) must be willing to work with the student on the local level. Also offered as pass/fail as ANL F199P.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**ANL F208 Advanced Athabascan Literacy** (an, h)

1-3 Credits

Offered As Demand Warrants

Expository and creative writing for native speakers; reading Athabascan literature; elicitation, transcription and editing of cultural materials from Elders.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 3 credits**ANL F221 Intermediate Conversational Alaska Native Language** (an, h)

1-3 Credits

Offered As Demand Warrants

Continuation of ANL F121, ANL F122. Focus on conversational skills in an Alaska Native language. On completion the student should not only be able to function at a low level of fluency but should also have the skills necessary to increase fluency through continued use of the language.

Prerequisites: ANL F121; ANL F122.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 3 credits

ANL F237 Alaska Native Languages and Archives (h)

3 Credits

Offered Every Third Spring

This course will introduce students to the use of archives for the purposes of accessing Alaska Native Language materials, assessing further documentation, description, and language learning materials needs, using archived materials in new and creative ways, and supporting the creation of new language maintenance and revitalization products.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F241 Intermediate Dene / Athabascan I** (an, h)

3 Credits

Offered Fall

Continuation of beginning Dene / Athabascan. Class will deal with one of the eleven Dene / Athabascan languages spoken in Alaska. Literacy and grammatical analysis for speakers. Development of conversational ability, additional grammar and vocabulary.

Prerequisites: ANL F141X and ANL F142X in the same language.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F242 Intermediate Dene / Athabascan II** (an)

3 Credits

Offered Spring

Continuation of Intermediate Dene / Athabascan I. Class will deal with one of the eleven Dene / Athabascan language spoken in Alaska. Literacy and grammatical analysis for speakers. Development of conversational ability, additional grammar and vocabulary.

Prerequisites: ANL F241.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F251X Introduction to Athabascan Linguistics** (an, h)

3 Credits

Offered Fall

An introduction to the linguistic structure of the Athabascan family of languages, drawing on examples from the Athabascan languages of Alaska. Writing systems, word structure, texts, and language relationships. Techniques for accessing linguistic reference materials and the role of linguistic documentation in language revitalization and language learning.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F255X Introduction to Alaska Native Languages** (an)

3 Credits

Offered Spring

Overview of languages native to Alaska. Focus on a specific language will depend on student body. Includes history, present and future prospects of languages, basic language structure, issues affecting language endangerment and revitalization, and oral and written literature.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F256 Introduction to Alaska Native Languages: History, Status and Maintenance** (an)

3 Credits

Offered As Demand Warrants

Overview of languages native to Alaska. Focus on a specific language or language area (relevant to a regional student body). History, status and factors affecting the future maintenance of Alaska's languages. Topics include educational policies, lexical development, language status (including language maintenance and revival issues).

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F287 Teaching Methods for Alaska Native Languages** (an, h)

3 Credits

Offered As Demand Warrants

Methodological approaches and practice in teaching Native language and literacy to both speakers and non-speakers.

Prerequisites: Knowledge of a Native language.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F288 Curriculum and Materials Development for Alaska Native Languages** (an, h)

3 Credits

Offered As Demand Warrants

Preparation and evaluation of curriculum and classroom materials for teaching Native languages.

Prerequisites: ANL F287; Knowledge of a Native language.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F289 Practicum in Native Language Education II** (an)

3,4 Credits

Offered As Demand Warrants

Individualized work experience. Supervised teaching with an experienced teacher overseeing student instructional activities and assisting with the class as needed.

Prerequisites: ANL F199; ANL F287; ANL F288.**Lecture + Lab + Other:** 3,4 + 0 + 10**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 2 times for up to 8 credits**ANL F315 Alaska Native Languages: Inuit-Aleut** (an, h)

3 Credits

Offered As Demand Warrants

A survey of the Native languages of Alaska, particularly Inuit-Aleut: history, present and future, with examples of language structure, present situation and prospects as a cultural force. Open to all students.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F316 Alaska Native Languages: Indian Languages** (an, h)

3 Credits

Offered As Demand Warrants

A survey of all Native languages of Alaska; particularly of the Indian languages: Athabascan-Eyak-Tlingit, Haida and Tsimshian. History, present and future; examples of language structure, present situation and prospects as a cultural force. Open to all students.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ANL F337 Alaska Native Languages and Community Language Documentation (h)

3 Credits

Offered Every Third Spring

Introduces basics of language documentation furthering language maintenance and revitalization projects. Introduction to language documentation and linguistic concepts. Covers steps in planning and undertaking language documentation from inception to final results. Focuses on partnership with communities. Designed for community members, speakers of heritage and anyone helping with endangered language documentation.

Prerequisites: 2 courses in Alaska Native Languages to constitute 1 full language year (example: ANL F141X - ANL F142X Beginning Athabaskan, INU F111X - F112X Beginning Inupiaq); ANL F237; junior standing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F401 Alaska Native Language Apprenticeship** (an, h)

5 Credits

Offered As Demand Warrants

Structured study of an Alaska Native Language. Select and work intensively with a mentor (a native speaker of the language selected). Choice of mentor requires faculty approval. Meet regularly with mentor (minimum 10 hours per week) and participate in regular training sessions to work toward fluency.

Prerequisites: One year university-level study in language of internship.

Lecture + Lab + Other: 0.5 + 10 + 10**Grading System:** Pass/Fail Grades**ANL F402 Alaska Native Language Apprenticeship II** (an, h)

5 Credits

Offered As Demand Warrants

Structured study of an Alaska Native language. Work intensively with a native speaker as mentor. Choice of mentor requires faculty approval. Meet regularly with mentor (minimum 10 hours per week) and participate in regular training sessions to work toward fluency. Continuation of ANL F401 requiring successful completion of that course.

Prerequisites: ANL F401.

Lecture + Lab + Other: 0.5 + 10 + 10**Grading System:** Pass/Fail Grades**ANL F437 Alaska Native Languages and Language Revitalization** (h)

3 Credits

Offered Every Third Spring

This course introduces students to language revitalization issues, major revitalization models, and planning and execution of revitalization programs. Covers what language revitalization is; how community external and internal factors affect revitalization efforts; school-based and community-based models of language revitalization; and components of a language revitalization program.

Prerequisites: 2 courses in Alaska Native Languages to constitute 1 full language year (examples: ANL F141X - ANL F112X Beginning Athabaskan, INU F111X - F112X Beginning Inupiaq); ANL F237; ANL F337; junior standing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F452 Principles of Linguistic Analysis for Alaska Native Languages** (an)

3 Credits

Offered As Demand Warrants

Systematic principles of phonology, morphology, syntax, and semantics for Athabaskan-Eyak-Tlingit, Haida, Tsimshian, and Inuit-Aleut language family. The specific Alaska Native language emphasized is student interest dependent. Includes exposure to a variety of references and tools available for research in Alaska Native languages and linguistics.

Prerequisites: LING F101X or ANL F251X.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F601 Seminar in Language Revitalization**

3 Credits

Offered As Demand Warrants

Language teaching and acquisition strategies appropriate to under-documented and less commonly taught languages. Students write an applied research proposal related to local language endangerment issues and strategies for improving teaching either at the school or community level. Emphasis on students' class presentation and research ideas.

Prerequisites: LING F450; ANTH F451 or LING F601.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F608 Indigenous Knowledge Systems**

3 Credits

Offered Fall

A comparative survey and analysis of the epistemological properties, world views and modes of transmission associated with various Indigenous knowledge systems. Emphasis on knowledge systems practiced in Alaska.

Prerequisites: Graduate standing.

Cross-listed with CCS F608; ED F608; RD F608.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANL F651 Topics in Athabaskan Linguistics**

3 Credits

Offered As Demand Warrants

Graduate level introduction to important topics in Athabaskan linguistics, including both foundational literature and current research. Topics may include laryngeal features; tonogenesis; syntax-morphology interface; argument structure; lexical semantics; and discourse.

Prerequisites: LING F601; graduate standing.

Recommended: LING F603; LING F604.**Cross-listed with** LING F651.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**ANL F690 Seminar in Cross-Cultural Studies**

3 Credits

Offered Fall

Investigation of current issues in cross-cultural contexts. Opportunity for students to synthesize prior graduate studies and research. Seminar is taken near the terminus of a graduate program.

Prerequisites: Advancement to candidacy; permission of student's graduate committee.

Cross-listed with CCS F690; ED F690; RD F690.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits

ANL F698 Non-thesis Research/Project

1-9 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ANL F699 Thesis**

1-9 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Alaska Native Studies (ANS)

College of Rural and Community DevelopmentDepartment of Alaska Native Studies and Rural Development (<https://www.uaf.edu/dansrd/>)

907-474-6528 or toll-free 1-866-478-2721

ANS F100 Preparing for College and Student Success

1 Credit

Offered As Demand Warrants

Presentations on time and financial management, test-taking strategies, study techniques, UAF and community resources, GPA calculation, UAF catalog information, core requirements and goal-setting. Provides students with the information and skills necessary for a successful UAF experience. Instruction by the staff of Rural Student Services. Native leaders as guest speakers.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ANS F101 Introduction to Alaska Native Studies (an, h)**

3 Credits

Offered Fall

Introductory information on the Alaska Native community. Overview of significant Native issues. Review of pertinent literature and resources.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F111X History of Colonization in Alaska: The Indigenous Response (an, s)**

3 Credits

Offered Fall and Spring

The history of the colonization of Alaska from contact to the signing of the Alaska Native Claims Settlement Act in 1971. This course examines Alaska history, how colonization and federal Indian policy shaped the state and some of the ways that Alaska Natives responded to and dealt with the changes.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F112 Alaska Native Claims Settlement Act: Land Claims in the 21st Century (an)**

1 Credit

Offered Fall

Familiarize students with the land claims process and important Alaska Native Claims Settlement Act content, with focus on contemporary situations and explanation of land claims processes ongoing or recently completed in locations outside Alaska.

Cross-listed with RD F110.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F113 Alaska Natives, Indigenous Peoples and International Laws (an)**

1 Credit

Offered As Demand Warrants

Familiarize students with international law and its importance for Indigenous Peoples. Special emphasis on international legal instruments of importance for Alaska Natives.

Cross-listed with RD F113.**Lecture + Lab + Other:** 1.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F114 Alaska Natives, Indigenous Peoples and North American Legal Systems (an)**

1 Credit

Offered As Demand Warrants

Familiarize students with domestic law and its effects on Indigenous Peoples' governance in the United States. Emphasis on Alaska Natives and the relationship between Tribal legal systems and state and federal governments. Examination of how law is made and why Tribal laws differ from those in neighboring jurisdictions.

Cross-listed with RD F114.**Lecture + Lab + Other:** 1.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F150 Topics in Alaska Regional Cultural History (an, s)**

3 Credits

Offered As Demand Warrants

Cultural history of the peoples of a selected region of Alaska, which will vary depending on demand and instructor expertise. Methods including physical anthropology, ethnohistory, linguistics, archaeology, social anthropology, ethnography, ecology and climatology will be used. Includes the issues of culture-change due to Alaska Native and Euro-American contacts.

Prerequisites: Recommended: ANS F242X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits**ANS F160 Alaska Native Dance (an, h)**

1 Credit

Offered As Demand Warrants

Traditional Native Alaskan dancing, singing and drumming of songs from Alaska's major Indigenous groups taught by guest Native Elders and dancers. If there is sufficient interest, a dance group will be assembled using class members for spring presentations primarily in the Fairbanks area, including the Festival of Native Arts.

Lecture + Lab + Other: 0 + 2 + 0**Grading System:** Pass/Fail Grades

ANS F161X Introduction to Alaska Native Performance (an, h)

3 Credits

Offered As Demand Warrants

For Native and non-Native students with no prior acting or theatre experience. Includes both academic and practical components to examine traditional Alaska Native theatre, mythology, ritual, ceremony and performance methods. Application of exercises and developmental scenes drawn from Alaska Native heritage.

Cross-listed with FLPA F161X.**Attributes:** UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F202X Aesthetic Appreciation of Alaska Native Performance** (an, h)

3 Credits

Offered Fall

Understanding and application of the cultural principles of Alaska Native oral narrative performances. Topics are arranged by the five broad Alaska Native regions and include lectures on culture, principles of visual arts analysis of oral narratives, musical expression and hands-on involvement in Alaska Native theatrical arts.

Prerequisites: Placement in WRTG F111X.**Attributes:** UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F223X Alaska Native Music** (an, h)

3 Credits

Offered Spring

Introductory course devoted to the study of Indigenous musical cultures throughout Alaska and neighboring regions. Emphasis on musical systems in terms of their respective sounds and their relationship to culture and society, cross-cultural comparisons and a focus on both past and present musical styles.

Cross-listed with MUS F223X; ACNS F223X.**Attributes:** UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F225 Applied Communication Skills**

3 Credits

Offered Fall

Oral and written communications for rural development practitioners. In this course, students will practice four types of oral and written communications: business presentations and business and technical writing; academic presentations and writing; policy presentations and legal and policy writing; and presenting and writing for community audiences.

Prerequisites: COM F131X or COM F141X; WRTG F111X.**Cross-listed with** RD F225.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F242X Indigenous Cultures of Alaska** (an, s)

3 Credits

Offered Fall and Spring

The term Alaska Natives is used to refer to a broad spectrum of Alaska's Indigenous population, living in diverse geographic regions and each culturally distinct. Each cultural region has its own unique history, language, culture(s), political landscapes, and experiences. This course is intended to provide a broad overview of Alaska's first peoples.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F245 Fisheries and Marine Wildlife Development in Rural Alaska** (an, s)

3 Credits

Offered As Demand Warrants

Introduction to fisheries development issues in rural Alaska communities, including basic concepts, strategies and contemporary cases. Topics include management of salmon and other fisheries, community development quotas, and sustainable development efforts.

Prerequisites: WRTG F111X.**Cross-listed with** RD F245.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F250 Current Alaska Native Leadership Perspectives** (an, s)

3 Credits

Offered As Demand Warrants

Prominent leaders in the Native community are brought into direct classroom contact with students to discuss important issues in rural Alaska and the larger Native community.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F251 Practicum in Alaska Native Cultural Expression** (an)

1-3 Credits

Offered Fall and Spring

Provides individual supervised activities in the formal organization, promotion and expression of Alaskan Native cultural heritage. May be repeated to a maximum of three credits.

Prerequisites: Permission of the department head.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ANS F268 Alaska Native Art Studio I** (an, h)

3 Credits

Offered Fall and Spring

Studio art course exploring the practice of traditional and contemporary Alaska Native art forms; including design, technology, and cultural expression. Rooted in experiential learning, students will learn by creating and utilizing tools specific to Alaska Native cultures. A strong emphasis will be placed on gaining technical skills and traditional knowledge.

Cross-listed with ART F268.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus

ANS F300 Alaska Native Writers Workshop (an, h)

3 Credits
Offered Fall

Four writing methods essential to communication for Alaska Native Studies students. Emphasis on the student's development of composition abilities in a variety of Native and Western forms. Publication of student work a possibility.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F310 Alaska Native and Comparative Indigenous Land Settlements (an, s)

3 Credits
Offered As Demand Warrants

Alaska Native corporation goals and methods as they implement the Alaska Native Claims Settlement Act and establish themselves within the larger political economy. An examination of other Indigenous land claims agreements in the circumpolar north and beyond.

Prerequisites: ANS F242X or PS F263 or ANS F111X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F315 Tribal People and Development (an, s)

3 Credits
Offered As Demand Warrants

Impact of socioeconomic development processes on tribal peoples in less developed world societies. Implications of these processes for Alaska Native people.

Prerequisites: Junior standing.

Cross-listed with RD F315.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F325 Alaska Native and Comparative Tribal Self-Government (an, s)

3 Credits
Offered As Demand Warrants

Indigenous political systems, customary law and justice in Alaska emphasizing the organization of Alaska Native governance under federal Indian law and Alaska state-chartered local government. Comparisons between Alaska Native political development and those of tribes in the contiguous 48 states and northern hemisphere tribal people.

Prerequisites: ANS F111X, PS F263, TG F201.

Cross-listed with PS F325.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F329 Indigenous Alaska Native Language and Culture Revitalization (an)

3 Credits
Offered Spring Odd-numbered Years

The course will focus on contemporary issues, principles and practice models in the revival maintenance and revitalization of Indigenous languages and cultures in Alaska and from an international perspective. A variety of language revitalization approaches and methods will be considered, including linguistic documentation, teaching language courses, immersion and master-apprentice programs.

Prerequisites: ANS F242X, WRTG F111X; Junior Standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F340 Contemporary Indigenous Literature in North America (h)

3 Credits
Offered Fall

Contemporary Indigenous literature in North America including novels, short stories, poetry, film, audio expression and genre-fluid texts. Works will be discussed in their cultural contexts and explore connecting themes such as historical trauma, survivance, resurgence and decolonization.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Cross-listed with ENGL F340.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F341 Community Research Toolbox

3 Credits
Offered Spring

Community research approaches and techniques. Emphasis on the role and need for community-based research and associated ethical issues. Students use a hands-on approach to learn about research techniques, including interviewing, surveying and utilizing existing data in support of community-based research. Emphasizes academic writing and communicating with community audiences.

Prerequisites: RD F225.

Cross-listed with RD F340.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F347 Voices of Native American Peoples (h)

3 Credits
Offered Spring Even-numbered Years

Exploration of the forms by which Native American peoples have narrated their life experiences. Includes oral narratives, written autobiographies, memoirs and speeches, and an introduction to the social, historical and cultural content surrounding these texts. Readings selected from all of North America with an emphasis on Alaska Natives.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.

Cross-listed with ENGL F347.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F348 Native North American Women (s)

3 Credits
Offered As Demand Warrants

Interdisciplinary examination of the relationship between Native American women and their social settings and cross-cultural experiences. Includes issues of political, economic and social solutions as employed by women in a large multi-ethnic nation-state.

Prerequisites: ANS F101; ANTH F100X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SOC F101X.

Cross-listed with WGS F348.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F349 Narrative Art of Alaska Native Peoples (in English translation) (an, h)

3 Credits

Offered Fall Even-numbered Years

Traditional and historical tales by Aleut, Eskimo, Athabascan Eyak, Tlingit, Haida and Tsimshian storytellers. Bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Cross-listed with ENGL F349.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F350 Cross-cultural Communication: Alaska Perspectives (an, s)

3 Credits

Offered Spring Odd-numbered Years

Cultural influences on communication patterns. Examines how misunderstandings may develop from differently organized ways of speaking and thinking when cultures come in contact. Alaskan focused, with its diversity of cultures and languages, as a microcosm for examining these issues, particularly as they affect Native and non-Native communication in institutional settings.

Prerequisites: COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F351 Advanced Practicum in Alaska Native Cultural Expression (an)

1-3 Credits

Offered Fall and Spring

Individual supervised activities in advanced organization, promotion and expression of Alaskan Native cultural heritage projects (Festival of Native Arts leadership, Theater magazine, etc.). Continuation of ANS F251.

Prerequisites: Junior standing.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 3 times for up to 3 credits

ANS F360 Advanced Alaska Native Dance (an, h)

1 Credit

Offered Fall and Spring

Advanced Alaska Native dance techniques with emphasis on the cultural meanings of the performance.

Prerequisites: ANS F160.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

ANS F361 Advanced Alaska Native Performance (an, h)

3 Credits

Offered As Demand Warrants

In-depth study of Alaska Native theatre techniques and tradition, including traditional dance, song and drumming techniques, mask characterizations and performance application and presentation of a workshop production developed by the students during the semester.

Prerequisites: ANS F161X, FLPA F161X.

Cross-listed with FLPA F361.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F365 Alaska Native Art History (an, h)

3 Credits

Offered Spring Even-numbered Years

The material culture of Alaska Native people from pre-colonial times to the present. Students will explore the effects of colonialism on the art forms of different Alaska Native cultural groups. Students will have an opportunity to contribute to the ongoing histories of Alaska Native art through group research projects.

Prerequisites: Sophomore standing or higher.

Cross-listed with ANTH F365; ART F365.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F366 Northwest Coast Indian Art (h)

3 Credits

Offered As Demand Warrants

Arts of the Northwest Coast Indians and the place of art in their culture.

Cross-listed with ANTH F366; ART F366.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F367 Inuit Art (an, h, s)

3 Credits

Offered Fall

Indigenous art from Northern Alaska, Canada, Greenland and the Bering Strait region of Russia, from the earliest known to contemporary.

Cross-listed with ANTH F367; ART F367.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F368 Alaska Native Art Studio II (an, h)

3 Credits

Offered Fall and Spring

This course is a continuing exploration of the designs, technologies, and meanings of the diverse Alaska Native arts. Through the creative process, students will start examining the complex issues of creating art within a cultural context. A strong emphasis will be placed on developing a student's individual style.

Prerequisites: ANS F268 or ART F268.

Cross-listed with ART F368.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F375 Native American Religion and Philosophy (an, h)

3 Credits

Offered As Demand Warrants

Philosophical aspects of Native American world views. Systems of belief and knowledge, explanations of natural phenomena, relationship of humans to natural environment through ritual and ceremonial observances.

Recommended: PHIL F102X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F381 Indigenous World in Film (an, h)

3 Credits

Offered Spring Even-numbered Years

The history and appreciation of Indigenous films, with emphasis on Alaska Native contributions through select films, readings and guest speakers. Analysis of social impacts of portrayals and treatment of Indigenous peoples while learning to critically analyze films through understanding film techniques and terminology. Preview of film industry business and opportunities.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Recommended: ART F200X, MUS F200X, or FLPA F200X.

Cross-listed with FLPA F381.

Lecture + Lab + Other: 1.5 + 2-4 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F401 Cultural Knowledge of Native Elders (an, h)

3 Credits

Offered Fall

Study with prominent Native tradition-bearers in Native philosophies, values and oral traditions. Traditional knowledge elicited through the cultural heritage documentation process. Analysis of existing interactions between cultural traditions and contemporary American life as experienced by Native Elders.

Prerequisites: ANS F111X; ANS F242X; upper-division standing.

Cross-listed with RD F401.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F420 Alaska Native Education (an, s)

3 Credits

Offered Fall and Spring

School systems historically serving Native people, current efforts toward local control and the cross-cultural nature of this education. Field experience required.

Prerequisites: ANS F242X; junior standing.

Cross-listed with ED F420.

Stacked with ED F606.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F425 Federal Indian Law and Alaska Natives (an, s)

3 Credits

Offered Fall Odd-numbered Years

The special relationship between the federal government and Native Americans based on land transactions and recognition of tribal sovereignty. Federal Indian law and policy evolving from this relationship. Legal rights and status of Alaska Natives.

Prerequisites: PS F101X, TG F112, TG F201 or HIST F110X.

Recommended: PS F263.

Cross-listed with PS F425.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F435 Participatory Policy-making in Tribal, State and Federal Government

3 Credits

Offered Spring Even-numbered Years

This course analyzes the policy-making and lobbying processes of the American political system, with a focus on the relationship between tribes, U.S. Congress, federal agencies and the U.S. Supreme Court. Uses comparative case studies of national, state of Alaska and tribal issues, policies and laws impacting rural Alaskans.

Prerequisites: RD F300; senior standing.

Cross-listed with RD F435.

Special Notes: Recommended RD F110.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F450 Comparative Indigenous Rights and Policies (s)

3 Credits

Offered Spring Odd-numbered Years

Comparative approach to analyzing Indigenous rights and policies in different nation-state systems. Multiple countries and specific policy developments examined for factors promoting or limiting self-determination.

Prerequisites: Upper-division standing.

Cross-listed with PS F450.

Stacked with ACNS F657; PS F650.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F458 The Politics of Indigenous Identity (an)

3 Credits

Offered As Demand Warrants

Examines Indigenous identity from four different perspectives: legal, biological, cultural and self-identity. The course will be a journey of self-discovery for students as they research their discovery for students as they research their personal identities whether they be Indigenous identities or other identities.

Prerequisites: Upper-division standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F461 Native Ways of Knowing (an, h)

3 Credits

Offered Spring Odd-numbered Years

Focus on how culture and worldview shape who we are and influence the way we come to know the world around us. Emphasis on Alaska Native knowledge systems and ways of knowing.

Prerequisites: Upper-division standing.

Cross-listed with ED F461.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F465 Community Healing and Wellness (an)

3 Credits

Offered Fall

The history of education and the impact of religion and assimilation policies on the emotional and physical health of Alaska Natives and their communities. Traditional wellness issues and systems will also be researched from a global perspective.

Prerequisite: Junior standing.

Crosslisted with RD F465.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANS F467 Tribal Responses to Violence: Safety, Justice and Advocacy (an)

3 Credits

Offered Fall Odd-numbered Years

This course examines the crisis of violence against Native people and within Native communities. The role of sexual and other violence will be explored, impacts of trauma, legal and jurisdictional barriers and developments in victim-centered and restorative justice. Students will investigate response systems, relevant policies and issues, and develop solutions.

Prerequisites: Senior standing.**Stacked with** RD F667.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F468 Alaska Native Art Studio III** (an, h)

3 Credits

Offered Fall and Spring

Students will refine their artistic practice guided with in-depth mentorship from faculty. Through individualized study, students will continue their exploration and development of their artwork within a cultural context. Strong emphasis will be placed on the individual development of a body of artwork inspired by the cultures they draw from.

Prerequisites: ART F368.**Cross-listed with** ART F468.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 6 times for up to 18 credits**ANS F474 Applied Community Research**

3 Credits

Offered Fall

Development and preliminary groundwork for the rural development senior project. Students will develop a full prospectus and conduct preliminary research for their senior project to be completed in RD F475 Rural Development Senior Project.

Prerequisites: RD F340; RD F352; senior standing.**Crosslisted with** RD F474.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F475 Alaska Native Social Change** (an, s)

3 Credits

Offered As Demand Warrants

Tradition and change in Native social institutions in contemporary society. Methods of identifying and analyzing significant Native social change processes for public understanding.

Prerequisites: ANS F242X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANS F478 Alaska Native Studies Senior Thesis**

3 Credits

Offered Spring

This is a capstone course that allows students to draw together knowledge acquired in Alaska Native Studies courses to apply them to expand or extend students' knowledge or to develop a tangible product that benefits others.

Prerequisites: ANS F350; RD F474; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; senior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

American Sign Language (ASLG)

Community and Technical College

General Academic & Technical Programs (<https://www.ctc.uaf.edu/>)
907-455-2800

ASLG F101X American Sign Language I (h)

3 Credits

Offered As Demand Warrants

Visual-gestural language used by most deaf Americans. Acquisition of receptive and expressive conversational skills. Cultural aspects of everyday life experiences of deaf people.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ASLG F110 American Sign Language Practice** (h)

1 Credit

Offered As Demand Warrants

Skill development in use of American Sign Language. Conducted entirely in sign language with aspects of deaf culture included. All skill levels. May be repeated twice for credit.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ASLG F202X American Sign Language II** (h)

3 Credits

Offered As Demand Warrants

Expressive and receptive conversational skills. Understanding the culture that is an integral part of the language. Continuation of American Sign Language I.

Prerequisites: ASLG F101X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ASLG F203 American Sign Language III** (h)

3 Credits

Offered As Demand Warrants

Grammar, conceptual structure and lexical items of American Sign Language. Cultural awareness and expressive and receptive signing skills for communicating and understanding American Sign Language in diverse contexts. Continuation of ASLG F101X and ASLG F202X.

Prerequisites: ASLG F202X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ASLG F204 American Sign Language IV** (h)

3 Credits

Offered As Demand Warrants

Spontaneous and interactive use of American Sign Language. Grammar, structure and lexical components. Cultural aspects supporting communication in American Sign Language at an advanced level. A continuation of ASLG F203.

Prerequisites: ASLG F203.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ASLG F205 American Sign Language V (h)

3 Credits

Offered As Demand Warrants

Highly advanced analysis of American Sign Language, including classifiers, grammar and lexicon. Expanded receptive and expressive skill development based in extensive cultural knowledge of the Deaf community in America.

Prerequisites: ASLG F204.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ASLG F220 Deaf Culture**

3 Credits

Offered As Demand Warrants

Exploration of the Deaf-World through various lenses provided by multidisciplinary fields of anthropology, sociology, history and cultural studies. Students will be asked to inquire into the diversity, complexities and commonalities of deaf cultural experiences through rigorous questioning of fundamental issues pertaining to cultural practices, ideology, power, identity and heritage.

Prerequisites: WRTG F111X, ASLG F202X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ASLG F230 Deaf History**

3 Credits

Offered As Demand Warrants

Deaf history in America from 1800 to 1950, this course addresses the emergence, growth and survival of America's Deaf community. Topics include schools, labor, community ties, eugenics and organizations, students will learn the significance of the "Deaf" place as well as parallels with other minority groups and associated trends.

Prerequisites: WRTG F111X; ASLG F202X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ASLG F240 ASL Literature**

3 Credits

Offered As Demand Warrants

This course is designed as a thorough exploration of the literary traditions in the deaf community. Attention will be given to the unique face-to-face nature of signed literature and its numerous traditional forms. Students will become versed in the stylists, poetics and cultural contexts of signed literature in its live as well as video-text formats.

Prerequisites: WRTG F111X; ASLG F202X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ASLG F260 ASL Lab**

1 Credit

Offered As Demand Warrants

Skill development and refinement in both expressive and receptive ASL and the grammar of ASL through structured activities which will supplement what is learned in ASLG F202 each week. Conducted entirely in Sign Language.

Prerequisites: ASLG F202X (may be taken concurrently).**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Pass/Fail Grades

Anthropology (ANTH)

College of Liberal ArtsDepartment of Anthropology (<https://www.uaf.edu/anthro/>)

907-474-7288

ANTH F100X Individual, Society and Culture (s)

3 Credits

Offered Fall and Spring

An examination of the complex social arrangements guiding individual behavior and common human concerns in contrasting cultural contexts.

Prerequisites: Placement in WRTG F111X.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F101X Introduction to Anthropology (s)**

3 Credits

Offered As Demand Warrants

Human societies and cultures based on the findings of the four subfields of the discipline: archaeological, biological, cultural and linguistic.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F102 Introduction to Ethnobotany (an)**

3 Credits

Offered Summer

This blended online and hands-on course surveys concepts of botany and ethnobotany in the context of Alaska Native cultures, including: plant biology and taxonomy, scientific and ethnobotanic plant collection methods, traditional plant uses (working with Alaska Native Elders), and how the resulting ethical awareness contributes to other fields of study.

Cross-listed with EBOT F100.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F105 Introduction to the History and Culture of the Seward Peninsula**

1 Credit

Offered As Demand Warrants

Cultural history of the Seward Peninsula peoples for the last 10,000 years using physical anthropology, ethnography, ethnohistory, linguistics, archaeology, ecology and climatology. Eskimo and Euroamerican cultures which have existed in western Alaska.

Cross-listed with HIST F105.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F111X Ancient Civilizations (s)**

3 Credits

Offered Fall

Major civilizations of the Old and New World from a comparative, anthropological perspective. Antecedents and influences of these civilizations on their neighbors. Economics, science, religion and social organization of these civilizations.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F211X Fundamentals of Archaeology (s)**

3 Credits

Offered Fall

Methods and techniques of archaeological field and laboratory research.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

ANTH F214 World Prehistory (s)

3 Credits

Offered Spring Even-numbered Years

Explores the archaeological evidence from the Old and New Worlds for the development of human culture, from the very beginning of humankind to the rise of ancient urban societies.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F215 Fundamentals of Social/Cultural Anthropology (s)**

3 Credits

Offered Spring

Introduction to the basic concepts, subfields and techniques of social/cultural anthropology. Includes non-Western and Western ethnographic topics, and discussion of career options.

Recommended: ANTH F211X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F220 Research Methods for Ethnobotanists**

2 Credits

Offered Fall

Provides skills and knowledge for conducting research about human-plant relationships; focuses on interviewing Elders about plant use and introduces to qualitative and quantitative research methods in ethnobotanical research and documentation of knowledge and practices, e.g. plant collection, participant observation and data analysis; addresses decolonizing methodology and Indigenous knowledge revitalization.

Cross-listed with EBOT F220.**Lecture + Lab + Other:** 1.5 + 0 + 1.5**Grading System:** Letter Grades with option of Plus/Minus**ANTH F221 Fundamentals of Biological Anthropology (n)**

3 Credits

Offered Fall

Survey of genetics, evolutionary mechanisms, adaptation, primate studies, the human fossil record and human variation. Provides a basic understanding of humans from a biological, evolutionary and temporal perspective.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F223 Sociolinguistics: Language and Social Inequality**

3 Credits

Offered As Demand Warrants

An Introduction to the concepts and methods of linguistic anthropology and sociolinguistics. It draws from these disciplines to investigate the role of language variation in social inequality. Covers concepts including language varieties, speech styles, language ideologies, the creation of standard languages and portrayals of ethnolinguistic groups in media.

Prerequisites: ANTH F100X or LING F101X.**Cross-listed with** LING F223.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F225 Anthropology and Race (s)**

3 Credits

Offered As Demand Warrants

Building on four-field anthropological practice, students in this course will study social concepts of race, racism, and the construction of racial hierarchies from historical and contemporary perspectives across cultures. Students will also learn to differentiate social concepts of race from the scientific study of human variation.

Prerequisites: ANTH F100X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F230 Cultural Perspectives on Storytelling (h)**

3 Credits

Offered As Demand Warrants

Study and collection of folklore and oral history. Importance of oral tradition in human communication and the advantages and disadvantages of recording and studying it. Sociocultural anthropology and anthropological linguistics in relation to oral traditions. Methods of folklorists, historians and academicians. Field project required.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F242 Native Cultures of Alaska (an, s)**

3 Credits

Offered Fall and Spring

The traditional Aleut, Eskimo and Indian (Athabascan and Tlingit) cultures of Alaska. Eskimo and Indian cultures in Canada. Linguistic and cultural groupings, population changes, subsistence patterns, social organization and religion in terms of local ecology. Pre-contact interaction between groups.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F254 Applied Ethnobotany Fall**

2 Credits

Offered Fall

This is the fall section of a year-round course cycle consisting of two non-sequential courses that explore the seasonally appropriate cultural uses of plants. Students will deepen their understanding of human-plant relationships through individual hands-on projects, which will guide them into further studies in ethnobotany and related disciplines.

Cross-listed with EBOT F250.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F255 Applied Ethnobotany Spring**

2 Credits

Offered Spring

This is the spring section of a year-round course cycle consisting of two non-sequential courses that explore the seasonally appropriate cultural uses of plants. Students will deepen their understanding of human-plant relationships through individual hands-on projects, which will guide them into further studies in ethnobotany and related disciplines.

Cross-listed with EBOT F251.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ANTH F260 Fundamentals of Linguistic Anthropology: Language in Culture and Communication (s)

3 Credits

Offered Spring

An introduction to the study of the language and culture nexus. Questions addressed include: How does the language you speak affect how you think and view the world? How do ways of speaking structure culture? What do we know about how human language evolved? How does language encode cultural meaning?

Prerequisites: ANTH F100X, ANTH F101X, ANTH F215, SOC F101X or LING F101X.

Cross-listed with LING F260.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F301 World Ethnography (s)

3 Credits

Offered As Demand Warrants

Survey of ethnographic research on peoples and cultures of selected geographic regions of the world, in both historical and contemporary perspective. Content of the course varies and is contingent on available faculty expertise. Course may be repeated once for credit when content varies.

Prerequisites: ANTH F100X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F302 Siberia: Past, Present, Future (s)

3 Credits

Offered As Demand Warrants

Survey of anthropological research on peoples and cultures of Siberia and the Russian Far East. This includes sections on colonial histories as well as a major focus on contemporary lives and future prospects. While the emphasis is on the Indigenous peoples of Siberia, settler populations will be discussed as well.

Prerequisites: ANTH F100X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F305 Culture, Health and Healing (s)

3 Credits

Offered As Demand Warrants

An examination of culturally diverse meanings, behaviors, experiences and therapeutic systems associated with health and healing from the perspective of medical anthropology. Includes sections on prehistory and evolutionary medicine, but focuses primarily on contemporary ethnographic health studies from around the world. The course is available via eCampus.

Prerequisites: WRTG F111X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F308 Language and Gender (s)

3 Credits

Offered As Demand Warrants

Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; LING F101X, LING F216X, ANTH F100X, ANTH F101X or WGS F201X.

Cross-listed with LING F308; WGS F308.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F309 Circumpolar Archaeology (s)

3 Credits

Offered Fall Odd-numbered Years

Archaeology of the circumpolar world from initial occupations through the historic period. Cultural and chronological variability in human adaptation to high latitudes. Causes and consequences of population movement, environmental change and cultural interaction in the Old and New World, as understood through archaeology.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F315 Human Biological Variation (n)

3 Credits

Offered As Demand Warrants

Biology of recent and modern human populations, including systematics, behavior, ecology and inter- and intrapopulation genetic and morphological variations. Human adaptations to heat, cold, high altitudes and changing nutritional and disease patterns. Human skeletal biology, including metrical and non-metrical variation, aging and sexing skeletal remains, and paleopathology.

Prerequisites: ANTH F221 or BIOL F103X.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F320 Language and Culture in Alaska (s)

3 Credits

Offered As Demand Warrants

Course surveys relationships between language, culture, and society with special focus on languages and cultures of Alaska. We review the study of linguistic anthropology, consider cultural variation in socialization to language, multilingualism, language change, language shift, cultural variation in conversational practices and relationships between language and identity (gender, ethnicity, nationalism).

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; LING F101X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F336 Ethnomycology (s)

3 Credits

Offered Spring

An integrated perspective of humanities and social sciences on human-fungi relationships, with concentration on the role of mushrooms in food, medicine, art, commerce, spirituality, and recreation in societies around the world, past and present. Mushroom harvesting in communities around Alaska is one of the extensively covered topics.

Prerequisites: EBOT F100 or ANTH F100X.

Cross-listed with EBOT F336.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F352 Native Peoples of North America (s)

3 Credits

Offered As Demand Warrants

An introduction to the Native inhabitants of North America from their initial appearance on the continent during the late Pleistocene to European contact. The course provides a cross-cultural examination of the social, political, economic and religious aspects of the traditional lifeways of these Native peoples prior to their protohistoric destabilization.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F360 Indigenous Art and Culture (h)

3 Credits

Offered As Demand Warrants

Examination of art as a medium of cultural criticism, knowledge, wisdom, learning, and expression of social, spiritual, ecological, and aesthetic relationships in Indigenous societies of North, Central and South America, Africa, Eurasia, Australia and Oceania, and the Arctic.

Cross-listed with ART F360.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F365 Alaska Native Art History (an, h)**

3 Credits

Offered Spring Even-numbered Years

The material culture of Alaska Native people from pre-colonial times to the present. Students will explore the effects of colonialism on the art forms of different Alaska Native cultural groups. Students will have an opportunity to contribute to the ongoing histories of Alaska Native art through group research projects.

Prerequisites: Sophomore standing or higher.**Cross-listed with** ANS F365; ART F365.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F366 Northwest Coast Indian Art (h)**

3 Credits

Offered As Demand Warrants

Arts of the Northwest Coast Indians and the place of art in their culture.

Cross-listed with ANS F366; ART F366.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F367 Inuit Art (an, h, s)**

3 Credits

Offered Fall

Indigenous art from Northern Alaska, Canada, Greenland and the Bering Strait region of Russia, from the earliest known to contemporary.

Cross-listed with ANS F367; ART F367.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F370 Virtual Ethnographic Field School**

3 Credits

Offered As Demand Warrants

This asynchronous class offers a virtual ethnographic "field school" experience. It features authentic multimedia data collected in Alaska. Students get hands-on practice with methods and analytic techniques that include: participant observation, semi-structured interviews, linguistic analysis, multimodal interaction analysis, spatial mapping, visual/semiotic analysis, etc.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F383 History and Cultures of Northern Dené (an, s)**

3 Credits

Offered As Demand Warrants

Contemporary conditions and traditional heritage of the Dené (Athabaskan) populations of Alaska and Canada. Impact of cross-cultural interactions and participation in global processes.

Prerequisites: ANTH F242.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F384 History of Anthropology**

3 Credits

Offered Fall

Major theoretical approaches in anthropology chronologically from formulation of the discipline of anthropology to current theory. Nature of the discipline, its goals and methods, and the relevance of theoretical perspectives to interpretations in anthropology.

Prerequisites: ANTH F215.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F389 Klingon, Elvish and Dothraki: The Art and Science of Language Creation (s)**

3 Credits

Offered As Demand Warrants

Exposure to linguistics and linguistic anthropology through inventing a language. The range of human linguistic and cultural variation will inform design of the sound system, grammar, orthography, lexicon and cultural context for the language. The class as a whole will collaboratively create a basic ConWorld, lexicon, grammar and writing system.

Prerequisites: WRTG F111X; one semester of foreign language; ENGL F318, LING F101X, LING F223 or ANTH F260.**Cross-listed with** LING F389.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F401 Birth Across Cultures (s)**

3 Credits

Offered As Demand Warrants

Consideration of childbirth in cross-cultural perspective, including how birth is shaped by personal and cultural meanings at the same time that it is embedded in local, national, and transnational relations of political and economic power and social hierarchies based on gender, class, and ethnicity.

Prerequisites: ANTH F100X, ANTH F101X, SOC F101X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F402 Anthropology of Art (s)**

3 Credits

Offered As Demand Warrants

Anthropological study of art in cross-cultural perspective. Social context of art production and use and cross-cultural variations in definition of an artist's role.

Prerequisites: Senior standing.**Cross-listed with** ART F402.**Stacked with** ANTH F602, ART F602.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F403 Political Anthropology (s)**

3 Credits

Offered As Demand Warrants

Political systems and the law. Case studies from nonindustrial societies, developing nations and parapolitical systems or encapsulated societies, such as Native peoples in the U.S. Political structures and institutions; social conflict, dispute settlement, social control and the law, political competition over critical resources; and ethnicity.

Prerequisites: ANTH F215; COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Stacked with** ANTH F603.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ANTH F405 Archaeological Method and Theory (s)

3 Credits

Offered Spring Even-numbered Years

Archaeological methods and analysis as the framework for different perspectives in archaeology. Application to specific research problems.

Prerequisites: ANTH F211X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Stacked with ANTH F605.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F407 Kinship and Social Organization (s)

3 Credits

Offered Spring Odd-numbered Years

Forms of relatedness in diverse sociocultural systems. Principles of organizing individuals into social groups and roles. Forms and functions of family, marriage, incest taboo around the world. Classical and new approaches to the study of kinship; alliance theory, symbolic kinship, kinship and gender, the substance of kinship, kinship and biotechnology.

Prerequisites: ANTH F215.

Stacked with ANTH F607.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F409 Anthropology of Religion (s)

3 Credits

Offered Fall Odd-numbered Years

Religion or supernatural belief from the perspective of anthropology. Religion in the context of circumpolar societies as well as a global phenomenon. Religious practitioners, ritual, belief systems and the relationship of religious phenomena to other aspects of social life. New relational and cognitive approaches to the study of religion.

Prerequisites: ANTH F100X; ANTH F215.

Stacked with ANTH F609.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F411 Senior Seminar in Anthropology (s)

3 Credits

Offered Spring

The integrated nature of anthropological inquiry. Includes a four-field approach to anthropology in a discussion-intensive setting. Student may focus on an interdisciplinary theme or a topic other than their own specialization.

Prerequisites: COM F131X or COM F141X, Anthropology major with senior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F412 Human-environment Research Methods

3 Credits

Offered Fall Even-numbered Years

Basic overview of qualitative and quantitative social science methods for studying human-environment relationships. Introduction to research ethics, research design, data collection, data analysis and data reporting. Methods and data analysis techniques include interviews, text analysis, surveys, scales, cognitive anthropology and ethnoecology, social networks, behavioral observation and visual methods.

Prerequisites: COM F131X or COM F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; upper level standing.

Cross-listed with FISH F412.

Stacked with FISH F613.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F415 Zooarchaeology and Taphonomy

3 Credits

Offered Fall Even-numbered Years

Identification of bones, how vertebrate bone remains may be used to study archaeological site formation processes, site organization, subsistence practices and animal procurement strategies. Preservation in modern depositional environments, paleoecology, vertebrate mortality profiles and demographic structure, site seasonality, bone breakage, taphonomy and faunal remains, and human land use practices.

Prerequisites: ANTH F211X.

Stacked with ANTH F628.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F422 Human Osteology

4 Credits

Offered Fall Odd-numbered Years

Growth, development and alteration of the human skeleton. Determination of age, sex, stature and genetic ancestry from bones and teeth. Skeletal remains for diagnosis of disease and identification of cultural practices.

Prerequisites: ANTH F221.

Stacked with ANTH F625.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F423 Human Origins (s)

4 Credits

Offered Spring Odd-numbered Years

Analysis of the hominoid fossil record from the early Miocene to the beginning of the Holocene. Examination of comparative hominoid and hominin skeletal and dental anatomy, systematics and long-term bio-behavioral adaptations, including biomechanical changes and technocultural innovations. Consideration of cultural and historical biases in interpretation of the human fossil record.

Prerequisites: ANTH F221 and ANTH F422; Junior standing.

Stacked with ANTH F623.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F424 Analytical Techniques

3 Credits

Offered Fall Even-numbered Years

Classification, sampling, collection and analysis of anthropological data: parametric and nonparametric significance tests and measures of association, analysis of frequency data, estimating resemblance using multiple variables, computer simulations and analysis.

Prerequisites: ANTH F211X or ANTH F221; any college level mathematics course.

Stacked with ANTH F624.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F426 Bioarchaeology (n)

3 Credits

Offered Spring Even-numbered Years

Innovative methods for studying past interactions between biological and cultural factors, as revealed through human and faunal skeletal and plant remains. From these data sources, health, diet, social organization and interactions and life histories of past populations, as well as the environments in which they lived, are reconstructed and examined.

Prerequisites: ANTH F211X; ANTH F221.**Stacked with** ANTH F626.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F427 Anthropology of Death (s)**

3 Credits

Offered As Demand Warrants

Consideration of the "death experience" as manifested in mortuary practices. Theoretical approaches and ethnographic field studies related to commemoration and integration of death into the social relationships experienced in daily life. Their use for constructing analogies to interpret social behavior of members of past populations from archaeologically derived funerary remains.

Prerequisites: ANTH F100X; ANTH F211X; ANTH F215 or ANTH F101X; WRTG F211X, WRTG F212X or WRTG F213X.**Stacked with** ANTH F627.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F428 Ecological Anthropology (n)**

3 Credits

Offered As Demand Warrants

Biological, environmental and cultural factors and their interplay in defining the human condition, with examples from the Arctic and other populations.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F432 Field Methods in Descriptive Linguistics I (h)**

3 Credits

Offered As Demand Warrants

Introduction to issues in field linguistics and specific issues around documenting little studied and endangered languages. Focus on making recordings, transcription, elicitation with consultants and ethics in the field. Projects build up to documenting an unfamiliar language with a consultant and designing and carrying out a research project.

Prerequisites: LING F318; LING F320.**Cross-listed with** LING F431.**Stacked with** ANTH F632; LING F631.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F434 Field Methods in Descriptive Linguistics II**

3 Credits

Offered As Demand Warrants

Second semester of Field Methods sequence. Planning a field project, including selecting a field site, making community contacts, intellectual property and repatriation. In class group elicitation with a speaker of a non-Indo-European language. Projects may involve either work with a consultant or archival research on languages no longer spoken.

Prerequisites: LING F431, ANTH F432.**Cross-listed with** LING F434.**Stacked with** LING F634; ANTH F634.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F435 Political Media and Discourses of the American Right (s)**

3 Credits

Offered As Demand Warrants

This class uses "hands-on" discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts.

Prerequisites: COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Cross-listed with** COM F435; LING F435.**Stacked with** LING F635; COM F635; ANTH F635.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F445 Gender in Cross-cultural Perspective (s)**

3 Credits

Offered As Demand Warrants

Gender is examined as both cultural construction and social relationship through studies that explore gender diversity, roles, experiences, and expressions in a broad variety of societies and contexts, past and present. Includes a range of theoretical and methodological approaches in anthropology for exploring and understanding gender cross-culturally.

Prerequisites: ANTH F215 or WGS F201X.**Cross-listed with** WGS F445.**Stacked with** ANTH F645.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F446 Economic Anthropology (s)**

3 Credits

Offered Fall Even-numbered Years

Relationships between economic and other social relations. Pre-industrial societies. Relevance of formal economics to small-scale societies and developing nations. Exchange, formal and substantive economics, market economics, rationality, political economy and the economics of development.

Prerequisites: A cultural anthropology class.**Stacked with** ANTH F646.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ANTH F450 Language Policy and Planning (s)

3 Credits

Offered Fall Odd-numbered Years

Consideration of minority languages, including Alaskan Native Languages, in light of their histories, current status, and factors affecting future maintenance.

Prerequisites: COM F131X or COM F141X.**Cross-listed with** LING F450.**Stacked with** LING F650; ANTH F654.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F451 Quaternary Seminar**

3 Credits

Offered As Demand Warrants

Discussion of the Quaternary Period (relatively recent past – spanning the past two million years) in order to gain a better understanding of the landscape, biota and climate of the present day. Quaternary studies are concerned with the historical dimension of the natural sciences.

Prerequisites: GEOS F315; GEOS F304; GEOS F322.**Cross-listed with** GEOS F452.**Stacked with** ANTH F651; GEOS F651.

Special Notes: Topics range widely over diverse interdisciplinary subjects of quaternary interest, such as paleoclimatology, paleobiogeography, vertebrate paleontology and sedimentology.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F460 Cross-cultural Filmmaking (h)**

3 Credits

Offered As Demand Warrants

Explore filmmaking through cultural knowledge, decolonized methodologies, and documentary filmmaking techniques to create content reflective of cultural and/or scientific knowledge. Develop film work with a theoretical base for cultural understanding, scientific communications, and educational potentials. Basic pre-production, production, and post-production processes will be explored within a multi-cultural communications framework.

Prerequisites: Junior, senior or graduate standing.**Cross-listed with** ART F460; FLPA F460.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F465 Geoaerchaeology**

3 Credits

Offered As Demand Warrants

Geological context of archaeological sites and the geologic factors that affect their preservation, with emphasis on Alaska. Includes a one or two-day weekend field trip in late April or early May.

Prerequisites: GEOS F101X, an introductory course in archaeology.**Cross-listed with** GEOS F465.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F470 Oral Sources: Issues in Documentation (h)**

3 Credits

Offered Fall Even-numbered Years

Preparation for recording and use of oral resources. Examines how meaning is conveyed through oral traditions, personal narratives, the issues involved with recording and reproducing narratives. Includes management of oral recordings, ethical and legal considerations, issues of interpretation and censorship, and the use of new technologies to deliver recordings.

Prerequisites: At least one undergraduate ANTH course and one undergraduate HIST course.**Cross-listed with** ACNS F470.**Stacked with** ANTH F670; ACNS F670.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F472 Culture and History in the North Atlantic (s)**

3 Credits

Offered Spring Odd-numbered Years

Ancient Norse culture and society. Includes readings of Old Norse poetry and Icelandic sagas in translation, with secondary analyses and archaeological background. Includes Greenlandic myths and contemporary ethnographic accounts of Iceland, Greenland and the Faroe Islands.

Prerequisites: ANTH F100X.**Recommended:** ANTH F215.**Stacked with** ANTH F672; ACNS F672.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F482 Anthropology of Energy (s)**

3 Credits

Offered As Demand Warrants

Advanced introduction to the anthropology of energy. Includes both a historical anthropological overview of the development of the modern concept of energy, a culturally comparative perspective on the use and conceptualization of energy and study of the cultural ways in which energy is collectively used and contested.

Prerequisites: ANTH F215.**Stacked with** ANTH F682.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F485 Discourse in Society: Analyzing Language in Social Context (s)**

3 Credits

Offered Fall Odd-numbered Years

Hands-on experience in collection, transcription and analysis of naturally-occurring written and spoken texts. Offers a critical introduction to contemporary usage-based theories of language structure, including cognitive, cultural and interactional explanations for the distribution of linguistic resources in discourse.

Prerequisites: LING F101X, ANTH F260 or ANTH F320.**Cross-listed with** LING F485.**Stacked with** ANTH F685, LING F685.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ANTH F486 Language and Power (s)

3 Credits

Offered Fall Even-numbered Years

Questions and frameworks that drive the study of the language and power nexus. Topics may include: the nature of power, the political economy of language, speech levels and registers, strategies of exclusion and inclusion, markedness, hegemony, linguistic ideology, racialized language varieties, political language, language and colonialism and neoliberal discourse.

Prerequisites: 6 credits in Linguistics or Anthropology at the 300-400 level or graduate student standing.

Cross-listed with LING F486.

Stacked with ANTH F686; LING F686.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F490 Archaeological Field School

6 Credits

Offered Summer

Introduction to practical and important elements of archaeological fieldwork including excavation, cataloging, mapping and other field survey techniques. Basic laboratory techniques include identifying cultural remains, cataloging finds and basic artifact analyses. Field trips will visit additional cultural sites, and evening lectures will include regional prehistory, history, geomorphology and ecology.

Prerequisites: ANTH F211X or equivalent introductory course in anthropology or archaeology.

Lecture + Lab + Other: 2 + 1 + 3

Grading System: Letter Grades with option of Plus/Minus

ANTH F492 Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 98 times for up to unlimited credits

ANTH F602 Anthropology of Art

3 Credits

Offered As Demand Warrants

Anthropological study of art in cross-cultural perspective. Social context of art production and use and cross-cultural variations in definition of an artist's role.

Prerequisites: Senior standing.

Stacked with ANTH F402; ART F402.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F603 Political Anthropology

3 Credits

Offered As Demand Warrants

Political systems and the law. Case studies from nonindustrial societies, developing nations and parapolitical systems or encapsulated societies, such as Native peoples in the U.S. Political structures and institutions; social conflict, dispute settlement, social control and the law, political competition over critical resources; and ethnicity.

Prerequisites: Graduate standing.

Stacked with ANTH F403.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F605 Archaeological Method and Theory

3 Credits

Offered Spring Even-numbered Years

Archaeological methods and analysis as the framework for different perspectives in archaeology. Application to specific research problems.

Prerequisites: ANTH F211X.

Stacked with ANTH F405.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F606 Folklore and Mythology: Anthropological Perspective

3 Credits

Offered As Demand Warrants

Intensive introduction to anthropological theory concerning oral traditions and the verbal arts. Attention is paid to classic historical approaches, but discussion of contemporary focus on context and performance is highlighted. Students will research topics of individual interest.

Prerequisites: Upper-division undergraduate anthropology course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F607 Kinship and Social Organization

3 Credits

Offered Spring Odd-numbered Years

Forms of relatedness in diverse sociocultural systems. Principles of organizing individuals into social groups and roles. Forms and functions of family, marriage, incest taboo around the world. Classical and new approaches to the study of kinship; alliance theory, symbolic kinship, kinship and gender, the substance of kinship, kinship and biotechnology.

Prerequisites: Graduate standing.

Stacked with ANTH F407.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F609 Anthropology of Religion

3 Credits

Offered Fall Odd-numbered Years

Religion or supernatural belief from the perspective of anthropology.

Religion in the context of circumpolar societies as well as a global phenomenon. Religious practitioners, ritual, belief systems and the relationship of religious phenomena to other aspects of social life. New relational and cognitive approaches to the study of religion.

Prerequisites: Graduate standing.

Stacked with ANTH F409.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F610 Northern Indigenous Peoples and Contemporary Issues

3 Credits

Offered Fall Odd-numbered Years

Applications of contemporary analytical perspectives in anthropology and related fields of humanities and social sciences to examine cultural vitality, social change, and local, regional, and global processes that are affecting and being addressed by northern Indigenous societies in Russia, Alaska, Canada, Greenland, Norway, Sweden, Finland, and Japan.

Prerequisites: Graduate standing or upper-division standing.

Cross-listed with ACNS F610.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F616 Anthropologic Background for Resilience and Adaptation

1 Credit

Offered Fall

Provides the anthropological background that is necessary for understanding the role of anthropology in complex systems involving interactions among biological, economic, and social processes. Designed for incoming students of the Resilience and Adaptation Program (RAP), who have not received training in anthropology.

Prerequisites: Graduate student enrollment.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F617 Resilience Internship**

2 Credits

Offered As Demand Warrants

Students of the Resilience and Adaptation Program participate in internships to broaden their interdisciplinary training, develop new research tools and build expertise outside their home disciplines. Internships are for eight to ten weeks of full time commitment and take place during the student's first summer in the program. In autumn students meet to discuss their internship experiences and make public presentations.

Prerequisites: ANTH F667, BIOL F667, ECON F667 or NRM F667; ANTH F668, BIOL F668, ECON F668 or NRM F668.**Cross-listed with** BIOL F613; ECON F613; NRM F613.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F623 Human Origins (s)**

4 Credits

Offered Spring Odd-numbered Years

Analysis of the hominoid fossil record from the early Miocene to the beginning of the Holocene. Examination of comparative hominoid and hominin skeletal and dental anatomy, systematics and long-term bio-behavioral adaptations, including biomechanical changes and technocultural innovations. Consideration of cultural and historical biases in interpretation of the human fossil record.

Prerequisites: Graduate standing.**Stacked with** ANTH F423.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F624 Analytical Techniques**

3 Credits

Offered Fall Even-numbered Years

Classification, sampling, collection and analysis of anthropological data: parametric and nonparametric significance tests and measures of association, analysis of frequency data, estimating resemblance using multiple variables, computer simulations and analysis.

Prerequisites: Graduate standing in Anthropology.**Stacked with** ANTH F424.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F625 Human Osteology**

4 Credits

Offered Fall Odd-numbered Years

Growth, development and alteration of the human skeleton. Determination of age, sex, stature and genetic ancestry from bones and teeth. Skeletal remains for diagnosis of disease and identification of cultural practices.

Prerequisites: ANTH F221; graduate standing.**Stacked with** ANTH F422.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F626 Bioarchaeology**

3 Credits

Offered Spring Even-numbered Years

Innovative methods for studying past interactions between biological and cultural factors, as revealed through human and faunal skeletal and plant remains. From these data sources, health, diet, social organization and interactions and life histories of past populations, as well as the environments in which they lived, are reconstructed and examined.

Prerequisites: Graduate standing.**Recommended:** ANTH F415; ANTH F625.**Stacked with** ANTH F426.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F627 Anthropology of Death (s)**

3 Credits

Offered As Demand Warrants

Consideration of the "death experience" as manifested in mortuary practices. Theoretical approaches and ethnographic field studies related to commemoration and integration of death into the social relationships experienced in daily life. Their use for constructing analogies to interpret social behavior of members of past populations from archaeologically derived funerary remains.

Stacked with ANTH F427.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F628 Zooarchaeology and Taphonomy**

3 Credits

Offered Fall Even-numbered Years

Identification of bones, how vertebrate bone remains may be used to study archaeological site formation processes, site organization, subsistence practices and animal procurement strategies. Preservation in modern depositional environments, paleoecology, vertebrate mortality profiles and demographic structure, site seasonality, bone breakage, taphonomy and faunal remains, and human land use practices.

Prerequisites: Graduate standing.**Stacked with** ANTH F415.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

ANTH F629 Structures of Anthropological Argument

3 Credits

Offered Fall

Reading and analysis of examples from various paradigms in anthropology, past and present. Presents a thorough grounding in forms of anthropological argument and preparation for the research and writing process. Includes evolutionary, Boasian, structural-functional, structural as well as subdisciplinary linguistic, archaeological and biological forms of argument.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F630 Anthropological Field Methods**

3 Credits

Offered As Demand Warrants

Concentration on the practical concerns and aspects of conducting anthropological field research. Includes the relevant literature and significant discussions on the different aspects of fieldwork. In addition, students will gain practical experience in the problems, techniques and methods of fieldwork involving people from similar or distinct cultural backgrounds.

Prerequisites: Graduate standing in Anthropology.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F631 Linguistic Anthropology: Language, Thought and Action**

3 Credits

Offered As Demand Warrants

Course surveys the history of linguistic anthropology and the methods and questions that have driven and distinguished the field. Topics include an introduction to the subfields of linguistics, the evolution of language, human vs. animal communication, language socialization, linguistic relativity, semiotics, language socialization and language ideologies.

Prerequisites: Graduate standing.**Cross-listed with** LING F640.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F632 Field Methods in Descriptive Linguistics I**

3 Credits

Offered As Demand Warrants

Introduction to issues in field linguistics and specific issues around documenting little studied and endangered languages. Focus on making recordings, transcription, elicitation with consultants and ethics in the field. Projects build up to documenting an unfamiliar language with a consultant and designing and carrying out a research project.

Prerequisites: LING F318; LING F320.**Cross-listed with** LING F631.**Stacked with** ANTH F432; LING F431.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F634 Field Methods in Descriptive Linguistics II**

3 Credits

Offered As Demand Warrants

Second semester of Field Methods sequence. Planning a field project, including selecting a field site, making community contacts, intellectual property and repatriation. In class group elicitation with a speaker of a non-Indo-European language. Projects may involve either work with a consultant or archival research on languages no longer spoken.

Prerequisites: ANTH F632 or LING F631.**Cross-listed with** LING F634.**Stacked with** ANTH F434; LING F434.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F635 Political Media and Discourses of the American Right**

3 Credits

Offered As Demand Warrants

This class uses "hands-on" discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts.

Prerequisites: Graduate standing.**Cross-listed with** LING F635; COM F635.**Stacked with** ANTH F435; COM F435; LING F435.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F637 Methods in Ethnohistorical Research**

3 Credits

Offered As Demand Warrants

Students of anthropology are introduced to the methods of historical research, particularly the critical evaluation of written documents, problems of archaic language and paleography, and methods for assessing art and folklorist tradition as sources of history. Oral history and the data of language and archaeology are considered.

Prerequisites: Graduate standing in anthropology.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F645 Gender in Cross-cultural Perspective**

3 Credits

Offered As Demand Warrants

Gender is examined as both cultural construction and social relationship through studies that explore gender diversity, roles, experiences, and expressions in a broad variety of societies and contexts, past and present. Includes a range of theoretical and methodological approaches in anthropology for exploring and understanding gender cross-culturally.

Prerequisites: Graduate standing.**Stacked with** ANTH F445; WGS F445.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ANTH F646 Economic Anthropology

3 Credits

Offered Fall Even-numbered Years

Relationships between economic and other social relations. Pre-industrial societies. Relevance of formal economics to small-scale societies and developing nations. Exchange, formal and substantive economics, market economics, rationality, political economy and the economics of development.

Prerequisites: Graduate standing.**Stacked with** ANTH F446.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F647 Sustainability in the Changing North**

3 Credits

Offered Fall

Explores the basic principles of sustainability of environmental and social systems. Principles are applied across a range of scales from local communities to the globe, with an emphasis on examples in Alaska and the Arctic. Specific attention to the theory and practice of boundary spanning and knowledge coproduction.

Prerequisites: Graduate standing.**Cross-listed with** BIOL F647; ECON F647; NRM F647.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F649 Integrated Assessment and Adaptive Management**

3 Credits

Offered As Demand Warrants

An interdisciplinary exploration of the theoretical and practical considerations of integrated assessment and adaptive management. Students survey concepts important in understanding societal and professional-level decision-making. Students work as individuals and as a team to undertake case studies with relevance to integrated assessment and adaptive management.

Prerequisites: Graduate student standing in a natural science, social science or interdisciplinary program at UAF or another university.**Recommended:** ANTH F647, BIOL F647, ECON F647, NRM F647; ANTH F667, BIOL F667, ECON F667, NRM F667.**Cross-listed with** BIOL F649; ECON F649; NRM F649.**Special Notes:** In case of enrollment limit, priority will be given to graduate students in the Resilience and Adaptation Program in order for them to be able to meet their core requirements.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F651 Quaternary Seminar**

3 Credits

Offered As Demand Warrants

Discussion of the Quaternary Period (relatively recent past – spanning the past two million years) in order to gain a better understanding of the landscape, biota and climate of the present day. Quaternary studies are concerned with the historical dimension of the natural sciences.

Prerequisites: Graduate standing.**Cross-listed with** GEOS F651.**Stacked with** ANTH F451; GEOS F452.**Special Notes:** Topics range widely over diverse interdisciplinary subjects of quaternary interest, such as paleoclimatology, paleobiogeography, vertebrate paleontology and sedimentology.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F652 Research Design and Professional Development Seminar**

3 Credits

Offered Fall

How to develop problem-based research in anthropology and prepare research proposals, grant proposals and publications along with critical evaluations of similar material. Topics include preparation of oral presentations for professional meetings, lectures and seminars; curriculum vitae preparation; and project budgeting.

Prerequisites: Upper-division anthropology course.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F653 Current Perspectives in Cultural Resource Management**

3 Credits

Offered As Demand Warrants

Cultural resource management. Includes historic preservation and environmental law. Reviews pertinent legislation pertaining to the protection of historic properties and presents a series of real world problems confronted by archaeologists. Cultural resource management will be treated historically within a context of the development of American archaeology.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F654 Language Policy and Planning**

3 Credits

Offered Fall Odd-numbered Years

Consideration of minority languages, including Alaskan Native Languages, in light of their histories, current status, and factors affecting future maintenance.

Cross-listed with LING F650.**Stacked with** LING F450.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ANTH F667 Resilience Seminar I**

1 Credit

Offered As Demand Warrants

Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research that are relevant to sustainability. A considerable portion of the seminar is student-directed, with students assuming leadership in planning seminar activities with the instructor.

Prerequisites: Enrolled in Resilience and Adaptation Graduate Program.**Recommended:** ANTH F647, BIOL F647, ECON F647 or NRM F647 (taken concurrently).**Cross-listed with** BIOL F667; ECON F667; NRM F667.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Pass/Fail Grades**ANTH F668 Interdisciplinary Research Methods-Resilience Seminar II**

1 Credit

Offered As Demand Warrants

Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research relevant to sustainability. The seminar provides support to each student planning his/her summer internship and preparing and presenting a thesis research prospectus.

Prerequisites: ANTH F647, BIOL F647, ECON F647 or NRM F647;

ANTH F667, BIOL F667, ECON F667 or NRM F667.

Cross-listed with BIOL F668; ECON F668; NRM F668.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Pass/Fail Grades

ANTH F670 Oral Sources: Issues in Documentation

3 Credits

Offered Fall Even-numbered Years

Preparation for recording and use of oral resources. Examines how meaning is conveyed through oral traditions, personal narratives, the issues involved with recording and reproducing narratives. Includes management of oral recordings, ethical and legal considerations, issues of interpretation and censorship, and the use of new technologies to deliver recordings.

Prerequisites: At least one undergraduate ANTH course and one undergraduate HIST course.

Cross-listed with ACNS F670.

Stacked with ANTH F470; ACNS F470.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F672 Culture and History in the North Atlantic

3 Credits

Offered Spring Odd-numbered Years

Ancient Norse culture and society. Includes readings of Old Norse poetry and Icelandic sagas in translation, with secondary analyses and archaeological background. Includes Greenlandic myths and contemporary ethnographic accounts of Iceland, Greenland and the Faroe Islands.

Prerequisites: Graduate standing.

Cross-listed with ACNS F672.

Stacked with ANTH F472.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F675 Political Ecology

3 Credits

Offered As Demand Warrants

Introduction to the field of political ecology. Topics include the sociology of scientific knowledge, traditional and local ecological knowledge, politics of resource management, processes of enclosure and privatization, environmental values, conservation, environmental justice, and colonialism and economic development.

Prerequisites: Graduate standing.

Cross-listed with FISH F675.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F682 Anthropology of Energy (s)

3 Credits

Offered As Demand Warrants

Advanced introduction to the anthropology of energy. Includes both a historical anthropological overview of the development of the modern concept of energy, a culturally comparative perspective on the use and conceptualization of energy and study of the cultural ways in which energy is collectively used and contested.

Stacked with ANTH F482.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F685 Discourse in Society: Analyzing Language in Social Context (s)

3 Credits

Offered Fall Odd-numbered Years

Hands-on experience in collection, transcription and analysis of naturally-occurring written and spoken texts. Offers a critical introduction to contemporary usage-based theories of language structure, including cognitive, cultural and interactional explanations for the distribution of linguistic resources in discourse.

Prerequisites: ANTH F631, ANTH F670, LING F602, LING F631 or LING F640.

Cross-listed with LING F685.

Stacked with ANTH F485, LING F485.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F686 Language and Power (s)

3 Credits

Offered Fall Even-numbered Years

Questions and frameworks that drive the study of the language and power nexus. Topics may include: the nature of power, the political economy of language, speech levels and registers, strategies of exclusion and inclusion, markedness, hegemony, linguistic ideology, racialized language varieties, political language, language and colonialism and neoliberal discourse.

Cross-listed with LING F686.

Stacked with ANTH F486; LING F486.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ANTH F698 Non-thesis Research/Project

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

ANTH F699 Thesis

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Applied Arts (APAR)

Community and Technical College

General Academic & Technical Programs (<https://www.ctc.uaf.edu/>)
907-455-2800

APAR F107 Beading

1 Credit

Offered As Demand Warrants

Application of beads to various materials, three kinds of stitches and use of a bead loom.

Lecture + Lab + Other: 1 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

APAR F140 Clothing Construction

1 Credit

Offered As Demand Warrants

Techniques of clothing construction for the home sewer. Development of sewing skills necessary to create garments for the beginner as well as the more experienced sewer.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

APAR F150 Introduction to Traditional Crafts

1-3 Credits

Offered As Demand Warrants

Introduction to traditional crafts such as basket weaving, birch bark basket-making, beading, carving, canoe or kayak making, etc. Topics vary based on community need and interest and will be identified each semester. Course may be repeated for credit with each new topic.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 6 times for up to 6 credits**APAR F157 Skin Sewing**

1-2 Credits

Offered As Demand Warrants

Fundamentals of skin sewing. Projects (e.g. slippers, mukluks, mittens, fur hats, vests and ruffs) dependent upon student ability and experience.

Lecture + Lab + Other: 1-2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 4 times for up to 4 credits

Applied Business (ABUS)

Community and Technical College

Applied Business and Accounting Program (<https://www.ctc.uaf.edu/programs/business-applied/>)

907-455-2800

ABUS F051 Bookkeeping For Business

3 Credits

Offered As Demand Warrants

Basic concepts and procedures of practical bookkeeping. Recording and reporting financial data for service and merchandising business. Covers businesses owned by one individual only (sole proprietorships.)

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F070 Job Readiness Skills**

1 Credit

Offered As Demand Warrants

Pre-employment and human relations skills necessary for job success, including identifying career choices and employment opportunities; preparing a resume, job applications, cover and follow-up letters; and developing human relations skills. The student will select, prepare and be interviewed for jobs that match his/her skills identified through a self-assessment inventory. Pass/fail version is ABUS F070P.

Special Notes: Available at Northwest Campus.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ABUS F101 Principles of Accounting I**

3 Credits

Offered Fall, Spring and Summer

Accounting concepts and procedures for service businesses and for merchandising businesses owned by a single proprietor. A preparer's approach emphasizes the use of debits and credits to account for the details of business transactions.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F102A Keyboarding: Touch Typing**

1-3 Credits

Offered Fall and Spring

Instruction in the mastery of alphabetic keyboard touch typing, skill building and document formatting. Skills mastered can be applied to typewriters, CRTs, computer terminals, or other equipment with a keyboard. May be repeated twice for credit.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ABUS F102B Keyboarding: Skill Building**

1-3 Credits

Offered Fall and Spring

Instruction in the mastery of alphabetic keyboard touch typing, skill building and document formatting. Skills mastered can be applied to typewriters, CRTs, computer terminals, or other equipment with a keyboard. May be repeated twice for credit.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ABUS F102C Keyboarding: Document Formatting**

1-3 Credits

Offered Fall and Spring

Instruction in the mastery of alphabetic keyboard touch typing, skill building and document formatting. Skills mastered can be applied to typewriters, CRTs, computer terminals, or other equipment with a keyboard. May be repeated twice for credit.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ABUS F116 Using 10-Key Calculators**

1 Credit

Offered Fall and Spring

Using the efficient 10-key touch method to solve business problems on a calculator. Emphasis is placed on developing occupational proficiency in the use of calculating machines for initial job placement.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F134 Alphabetic Filing**

1 Credit

Offered Fall and Spring

Mastery and use of ARMA filing rules as they apply to alphabetic, subject, numeric and geographic filing.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F141 Payroll Accounting**

1-3 Credits

Offered Fall, Spring and Summer

Payroll records and laws. Methods to compile and calculate payroll information, earnings, deductions and net wages. City, state and federal tax report forms. For payroll personnel.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits

ABUS F151 Village-based Entrepreneurship

1-3 Credits

Offered As Demand Warrants

Technical and personal requirements for establishing and maintaining a small business in a rural village; advantages and disadvantages of operating a small business in a rural village. May be offered in three, 1 credit modules (a, b and c).

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ABUS F154 Human Relations**

3 Credits

Offered Fall, Spring and Summer

Attitudes, self-concepts, personal communication styles, motivation, interactions, positive reinforcements, team building and leadership development.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F155 Business Math**

1-3 Credits

Offered Fall, Spring and Summer

Review of basic math computation skills applied to various business areas. Emphasis on applications.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ABUS F158 Introduction to Tourism**

1-3 Credits

Offered Spring Even-numbered Years

An overview of components, concepts and issues in tourism and hospitality. Introduces a broad range of topics, including the history and impacts of tourism, marketing, planning, customer service, and career and business development, with a focus on Alaska and British Columbia, Canada.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 3 credits**ABUS F160 Principles of Banking**

3 Credits

Offered Spring

Banking in today's economy. Language and documents of banking, check processing, teller functions, deposits, credit and payment functions, loans, investments, trust, the Federal Reserve System and other regulatory agencies.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F161 Personal and Business Finance**

3 Credits

Offered Fall, Spring and Summer

Explores the management of personal and family finances, including financial planning, budgeting, time value of money, consumer buying, personal credit, savings and investment, home ownership and mortgages, insurance, estate planning, retirement, consumer fraud, and laws.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F170 Business English**

3 Credits

Offered Fall

Comprehensive review of grammar, punctuation, capitalization and spelling, with emphasis on business and office occupations.

Recommended: Placement into WRTG F090 or higher.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F175 Customer Service**

3 Credits

Offered Fall and Summer

Presents customer service as integral to business success. Preparation for effective interaction with customers. Includes trends, interpretation of trends and development of fundamental skills necessary to achieve excellence.

Recommended: BA F151X; ABUS F154.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F178 Professionalism**

3 Credits

Offered Fall

Presents professionalism and personal effectiveness as integral to success in business, professional and entrepreneurial environments. Emphasizes conscious competency and ongoing self-development not only as a speaker and presenter but also as a leader in the workplace and community.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F179 Fundamentals of Supervision**

3 Credits

Offered Fall, Spring and Summer

Effective supervisory concepts including planning, organizing and staffing functions. Communicating and delegating effectively, morale, productivity, decision making, positive position discipline and performance goals development.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F182 Office Procedures**

3 Credits

Offered Fall and Spring

Duties and responsibilities of general office employees including filing, processing mail, telephone communication, meeting the public, office supplies, banking, employment procedures and grooming.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F183 Professional Skills for Job Hunt**

1-3 Credits

Offered Spring

Practical information necessary to help students choose meaningful employment as well as build their own employment portfolio. Materials used will allow students to learn more about themselves, engage in personal assessment and learn how this information relates to different careers. Students will complete projects related to finding meaningful employment.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ABUS F188 Personal Income Tax

1 Credit

Offered As Demand Warrants

Taxable income, deductions, credit, exemptions, and computation. Computer use, record keeping methods, tax forms and new tax laws.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F189 The Business of Gaming and Content Creation**

3 Credits

Offered Fall

Introduces students to basics of creating and maintaining a content production-based business online. Covers technical requirements, equipment, community management, marketing and branding, and the business fundamentals to monetize and scale original content. Touches on history and trends shaping the evolving landscape of streaming, content creation, and running a business online.

Special Notes: This course is presented as part of the IAC Content Creation Occupational Endorsement.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F199 Practicum in Applied Business**

1-3 Credits

Offered Fall, Spring and Summer

Supervised training and work experience. Analysis of work experience and relationship of the job to career and academic goals. Managerial concepts, problems of working with groups and individuals, organizational structures, communications and planning.

Prerequisites: Permission of instructor.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 3 credits**ABUS F201 Principles of Accounting II**

3 Credits

Offered Fall and Spring

Introduction to accounting concepts and procedures for a business. Emphasis is on the accounting cycle and the recording, summarizing and interpretation of accounting data.

Recommended: ABUS F101 or ACCT F261X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F202 Principles of Accounting III**

3 Credits

Offered Fall

Continuation of elementary accounting concepts and procedures with the introduction of cost accounting principles for manufacturing and service operations. Job order costing, process costing, cost-volume profit, budgeting and variances are introduced.

Recommended: ABUS F101 and F201; or ACCT F261X and ACCT F262.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F203 Accounting Capstone**

3 Credits

Offered Spring and Summer

Accounting procedures in retail, service and trade businesses. The complete accounting cycle, including record keeping, posting and preparation of financial statements, bank reconciliation, payroll computations and closing books. Accounts receivable, accounts payable, purchasing, credit and other accounting requirements.

Recommended: ABUS F101; ABUS F141; ABUS F220; ABUS F201 (or concurrent enrollment).

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F210 Income Tax**

3 Credits

Offered Fall and Spring

Income tax fundamentals. Includes how to complete basic income tax forms/schedules for individuals and small business owners. Covers taxable income, deductions, credits, exemptions, computation, record keeping methods, new tax laws and strategies to reduce taxes.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F220 Microcomputer Accounting: QuickBooks**

3 Credits

Offered Fall and Spring

Basic microcomputer principles. Includes entering transactions, analyzing results, correcting errors and organizing business finances. QuickBooks is a widely used accounting software application.

Recommended: ABUS F101.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F223 Real Estate Law**

3 Credits

Offered As Demand Warrants

Sources of real estate law: estates and interests in land; methods of describing land; conveyances, deeds and mortgages; liens and encumbrances; residential rentals and commercial leases; multi-unit communities; brokerages and real property transactions; appraisals; and other laws relevant to real estate. Review of relevant cases involving real estate disputes.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F231 Introduction to Personnel**

1-3 Credits

Offered Fall

Company organizational structure, job analysis, staffing and organization, employee growth and development, employee supervision and developing leadership skills. May be offered in three one credit modules.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ABUS F232 Contemporary Management Issues**

3 Credits

Offered Fall and Summer

Management functions, including planning, organizing, staffing, directing and controlling, human aspects of management, and decision making.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ABUS F233 Financial Management

3 Credits

Offered Fall and Spring

Fundamental understanding of the concepts, techniques and practices in financial management. Financial statements analysis, cash flow and financial planning, concept of time value of money, risk and return, bond valuation, capital budgeting, internal financial controls and audit.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F234 Introduction to Investing**

3 Credits

Offered As Demand Warrants

An in-depth study of investment for personal use. The overall investment environment is described and conceptual tools needed by investors are presented. Popular investment vehicles such as common stocks, bonds, preferred stocks, convertible securities, and mutual funds are addressed.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F235 Fund Accounting for Nonprofits**

3 Credits

Offered Fall

Accounting for nonprofit organizations, governmental units, health care providers, voluntary health and welfare organizations, public schools, colleges, universities and other organizations using fund accounting.

Recommended: ABUS F101.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F241 Applied Business Law I**

3 Credits

Offered Fall and Spring

Legal aspects of business problems. Principles, institutions and administration of law in contracts, agency, employment, personal sales and property ownership.

Crosslisted with PLS F241.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F242 Employment Law**

3 Credits

Offered Fall

Labor and employment law with emphasis on case analysis.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F256 Small Hotel, Bed and Breakfast, and Lodge Operations**

1-3 Credits

Offered Spring Even-numbered Years

Introduction to hospitality industry focusing on the development and operation of small hotels, bed and breakfast accommodations, and lodge operations. May be offered in three 1 credit modules.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ABUS F260 Marketing Practices**

3 Credits

Offered Fall

Designed to give students a real-world view of basic marketing principles and practices. Emphasizes planning strategy and application of marketing concepts in analysis of case studies. Examines nature of marketing and its environment, selecting target markets and developing a market mix: product, price, promotion and distribution.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F263 Public Relations**

3 Credits

Offered Spring

Public relations is image making, repairing and promoting. PR involves promotion, selling, advertising and creating public, corporate, government, church and other institutional images. PR professionals need skills in psychology, writing, mass media theory, image construction, persuasion and audience analysis. Introduces public relations and its role in our world and society.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F264 Filing/Records Management**

3 Credits

Offered Fall and Spring

Instruction in basic alphabetic storage with filing rules and cross-referencing and procedures for retrieving records manually. Includes adaptations of the alphabetic storage method including geographic, numeric and subject; storing and retrieving special records (card files, visible records, microrecords); organization and operation of records management programs and control of records systems.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F265 Current and Emerging Trends in Applied Marketing**

3 Credits

Offered Spring

Students receive in-depth coverage of current marketing trends, such as social media marketing, digital marketing, and green marketing, with the overarching goal to gain industry competency and applicable knowledge. Objectives include historical reference, ethics, best practices, tactics, strategy, analytics management, with the opportunity to obtain industry-related certifications.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits**ABUS F267 Transportation and Logistics Management**

1-3 Credits

Offered As Demand Warrants

Understanding of issues and challenges concerning structure and management of air, sea, rail and highway transportation systems.

Emphasis on effective management of the transporting of people and goods intra-Alaska and to destinations that are served from Alaska.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits

ABUS F268 Rural Tourism: Planning and Principles

1-3 Credits

Offered As Demand Warrants

Introduction to rural tourism planning and principles. Students examine rural tourism attractions and trends, tourism planning and policy formation, quality standards, and cultural and environmental impacts of tourism.

Cross-listed with RD F268.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ABUS F269 Food and Beverage Management**

1-3 Credits

Offered As Demand Warrants

Development of a successful food and beverage system from its inception to operation. Menu planning, purchasing, preparation, service and food/beverage cost control.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ABUS F271 Business Communications**

3 Credits

Offered Fall and Spring

Composition and evaluation of various kinds of common communications between a business person and associates, customers and dealers. Included are interoffice memos, letters, reports and oral communications.

Recommended: Placement in WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F272 Small-Business Planning**

3 Credits

Offered Fall

Elements of small-business planning processes including the components of a written business plan.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F273 Entrepreneurship and Small Business**

3 Credits

Offered Fall and Spring

Entrepreneurship and management, starting a new business, buying an existing business or franchise. Managing, marketing, staffing, financing, budgeting, pricing, operational analysis and controls.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F274 Business in the Digital World**

1-3 Credits

Offered Spring

Exploration of trends in internet commerce, websites, social media and digital advertisement. Analysis of the elements needed to build and manage a successful e-commerce or small business. Website planning and creation include information design, navigation design and site presentation.

Recommended: Basic knowledge of internet and social media.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ABUS F275 Applied International Business**

3 Credits

Offered As Demand Warrants

Case study and research-oriented approach to cultural, economic, political, social, logistical and other business issues in the ever-changing international business environment.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F277 Dynamics of Leadership**

3 Credits

Offered Spring

The study of leadership behavior with application of methods, facts and principles of leadership to individuals and groups in organizational and work settings. Drawing from several areas of behavioral science, this course, while designed for business students, is also suitable for other fields, general education, and personal enrichment.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ABUS F288 Professional Certification Preparation**

1-3 Credits

Offered As Demand Warrants

Prepares students for national or industry specific certification examination. Course may be taken three times for a maximum of 4 credits. Course is intended as preparation for certification exam.

Recommended: Experience or course work in exam area.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 4 credits**ABUS F299 Practicum in Applied Business**

1-9 Credits

Supervised training and work experience (local or foreign study abroad). Analysis of work experience and relationship of the job to career and academic goals. Managerial concepts, problems of working with groups and individuals, organizational structures, communications and planning.

Prerequisites: Permission of instructor.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 9 credits

Applied Management (BAM)

College of Business and Security Management

Applied Management Program (<https://www.uaf.edu/cbsm/programs/applied-management/>)

907-474-4622

BAM F308 Professional Development: How to Prepare for a Job and Other Survival Skills

1 Credit

Offered Fall, Spring and Summer

Learn how to compose and analyze essential business and personal communications with an emphasis on those related to the job search, including resumes, letters and emails. Learn and apply job seeking and career advancement skills related to interviews, business etiquette and personal brand.

Prerequisites: WRTG F111X; COM F121X, COM F131X or COM F141X; BA F151X (may be taken concurrently), ACCT F261X (may be taken concurrently) or AIS F101 (may be taken concurrently).

Crosslisted with BA F308.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

BAM F309 Professional Development: Finding a Career

1 Credit

Offered Fall, Spring and Summer

Further your understanding of business and personal communications, with an emphasis on communications used in the typical workplace, including letters, reports and memoranda. Learn and apply career advancement skills related social media presence, advanced interviewing techniques and site visits.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; BA F308.

Cross-listed with BA F309.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BAM F310 Professional Development: Being Successful in Your Career

1 Credit

Offered Fall, Spring and Summer

Master the business and personal communications needed for career advancement and success in a typical work environment. Learn about negotiations, networking, meeting and presentation facilitation, on-the-job conflict management, ethics, using social media and interpersonal communications on the job.

Prerequisites: BA F308; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Cross-listed with BA F310.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BAM F320 Management

3 Credits

Offered Fall, Spring and Summer

This course introduces and explores the concepts, theories, and principles of management. We will study the basic managerial functions of planning, organization, staffing, directing, and controlling resources to accomplish organizational goals. Special consideration given to the different roles managers provide and the unique skills required to carry out those roles.

Prerequisites: WRTG F111X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BAM F352 Accounting and Finance

3 Credits

Offered Fall and Spring

This course introduces non-business managers to the basics of accounting and financing. Topics that will be covered include cost accounting, budgeting, cash flows, and how to read a basic financial report.

Prerequisites: MATH F122X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BAM F435 Entrepreneurship

3 Credits

Offered Fall

This course will provide students with the steps toward starting and growing their own business and entrepreneurial ventures for other businesses. They will learn methods, mindset and approaches necessary to form a business. Upon completion, students will have the resources, behaviors and confidence to develop a new venture.

Prerequisites: BA F151X; ACCT F261X or BAM F352.

Crosslisted with BA F435.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BAM F462 Project Management

3 Credits

Offered Fall and Spring

This course is designed to cover key components of project management with emphasis on the practical approach to managing and delivering projects. We will focus on concepts, techniques, and best practices that allow the project manager to deliver simple or complex projects and lead project teams successfully.

Prerequisites: BAM F320 or BA F390; BAM F352 or ACCT F261X;

WRTG F111X; BA F343; upper division standing.

Cross-listed with BA F464.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Applied Photography (APHO)

Community and Technical College

General Academic & Technical Programs (<https://www.ctc.uaf.edu/>)
907-455-2800

APHO F074 Process/Print Color Negatives

1 Credit

Offered As Demand Warrants

Developing print film using the Kodak Flexicolor C-41 and Hobby-pac processes. Making proof sheets and enlargements using Extaprint 2, Hobby-pac and Ektaflex processes. Students must have a camera and two rolls of film.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Arctic and Northern Studies (ACNS)

College of Liberal Arts

Arctic and Northern Studies (<https://www.uaf.edu/arctic/>)
907-474-7126

ACNS F125 Our Changing Climate: Past, Present, Future (s)

3 Credits

Offered Fall and Spring

Examines how the biophysical impacts of climate change define and intersect with social, ecological, economic, political and cultural dimensions of our lives. Provides a foundation in both Indigenous and Western science perspectives of the causes, impacts and feedbacks of a changing climate. Includes theoretical and project-based experience in climate change.

Prerequisites: Placement in WRTG F111X.

Cross-listed with HONR F125; NRM F125; RD F125.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F201 The Circumpolar North: An Introductory Overview

3 Credits

Offered Fall Odd-numbered Years

This course introduces students to the circumpolar North as a region by exploring themes related to the environment and climate change; politics and international relations; history; geography; nonrenewable and renewable energy; literature; and Indigenous cultures, customs, and issues.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F205 Leadership, Citizenship and Choice

3 Credits

Offered As Demand Warrants

History of democratic principles in America and how people can contribute to political and community life in the local, state and national arenas, as leaders and citizens. Examines ethical dilemmas of leadership, and political and social issues facing Alaska and American societies. Course includes an experiential learning component.

Cross-listed with PS F205.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F223X Alaska Native Music** (an, h)

3 Credits

Offered Spring

Introductory course devoted to the study of Indigenous musical cultures throughout Alaska and neighboring regions. Emphasis on musical systems in terms of their respective sounds and their relationship to culture and society, cross-cultural comparisons and a focus on both past and present musical styles.

Cross-listed with ANS F223X; MUS F223X.**Attributes:** UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F424 Field Artists of the North** (h)

3 Credits

Offered As Demand Warrants

Study of field artists and their work, from explorer artists of yesteryear to today's field artists using varieties of traditional and contemporary media in their creations. Students will conceive and conduct their own study projects, producing a body of work that will demonstrate the principles and practice of field artists.

Prerequisites: ART F105X; a studio art course (ART F161, ART F162, ART F163, ART F205, ART F211, ART F213 or ART F283); COM F131X or COM F141X.

Cross-listed with ART F424.**Stacked with** ART F624; ACNS F624.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F425 Visual Images of the North**

3 Credits

Offered As Demand Warrants

This course examines the images of the peoples and landscapes of the Circumpolar North. It centers on documentary and artistic goals, translations from original sketches to published images, the relationship between Arctic imagery and prevailing historical styles, and the influences of changing worldviews on modes of Northern representation and expressions.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Cross-listed with ART F425.**Stacked with** ART F625; ACNS F625.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F426 Environmental Psychology and Human Well-being** (s)

3 Credits

Offered As Demand Warrants

This course explores the effects of the environment on human behavior, health, and well-being. Critical evaluation of human interactions with nature and consideration of arctic environments are emphasized. Students will explore the unique relationships between humans and nature while examining the role of nature on health, mental health, and behavior.

Prerequisites: PSY F101X; WRTG F111X; WRTG F211X, WRTG F213X.**Crosslisted with** PSY F426.**Stacked with** PSY F626; ACNS F626.

Special Notes: Research Methods such as PSY F275 is recommended prior to taking this course.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F429 Geography of the Arctic and Circumpolar North** (s)

3 Credits

Offered Fall

An in-depth examination of the physical, cultural, social, political and economic geographies of the Circumpolar North. Special emphasis on the patterns and processes of contemporary environmental change, human adaptations to high latitude environments, Arctic geopolitics and security, and the spatial patterns of northern economic development.

Stacked with ACNS F629.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F449 Northern and Environmental Literature** (h)

3 Credits

Offered Spring Odd-numbered Years

Intensive study of particular aspects of Alaska and circumpolar writing, ecocritical theory and the literature of environmental studies.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Cross-listed with ENGL F449; JOUR F449.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F453 Fire, Ice, and the Fate of Humanity: A History of Energy and Climate Change** (s)

3 Credits

Offered Spring

This course examines how energy regimes and climatic changes have structured the history of the world, with a focus on North America. From the Little Ice Age to the Atomic Age and the Anthropocene, energy and climate have contoured the fate of humanity.

Crosslisted with HIST F453; HONR F453.**Stacked with** ACNS F653.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F466 The Russian Arctic**

3 Credits

Offered Fall Odd-numbered Years

Through readings, discussion and writing this course will explore topics such as: the Russian Empire's and the Soviet Union's exploration and colonization of the Arctic, Indigenous peoples, and the ways in which the Arctic was imagined in Imperial, Soviet and post-Soviet Russian culture.

Cross-listed with HIST F466.**Stacked with** ACNS F666.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ACNS F470 Oral Sources: Issues in Documentation (h)

3 Credits

Offered Fall Even-numbered Years

Preparation for recording and use of oral resources. Examines how meaning is conveyed through oral traditions, personal narratives, the issues involved with recording and reproducing narratives. Includes management of oral recordings, ethical and legal considerations, issues of interpretation and censorship, and the use of new technologies to deliver recordings.

Prerequisites: At least one undergraduate ANTH course and one undergraduate HIST course.

Cross-listed with ANTH F470.

Stacked with ANTH F670; ACNS F670.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F476 Russian Culture and Society in the 21st Century (h)

3 Credits

Offered As Demand Warrants

Study of contemporary Russian culture and society through selected literary texts and media representations; examination of the idea of the "Russian North" and its place in Russian culture; consideration of Russian politics and current events. Students will gain knowledge about present-day Russia and its peoples from perspectives, sources and media. Russian Studies majors must complete RUSS F202 and Arctic and Northern Studies majors must complete two ACNS courses.

Prerequisite: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COM F131X or COM F141X; junior standing.

Cross-listed with RUSS F476.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F484 Perspectives on the North (s)

3 Credits

Offered Fall

Explores topics of interest and concern throughout the circumpolar north, including social, historical, environmental, ethnocultural, economic, political and geographic issues in Alaska, Canada, Scandinavia and Russia. Readings represent a variety of perspectives on the topics, including Indigenous and non-Indigenous, as well as insider and outsider, geographic/national and gender.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.

Stacked with ACNS F600; HIST F600.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F492 Seminar

1-6 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

ACNS F492P Seminar

1-6 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

ACNS F600 Perspectives on the North

3 Credits

Offered Fall

Explores topics of interest and concern throughout the circumpolar north, including social, historical, environmental, ethnocultural, economic, political and geographic issues in Alaska, Canada, Scandinavia and Russia. Readings represent a variety of perspectives on the topics, including Indigenous and non-Indigenous, as well as insider and outsider, geographic/national and gender.

Cross-listed with HIST F600.

Stacked with ACNS F484.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F601 Research Methods and Sources in the North

3 Credits

Offered Spring and Summer

Development of students' research skills so they can engage in their own research on northern issues. Includes techniques of interviewing, conducting surveys, and sampling; qualitative and quantitative methods of research design; and familiarity with library sources and archival records. Each student will develop a research project. Course is available online.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F603 Public Policy

3 Credits

Offered Spring Odd-numbered Years

The processes of policy development, implementation and change are analyzed with major policy frameworks and models used in contemporary political science. These frameworks and models will be applied to environmental sustainability and other social policy issues. Students develop expertise in specific policy area, completing oral presentations related their policy interests.

Prerequisites: Graduate Standing.

Cross-listed with PS F603.

Stacked with PS F403.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F604 Modern Scandinavia

3 Credits

Offered Spring Even-numbered Years

Examines geographical, political, economic, cultural and social forces, as well as the impact of individuals, on the transformation of Scandinavian states from autocratic monarchies to some of the most democratic and egalitarian states in the world.

Cross-listed with HIST F604.

Stacked with HIST F404.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F610 Northern Indigenous Peoples and Contemporary Issues

3 Credits

Offered Fall Odd-numbered Years

Applications of contemporary analytical perspectives in anthropology and related fields of humanities and social sciences to examine cultural vitality, social change, and local, regional, and global processes that are affecting and being addressed by northern Indigenous societies in Russia, Alaska, Canada, Greenland, Norway, Sweden, Finland, and Japan.

Prerequisites: Graduate standing or upper-division standing.

Cross-listed with ANTH F610.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F611 Environmental History

3 Credits

Offered Fall Even-numbered Years

Discussion of significant works of environmental history. Cultural history of the landscape in world civilization with emphasis on Western Europe and North America. Discussion of interdisciplinary approaches to the history of environment and cooperative work across disciplines.

Cross-listed with HIST F611.

Stacked with HIST F411.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F613 Wilderness and Environmental Psychology

3 Credits

Examines the relationships between people and the natural and built environments. Topics include the effects of arctic environments on physical and psychological health; preferences for different types of natural settings; the design of residential and community environments in northern climates; and the symbolism of settings and effects on political controversies.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F620 Images of the North

3 Credits

Offered Spring Even-numbered Years

Interdisciplinary approaches to the variety of images created about and by the people and environment of the circumpolar North. The course will analyze conceptualizations of the North as expressed in a number of media, employing methodologies from many disciplines. Course may be repeated once for credit when content varies.

Prerequisites: Graduate standing.

Cross-listed with ENGL F620.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F624 Field Artists of the North

3 Credits

Offered As Demand Warrants

Study of field artists and their work, from explorer artists of yesteryear to today's field artists using varieties of traditional and contemporary media in their creations. Students will conceive and conduct their own study projects, producing a body of work that will demonstrate the principles and practice of field artists.

Prerequisites: ART F105X; a studio art course (ART F161, ART F162, ART F163, ART F205, ART F211, ART F213 or ART F283).

Cross-listed with ART F624.

Stacked with ART F424.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F625 Visual Images of the North

3 Credits

Offered As Demand Warrants

This course examines the images of the peoples and landscapes of the Circumpolar North. It centers on documentary and artistic goals, translations from original sketches to published images, the relationship between Arctic imagery and prevailing historical styles, and the influences of changing worldviews on modes of Northern representation and expressions.

Cross-listed with ART F625.

Stacked with ART F425; ACNS F425.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F626 Environmental Psychology and Human Well-being

3 Credits

Offered As Demand Warrants

This course explores the effects of the environment on human behavior, health, and well-being. Critical evaluation of human interactions with nature and consideration of arctic environments are emphasized.

Students will explore the unique relationships between humans and nature while examining the role of nature on health, mental health, and behavior.

Prerequisites: PSY F101X; WRTG F111X; WRTG F211X, WRTG F213X; graduate standing.

Crosslisted with PSY F626.

Stacked with PSY F426; ACNS F426.

Special Notes: Research Methods such as PSY F275 is recommended prior to taking this course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F629 Geography of the Arctic and Circumpolar North

3 Credits

Offered Fall

An in-depth examination of the physical, cultural, social, political and economic geographies of the Circumpolar North. Special emphasis on the patterns and processes of contemporary environmental change, human adaptations to high latitude environments, Arctic geopolitics and security, and the spatial patterns of northern economic development.

Prerequisites: Graduate standing.

Stacked with ACNS F429.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F630 Rural and Alaska Native Psychology (an)

3 Credits

Offered Spring Odd-numbered Years

Introduces rural psychology, including diversity of rural communities, with emphasis on Alaska Native populations and the rural circumpolar North.

Introduces rural research collaborations, health promotion, prevention and behavioral health, including cultural and contextual considerations affecting research and services, and the significance of Alaska Native values, knowledge and ways of life.

Prerequisites: ACNS F601 (may be taken concurrently).

Stacked with PSY F430.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F647 U.S. Environmental Politics

3 Credits

Offered Spring

U.S. political institutions as they relate to making policies for protecting the quality of the natural environment. The politics of nuclear waste, endangered species, air and water pollution, and wilderness preservation. Analysis of the National Environmental Policy Act, sustainable development, limits to growth and other topics.

Prerequisites: Graduate Standing.**Cross-listed with** PS F647.**Stacked with** PS F447.**Special Notes:** Course is also available online.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F652 International Relations of the North**

3 Credits

Offered Fall Odd-numbered Years

This course examines the international relations of Arctic states and topics related to the circumpolar north. It covers environmental changes and their effects on human security and Indigenous lives, energy exploration and development, northern security and emerging shipping routes. It also addresses national Arctic strategies and the Arctic Council.

Prerequisites: Graduate standing.**Cross-listed with** PS F652.**Stacked with** PS F452.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F653 Fire, Ice, and the Fate of Humanity: A History of Energy and Climate Change**

3 Credits

Offered Spring

This course examines how energy regimes and climatic changes have structured the history of the world, with a focus on North America. From the Little Ice Age to the Atomic Age and the Anthropocene, energy and climate have contoured the fate of humanity.

Stacked with ACNS F453; HIST F453; HONR F453.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F654 International Law and the Environment**

3 Credits

Offered As Demand Warrants

This course addresses international case law regulating the sea, airspace, outer space and the polar regions; comprehensive international regulatory and legal instruments to protect the environment; and the doctrines, principles, and rules of international law that are basic to an understanding of international legal regimes and the environment.

Prerequisites: Graduate standing.**Recommended:** Undergraduate course in international law, organization or politics.**Cross-listed with** PS F654.**Stacked with** PS F454.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F655 Political Economy of the Global Environment**

3 Credits

Offered Spring Odd-numbered Years

Interactions between basic aspects of the global economy (international trade, investment and development) and the natural environment. Topics include the economic impact of global environmental agreements and the environmental impact of global markets, transnational corporations and development assistance by organizations such as the World Bank.

Prerequisites: Graduate standing.**Cross-listed with** PS F655.**Stacked with** PS F455.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F656 Science, Technology and Politics**

3 Credits

Offered As Demand Warrants

Relationship of science, technology and politics. Connections among scientific knowledge, technology, technological innovations, politics and power. Gender roles and the influence of Western science. Both historical and comparative aspects are included. Course is also available online.

Prerequisites: Graduate standing.**Recommended:** PS F101X.**Cross-listed with** PS F656.**Stacked with** PS F456.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F657 Comparative Indigenous Rights and Policies**

3 Credits

Offered Spring Odd-numbered Years

Comparative approach to analyzing Indigenous rights and policies in different nation-state systems. Multiple countries and specific policy developments examined for factors promoting or limiting self-determination.

Prerequisites: Graduate Standing.**Cross-listed with** PS F650.**Stacked with** ANS F450; PS F450.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F658 Comparative Environmental Politics**

3 Credits

Offered Spring Even-numbered Years

Enduring issues of the field of comparative politics and their relation to global environmental problems. Biodiversity, transboundary pollution capacity, political processes and organizations, and international commitments all potentially shape the nature and dynamics of global environmental politics and vice versa. Course is also available online.

Prerequisites: Graduate standing.**Recommended:** PS F201X.**Cross-listed with** PS F658.**Stacked with** PS F458.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ACNS F660 Government and Politics of Canada

3 Credits

Offered As Demand Warrants

The Canadian political system, covering the Canadian constitution, federal structure, parliamentary government and public policy, as well as contemporary issues concerning Native rights and the Canadian North. Students will complete a major research paper on specific policy areas (language, education, health care, environment, natural resources, foreign relations).

Prerequisites: Graduate standing.**Cross-listed with** PS F660.**Stacked with** PS F460.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F661 History of Alaska**

3 Credits

Offered Fall

Alaska from prehistoric times to the present, including major themes such as Native Alaska, colonial and military Alaska, statehood, Alaska Native Claims Settlement Act of 1971 and the Alaska National Interest Lands Act of 1980.

Cross-listed with HIST F662.**Stacked with** HIST F461.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F662 Alaska Government and Politics**

3 Credits

Offered Spring Even-numbered Years

This course examines Alaska's government and politics, as a case of American state and local government, and governance in the circumpolar North. It covers topics such as the state's political history, constitution, political parties, interest groups, elections, governorship, legislature, judiciary, bureaucracy and local governments.

Prerequisites: Graduate standing.**Cross-listed with** PS F662.**Stacked with** PS F462.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F663 Imperial Russia, 1700-1917**

3 Credits

Offered As Demand Warrants

This course covers Russian history from the reign of Peter the Great (1682-1725) until the collapse of the Tsarist regime in February 1917. Topics will include Russia's complex relationship with Western Europe, the challenges posed by modernization, the Russian Empire as a multi-national state, and the emergence of revolutionary movement.

Prerequisites: Graduate standing.**Cross-listed with** HIST F663.**Stacked with** HIST F463.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F664 Soviet and Post-Soviet Russia**

3 Credits

Offered Spring Odd-numbered Years

Russia from the 1917 Revolution to the present. This course examines the attempts to build a socialist utopia in the former Russian empire and its impact on the peoples of that region and the modern world. We will consider the political, economic, social and cultural nature of the Soviet state.

Prerequisites: Graduate standing.**Cross-listed with** HIST F664.**Stacked with** HIST F464.

Special Notes: Major themes include cultural transformation, industrialization, Stalinism, the Soviet Union as a multi-national empire, the Cold War, the collapse of the Soviet state, and the new Russia of Yeltsin and Putin.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F666 The Russian Arctic**

3 Credits

Offered Fall Odd-numbered Years

Through readings, discussion and writing this course will explore topics such as: the Russian Empire's and the Soviet Union's exploration and colonization of the Arctic, Indigenous peoples, and the ways in which the Arctic was imagined in Imperial, Soviet and post-Soviet Russian culture.

Stacked with HIST F466; ACNS F466.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F668 Government and Politics of Russia**

3 Credits

Offered As Demand Warrants

This course examines the history, politics, economics and geography of Russia, with focus on changes in Russian government, society, and domestic and foreign policy over time. Students will learn the nature of the evolving Russian regime, leadership, economic forces and the political struggles in governance and democracy.

Prerequisites: PS F201X; graduate standing.**Cross-listed with** PS F668.**Stacked with** PS F468.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ACNS F669 Arctic Politics and Governance**

3 Credits

Offered Fall

This course traces current developments in Arctic politics and governance from multiple perspectives, including exploring interests, processes, and behaviors of Arctic governments and non-state actors, individually and collectively. The course surveys the formal and informal institutions that govern resource development, pollution, shipping, state-indigenous relations and security. A background in comparative politics and/or international relations is also recommended.

Prerequisites: PS F450, PS F452 or PS F454; graduate standing.**Cross-listed with** PS F669.**Stacked with** PS F469.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ACNS F670 Oral Sources: Issues in Documentation

3 Credits

Offered Fall Even-numbered Years

Preparation for recording and use of oral resources. Examines how meaning is conveyed through oral traditions, personal narratives, the issues involved with recording and reproducing narratives. Includes management of oral recordings, ethical and legal considerations, issues of interpretation and censorship, and the use of new technologies to deliver recordings.

Prerequisites: At least one undergraduate ANTH course and one undergraduate HIST course.

Cross-listed with ANTH F670.

Stacked with ANTH F470; ACNS F470.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F672 Culture and History in the North Atlantic

3 Credits

Offered Spring Odd-numbered Years

Ancient Norse culture and society. Includes readings of Old Norse poetry and Icelandic sagas in translation, with secondary analyses and archaeological background. Includes Greenlandic myths and contemporary ethnographic accounts of Iceland, Greenland and the Faroe Islands.

Prerequisites: Graduate standing.

Cross-listed with ANTH F672.

Stacked with ANTH F472.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F675 Historiography Capstone (s)

3 Credits

Offered Fall

Seminar discussions and lectures introduce philosophical approaches to history. Examines various methodological approaches to historical inquiry. Includes the nature of historical evidence, questioning of the role of truth and objectivity in history, an examination of the role of the historian in interpreting historical evidence, and different interpretations of historical events and actions. Designed for history majors and minors, and graduate students seeking to conduct historical research.

Prerequisites: Graduate standing.

Stacked with HIST F475.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F681 Polar Exploration and Its Literature

3 Credits

Offered As Demand Warrants

A survey of polar exploration efforts of all Western nations from A.D. 870 to the present and a consideration of the historical sources of this effort.

Prerequisites: Graduate standing.

Cross-listed with HIST F681.

Stacked with HIST F481.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F683 20th-century Circumpolar History

3 Credits

Offered Spring

A comparative history of the circumpolar North, including Alaska, Siberia, Scandinavia, Greenland and Canada. Focus on social, economic, political and environmental issues of the 20th century, such as exploration, aboriginal land claims, subsistence, military strategy, transportation, oil development, Arctic haze and scientific research in the Arctic.

Prerequisites: Graduate standing.

Cross-listed with HIST F683.

Stacked with HIST F483.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ACNS F685 Interdisciplinary Ph.D. Seminar

1 Credit

Offered Fall and Spring

Seminar provides guidance to INDS Ph.D. students, creating a cohort experience as they explore various approaches to interdisciplinary research. Seminar sessions will alternate among guidance offered by the instructor, guest lectures by researchers and other experts, student presentations of their research, and less-formal student sharing of academic experiences.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 6 times for up to 6 credits

ACNS F689 Thesis Writing Workshop

3 Credits

Offered Fall

This course provides an opportunity for graduate students to develop their research, writing, and communication skills in a workshop context. Throughout the course, students will read academic work and submit their own academic work related to their thesis or dissertation that has been re-drafted and re-submitted multiple times.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 4 times for up to 12 credits

ACNS F690 Researching and Writing Northern History

3 Credits

Offered As Demand Warrants

Exploration of the craft and methodology of historical research in the North. Course may be repeated for credit when content varies.

Prerequisites: Graduate standing.

Stacked with HIST F490.

Lecture + Lab + Other: 1 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 4 times for up to 12 credits

ACNS F692 Seminar

3 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 98 credits

ACNS F698 Non-thesis Research/Project

1-12 Credits

Fall and Spring and Summer

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

ACNS F699 Thesis

1-12 Credits

Offered Fall and Spring and Summer

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Arctic Skills (ARSK)

Community & Technical CollegeEMS & Paramedicine Program (<https://www.ctc.uaf.edu/programs/ems-paramedicine/>)

907-455-2800

ARSK F147A Arctic Survival

1-2 Credits

Offered As Demand Warrants

Focus on preparation and development of knowledge and skills to cope effectively with difficulties and dangers travelers are frequently exposed to in arctic climates. Topics include appropriate survival kits, clothing options, nutrition and hydration needs, shelter construction, signal development, cold weather injuries and safety issues related to modes of transportation.

Special Notes: Recommended College level reading skills.**Lecture + Lab + Other:** 1-2 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 2 times for up to 2 credits**ARSK F147B Arctic Survival**

1-2 Credits

Offered As Demand Warrants

Focus on preparation and development of knowledge and skills to cope effectively with difficulties and dangers travelers are frequently exposed to in arctic climates. Topics include appropriate survival kits, clothing options, nutrition and hydration needs, shelter construction, signal development, cold weather injuries and safety issues related to modes of transportation.

Special Notes: Recommended College level reading skills.**Lecture + Lab + Other:** 1-2 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 2 times for up to 2 credits**ARSK F170 EMT: Emergency Medical Technician I**

6 Credits

Offered As Demand Warrants

Basic life support such as splinting, hemorrhage control, oxygen therapy, suction, CPR and use of automated external defibrillators (AEDs). EMT I is the foundation of all emergency medical training. Mastering of EMT I level knowledge and techniques must occur before moving on to advanced levels.

Cross-listed with EMS F170.**Lecture + Lab + Other:** 4 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus

Art (ART)

College of Liberal ArtsArt Department (<https://www.uaf.edu/art/>)

907-474-7530

ART F105X Beginning Drawing (h)

3 Credits

Offered Fall, Spring and Summer

This is an introductory class that introduces students to fundamental drawing concepts, materials, techniques, vocabulary, functions, and range of visual aesthetics. No prior experience with drawing is required or expected.

Attributes: UAF GER Arts Req**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F127 Introduction to Weaving (h)**

3 Credits

Offered As Demand Warrants

Fundamentals of weaving taught through basic techniques and processes for four-shaft loom woven structures. Includes loom terminology and function, warping and threading, basic pattern drafting and designing, color and texture. Introduces tapestry techniques.

Lecture + Lab + Other: 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F161 Two-dimensional Digital Design (h)**

3 Credits

Offered Fall and Spring

This course provides an introduction to design principles and digital skills necessary for fine arts students. The course covers fundamentals of visual design, drawing, and painting techniques on computer. Special fees apply.

Lecture + Lab + Other: 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F162 Color and Design (h)**

3 Credits

Offered Fall and Spring

Fundamentals of pictorial form, color principles and interactions. Emphasis on traditional art media rendered two dimensionally on paper. This course is recommended for students becoming B.A., B.F.A. Drawing, Painting, and Printmaking majors.

Lecture + Lab + Other: 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F163 Three-dimensional Design (h)**

3 Credits

Offered Fall and Spring

This hands-on course introduces fundamental concepts and organization of three-dimensional forms, including applied art and industrial design. Various materials such as wire, clay, silicone, and paper are explored. This course is recommended for students becoming B.A. or B.F.A. Art majors and students interested in exploring material manufacturing processes.

Lecture + Lab + Other: 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F200X Explorations in Art (h)**

3 Credits

Offered Fall and Spring

Understanding and appreciation of art through exploration of its diverse styles, influences and developments. Topics include the creative process, artistic forms of expression, historical and cultural contexts, the role of the artist in society and popular movements and trends.

Prerequisites: Placement in WRTG F111X; sophomore standing.**Attributes:** UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ART F201 Beginning Ceramics (h)

3 Credits

Offered Fall, Spring and Summer

Foundation experience with clay. Overview of the medium of ceramics and its possibilities.

Lecture + Lab + Other: 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ART F205 Intermediate Drawing (h)**

3 Credits

Offered Fall and Spring

Exploration of pictorial composition and creative interpretation of subjects.

Prerequisites: ART F105X.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F207 Beginning Printmaking (h)**

3 Credits

Offered Fall and Spring

Concepts and techniques of printmaking. Subject areas taken from relief, intaglio, serigraphy and lithography.

Prerequisites: ART F105X; ART F161, ART F162, ART F163.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F209 Beginning Metalsmithing and Jewelry (h)**

3 Credits

Offered Fall and Spring

Basic techniques of fine metalsmithing and jewelry.

Lecture + Lab + Other: 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F211 Beginning Sculpture (h)**

3 Credits

Offered Fall and Spring

Basic sculpture techniques and principles.

Prerequisites: ART F105X; ART F161, ART F162, ART F163.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F213 Beginning Painting (h)**

3 Credits

Offered Fall and Spring

This course will address painting techniques in a variety of mediums.

Emphasis will be placed on composition, painting materials and hazardous waste procedures. The techniques covered in this course will

prepare students for future study in upper division courses and help them develop a professional portfolio of work.

Prerequisites: ART F105X; ART F161, ART F162, ART F163.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F223 Watercolor Painting (h)**

3 Credits

Offered As Demand Warrants

Painting in various transparent and opaque media (watercolor, tempera, polymer, casein). Emphasis on techniques and subjects.

Prerequisites: ART F105X; ART F161, ART F162, ART F163.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F227 Woven Fabric Design (h)**

3 Credits

Offered As Demand Warrants

Continuation of ART F127. Exploration of color and texture in loom structures. Includes basic fiber technology and color theory. Topics vary each semester and include blocks, units, laces, twills and R.A.G.S. recycle. Course may be repeated for credit when topic changes.

Prerequisites: ART F127.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F231 Previsualization and Preproduction (h)**

3 Credits

Offered Fall

Previsualization is a collaborative process that generates preliminary versions of shots or sequences, predominantly using 3D animation tools and a virtual environment. It enables filmmakers to visually explore creative ideas, plan technical solutions and communicate a shared vision for efficient production, laying a foundation for cinema production.

Cross-listed with FLPA F231.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F233 Beginning Field Painting (h)**

1 Credit

Offered As Demand Warrants

This introductory course combines painting at outdoor locations with supporting lectures and indoor studios. Students will use drawings and small painted studies to produce finished oil/acrylic paintings. Concepts of space, light, color, composition, scale and elements of landscape paintings such as reflections, aerial and linear perspective will be addressed.

Prerequisites: Recommended: ART F105X; ART F213.**Lecture + Lab + Other:** 0.5 + 1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F240 Beginning Molding and Casting Iron for Sculpture and Design (h)**

1 Credit

Offered Summer

This course will present the student with an individualized level of self-expression, style, and the mastery of the fundamental techniques involved in creating molds for sculptural application. The students are introduced to hot and cold casting methods for use in multimedia projects and traditional iron designs.

Prerequisites: ART F163.**Lecture + Lab + Other:** 0.5 + 1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F261X History of World Art I (h)**

3 Credits

Offered Fall

Origins of art and its development from the beginning through contemporary painting, sculpture and architecture. ART F261X - ART F262X may be taken in reverse order; however, course content is presented in a chronological sequence beginning with fall semester.

Attributes: UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ART F262X History of World Art II (h)

3 Credits

Offered Spring

Origins of art and its development from the beginning through contemporary painting, sculpture and architecture. ART F261X - ART F262X may be taken in reverse order; however, course content is presented in a chronological sequence beginning with fall semester.

Attributes: UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F268 Alaska Native Art Studio I (an, h)**

3 Credits

Offered Fall and Spring

Studio art course exploring the practice of traditional and contemporary Alaska Native art forms; including design, technology, and cultural expression. Rooted in experiential learning, students will learn by creating and utilizing tools specific to Alaska Native cultures. A strong emphasis will be placed on gaining technical skills and traditional knowledge.

Cross-listed with ANS F268.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F271 Beginning Computer Art (h)**

3 Credits

Offered Fall

Basic techniques of computer art. The course covers basic animation, motion graphics, digital painting and digital design.

Prerequisites: ART F161.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F283 Basic Darkroom Photography (h)**

3 Credits

Offered Fall

Photography fundamentals, including use of an adjustable camera, film and exposure techniques, filters and flash techniques. Darkroom procedures including black and white film processing and printing, photograph design and composition. Students must have use of an adjustable camera.

Lecture + Lab + Other: 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F284 Basic Digital Photography (h)**

3 Credits

Offered Fall, Spring and Summer

Introduction of technical and aesthetic aspects of basic digital photography using digital SLR cameras and editing photos through Adobe Photoshop suites. Students are expected to have intermediate computer knowledge. Topics include controlling digital SLRs on manual settings, photographing creatively, basic and advanced editing techniques, negative scanning and digital printing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F301 Intermediate Ceramics (h)**

3 Credits

Offered Fall, Spring and Summer

Continuation of beginning ceramics. Emphasis on developing proficiency in ceramic studio practices and processes.

Prerequisites: ART F201.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ART F305 Advanced Drawing (h)**

3 Credits

Offered Fall and Spring

Development and refinement of individual problems in drawing. Can be repeated for credit with permission of instructor.

Prerequisites: ART F205.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 20 times for up to 999 credits**ART F307 Intermediate Printmaking (h)**

3 Credits

Offered Fall and Spring

Continuation of ART F207 with emphasis on refinement of technique and color printing.

Prerequisites: ART F207.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F309 Intermediate Metalsmithing and Jewelry (h)**

3 Credits

Offered Fall and Spring

Further investigation of material processes and techniques; some emphasis on design.

Prerequisites: ART F209.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F311 Intermediate Sculpture (h)**

3 Credits

Offered Fall and Spring

Exploration in materials and concepts of sculpture. Emphasis on personal creativity and skill development.

Prerequisites: ART F211.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F313 Intermediate Painting (h)**

3 Credits

Offered Fall and Spring

Continued development of expressive skills in painting in any media. Emphasis on pictorial and conceptual problems.

Prerequisites: ART F213; COM F131X or COM F141X.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F333 Intermediate Field Painting (h)**

1 Credit

Offered As Demand Warrants

This intermediate course combines painting at outdoor locations with supporting lectures and indoor studios. Students will use drawings and small painted studies to produce finished oil/acrylic paintings. Concepts of space, light, color, composition, scale and elements of landscape paintings such as reflections, aerial and linear perspective will be addressed.

Prerequisites: ART F213, ART F233.**Recommended:** ART F105X; ART F205.**Lecture + Lab + Other:** 0.5 + 1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus

ART F347 Lighting Design (h)

3 Credits

Offered As Demand Warrants

Principles and techniques of theatrical lighting design. The student will conduct practical experiments and design projects applying the experience gained. Student will spend approximately \$40 for materials for this class.

Prerequisites: COM F131X or COM F141X.**Recommended:** FLPA F241.**Cross-listed with** FLPA F347.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F360 Indigenous Art and Culture (h)**

3 Credits

Offered As Demand Warrants

Examination of art as a medium of cultural criticism, knowledge, wisdom, learning, and expression of social, spiritual, ecological, and aesthetic relationships in Indigenous societies of North, Central and South America, Africa, Eurasia, Australia and Oceania, and the Arctic.

Cross-listed with ANTH F360.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F363 History of Modern Art (h)**

3 Credits

Offered Spring Odd-numbered Years

Development of modern art forms and theories in the visual arts from the late 19th century to the present. Concentration on the artistic pluralism of 20th century art forms: Cubism, Futurism, Surrealism, Expressionism, Constructivism, Nonobjective Art, Abstract Expressionism, Pop Art, Realism and many other "isms."

Prerequisites: ART F262X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F364 Italian Renaissance Art (h)**

3 Credits

Offered Spring Even-numbered Years

Development of the Renaissance from early Florentine to the High Renaissance of Venice. Study of art by Massaccio, Michelangelo, DaVinci, Titian, etc.

Prerequisites: ART F261X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F365 Alaska Native Art History (an, h)**

3 Credits

Offered Spring Even-numbered Years

The material culture of Alaska Native people from pre-colonial times to the present. Students will explore the effects of colonialism on the art forms of different Alaska Native cultural groups. Students will have an opportunity to contribute to the ongoing histories of Alaska Native art through group research projects.

Prerequisites: Sophomore standing or higher.**Cross-listed with** ANS F365; ANTH F365.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F366 Northwest Coast Indian Art (h)**

3 Credits

Offered As Demand Warrants

Arts of the Northwest Coast Indians and the place of art in their culture.

Cross-listed with ANS F366; ANTH F366.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F367 Inuit Art (an, h, s)**

3 Credits

Offered Fall

Indigenous art from Northern Alaska, Canada, Greenland and the Bering Strait region of Russia, from the earliest known to contemporary.

Cross-listed with ANS F367; ANTH F367.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F368 Alaska Native Art Studio II (an, h)**

3 Credits

Offered Fall and Spring

This course is a continuing exploration of the designs, technologies, and meanings of the diverse Alaska Native arts. Through the creative process, students will start examining the complex issues of creating art within a cultural context. A strong emphasis will be placed on developing a student's individual style.

Prerequisites: ANS F268 or ART F268.**Cross-listed with** ANS F368.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F371 Digital Imaging (h)**

3 Credits

Offered Fall and Spring

This course focuses on creating and manipulating digital images, including digital painting and photography. The varied ethical issues engendered by this expertise will be addressed in depth. Skills and knowledge useful for digital photography, digital video compositing and digital painting will be covered.

Prerequisites: ART F161, ART F271, ART F284 or FLPA F260.**Cross-listed with** FLPA F371.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F401 Advanced Ceramics (h)**

3 Credits

Offered Fall, Spring and Summer

Emphasis on developing as aesthetically perceptive and technically proficient ceramic artist. Individual and group projects include kiln firings. May be repeated for credit with permission of instructor.

Prerequisites: ART F301.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 999 credits**ART F402 Anthropology of Art (s)**

3 Credits

Offered As Demand Warrants

Anthropological study of art in cross-cultural perspective. Social context of art production and use and cross-cultural variations in definition of an artist's role.

Prerequisites: Senior standing.**Cross-listed with** ANTH F402.**Stacked with** ANTH F602, ART F602.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ART F407 Advanced Printmaking (h)

3 Credits

Offered Fall and Spring

Individual development of technical and creative processes. May be repeated for credit with permission of instructor.

Prerequisites: ART F307; COM F131X or COM F141X.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 999 credits

ART F409 Advanced Metalsmithing and Jewelry (h)

3 Credits

Offered Fall and Spring

Materials and processes; introduction to holloware skills and forging.

May be repeated for credit with permission of instructor.

Prerequisites: ART F309.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 20 times for up to 999 credits

ART F411 Advanced Sculpture (h)

3 Credits

Offered Fall and Spring

Principles, practices and concepts of sculpture. May be repeated for credit with permission of instructor.

Prerequisites: ART F311.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 999 credits

ART F412 Portrait Photography

3 Credits

Offered As Demand Warrants

This course will teach the student who has basic or advanced exposure and printing skills to further their understanding of the principles and techniques of portrait photography. Students will work with SLR or DSLR cameras and editing through a digital photo suite such as Adobe Photoshop.

Prerequisites: ART F284.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ART F413 Advanced Painting (h)

3 Credits

Offered Fall and Spring

Individual experimentation and technical/conceptual development in painting. Can be repeated for credit with permission of instructor.

Prerequisites: ART F313; COM F131X or COM F141X.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 999 credits

ART F417 Lithography (h)

3 Credits

Offered As Demand Warrants

An exploration of stone and metal plate lithography. May be repeated for credit with permission of instructor.

Prerequisites: ART F105X; ART F207.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 999 credits

ART F419 Life Drawing (h)

3 Credits

Offered As Demand Warrants

Drawing from life; study of artistic anatomy. May be repeated for credit with permission of instructor.

Prerequisites: ART F305.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 999 credits

ART F424 Field Artists of the North (h)

3 Credits

Offered As Demand Warrants

Study of field artists and their work, from explorer artists of yesteryear to today's field artists using varieties of traditional and contemporary media in their creations. Students will conceive and conduct their own study projects, producing a body of work that will demonstrate the principles and practice of field artists.

Prerequisites: ART F105X; a studio art course (ART F161, ART F162, ART F163, ART F205, ART F211, ART F213 or ART F283); COM F131X or COM F141X.

Cross-listed with ACNS F424.

Stacked with ART F624; ACNS F624.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ART F425 Visual Images of the North

3 Credits

Offered As Demand Warrants

This course examines the images of the peoples and landscapes of the Circumpolar North. It centers on documentary and artistic goals, translations from original sketches to published images, the relationship between Arctic imagery and prevailing historical styles, and the influences of changing worldviews on modes of Northern representation and expressions.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Cross-listed with ACNS F425.

Stacked with ART F625; ACNS F625.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ART F427 Relief (h)

3 Credits

Offered As Demand Warrants

Woodcut and monotype with emphasis on color. May be repeated for credit with permission of instructor.

Prerequisites: ART F105X; ART F207; ART F213.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 999 credits

ART F433 Advanced Field Painting (h)

1 Credit

Offered As Demand Warrants

This advanced course combines painting at outdoor locations with supporting lectures and indoor studios. Students will use drawings and small painted studies to produce finished oil/acrylic paintings. Concepts of space, light, color, composition, scale and elements of landscape paintings such as reflections, aerial and linear perspective will be addressed.

Prerequisites: ART F313, ART F333.**Lecture + Lab + Other:** 0.5 + 1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 4 times for up to 9 credits**ART F437 Intaglio (h)**

3 Credits

Offered As Demand Warrants

Intaglio printmaking with emphasis on experimentation and color photo intaglio printing. May be repeated for credit with permission of instructor.

Prerequisites: ART F105X; ART F162; ART F207.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 999 credits**ART F440 Advanced Molding and Casting Iron for Sculpture and Design (h)**

1 Credit

Offered Summer

This course will present the student with an individualized level of self-expression, style, and the mastery of the different techniques involved in creating molds for sculptural application. The students are continuing to develop hot and cold casting skills for use in multimedia projects and traditional iron designs.

Prerequisites: ART F211.**Lecture + Lab + Other:** 0.5 + 1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 4 times for up to 4 credits**ART F447 Silkscreen (h)**

3 Credits

Offered As Demand Warrants

Silkscreen printing with photo process. May be repeated for credit with permission of instructor.

Prerequisites: ART F105X; ART F162; ART F207.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 999 credits**ART F453 Kiln Design and Construction (h)**

3 Credits

Offered As Demand Warrants

Kiln design and construction including building and firing a kiln. May be repeated for credit with permission of instructor.

Prerequisites: ART F201.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 999 credits**ART F456 Ceramic Materials**

3 Credits

Offered Fall Even-numbered Years

A thorough understanding of the materials used to make clay bodies and glazes is an essential tool for the ceramic artist. Through lectures, readings and lab work the student will better understand how different materials work together and how to safely utilize these materials in their own artistic practice.

Stacked with ART F656.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F460 Cross-cultural Filmmaking (h)**

3 Credits

Offered As Demand Warrants

Explore filmmaking through cultural knowledge, decolonized methodologies, and documentary filmmaking techniques to create content reflective of cultural and/or scientific knowledge. Develop film work with a theoretical base for cultural understanding, scientific communications, and educational potentials. Basic pre-production, production, and post-production processes will be explored within a multi-cultural communications framework.

Prerequisites: Junior, senior or graduate standing.**Cross-listed with** ANTH F460; FLPA F460.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F463 Seminar in Art History (h)**

3 Credits

Offered Fall Odd-numbered Years

A forum for discussion of a particular historical period or art historical idea. Topics vary each semester and will not be repeated during a two-year period. Topics include art since 1945, women in twentieth-century art, the American landscape tradition, etc.

Stacked with ART F663.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to unlimited credits**ART F464 History of Photography (h)**

3 Credits

Offered As Demand Warrants

This course will provide an exploration of the history, impact and development of the photographic process, spanning from the earliest observations of optics, through the development of the first permanent image, and all the way to the most recent advances in digital technology.

Prerequisites: WRTG F111X.**Stacked with** ART F664.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F465 Advanced Photography Seminar**

3 Credits

Offered Spring

Advanced discussion of photojournalism and photographic topics with field, studio and darkroom sessions. Topics will range from the photographic essay to the history of photography and working in series. Weekly classroom meetings will be supplemented by field, studio and darkroom sessions.

Prerequisites: ART F283 or ART F284.**Stacked with** ART F665.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

ART F467 Photoprocess Printmaking (h)

3 Credits

Offered Spring Odd-numbered Years

Production of etchings, lithographs and silkscreen prints using photo mechanical processes. Elements of electrophotography and desktop publishing explored. May be repeated for credit with permission of instructor.

Prerequisites: ART F105X; ART F207; ART F262X.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 999 credits**ART F468 Alaska Native Art Studio III (an, h)**

3 Credits

Offered Fall and Spring

Students will refine their artistic practice guided with in-depth mentorship from faculty. Through individualized study, students will continue their exploration and development of their artwork within a cultural context. Strong emphasis will be placed on the individual development of a body of artwork inspired by the cultures they draw from.

Prerequisites: ART F368.**Cross-listed with** ANS F468.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 6 times for up to 18 credits**ART F469 Architecture: Art, Design, Technology and Social Impact (h)**

3 Credits

Offered As Demand Warrants

Concepts of environmental, urban and industrial design. Relationship of human and natural environment is stressed in this history of architecture with special attention given to contemporary conditions in urban areas and effects of industrialization and mechanization on human living and working spaces, artistic design and aesthetics.

Prerequisites: (ART F261X and ART F262X) or HUM F201X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F470 Handmade Photographs**

3 Credits

Offered Spring Odd-numbered Years

This course will introduce students to a wide array of historical photographic techniques and alternative processes while also providing contextual historical and contemporary information about each process. Processes covered include: Pinhole Camera Construction, Lumen Printing, Chemigram, Photogram, Cyanotype, Van Dyke Brown, Albumen and various transfer methods.

Stacked with ART F670.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F471 Advanced Digital Design (h)**

3 Credits

Offered Spring

Project-oriented class in graphic design with applications from journalism to fine and commercial art. Students will be expected to have a background in programs likely to include web design, digital photography and graphic design.

Prerequisites: ART F371; one college-level studio art course.**Special Notes:** May be repeated for credit with permission of the instructor.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 10 times for up to 30 credits**ART F472 3D Animation (h)**

3 Credits

Offered Fall

Concept and technique of 3D computer generated animation with applications in fine and commercial art and science. Students will produce a series of three dimensional animation projects which will introduce them to the tools and concepts used by animation and visualization professionals.

Prerequisites: ART F231, FLPA F231, ART F271.**Cross-listed with** FLPA F472.**Special Notes:** May be repeated for credit.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 5 times for up to 15 credits**ART F474 History of the Role of the Artist (h)**

3 Credits

Offered Spring Even-numbered Years

Survey of theory and practices of professional training and education of the artist in relationship to political, social and philosophical conditions. testing if what this labels. Restrictions: Juniors only.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X.**Co-requisites:** testing testing.**Recommended:** ART F261X; ART F262X.**Stacked with** ART F673.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F475 Digital Video Compositing (h)**

3 Credits

Offered As Demand Warrants

Digital compositing techniques for creating moving imagery. The course covers video manipulation, layering images, synthesizing realistic video imagery, integration of live action and computer generated animation.

Course can be repeated for a total of nine credits with permission of instructor.

Prerequisites: ART F472, FLPA F472.**Cross-listed with** FLPA F475.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 9 credits

ART F476 Advanced Digital Photography Portfolio (h)

3 Credits

Offered Fall, Spring and Summer

This class provides students with the concept of producing a professional digital portfolio of their Commercial and/or Art Photography and/or Photojournalism. Students submit new images each week for editing and critique. Over the semester three smaller bodies of work will become a 20-24 image professional portfolio.

Prerequisites: ART F284.**Cross-listed with** JOUR F476.**Stacked with** ART F676, JOUR F676.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits**ART F483 Advanced Darkroom Photography (h)**

3 Credits

Offered Spring

Continuation of ART F283. Emphasis on continuing development of photographic skills by application of basic technical skills to a variety of areas of photography.

Prerequisites: ART F283.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F484 Multimedia Theory and Practice (h)**

3 Credits

Offered As Demand Warrants

Study of techniques needed to produce multimedia for a special university or community agency project. For the purpose of this course multimedia is defined as computer-based, user-driven products with audio, visual and text components and also video or film where appropriate. Primary program is Flash. plus some mastery of a specialty in writing, art, or television production.

Prerequisites: Understanding of computer graphics programs like Illustrator, Freehand, etc.**Stacked with** ART F684.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F487 Digital Darkroom**

3 Credits

Offered Fall

Students will develop advanced photo editing and digital darkroom skills and create quality prints through Photoshop, Lightroom and other image techniques.

Prerequisite: ART F284.**Stacked with** ART F687.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 5 times for up to 15 credits**ART F488 Professional Practices for Visual Artists**

3 Credits

Offered Spring Odd-numbered Years

This class provides a foundation of practical information for students as they begin to consider various career options in the visual arts. Topics include documentation, websites, promotion and description, exhibit installation methods, marketing, developing application materials for residencies and grants, as well as issues of health and safety.

Prerequisites: Junior standing.**Stacked with** ART F688.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F489 Bachelor of Arts Capstone (h)**

0 Credit

Offered Fall and Spring

This capstone course is the culmination of a student's general studies in the visual arts. This course will give students hands-on experience in preparing an art exhibition, resume, artist's statement and portfolio.

Prerequisites: Admittance to the art program, senior standing.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Pass/Fail Grades**ART F490 Current Problems**

3 Credits

Offered Fall Even-numbered Years

A forum for discussion of aesthetic and professional problems confronted by artists. Instructor and students moderate discussion and students investigate topics. Past semesters included: approaches to figuration of contemporary painting and sculpture, health hazards for the professional artist, portfolio development, gallery access, production far from major cultural centers, etc.

Stacked with ART F690.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**ART F491 Fine Art Seminar (h)**

1 Credit

Offered Fall and Spring

This course is a studio critique for BFA and MFA students. The course is structured as a hybrid seminar/critique, with weekly readings, discussions, and studio critique sessions. The course also includes writing assignments as an integrated element of contemporary studio practice preparing students for their solo exhibition.

Prerequisites: Acceptance into the BFA program.**Stacked with** ART F691.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 12 times for up to 12 credits**ART F492 Seminar**

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F498 Undergraduate Research**

1-3 Credits

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ART F499 Thesis Project**

1-3 Credits

Directed work toward individual exhibition; completed outside regularly scheduled classes. Required for B.F.A. candidates.

Prerequisites: Senior standing.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 3 credits

ART F601 Ceramics

1-6 Credits

Offered Fall and Spring

Exploration of selected topics in ceramics with lectures, demonstrations, independent research and production of ceramics at a level commensurate with graduate standing. May be repeated for credit.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 40 credits**ART F602 Anthropology of Art**

3 Credits

Offered As Demand Warrants

Anthropological study of art in cross-cultural perspective. Social context of art production and use and cross-cultural variations in definition of an artist's role.

Prerequisites: Senior standing.**Cross-listed with** ANTH F602.**Stacked with** ART F402, ANTH F402.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F603 Graduate Photography**

2-6 Credits

Offered As Demand Warrants

Exploration of selected topics in photography, with lectures, demonstrations, independent research and production of photography at a level commensurate with graduate standing. May be repeated for credit.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 1 + 2-8 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 18 credits**ART F605 Drawing**

1-6 Credits

Offered Fall and Spring

Exploration of topic in general drawing with lectures, demonstrations and independent research and production of drawing at a level commensurate with graduate standing. May be repeated for credit.

Prerequisites: ART F305; and graduate standing.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 40 credits**ART F607 Printmaking**

1-6 Credits

Offered Fall and Spring

Exploration of selected topics in printmaking with lectures, demonstrations, independent research and production of printmaking at a level commensurate with graduate standing. May be repeated for credit.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 40 credits**ART F609 Metalsmithing**

1-6 Credits

Offered As Demand Warrants

Exploration of selected topics in metalcraft with lectures, demonstrations, independent research and production of metalcraft at a level commensurate with graduate standing. May be repeated for credit.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 40 credits**ART F611 Sculpture**

1-6 Credits

Offered Fall and Spring

Exploration of selected topics in sculpture with lectures, demonstrations, independent research and production of sculpture at a level commensurate with graduate standing. May be repeated for credit.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 40 credits**ART F613 Painting**

1-6 Credits

Offered Fall and Spring

Exploration of selected topics in painting with lectures, demonstrations, independent research and production of painting at a level commensurate with graduate standing. May be repeated for credit.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 40 credits**ART F619 Life Drawing**

1-6 Credits

Offered As Demand Warrants

Exploration of selected topics in drawing with lectures, demonstrations, independent research and production of drawing at a level commensurate with graduate standing. May be repeated for credit.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 40 credits**ART F624 Field Artists of the North**

3 Credits

Offered As Demand Warrants

Study of field artists and their work, from explorer artists of yesteryear to today's field artists using varieties of traditional and contemporary media in their creations. Students will conceive and conduct their own study projects, producing a body of work that will demonstrate the principles and practice of field artists.

Prerequisites: ART F105X; a studio art course (ART F161, ART F162, ART F163, ART F205, ART F211, ART F213 or ART F283); COM F131X or COM F141X.**Cross-listed with** ACNS F424.**Stacked with** ART F424; ACNS F624.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ART F625 Visual Images of the North

3 Credits

Offered As Demand Warrants

This course examines the images of the peoples and landscapes of the Circumpolar North. It centers on documentary and artistic goals, translations from original sketches to published images, the relationship between Arctic imagery and prevailing historical styles, and the influences of changing worldviews on modes of Northern representation and expressions.

Cross-listed with ACNS F625.**Stacked with** ACNS F425; ART F425.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F633 Graduate Field Painting (h)**

1 Credit

Offered As Demand Warrants

This graduate course combines painting at outdoor locations with supporting lectures and indoor studios. Students will use drawings and small painted studies to produce finished oil/acrylic paintings. Concepts of space, light, color, composition, scale and elements of landscape paintings such as reflections, aerial and linear perspective will be addressed.

Prerequisites: ART F413; ART F433.**Lecture + Lab + Other:** 6 + 21 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 9 credits**ART F656 Ceramic Materials**

3 Credits

Offered Fall Even-numbered Years

A thorough understanding of the materials used to make clay bodies and glazes is an essential tool for the ceramic artist. Through lectures, readings and lab work the student will better understand how different materials work together and how to safely utilize these materials in their own artistic practice.

Stacked with ART F456.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F661 Mentored Teaching in Art**

1 Credit

Offered Fall and Spring

Mentored teaching provides consistent contact of course-related issues between teaching assistants and mentoring faculty. Graduates are required to be enrolled in a mentored teaching section while teaching.

Prerequisites: Graduate standing.**Special Notes:** May be repeated for credit.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**ART F663 Seminar in Art History**

3 Credits

Offered Fall Odd-numbered Years

A forum for discussion of a particular historical period or art historical idea. Topics vary each semester and will not be repeated during a two-year period. Topics include art since 1945, women in twentieth-century art, the American landscape tradition, etc.

Prerequisites: Graduate standing.**Stacked with** ART F463.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to unlimited credits**ART F664 History of Photography (h)**

3 Credits

Offered As Demand Warrants

This course will provide an exploration of the history, impact and development of the photographic process, spanning from the earliest observations of optics, through the development of the first permanent image, and all the way to the most recent advances in digital technology.

Prerequisites: Graduate standing.**Stacked with** ART F464.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F665 Advanced Photography Seminar**

3 Credits

Offered Spring

Advanced discussion of photojournalism and photographic topics with field, studio and darkroom sessions. Topics will range from the photographic essay to the history of photography and working in series. Weekly classroom meetings will be supplemented by field, studio and darkroom sessions.

Prerequisites: ART F283 or ART F284.**Stacked with** ART F465.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F668 Alaska Native Art Studio**

1-6 Credits

Offered Fall and Spring

Through individualized study, students will refine their artistic practice guided with in-depth mentorship from faculty. Through the creative process and deep critical feedback, students will learn to define how their artwork is connected to the cultures they draw upon. Students will develop critical dialogue along with their studio practice.

Prerequisites: graduate standing.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 12 times for up to 36 credits**ART F670 Handmade Photographs**

3 Credits

Offered Spring Odd-numbered Years

This course will introduce students to a wide array of historical photographic techniques and alternative processes while also providing contextual historical and contemporary information about each process. Processes covered include: Pinhole Camera Construction, Lumen Printing, Chemigram, Photogram, Cyanotype, Van Dyke Brown, Albumen and various transfer methods.

Stacked with ART F470.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F671 Two- and Three-dimensional Computer Design**

1-6 Credits

Offered As Demand Warrants

Visualization and animation with applications to two- and three-dimensional computer design and typography. Emphasis on visual design for electronic and print publication. Includes animation of the components of 3-D models. May be repeated for credit.

Prerequisites: ART F471; graduate standing.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 40 credits

ART F672 Advanced Computer Visualization in Art

1-6 Credits

Offered As Demand Warrants

Computer visualization in art with production and reproduction of projects chosen from a wide range of topics. Includes lectures, demonstrations and laboratory experience. May be repeated for credit.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 40 credits**ART F673 History of the Role of the Artist**

3 Credits

Offered Spring Even-numbered Years

Survey of theory and practices of professional training and education of the artist in relationship to political, social and philosophical conditions.

Prerequisites: Graduate standing.**Stacked with** ART F474.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F676 Advanced Digital Photography Portfolio (h)**

3 Credits

Offered Fall, Spring and Summer

This class provides students with the concept of producing a professional digital portfolio of their Commercial and/or Art Photography and/or Photojournalism. Students submit new images each week for editing and critique. Over the semester three smaller bodies of work will become a 20-24 image professional portfolio.

Cross-listed with JOUR F676.**Stacked with** ART F476, JOUR F476.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits**ART F684 Multimedia Theory and Practice**

3 Credits

Offered As Demand Warrants

Study of techniques needed to produce multimedia for a special university or community agency project. For the purpose of this course multimedia is defined as computer-based, user-driven products with audio, visual and text components and also video or film where appropriate. Primary program is Flash. plus some mastery of a specialty in writing, art, or television production.

Prerequisites: Understanding of computer graphics programs like Illustrator, Freehand, etc.**Stacked with** ART F484.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F687 Digital Darkroom**

3 Credits

Offered Fall

Students will develop advanced photo editing and digital darkroom skills and create quality prints through Photoshop, Lightroom and other image techniques.

Prerequisite: ART F284.**Stacked with** ART F487.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 5 times for up to 15 credits**ART F688 Professional Practices for Visual Artists**

3 Credits

Offered Spring Odd-numbered Years

This class provides a foundation of practical information for students as they begin to consider various career options in the visual arts. Topics include documentation, websites, promotion and description, exhibit installation methods, marketing, developing application materials for residencies and grants, as well as issues of health and safety.

Prerequisites: Graduate standing.**Stacked with** ART F488.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ART F690 Current Problems**

3 Credits

Offered Fall Even-numbered Years

A forum for discussion of aesthetic and professional problems confronted by artists. Instructor and students moderate discussion and students investigate topics. Past semesters included: approaches to figuration of contemporary painting and sculpture, health hazards for the professional artist, portfolio development, gallery access, production far from major cultural centers, etc.

Prerequisites: Graduate standing.**Stacked with** ART F490.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**ART F691 Fine Art Seminar (h)**

1 Credit

Offered Fall and Spring

This course is a studio critique for BFA and MFA students. The course is structured as a hybrid seminar/critique, with weekly readings, discussions, and studio critique sessions. The course also includes writing assignments as an integrated element of contemporary studio practice preparing students for their solo exhibition.

Prerequisites: Acceptance into the BFA program.**Stacked with** ART F491.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 12 times for up to 12 credits**ART F692 MFA Seminar**

3 Credits

Lecture + Lab + Other: 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**ART F698 Non-thesis Research/Project**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**ART F699 M.F.A. Thesis Project**

1-9 Credits

Lecture + Lab + Other: 1 + 4 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits

Atmospheric Sciences (ATM)

College of Natural Science and Mathematics

Department of Atmospheric Sciences (<https://www.uaf.edu/atmos/>)

907-474-7368

ATM F101X Weather and Climate of Alaska (n)

4 Credits

Offered Spring

Focus on the atmosphere as an important part of our environment. Study of weather and climate that covers weather observation, composition and properties of the atmosphere, weather and circulation systems, forecasting weather based on fundamental laws of physics and chemistry. Students are required to make weather observations in Alaska.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.

Special Notes: The students will use their local observations as a foundation and a vantage point to understand the regional and global behavior of the atmosphere (that is, "Observe locally and connect globally").

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

ATM F401 Introduction to Atmospheric Sciences

3 Credits

Offered Fall

Fundamentals of atmospheric science. Includes energy and mass conservation, internal energy and entropy, atmospheric water vapor, cloud microphysics, equations of motion, hydrostatics, phase oxidation, heterogeneous chemistry, the ozone layer, fundamentals of biogeochemical cycles, solar and terrestrial radiation and radiative-convective equilibrium. Also includes molecular, cloud and aerosol absorption and scattering.

Prerequisites: CHEM F105X; CHEM F106X; MATH F302; PHYS F212X.

Stacked with ATM F601; CHEM F601.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ATM F413 Atmospheric Radiation

3 Credits

Offered As Demand Warrants

Atmospheric radiation including the fundamentals of blackbody radiation theory and radiative properties of atmospheric constituents. Discussion of gaseous absorption including line absorption, broadening effects and radiative transfer. Includes scattering, radiative properties of clouds and radiation climatology.

Prerequisites: ATM F401 (may be taken concurrently).

Cross-listed with PHYS F413.

Stacked with ATM F613; PHYS F613.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ATM F415 Cloud Physics

3 Credits

Offered Spring Even-numbered Years

Basic properties of condensed water vapor in the atmosphere. Formation and behavior of clouds including atmospheric aerosols, nucleation and growth of water droplets and ice crystals, the development of precipitation, nature of mixed-phase (water and ice) clouds, radiative transfer and experiments using AFARS Lidar, Microwave Radiometer and Satellite Remote sensing.

Prerequisites: ATM F401 (may be taken concurrently).

Stacked with ATM F615.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ATM F425 Physical Hydrometeorology

3 Credits

Offered As Demand Warrants

Explores hydrometeorological processes, presents how to apply analysis techniques/skills to solve fundamental hydrometeorological questions (e.g. fire weather forecasting, drought forecasting, water resource management, flood forecasting). Subjects covered are hydrographs, radar images, meteograms, lysimeter, near-surface meteorology, surface energy and water budgets, stream response, groundwater, drought-indices, observational errors.

Prerequisites: ATM F401.

Stacked with ATM F625.

Special Notes: Recommended 400-level Physics, Calculus I to III.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ATM F433 Atmospheric Remote Sensing

3 Credits

Offered Fall Odd-numbered Years

The course focuses on the physical principles of remote sensing and how atmospheric measurements are made with passive and active techniques from ground-, air- and satellite-based platforms. The course explores principles of absorption, emission and scattering. Students work with remote sensing data and explore specific techniques of interest to them.

Prerequisites: ATM F401 (may be taken concurrently).

Stacked with ATM F633.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ATM F444 Weather Analysis and Forecasting

3 Credits

Offered Spring Even-numbered Years

Weather systems and the techniques used to understand and predict their behavior. Topics include atmospheric observations, synoptic analysis techniques, satellite image interpretation, kinematics, fronts and frontogenesis, life cycles of extratropical cyclones, mesoscale phenomena, numerical weather prediction and interpretation of forecast products.

Prerequisites: ATM F401; ATM F445.

Stacked with ATM F644.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ATM F445 Atmospheric Dynamics

3 Credits

Offered Fall Even-numbered Years

Examination of the fundamental forces and basic conservation laws that govern the motion of the atmosphere. Topics include momentum, continuity equations, circulation, vorticity, thermodynamics, the planetary boundary layer and synoptic scale motions in mid-latitudes.

Prerequisites: ATM F401 (may be taken concurrently).

Stacked with ATM F645.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ATM F446 Atmospheric Dynamics II: Climate Dynamics

3 Credits

Offered Spring Odd-numbered Years

Continuation of ATM F445/ATM F645. Includes geophysical fluid dynamics as applied to the atmosphere. Topics include linear perturbation theory, energy balance, kinetic energy cycle, dynamics of zonally symmetric and varying flow, and tropical dynamics.

Prerequisites: ATM F445; senior standing.**Recommended:** experience with coding tools (for example, C++, FORTRAN, R, NCL).**Stacked with** ATM F646.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F456 Climate and Climate Change**

3 Credits

Offered Fall Odd-numbered Years

The climate of planet Earth and its changes with time. Radiative fluxes, greenhouse effects, energy budget, hydrological cycle, the atmospheric composition and climatic zones. Physical and chemical reasons for climatic change.

Prerequisites: Any 400 level Physics or Chemistry course or ATM F401; basic computer skills.**Stacked with** ATM F656.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F473 Micrometeorology with Focus on Subarctic and Arctic Ecosystems**

3 Credits

Offered Fall Even-numbered Years

This course provides a comprehensive explanation of micrometeorology, physical mechanisms, measurement procedures and methods. The course focuses on subarctic and arctic ecosystems. Students receive training in eddy-covariance data processing for ecosystem fluxes computation. The course is oriented to students of biology and wildlife, natural resources and environmental sciences and engineering.

Prerequisites: Senior standing.**Stacked with** ATM F673.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F478 Mesoscale Dynamics**

3 Credits

Offered As Demand Warrants

A comprehensive explanation of mesoscale air motions – their phenology, basic physics and mechanisms, why they build and how mesoscale motions interact with the micro and large scale. Classical and non-classical mesoscale circulations, super cell, single and multiple cell thunderstorm dynamics and tornado formation.

Prerequisites: ATM F401.**Stacked with** ATM F678.**Special Notes:** Recommend 400-level physics, calculus I to III.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F480 Climate Change Processes: Past, Present, Future**

4 Credits

Offered Fall Odd-numbered Years

This 'synthesis' course for Geography, NRM, or Natural Sciences undergraduates provides literacy in the rapidly developing field of climate-change science. Students will gain an understanding of climate dynamics and Earth's climate history and will be trained to critically evaluate the validity of paleoclimatic reconstructions and climate-model predictions.

Prerequisites: Junior or senior standing.**Cross-listed with** GEOS F480.**Stacked with** ATM F680, GEOS F680.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F488 Undergraduate Research**

1-3 Credits

Advanced research topics from outside the usual undergraduate requirements.

Recommended: A substantial level of technical/scientific background.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ATM F601 Introduction to Atmospheric Sciences**

3 Credits

Offered Fall

Fundamentals of atmospheric science. Includes energy and mass conservation, internal energy and entropy, atmospheric water vapor, cloud microphysics, equations of motion, hydrostatics, phase oxidation, heterogeneous chemistry, the ozone layer, fundamentals of biogeochemical cycles, solar and terrestrial radiation and radiative-convective equilibrium. Also includes molecular, cloud and aerosol absorption and scattering.

Prerequisites: Graduate standing.**Cross-listed with** CHEM F601.**Stacked with** ATM F401.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F606 Atmospheric Chemistry**

3 Credits

Offered Spring Odd-numbered Years

Chemistry of the lower atmosphere (troposphere and stratosphere) including photochemistry, kinetics, thermodynamics, box modeling, biogeochemical cycles and measurement techniques for atmospheric pollutants; study of important impacts to the atmosphere which result from anthropogenic emissions of pollutants, including acid rain, the "greenhouse" effect, urban smog and stratospheric ozone depletion.

Prerequisites: ATM F601.**Cross-listed with** CHEM F606.**Stacked with** CHEM F406.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ATM F610 Analysis Methods in Meteorology and Climate

3 Credits

Offered Spring Odd-numbered Years

Introduction to standard analysis topics in Atmospheric Sciences, including basic aggregate stats, time series work, eigenmode analysis, mixed models, and extreme value analysis. Focus on manipulation of very large data sets, especially weather/climate model output. Hands-on instruction in supporting computer topics. Student presentations will be emphasized.

Prerequisites: ATM F601; graduate standing.**Recommended:** Basic computer and mathematical knowledge to analyze and plot data.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F613 Atmospheric Radiation**

3 Credits

Offered As Demand Warrants

Atmospheric radiation including the fundamentals of blackbody radiation theory and radiative properties of atmospheric constituents. Discussion of gaseous absorption including line absorption, broadening effects and radiative transfer. Includes scattering, radiative properties of clouds and radiation climatology.

Prerequisites: ATM F601 (may be taken concurrently); graduate standing.**Cross-listed with** PHYS F613.**Stacked with** ATM F413; PHYS F413.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F615 Cloud Physics**

3 Credits

Offered Spring Even-numbered Years

Basic properties of condensed water vapor in the atmosphere. Formation and behavior of clouds including atmospheric aerosols, nucleation and growth of water droplets and ice crystals, the development of precipitation, nature of mixed-phase (water and ice) clouds, radiative transfer and experiments using AFARS Lidar, Microwave Radiometer and Satellite Remote sensing.

Prerequisites: ATM F601; graduate standing.**Stacked with** ATM F415.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F620 Climate Journal Club Seminar**

1 Credit

Offered Spring

The "Climate Group" is an informal meeting for researchers and graduate students. The seminars alternate between progress reports on ongoing research and journal club contributions. The main interests articles, formal and informal presentations by locals and visitors will be on the agenda. All students are encouraged to contribute and students taking the course for credit are required to lead the discussion for one session. This may include the presentation of a research plan/results, or a discussion of a journal article. Students will be graded on at least one presentation and participation in the class.

Prerequisites: Graduate standing.**Special Notes:** Participating students will be exposed to a free format discussion of modern ideas in climate related disciplines.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**ATM F621 Introduction to Computational Meteorology**

1 Credit

Offered Fall

Introduces the basic knowledge on how to apply software related to atmospheric sciences problems. This includes UNIX/LINUX, FORTRAN90, NCL, Python, MATLAB and how to read data-formats (e.g., NetCDF files, grib-files, etc) for climate and remote sensing datasets. Students will learn how to run a given software and produce software modifications.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F625 Physical Hydrometeorology**

3 Credits

Offered As Demand Warrants

Explores hydrometeorological processes, presents how to apply analysis techniques/skills to solve fundamental hydrometeorological questions (e.g. fire weather forecasting, drought forecasting, water resource management, flood forecasting). Subjects covered are hydrographs, radar images, meteograms, lysimeter, near-surface meteorology, surface energy and water budgets, stream response, groundwater, drought-indices, observational errors.

Prerequisites: ATM F401.**Stacked with** ATM F425.**Special Notes:** Recommended 400-level Physics, Calculus I to III.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F631 Environmental Fate and Transport**

3 Credits

Offered Spring Even-numbered Years

Examination of the physical properties that govern the behavior, fate and transport of contaminants released into the environment. Topics include air-water partitioning and exchange, organic solvent-water partitioning, diffusion, sorption, chemical and biological transformation reactions, and modeling concepts.

Cross-listed with CHEM F631.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F633 Atmospheric Remote Sensing**

3 Credits

Offered Fall Odd-numbered Years

The course focuses on the physical principles of remote sensing and how atmospheric measurements are made with passive and active techniques from ground-, air- and satellite-based platforms. The course explores principles of absorption, emission and scattering. Students work with remote sensing data and explore specific techniques of interest to them.

Prerequisites: ATM F401 or ATM F601; graduate standing.**Stacked with** ATM F433.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ATM F644 Weather Analysis and Forecasting

3 Credits

Offered Spring Even-numbered Years

Weather systems and the techniques used to understand and predict their behavior. Topics include atmospheric observations, synoptic analysis techniques, satellite image interpretation, kinematics, fronts and frontogenesis, life cycles of extratropical cyclones, mesoscale phenomena, numerical weather prediction and interpretation of forecast products.

Prerequisites: ATM F601; ATM F645.**Stacked with** ATM F444.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F645 Atmospheric Dynamics**

3 Credits

Offered Fall Even-numbered Years

Examination of the fundamental forces and basic conservation laws that govern the motion of the atmosphere. Topics include momentum, continuity equations, circulation, vorticity, thermodynamics, the planetary boundary layer and synoptic scale motions in mid-latitudes.

Prerequisites: ATM F601 (may be taken concurrently); graduate standing.**Stacked with** ATM F445.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F646 Atmospheric Dynamics II: Climate Dynamics**

3 Credits

Offered Spring Odd-numbered Years

Continuation of ATM F445/ATM F645. Includes geophysical fluid dynamics as applied to the atmosphere. Topics include linear perturbation theory, energy balance, kinetic energy cycle, dynamics of zonally symmetric and varying flow, and tropical dynamics.

Prerequisites: ATM F645; graduate standing in Physics, Oceanography, Engineering, Natural Sciences or Atmospheric Sciences.**Recommended:** experience with coding tools (for example, C++, FORTRAN, R, NCL).**Stacked with** ATM F446.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F647 Fundamentals of Geophysical Fluid Dynamics**

3 Credits

Offered Fall Odd-numbered Years

Introduction to the mechanics of fluid systems, the fundamental processes, Navier-Stokes' equations in rotating and stratified fluids, kinematics, conservation laws, vortex motion, irrotational flow, laminar flow, boundary layer phenomena, waves, instabilities, turbulent flows and mixing.

Prerequisites: Graduate standing.**Cross-listed with** PHYS F647.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F656 Climate and Climate Change**

3 Credits

Offered Fall Odd-numbered Years

The climate of planet Earth and its changes with time. Radiative fluxes, greenhouse effects, energy budget, hydrological cycle, the atmospheric composition and climatic zones. Physical and chemical reasons for climatic change.

Prerequisites: Graduate standing; calculus, physics or related courses at F400-level, basic computer skills.**Recommended:** ATM F601 or ATM F401; basic computer knowledge to plot and analyze climate data.**Stacked with** ATM F456.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F657 Climate Change in the Arctic: Methods and Impact Assessment**

3 Credits

Offered As Demand Warrants

This course introduces graduate students to methodologies to study climate change and its environmental and, to a lesser degree, human impacts in the Arctic. Classroom study focus on boreal forest and arctic tundra, oceanic and coastal ecosystems topics, including characterization methods and impacts determinations.

Prerequisites: Graduate standing MA or PhD students including students in the Climate Security Certificate.**Special Notes:** Elements of statistical analysis and computational processing will be provided during classes.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F658 Air-sea Interactions**

3 Credits

Offered Spring Even-numbered Years

Course covers the basic processes governing air-sea interactions at different temporal and spatial scales including; transfer of heat and momentum through air-sea surface, interactions of atmospheric and oceanic mixed layers, important examples of air-sea interactions; i.e. El Niño and interactions between high-latitude atmosphere and ocean.

Prerequisites: ATM F601; graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F662 Numerical Modeling and Parameterization Methods**

3 Credits

Offered Spring Even-numbered Years

Construction of models from fundamental equations and the necessity of parameterizations. Simplification and discretization of equations, numerical methods, model-grids, analytical modeling, boundary and initial conditions, parameterizations and evaluation of model results. Scale-dependency, limitations of parameterizations and coupled modeling are elucidated. Students apply and code aspects of models themselves.

Prerequisites: Graduate standing; calculus, physics or related F400-level basic computer skills.**Recommended:** ATM F601; basic knowledge in Fortran and UNIX/LINUX.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ATM F673 Micrometeorology with Focus on Subarctic and Arctic Ecosystems

3 Credits

Offered Fall Even-numbered Years

This course provides a comprehensive explanation of micrometeorology, physical mechanisms, measurement procedures and methods. The course focuses on subarctic and arctic ecosystems. Students receive training in eddy-covariance data processing for ecosystem fluxes computation. The course is oriented to students of biology and wildlife, natural resources and environmental sciences and engineering.

Prerequisites: Graduate standing.**Stacked with** ATM F473.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F678 Mesoscale Dynamics**

3 Credits

Offered As Demand Warrants

A comprehensive explanation of mesoscale air motions – their phenology, basic physics and mechanisms, why they build and how mesoscale motions interact with the micro and large scale. Classical and non-classical mesoscale circulations, super cell, single and multiple cell thunderstorm dynamics and tornado formation.

Prerequisites: ATM F401 or ATM F601.**Stacked with** ATM F478.**Special Notes:** Recommend 400-level physics, calculus I to III.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F680 Climate Change Processes: Past, Present, Future**

4 Credits

Offered Fall Odd-numbered Years

This 'synthesis' course for Geography, NRM, or Natural Sciences undergraduates provides literacy in the rapidly developing field of climate-change science. Students will gain an understanding of climate dynamics and Earth's climate history and will be trained to critically evaluate the validity of paleoclimatic reconstructions and climate-model predictions.

Prerequisites: Junior or senior standing in major; ATM F401, GEOS F315, OCN F419 or OCN F481.**Cross-listed with** GEOS F680.**Stacked with** ATM F480, GEOS F480.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ATM F688 Atmospheric Science Informal Seminar**

1 Credit

Review of ongoing research in atmospheric science to learn about research results, ideas and direction long before they are published in journals. Presentations cover the broad range of atmospheric sciences and links to other disciplines as required to answer questions on global variability, climate change and assessment studies.

Prerequisites: Graduate standing in physical sciences.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**ATM F692 Seminar**

1-3 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ATM F692P Seminar**

1-3 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ATM F698 Non-thesis Research/Project**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 1-12**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**ATM F699 Thesis**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 1-12**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits

Automotive Technology (AUTO)

Community and Technical CollegeAutomotive Technology Program (<https://www.ctc.uaf.edu/programs/automotive-technology/>)

907-455-2800

AUTO F080 Driver and Safety Education

2 Credits

Offered As Demand Warrants

Driver education for the beginning driver. Alaska Driver's Manual and material necessary to gain an Alaska Driver's Permit. Defensive driving methods for accident-free driving and basic mechanical information.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F081 Behind-the-Wheel Training**

1 Credit

Offered As Demand Warrants

Practical driver training in actual situations. Expected student outcome is obtaining a State of Alaska driver's license. Prerequisites: Must have a valid Alaska Driver's Permit.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F100 Introduction to Small Engine Repair**

1 Credit

Offered As Demand Warrants

Parts and functions of a small engine and its electrical system.

Dismantling procedures, cleaning and reassembly techniques, gasket-making, lubrication, troubleshooting, and minor repairs.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F102 Introduction to Automotive Technology**

3 Credits

Offered Fall

Provides career information in the automotive industry. Shop safety, hand tools, fasteners, fittings, and an introduction to the major automotive systems.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus

AUTO F103 Auto Tune-Up

1 Credit

Offered As Demand Warrants

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F106 Auto/Diesel Engine Cooling and Climate Control Systems**

4 Credits

Offered As Demand Warrants

Theory, diagnostics and repair of motor vehicle A/C, heating, engine cooling and automatic temperature control systems. Covers R-12 and R134-A refrigerant recovery, and related EPA regulations.

Recommended: AUTO F110.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F110 Basic Electrical Systems**

3 Credits

Offered Spring

The history and origins of electrical theory, the generation of electricity and diagnosis, minor repair and general servicing of alternators, starters and batteries.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F112 Basic Auto Maintenance**

1 Credit

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F113 Gasoline Fuel Delivery Systems**

4 Credits

Offered As Demand Warrants

Basics of carburation and electronic fuel injection. Emphasis on theory, diagnostic/repair skills, inputs and outputs of the PCM, engine performance, use of on-board diagnostic data (OBD II) and special test equipment.

Recommended: AUTO F110.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F122 Engine Theory and Diagnosis**

3 Credits

Offered Fall

Introduction to fundamental aspects of engine design, general diagnosis and engine related service, to include combustion process, engine noise, basics of exhaust emissions, vacuum/pressure, compression, intake and exhaust systems, valve and ignition timing.

Prerequisites: AUTO F102.**Recommended:** AUTO F110.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F131 Automotive Electrical II**

3 Credits

Offered Spring

Theory, diagnosis and repair of automotive electrical/electronic systems to include testing tools, schematics and on-board computers.

Prerequisites: AUTO F110.**Recommended:** AUTO F102.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F150 Brake Systems**

4 Credits

Offered Fall

Theory, diagnosis and servicing of light- and heavy-duty vehicle hydraulic brake and traction control systems. Includes discussion and tasks on disc brakes, drum brakes, power assist systems and anti-lock/traction controls.

Prerequisite: AUTO F110.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F162 Suspension Alignment**

4 Credits

Offered Fall

Theory, diagnosis and repair of suspension, steering and wheel alignment of automobiles and trucks.

Lecture + Lab + Other: 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**AUTO F170 Snowmachine Maintenance and Repair**

1 Credit

Offered As Demand Warrants

Fundamental skills for operation and repair. Engine tune-up, lubrication, belt and track repair, alignment and basic problems encountered during operation.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**AUTO F172 All-Terrain Vehicle Maintenance and Repair**

1 Credit

Offered As Demand Warrants

Teaches fundamental skills for maintenance and repair of an All-Terrain Vehicle (ATV). Engine tune-up, lubrication, clutch and belt (if applicable), transmission troubleshooting, tire and wheel repair, alignment and other basic problems encountered during operation along with safe shop procedures.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 3 credits**AUTO F190 Automotive Practicum I**

1-6 Credits

Offered Fall and Spring

Provides supervised workplace experience in selected industry settings. Integrates knowledge and practice to achieve competencies in basic skills. A maximum of 6 credits may be earned.

Prerequisites: Advisor approval required.**Lecture + Lab + Other:** 0 + 0 + 1-6**Grading System:** Letter Grades with option of Plus/Minus**AUTO F202 Auto Fuel and Emissions Systems**

4 Credits

Offered Spring

Builds on the skills and knowledge gained in AUTO F122. Combustion chemistry, volumetric efficiency, design and function of emission control devices, laws and regulations concerning vehicle emissions are covered, with an emphasis on interfacing with on-board computers, automotive computer networking, and four and five gas analysis.

Prerequisites: AUTO F102; AUTO F122.**Lecture + Lab + Other:** 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus

AUTO F209 Automatic Transmissions and Transaxles

5 Credits

Offered As Demand Warrants

Automatic transmissions and transaxles. Includes the operation, diagnosis and repair of planetary gears, clutches, pumps, hydraulic controls and electronic shifting controls. Study and hands-on tasks.

Recommended: AUTO F110 strongly recommended.

Lecture + Lab + Other: 4 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

AUTO F215 Engine Analyzer, Scopes and Scan Tools

4 Credits

Offered As Demand Warrants

Use and interpretation of diagnostic analyzers for spark ignition engines, digital data, fault code and input/output information retrieval, scan tool usage and other diagnostic tools used in the vehicle repair industry.

Recommended: AUTO F110.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

AUTO F219 The Auto/Diesel Repair Business

2 Credits

Offered As Demand Warrants

Overview of practices common in the vehicle repair industry. Includes flat rate, repair order write-up, customer relations, repair industry related OSHA and EPA regulations, and financing and acquiring a repair business.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AUTO F222 Automotive Engine Performance

3 Credits

Offered Spring

Builds on skills and knowledge gained in AUTO F122 and AUTO F202. Applies strategies for diagnosing fuel and ignition systems, automotive computers and multiplexing. Includes communication strategies, on-board diagnostics, testing and diagnosis of engine performance-related components.

Prerequisites: AUTO F122; AUTO F202.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

AUTO F227 Automotive Electrical III

3 Credits

Offered Spring

The theory, diagnosis and repair of automotive electrical and electronic systems to include accessories.

Prerequisites: AUTO F131.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

Aviation Technology (AVTY)

Community & Technical College

Aviation Program (<https://www.ctc.uaf.edu/programs/aviation-maintenance/>)

907-455-2800

AVTY F100 Private Pilot Ground School

4 Credits

Offered Fall

Study of aircraft and engine operation and limitations, aircraft flight instruments, navigation, navigation computers, national weather information and dissemination services. Federal aviation regulations, flight information publications, radio communications and navigation. Preparation for FAA private pilot-airplane written exam.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F101 Private Pilot Flight Training

2 Credits

Offered As Demand Warrants

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of private pilot certificate.

Prerequisites: Department approval required.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F102 Commercial Ground Instruction

3 Credits

Offered Spring

Advanced study of aircraft performance, airplane systems (including complex single engine, multi-engine and turboprop aircraft), navigation, regulations and meteorology. Employment considerations for commercial pilots surveyed. Preparation for the FAA commercial pilot-airplane written exam.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F103 Commercial Flight Training

2 Credits

Offered As Demand Warrants

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of commercial pilot certificate.

Prerequisites: Private Pilot certificate, AVTY F102 or concurrent enrollment, or passing score on FAA Commercial Pilot written exam, department approval required.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F105 Seaplane Flight Training

1 Credit

Offered As Demand Warrants

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of single-engine sea rating.

Prerequisites: Private pilot certificate or higher, department approval required.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F107 Multi-Engine Flight Training

1 Credit

Offered As Demand Warrants

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of multi-engine rating.

Prerequisites: Private pilot certificate or higher, department approval required.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F108 Introduction to Skis

1 Credit

Offered As Demand Warrants

Pilot instruction with a certified flight instructor or flight school in techniques of ski-plane operation and cold weather maintenance. The student is responsible for making arrangements for an appropriate aircraft, instructor and financing.

Prerequisites: Private pilot certificate.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F109 Glider Flight Training

1 Credit

Offered As Demand Warrants

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of glider and private or commercial pilot certificate with a glider category rating.

Prerequisites: Department approval.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F111 Fundamentals of Aviation

3 Credits

Offered As Demand Warrants

Basic concepts associated with the aircraft and its environment. Aircraft and its components, including basic systems, Federal Aviation Administration regulations, airports and airspace utilization, aeronautical charts, navigation, weather theory, medical and emergency factors.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F116 Aviation History

3 Credits

Offered As Demand Warrants

Aviation from its early days to the present. People, places and machines contributing to the development of Alaskan aviation.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F121 Introduction to Aviation Safety

2 Credits

Offered As Demand Warrants

An introduction to aviation safety designed to develop a positive attitude toward safety, refresh aeronautical knowledge and improve aeronautical skills. Proof required first day of class.

Prerequisites: Pilot's Certificate or enrollment in Aviation program.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F155 Preventive Maintenance

1-3 Credits

Offered Spring

Mechanics of the airplane, its powerplant and systems to enable the student to evaluate malfunctions and make maintenance decisions. Designed for the pilot-owner. Proof required first day of class.

Prerequisites: Pilot's Certificate or enrollment in Aviation program.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

AVTY F200 Instrument Ground School

4 Credits

Offered Fall

Instrument flight operations in detail, altitude instrument flying, air traffic control and navigation facilities, pilot responsibilities. IFR enroute charts, instrument approach procedures. Federal Aviation Regulations, flight planning, human factors and meteorology. Includes optional visits to FAA, RAPCO and ARTCC facilities. Proof required first day of class.

Prerequisites: Pilot's Certificate or enrollment in Aviation program.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F201 Instrument Pilot Training

2 Credits

Offered As Demand Warrants

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Cost of flight instruction varies with location of instruction. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of instrument rating.

Prerequisites: Private or Commercial Pilot Certificate or AVTY F200 (may be taken concurrently) or passing score on FAA Private or Commercial Pilot written exam; department approval.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F202 Flight Instructor Ground School

3 Credits

Offered As Demand Warrants

Preparation for the FAA certified flight instructor or advanced ground instructor written exam.

Prerequisites: Commercial pilot certificate.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F203 Flight Instructor Flight Training

2 Credits

Offered As Demand Warrants

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training meets federal aviation regulations. Course completion requires awarding of certified flight instructor certificate.

Prerequisites: Commercial pilot certificate with instrument rating; AVTY F202; or concurrent enrollment; or passing score on FAA flight instructor written exams; department approval.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AVTY F205 Instrument Instructor Flying

3 Credits

Offered As Demand Warrants

Preparation for certification as an instrument flight instructor.

Prerequisites: Commercial flight instructor certificate and department approval.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F206 ATP Ground Instruction**

4 Credits

Offered As Demand Warrants

Preparation for the FAA airline transport pilot written exam.

Prerequisites: Compliance with FAR 61.151 and 61.155 or department permission.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F207 ATP Flying**

2 Credits

Offered As Demand Warrants

Qualification for single- or multi-engine FAA airline transport pilot certificate.

Prerequisites: Commercial pilot certificate, 1500 hours of flight time as pilot or equivalent as described in FAR 61.155; AVTY F206 or passing score on FAA airline transport pilot written exam; current FAA first class medical certificate.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F211 Instrument Flying**

3 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F220 Basic Flight Physiology**

3 Credits

Offered As Demand Warrants

Understanding the physiology of flight and using this knowledge to explain why certain phenomena occur to the mind and body during flight.

Proof required first day of class.

Prerequisites: Pilot's Certificate or enrollment in Aviation program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F226 Flight Engineer Ground School**

4 Credits

Offered As Demand Warrants

A comprehensive examination of the major systems of one of the following aircraft: turbojet (B-727, DC-8, B-707); turboprop (L-382, L-188); or reciprocating (DC-6). Preparation for the FAA flight engineer written exam.

Prerequisites: FAA commercial pilot license and instrument rating or equivalent; department approval.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F231 Arctic Survival**

3 Credits

Offered Spring

Use of principles, procedures, techniques and equipment to survive extreme Arctic conditions and assist in safe recovery. Lab required.

Cross-listed with EMS F257.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F232 Aviation Astronomy and Navigation**

3 Credits

Offered As Demand Warrants

Air navigation and astronomy, including charts, equipment, star and constellation identification, and calculations.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F235 Elements of Weather**

3 Credits

Offered Fall

Weather as it affects aircraft operators with an emphasis on interior Alaska.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F239 Aircraft Dispatcher**

4 Credits

Offered As Demand Warrants

Coordinating functions involving the aircraft and other departments of an airline business. Those wanting to be eligible for aircraft dispatcher certificate must be 23 years of age.

Lecture + Lab + Other: 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F402 Aircraft Management**

3 Credits

Offered As Demand Warrants

Securing, dispatching and monitoring aircraft operations. Safety, security, community relations, cost-effective scheduling and personnel management for mission scheduling.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F405 Advanced Aircraft Operations**

3 Credits

Offered As Demand Warrants

Techniques and requirements associated with the operation of turbine-powered aircraft, remotely piloted aircraft, helicopters and STOL aircraft for pilots and air workers; safety; systems; aerodynamics; operating characteristics.

Prerequisites: AVTY F100, AVTY F111.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AVTY F410 Techniques of Bush Flying**

2 Credits

Offered As Demand Warrants

Flight training emphasizing emergency procedures in remote locations, off-airport operations, critical flight attitudes, low-level flight, terrain flying, special maneuvers and unique soft and short field takeoffs and landings.

Prerequisites: AVTY F231; AVTY F235; commercial rating; 20 hours taildragger time.**Lecture + Lab + Other:** 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus

Biology (BIOL)

College of Natural Science and Mathematics

Department of Biology and Wildlife
907-474-7671

BIOL F100X Human Biology (n)

4 Credits

Offered Fall and Spring

Survey of biological principles as applied to human anatomy, physiology, genetics and health.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.

Special Notes: Intended for non-science majors.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F101L Introductory Biology Lab

1 Credit

Offered Fall and Spring

Provides laboratory experience emphasizing contemporary biological topics for transfer students who are not science majors and who have completed a natural science course with no laboratory section at another institution. Content aligns with the laboratory section of BIOL F103X. Students having completed BIOL F103X may not register for BIOL F101L.

Prerequisites: A university-level natural science course.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F103X Biology and Society (n)

4 Credits

Offered Fall and Spring

Fundamental principles of biology; emphasis on their application to humans in the modern world. Lectures, laboratory demonstrations, experiments and discussions of contemporary biological topics. For non-science majors; cannot be used as a biology elective by biological science majors. Students who have completed BIOL F101L may not register for BIOL F103X.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F104L BIOL F104X Laboratory (n)

0 Credit

Offered Fall

Laboratory portion of BIOL F104X/WLF F104X.

Co-requisites: BIOL F104X or WLF F104X.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Non-Graded

BIOL F104X Natural History of Alaska (n)

4 Credits

Offered Fall

Survey of the physical and biological environment of Alaska, including terrestrial and aquatic systems. Topics include the past, present and future climate of Alaska, life histories of common plants and animals, adaptations of organisms to the northern environment, human influences on ecosystems and the management of wildlife and ecosystems.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.

Co-requisites: BIOL F104L or WLF F104L.

Cross-listed with WLF F104X.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F111L BIOL F111X Laboratory

0 Credit

Offered Fall

Corequisite: BIOL F111X.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

BIOL F111X Human Anatomy and Physiology I (n)

4 Credits

Offered Fall

Integrated view of human structure and function. Provides a foundation in relevant chemistry, cell biology, histology and unifying concepts. Covers integumentary, skeletal, muscular and nervous systems.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.

Co-requisites: BIOL F111L.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F112L BIOL F112X Laboratory

0 Credit

Offered Spring

Co-requisites: BIOL F112X.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

BIOL F112X Human Anatomy and Physiology II (n)

4 Credits

Offered Spring

Integrated view of human structure and function. Continuation of Human A&P I. Covers endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary and reproductive systems.

Prerequisites: BIOL F111X.

Co-requisites: BIOL F112L.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F115L BIOL F115X Laboratory

0 Credit

Offered Fall and Spring

Co-requisites: BIOL F115X.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

BIOL F115X Fundamentals of Biology I (n)

4 Credits

Offered Fall and Spring

The first of a two-part course series for science majors, Fundamentals of Biology I covers the chemistry of life, cell structure and function, cellular energetics, cell division, genetics, and evolution.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.

Co-requisites: BIOL F115L.

Recommended: High school biology, high school chemistry.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F116L BIOL F116X Laboratory

0 Credit

Offered Fall and Spring

Co-requisites: BIOL F116X.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

BIOL F116X Fundamentals of Biology II (n)

4 Credits

Offered Fall and Spring

The second of a two-course series for science majors, Fundamentals of Biology II covers speciation, organismal diversity, form and function of plants and animals, and ecology.

Prerequisites: BIOL F115X; placement in WRTG F111X; placement in MATH F105.

Co-requisites: BIOL F116L.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F120L BIOL F120X Laboratory

0 Credit

Offered Spring

Co-requisites: BIOL F120X.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

BIOL F120X Introduction to Human Nutrition

4 Credits

Offered Spring

This course provides students with an understanding of basic nutritional science and how the principles of nutrition can be used to achieve and maintain optimum health and well-being. Students will consider their own food choices in light of the scientific concepts covered in class.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.

Co-requisites: BIOL F120L.

Special Notes: May not be used as a biology elective credit for a major in biological sciences.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F140 Introduction to Behavioral Neuroscience Research

1 Credit

Offered Spring

Online asynchronous introductory biomedical research on compulsive-like mice, including data collection, data analysis, and interpretation of results. Learn about obsessive-compulsive disorder in humans and how animal research has the potential to contribute to improving the human condition.

Prerequisites: High school diploma, junior or senior standing in high school with a cumulative and science GPA of at least 3.0 with biology and chemistry course grades of at least 3.0.

Lecture + Lab + Other: 0.5 + 1.5 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F190 Introduction to Alaska Flora

2 Credits

Offered Summer

This class is an introduction to several aspects of Alaska's unique flora. Class modules and hands-on exercises are designed to familiarize you with the identification, description and morphology of our local flora.

Lecture + Lab + Other: 1.5 + 1.5 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F239 Introduction to Plant Biology (n)

4 Credits

Offered Fall

Plant biology including plant form and function (morphology, physiology and development), ecology (including interactions with herbivores, pollinators and microbes), conservation, evolution and economic botany. Emphasis on vascular plants (particularly angiosperms) but includes comparisons with nonvascular plants.

Prerequisites: BIOL F115X; BIOL F116X.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F240X Beginnings in Microbiology

4 Credits

Offered Fall and Spring

Survey of the microbial world emphasizing the role microorganisms play in human health and life. Major topics include the role of microbes in human diseases and an introduction to the immune system and the human microbiome.

Prerequisites: Recommended: One course in high school or college-level biology; one course in chemistry.

Special Notes: Taught asynchronous online.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F260 Principles of Genetics

4 Credits

Offered Fall and Spring

Principles of inheritance; physiochemical properties of genetic systems.

Prerequisites: BIOL F115X; BIOL F116X; CHEM F105X; placement in MATH F151X; LS F101X (may be taken concurrently) or successful completion of library skills competency test.

Co-requisites: BIOL F260L.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F260L BIOL F260 Laboratory

0 Credit

Offered Fall and Spring

Co-requisites: BIOL F260.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**BIOL F310 Animal Physiology (n)**

4 Credits

Offered Spring

Animal function, including respiration, digestion, circulation, nerve and muscle function, hormones and reproduction.

Prerequisites: BIOL F115X; BIOL F116X; CHEM F105X; CHEM F106X.**Co-requisites:** BIOL F310L.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F310L BIOL F310 Laboratory**

0 Credit

Offered Spring

Co-requisites: BIOL F310.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**BIOL F312 Medical Physiology**

3 Credits

Offered Spring

This course focuses on pathology to teach advanced concepts in human anatomy and physiology. Case studies and diagnostic problem solving will be used to promote the application of knowledge.

Prerequisites: BIOL F115X and BIOL F116X; or BIOL F111X and BIOL F112X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F320 Winter Botany**

3 Credits

Offered Spring Even-numbered Years

Identification of trees and shrubs by buds, twigs and bark in the winter.

Prerequisites: BIOL F115X, BIOL F116X, BIOL F239.**Special Notes:** Asynchronous online.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F331 Systematic Botany (n)**

3 Credits

Offered Spring Odd-numbered Years

Classification of flowering plants with emphasis on Alaskan flora; familiarity with taxonomy (identification, nomenclature, classification), evolution (speciation, reproductive biology, adaptation, convergence, biogeography) and phylogenetics (morphology and molecules). Lab emphasizes learning representative families and genera of Alaskan flora using keys and manuals.

Prerequisites: BIOL F239.**Special Notes:** Recommended BIOL F260.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F335 Principles of Epidemiology**

3 Credits

Offered Spring

Introduction to the basic concepts of epidemiology, with examples from human to veterinary medicine, including chronic and infectious disease epidemiology, social epidemiology, outbreak investigation, properties of tests, and an introduction to study design and surveillance.

Prerequisites: STAT F200X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F342 Microbiology (n)**

4 Credits

Offered Spring

Morphology and physiology of microorganisms. The role of these organisms in the environment and their relationship to humans. Concepts of immunology. Laboratory stresses aseptic techniques for handling microorganisms.

Prerequisites: BIOL F115X; BIOL F116X; CHEM F105X.**Co-requisites:** BIOL F342L.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F342L BIOL F342 Laboratory**

0 Credit

Co-requisites: BIOL F342.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**BIOL F360 Cell and Molecular Biology (n)**

3 Credits

Offered Fall and Spring

An introduction to the structure and function of cells. Topics include: the structure and function of cellular components, including proteins, membranes and organelles; understanding how cells communicate; and how information is processed in the cell via DNA replication, transcription and translation.

Prerequisites: BIOL F260; CHEM F105X; CHEM F106X (may be taken concurrently).**Cross-listed with** CHEM F360.**Special Notes:** Taught asynchronously online in fall, face to face in spring.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F371 Principles of Ecology**

4 Credits

Offered Fall

Basic principles in physiological, ecosystem, population and community ecology. Environmental factors and their influence on plants and animals. Structure, growth and regulation of populations. The ecosystem concept, biogeochemical cycles, and the structure and function of major terrestrial biomes.

Prerequisites: BIOL F115X; BIOL F116X.**Co-requisites:** BIOL F371L.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F371L BIOL F371 Laboratory**

0 Credit

Co-requisites: BIOL F371.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded

BIOL F385 Global Change Biology (n)

3 Credits

Offered Spring

Causes of climate change, the climate record, and the effects of past and forecast climate change on biophysical systems. Consideration of impacts on plants, animals, ice, and people with an emphasis on Alaska and the Arctic.

Prerequisites: BIOL F115X; BIOL F116X; Junior or Senior standing.

Cross-listed with WLF F385.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F392 Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 1-6

Grading System: Letter Grades with option of Plus/Minus

BIOL F392P Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 1-6

Grading System: Pass/Fail Grades

BIOL F400 Research Capstone in Biological Sciences

0 Credit

Offered Fall and Spring

Enrollment in BIOL F400 signals that a student has initiated a capstone research project, a required element of the Biological Sciences B.S. program. The research project may be completed within a designated course or by working individually with a faculty mentor.

Prerequisites: Junior or senior standing.

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

BIOL F402 Biomedical and Research Ethics (h)

3 Credits

Offered As Demand Warrants

Issues in biomedical ethics. Topics will vary but include discussion of moral principles and problems of research ethics and medical ethics, such as: animal and human experimentation; data management; informed consent; therapeutic and non-therapeutic research; physician/patient relationship; autonomy; assisted reproductive technologies; euthanasia; organ transplantation; and allocation of scarce medical resources.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior or senior standing; a course in philosophy, science, or nursing.

Cross-listed with PHIL F402.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F406 Entomology (n)

4 Credits

Offered Fall Odd-numbered Years

Biology of insects and related arthropods, with emphasis on evolution, ecology, behavior, biodiversity, morphology and systematics. Lab emphasizes identification and collection.

Prerequisites: BIOL F115X; BIOL F116X; BIOL F371.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F410 Integrative Capstone in Biological Sciences

3 Credits

Offered Spring

In this course, students learn concepts of interdisciplinary integration across the sciences, arts, humanities and social sciences. They then develop a capstone project integrating the biological sciences with another discipline, most commonly chosen as their minor. This course meets the capstone requirement for the B.A. in Biological Sciences.

Prerequisites: Students should hold junior or senior standing and be enrolled in the Biological Sciences BA program.

Lecture + Lab + Other: 1.5 + 0 + 4.5

Grading System: Letter Grades with option of Plus/Minus

BIOL F412 Exercise Physiology

3 Credits

Offered Fall

Physiology responses and adaptation to exercise in humans, emphasizing energy metabolism, adipose and lean tissue, central and peripheral components of oxidative metabolism and the environmental influences on these parameters.

Prerequisites: BIOL F111X and BIOL F112X; or BIOL F310.

Stacked with BIOL F612.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F415 Systematic and Comparative Biology

4 Credits

Offered As Demand Warrants

Concepts of systematic biology basic to a rigorous and complete understanding of modern evolutionary theory. Systematics provides the historical framework critical to a variety of comparative analyses in biology. Recent innovations in phylogenetic analyses will be explored in lecture and lab

Prerequisites: BIOL F481.

Stacked with BIOL F615.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F417 Neurobiology (n)

3 Credits

Offered Fall

Organization and function of the vertebrate nervous system from the subcellular to the organismal levels. Neural bases of sensations, homeostasis, specific behaviors, and psychopathology with the incorporation of current peer-reviewed mammalian behavioral neuroscience research.

Prerequisites: (BIOL F111X and BIOL F112X) or BIOL F310.

Special Notes: Taught asynchronously online.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F418 Biogeography

3 Credits

Offered As Demand Warrants

This course explores the geography of life by examining linkages between climate, geomorphology, and ecological communities with emphasis on the biogeography of sub-Arctic, polar and alpine regions.

Prerequisites: NRM F277 or BIOL F371; junior/senior standing.

Stacked with BIOL F618.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F425 Mammalogy (n)

3 Credits

Offered Fall

Variety of mammals, their behavior, life histories, identification, phylogeny and systematics, morphology, distribution and zoogeography.

Prerequisites: BIOL F115X; BIOL F116X; junior standing or above.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F426 Ornithology (n)

3 Credits

Offered Spring

Evolution, anatomy, physiology, distribution, migration, breeding biology of birds, their classification and identification.

Prerequisites: BIOL F115X; BIOL F116X; COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F427 Ichthyology (n)

4 Credits

Offered Spring

Major groups of fishes, emphasizing fishes of northwestern North America. Classification structure, evolution, general biology and importance to man.

Prerequisites: BIOL F116X.

Cross-listed with FISH F427.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F430 Plant Physiology and Development

3 Credits

Offered Fall Odd-numbered Years

Physiology and development of vascular plants, stressing the interrelationships between development, growth, water relations, photosynthesis, transport and metabolism.

Prerequisites: BIOL F115X; BIOL F116X; MATH F151X or higher; STAT F200X.

Stacked with BIOL F630.

Special Notes: Available asynchronous online.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F431 Population Genetics

3 Credits

Offered Fall Odd-numbered Years

Processes affecting the distribution of genetic variation in populations of organisms and how it changed through time. Covered topics include characterization of DNA sequence variations, genetic drift, neutral theory, coalescent theory, population substructure, natural selection, inbreeding depression, mating systems and multilocus evolution.

Prerequisites: BIOL F260; STAT F200X or STAT F300.

Stacked with BIOL F631.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F433 Conservation Genetics

3 Credits

Offered Fall Even-numbered Years

Concepts of population genetics, phylogenetics, pedigree analysis, systematics and taxonomy as they apply to conservation of species. Evaluating the impact of small population size, population fragmentation, inbreeding, hybridization, taxonomic uncertainties and other factors on viability and management of species.

Prerequisites: BIOL F260; BIOL F371.

Recommended: NRM F277.

Cross-listed with WLF F433.

Stacked with BIOL F633; WLF F633.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F435 Introduction to Biology of Cancer

3 Credits

Offered Fall Odd-numbered Years

Course covers current concepts and knowledge of cancer, including cancer research and cancer treatment.

Prerequisites: BIOL F360.

Stacked with BIOL F635.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F440 Behavioral Neuroscience Research Capstone

3 Credits

Offered Spring

Online asynchronous comprehensive biomedical research on compulsive-like mice, including data collection, data analysis, and interpretation of results. Learn about obsessive-compulsive disorder in humans and how animal research has the potential to contribute to improving the human condition. Complete the Biology Capstone requirements including writing a full length scientific manuscript.

Prerequisites: Junior or senior undergraduate standing.

Lecture + Lab + Other: 1 + 6 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F441 Animal Behavior

4 Credits

Offered Fall

Evolutionary and ecological principles of individual and social behavior, genetic and physiological basis of behavior, techniques of behavioral observation, experimental manipulation and analysis. Design and implementation of independent research project on live animals. Student projects in this course may satisfy the capstone project requirement of the biological sciences degree.

Prerequisites: BIOL F310; BIOL F481 (may be taken concurrently);

COM F131X or COM F141X; STAT F200X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 2 + 3 + 3

Grading System: Letter Grades with option of Plus/Minus

BIOL F446 Freshwater Habitat Dynamics

3 Credits

Offered Fall Even-numbered Years

Theoretical background of habitat dynamics in freshwaters with a focus on the response of biota and practical application of current sampling methods.

Prerequisites: FISH F110, BIOL F371.

Cross-listed with FISH F446.

Stacked with FISH F646, BIOL F646.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F455 Environmental Toxicology

3 Credits

Offered Fall

Environmental toxicology will focus on the general properties and principles of persistent and/or poisonous (toxic) chemicals commonly encountered in air, water, fish and wildlife. Numerous natural and synthetic chemicals in the environment will be discussed from a global perspective with some bias towards Arctic and sub-Arctic regions.

Prerequisites: COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; one semester each of organic chemistry and cell or molecular biology.

Cross-listed with CHEM F455.

Stacked with BIOL F656; CHEM F655.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F457 Environmental Microbiology

3 Credits

Offered Spring Odd-numbered Years

This course focuses on the role of microorganisms in environmentally-relevant processes including bioremediation of pollutants, biogeochemical cycling, corrosion and wastewater treatment, including current methods for studying microbial diversity and function.

Prerequisites: BIOL F115X; BIOL F116X; BIOL F342; CHEM F105X; CHEM F106X.

Recommended: CHEM F449.

Stacked with BIOL F657.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F460 Principles of Virology

3 Credits

Offered Spring Even-numbered Years

This course will explore current concepts in the field of virology, with emphasis on the structure, genetic material, and replication strategies of various human and animal viruses. In addition, mechanisms of viral pathogenesis, viral diagnostics, prevention and treatment of viral infection will be presented.

Prerequisites: BIOL F342 (may be taken concurrently) or BIOL F360 (may be taken concurrently).

Stacked with BIOL F660.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F462 Infectious Diseases

3 Credits

Offered Spring Odd-numbered Years

Covers infectious disease biology using examples of different pathogens and exploring the concepts of their biology and the implication of these principles on pathology, epidemiology and sociology of infectious diseases.

Prerequisites: BIOL F360 or BIOL F342.

Stacked with BIOL F662.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F463 Immunology

3 Credits

Offered Fall

Adaptive immune response including its components and activation from cells to molecules, clonal selection, antigen recognition, and discrimination between foreign and self. Concepts applied on the level of intact organisms addressing allergies, autoimmunity, transplantation, tumors and disease.

Prerequisites: BIOL F115X, BIOL F116X; BIOL F310, BIOL F111X; BIOL F112X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F466 Advanced Cell and Molecular Laboratory

3 Credits

Offered Spring

Modern molecular biological techniques including protein and nucleic acid gel electrophoresis, western blotting, cell fractionation, cellular respiration, enzymology and fluorescence microscopy. Lectures will be supplemented with reading from the primary literature. Student projects in this course may satisfy the capstone project requirements of the biological science degree.

Prerequisites: BIOL F360 or CHEM F360 may be taken concurrently.

Cross-listed with CHEM F466.

Lecture + Lab + Other: 2 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F469 Landscape Ecology and Wildlife Habitat

3 Credits

Offered Spring

A problem-based learning and critical thinking approach to modern methods in landscape ecology, including geographic information systems, remote sensing, modeling, software and the Internet. Graduate students are expected to help undergraduates with problems and questions.

Prerequisites: BIOL F371; COM F121X, COM F131X or COM F141X.

Cross-listed with WLF F469.

Stacked with BIOL F669; WLF F669.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F470 Aquatic Food Web Ecology

3 Credits

Offered Fall Even-numbered Years

Examines theoretical and applied aspects of aquatic food web ecology, from the ecological processes that give rise to patterns in aquatic communities to the incorporation of trophic interactions into ecosystem-based management. Includes a lecture component focused on peer reviewed studies and a lab component focused on applying concepts with data.

Prerequisites: Upper-level undergraduate standing.

Cross-listed with FISH F476; MBI F476.

Stacked with BIOL F670; FISH F676; MBI F676.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F471 Population Ecology (n)

3 Credits

Offered Spring

Biology of populations of plants and animals, including population structure, natality, mortality, population growth, regulation of population size, population interactions in competition, herbivory, predation and parasitism.

Prerequisites: A calculus course; BIOL F371.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F472 Community Ecology

4 Credits

Offered Fall Even-numbered Years

Structure of plant and animal communities and their organization. Structuring forces of competition, predation, herbivory, and mutualisms; roles of foodwebs, indirect effects, and spatial and temporal dynamics. Application of community ecology concepts to conservation and restoration. Student projects may satisfy the capstone project requirement of the biological sciences degree.

Prerequisites: BIOL F371; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 2 + 3 + 3

Grading System: Letter Grades with option of Plus/Minus

BIOL F473 Limnology

4 Credits

Offered Fall Odd-numbered Years

The ecology of inland waters emphasizing lakes and rivers. Lecture provides graphically oriented view of concepts. Laboratory involves team-based original research from proposal to manuscript. Student projects in this course may satisfy the capstone project requirement of the biological sciences degree.

Prerequisites: BIOL F115X; BIOL F116X; CHEM F105X; CHEM F106X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 2 + 3 + 3

Grading System: Letter Grades with option of Plus/Minus

BIOL F476 Ecosystem Ecology

4 Credits

Offered Spring Even-numbered Years

Ecosystem ecology is the scientific study of the interactions among organisms and the non-living environment. The course introduces the ecosystem concept and surveys environmental factors governing ecosystem processes, including major biogeochemical cycles. Includes application of these topics to ecosystem services, sustainability, and responses of ecosystems to global change.

Prerequisites: BIOL F371; STAT F200X Stacked with BIOL F673.

Lecture + Lab + Other: 3 + 0 + 3

Grading System: Letter Grades with option of Plus/Minus

BIOL F481 Principles of Evolution

4 Credits

Offered Fall and Spring

Patterns and processes of evolutionary change. Covered topics include microevolutionary processes, population genetics, quantitative genetics, fitness and adaptation, phylogenetics, speciation and macroevolutionary pattern. The conceptual framework of evolutionary biology is used to understand basic and applied issues in the life sciences, biomedicine, and agriculture.

Prerequisites: BIOL F260; STAT F200X (may be taken concurrently) or STAT F300 (may be taken concurrently).

Co-requisites: BIOL F481L.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F481L BIOL F481 Laboratory

0 Credit

Co-requisites: BIOL F481.

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

BIOL F483 Stream Ecology

3 Credits

Offered Fall Even-numbered Years

The ecology of streams and rivers focusing on physical, chemical and biological processes.

Prerequisites: BIOL F115X; BIOL F116X; BIOL F371.

Recommended: CHEM F105X; CHEM F106X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F486 Vertebrate Paleontology (n)

3 Credits

Offered Spring Odd-numbered Years

The study of vertebrate evolution through geologic time. Covers the temporal range, diversity and systematics of major vertebrate groups as documented in the fossil record, with an emphasis on current problems in vertebrate evolutionary pattern and process. Labs emphasize comparative morphology and identification of major vertebrate groups.

Prerequisites: BIOL F310 or GEOS F315.

Cross-listed with GEOS F486.

Stacked with GEOS F686; BIOL F686.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F487 Conceptual Issues in Evolutionary Biology

3 Credits

Offered As Demand Warrants

Analysis of some of the main models which explain evolutionary change followed by consideration of the practical implications these models have on the study of biological phenomena in general.

Cross-listed with PHIL F487.

Stacked with BIOL F687; PHIL F687.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F488 Arctic Vegetation Ecology: Geobotany

3 Credits

Offered Fall Odd-numbered Years

Arctic plants in relationship to Earth, including Arctic plant identification, climate, geology and geography controls on Arctic plant communities, snow ecology, applications to wildlife studies and current Arctic issues. Consists of lecture, labs and field trips.

Prerequisites: BIOL F115X and BIOL F116X; BIOL F239 or BIOL F371.**Stacked with** BIOL F688.**Lecture + Lab + Other:** 2.5 + 0.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F489 Vegetation Description and Analysis**

3 Credits

Offered As Demand Warrants

Methods of vegetation science including sampling, classification, gradient analysis, ordination, field description and mapping. Field trips to the plant communities of interior Alaska.

Prerequisites: BIOL F239, BIOL F371 or BIOL F331.**Stacked with** BIOL F689.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F491 The Human Microbiome**

4 Credits

Offered Fall

Biology of host-associated microbiomes with an emphasis on the human microbiome. Investigate microbial impacts on the behavior, physiology and fitness of their host. Explore model and non-model systems. Student projects in this course may satisfy the capstone project requirements of the biological science degree.

Prerequisites: BIOL F260; STAT F200X.**Stacked with** BIOL F691.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F492 Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**BIOL F492P Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**BIOL F498 Research**

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**BIOL F602 Research Design**

3 Credits

Offered Fall

An introduction to the philosophy, performance and evaluation of hypothetical/deductive research in the biological sciences, with emphasis on hypothesis formulation and testing. Each student will develop a research proposal.

Prerequisite: Graduate standing.**Cross-listed with** WLF F602.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F604 Scientific Writing, Editing and Revising in the Biological Sciences**

3 Credits

Offered Spring

For students who are ready to produce a manuscript or thesis chapter. Topics include the publication process, selecting a journal, authorship, the components of the scientific paper, revising and editing manuscripts, and responding to reviews. Students will produce a complete manuscript.

Prerequisites: Graduate standing in Biology, Wildlife, or related discipline; permission of instructor.**Cross-listed with** WLF F604.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F612 Exercise Physiology**

3 Credits

Offered Fall

Physiology responses and adaptation to exercise in humans, emphasizing energy metabolism, adipose and lean tissue, central and peripheral components of oxidative metabolism and the environmental influences on these parameters.

Prerequisites: Graduate standing.**Stacked with** BIOL F412.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F613 Resilience Internship**

2 Credits

Offered As Demand Warrants

Students of the Resilience and Adaptation Program participate in internships to broaden their interdisciplinary training, develop new research tools and build expertise outside their home disciplines. Internships are for eight to ten weeks of full time commitment and take place during the student's first summer in the program. In autumn students meet to discuss their internship experiences and make public presentations.

Prerequisites: ANTH F667, BIOL F667, ECON F667 or NRM F667;

ANTH F668, BIOL F668, ECON F668 or NRM F668.

Cross-listed with ANTH F617; ECON F613; NRM F613.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F615 Systematic and Comparative Biology**

4 Credits

Offered As Demand Warrants

Concepts of systematic biology basic to a rigorous and complete understanding of modern evolutionary theory. Systematics provides the historical framework critical to a variety of comparative analyses in biology. Recent innovations in phylogenetic analyses will be explored in lecture and lab

Prerequisites: Graduate standing.**Stacked with** BIOL F415.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

BIOL F616 Ecological Background for Resilience and Adaptation

1 Credit

Offered Fall

Provides the ecological background that is necessary for understanding the role of ecology in complex systems involving interactions among biological, economic, and social processes. Designed for incoming students of the Resilience and Adaptation Program (RAP), who have not received training in ecology.

Prerequisites: Graduate standing.**Cross-listed with** NRM F616.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F617 Neurobiology**

3 Credits

Offered Spring Even-numbered Years

Organization and function of the vertebrate nervous system from the subcellular to the organismal levels. Neural bases of sensations, specific behaviors and homeostasis. Applications of basic neurobiological research to pathological conditions. Examples taken mostly from the recent vertebrate literature.

Prerequisites: BIOL F310; graduate standing.**Stacked with** BIOL F417.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F618 Biogeography**

3 Credits

Offered As Demand Warrants

This course explores the geography of life by examining linkages between climate, geomorphology, and ecological communities with emphasis on the biogeography of sub-Arctic, polar and alpine regions.

Prerequisites: Graduate standing.**Stacked with** BIOL F418.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F630 Plant Physiology and Development**

3 Credits

Offered Fall Odd-numbered Years

Physiology and development of vascular plants, stressing the interrelationships between development, growth, water relations, photosynthesis, transport and metabolism.

Stacked with BIOL F430.**Special Notes:** Available asynchronous online.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F631 Population Genetics**

3 Credits

Offered Fall Odd-numbered Years

Processes affecting the distribution of genetic variation in populations of organisms and how it changed through time. Covered topics include characterization of DNA sequence variations, genetic drift, neutral theory, coalescent theory, population substructure, natural selection, inbreeding depression, mating systems and multilocus evolution.

Prerequisites: BIOL F260; STAT F200X or STAT F300.**Stacked with** BIOL F431.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F632 Veterinary Bacteriology and Mycology**

2 Credits

Offered Spring

This course will discuss bacterial structure, differences between bacterial families, and fungi and their pathogenesis. The basic principles of bacterial and fungal pathogenesis will be presented. Host response to bacterial or fungal infection, immunity and the role of vaccines in disease prevention will be explained.

Prerequisites: Successful completion of first-semester veterinary courses.**Cross-listed with** DVM F637.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F633 Conservation Genetics**

3 Credits

Offered Fall Even-numbered Years

Concepts of population genetics, phylogenetics, pedigree analysis, systematics and taxonomy as they apply to conservation of species. Evaluating the impact of small population size, population fragmentation, inbreeding, hybridization, taxonomic uncertainties and other factors on viability and management of species.

Prerequisites: BIOL F260; BIOL F371.**Recommended:** NRM F277.**Cross-listed with** WLF F633.**Stacked with** BIOL F433; WLF F433.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F635 Introduction to Biology of Cancer**

3 Credits

Offered Fall Odd-numbered Years

Course covers current concepts and knowledge of cancer, including cancer research and cancer treatment.

Prerequisites: BIOL F360.**Stacked with** BIOL F435.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F639 Veterinary Virology**

2 Credits

Offered Spring

This course will explore current concepts in the field of veterinary virology, with an emphasis on the viral structure, viral genetic material and viral replication strategies of various animal viruses. In addition, mechanisms of viral pathogenesis, prevention and treatment of viral infection will be presented.

Prerequisites: Successful completion of first-semester veterinary courses.**Cross-listed with** DVM F639.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

BIOL F640 Veterinary Pathology/Biology of Disease I

5 Credits

Offered Spring

This course will discuss basic principles of disease with special emphasis on processes likely to be encountered veterinary practice. We will discuss these topics organized by underlying disease mechanism. The discussions will move from general cell-mediated processes to more specific disease mechanisms.

Prerequisites: Successful completion of first-semester veterinary courses.

Cross-listed with DVM F640.

Lecture + Lab + Other: 4 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F641 Animal Welfare

2 Credits

Offered Fall

This course will provide knowledge, skill development and tools necessary for professionals to assess and promote animal welfare and to analyze its associated challenges. It will stress the need for perpetual reassessment of animal welfare knowledge and reinforce the professional's role in staying up-to-date and proactive.

Prerequisites: Completion of first year of veterinary school, or graduate student with approval of instructor.

Cross-listed with DVM F735.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F644 Advanced Topics in Evolution

3 Credits

Offered Summer Even-numbered Years

Modern theory and subdisciplinary directions in the expanding field of evolutionary biology. Topics include adaptation, speciation, reinforcement, comparative method, group selection, phylogeography, advanced systematics, geographic variation and the role of evolutionary biology in society. May be repeated for credit when content varies.

Prerequisites: Undergraduate course in evolution.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 98 times for up to 294 credits

BIOL F646 Freshwater Habitat Dynamics

3 Credits

Offered Fall Even-numbered Years

Theoretical background of habitat dynamics in freshwaters with a focus on the response of biota and practical application of current sampling methods.

Prerequisites: Graduate standing.

Cross-listed with FISH F646.

Stacked with FISH F446, BIOL F446.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F647 Sustainability in the Changing North

3 Credits

Offered Fall

Explores the basic principles of sustainability of environmental and social systems. Principles are applied across a range of scales from local communities to the globe, with an emphasis on examples in Alaska and the Arctic. Specific attention to the theory and practice of boundary spanning and knowledge coproduction.

Prerequisites: Graduate standing.

Cross-listed with ANTH F647; ECON F647; NRM F647.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F649 Integrated Assessment and Adaptive Management

3 Credits

Offered As Demand Warrants

An interdisciplinary exploration of the theoretical and practical considerations of integrated assessment and adaptive management. Students survey concepts important in understanding societal and professional-level decision-making. Students work as individuals and as a team to undertake case studies with relevance to integrated assessment and adaptive management.

Prerequisites: Graduate student standing in a natural science, social science or interdisciplinary program at UAF or another university.

Recommended: ANTH F647, BIOL F647, ECON F647, NRM F647; ANTH F667, BIOL F667, ECON F667, NRM F667.

Cross-listed with ANTH F649; ECON F649; NRM F649.

Special Notes: In case of enrollment limit, priority will be given to graduate students in the Resilience and Adaptation Program in order for them to be able to meet their core requirements.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F656 Environmental Toxicology

3 Credits

Offered Fall

Environmental toxicology will focus on the general properties and principles of persistent and/or poisonous (toxic) chemicals commonly encountered in air, water, fish and wildlife. Numerous natural and synthetic chemicals in the environment will be discussed from a global perspective with some bias towards Arctic and sub-Arctic regions.

Prerequisites: CHEM F449 or one semester each of organic chemistry and cell or molecular biology.

Cross-listed with CHEM F655.

Stacked with BIOL F455; CHEM F455.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F657 Environmental Microbiology

3 Credits

Offered Spring Even-numbered Years

This course focuses on the role of microorganisms in environmentally-relevant processes including bioremediation of pollutants, biogeochemical cycling, corrosion and wastewater treatment, including current methods for studying microbial diversity and function.

Prerequisites: BIOL F115X; BIOL F116X; BIOL F342; CHEM F105X; CHEM F106X.

Recommended: CHEM F449.

Stacked with BIOL F457.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F660 Principles of Virology

3 Credits

Offered Spring Even-numbered Years

This course will explore current concepts in the field of virology, with emphasis on the structure, genetic material, and replication strategies of various human and animal viruses. In addition, mechanisms of viral pathogenesis, viral diagnostics, prevention and treatment of viral infection will be presented.

Prerequisites: Graduate standing.**Stacked with** BIOL F460.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F662 Infectious Diseases**

3 Credits

Offered Spring Odd-numbered Years

Covers infectious disease biology using examples of different pathogens and exploring the concepts of their biology and the implication of these principles on pathology, epidemiology and sociology of infectious diseases.

Prerequisites: Graduate standing; BIOL F360 or BIOL F342.**Stacked with** BIOL F462.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F667 Resilience Seminar I**

1 Credit

Offered As Demand Warrants

Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research that are relevant to sustainability. A considerable portion of the seminar is student-directed, with students assuming leadership in planning seminar activities with the instructor.

Prerequisites: Enrolled in Resilience and Adaptation Graduate Program.**Recommended:** ANTH F647, BIOL F647, ECON F647 or NRM F647 (taken concurrently).**Cross-listed with** ANTH F667; ECON F667; NRM F667.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Pass/Fail Grades**BIOL F668 Interdisciplinary Research Methods-Resilience Seminar II**

1 Credit

Offered As Demand Warrants

Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research relevant to sustainability. The seminar provides support to each student planning his/her summer internship and preparing and presenting a thesis research prospectus.

Prerequisites: ANTH F647, BIOL F647, ECON F647 or NRM F647; ANTH F667, BIOL F667, ECON F667 or NRM F667.**Cross-listed with** ANTH F668; ECON F668; NRM F668.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Pass/Fail Grades**BIOL F669 Landscape Ecology and Wildlife Habitat**

3 Credits

Offered Spring

A problem-based learning and critical thinking approach to modern methods in landscape ecology, including geographic information systems, remote sensing, modeling, software and the Internet. Graduate students are expected to help undergraduates with problems and questions.

Prerequisites: Graduate standing.**Cross-listed with** WLF F669.**Stacked with** BIOL F469; WLF F469.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F670 Aquatic Food Web Ecology**

3 Credits

Offered Fall Even-numbered Years

Examines theoretical and applied aspects of aquatic food web ecology, from the ecological processes that give rise to patterns in aquatic communities to the incorporation of trophic interactions into ecosystem-based management. Includes a lecture component focused on peer reviewed studies and a lab component focused on applying concepts with data.

Cross-listed with FISH F676; MBI F676.**Stacked with** BIOL F470; FISH F476; MBI F476.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**BIOL F673 Ecosystem Ecology**

4 Credits

Offered Spring Even-numbered Years

Ecosystem ecology is the scientific study of the interactions among organisms and the non-living environment. The course introduces the ecosystem concept and surveys environmental factors governing ecosystem processes, including major biogeochemical cycles. Includes application of these topics to ecosystem services, sustainability, and responses of ecosystems to global change.

Prerequisites: graduate standing.**Stacked with** BIOL F476.**Lecture + Lab + Other:** 3 + 0 + 3**Grading System:** Letter Grades with option of Plus/Minus**BIOL F679 Cellular and Molecular Neuroscience**

3 Credits

Offered Spring Odd-numbered Years

The cellular and molecular underpinnings of signaling in the nervous system. Topics include properties of excitable membranes, synaptic transmission, neurological integration, the cellular and molecular basis of learning and memory, and pharmacological treatment of neuronal pathologies.

Prerequisites: Two F300-level courses in BIOL or CHEM; MATH F230X or MATH F251X.**Recommended:** MATH F252X.**Cross-listed with** CHEM F670.**Stacked with** CHEM F470.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

BIOL F680 Data Analysis in Biology

3 Credits

Offered Spring

Course covers major statistical concepts and techniques using the statistical software R, with emphasis on applications in biology. Reviews probability theory, hypothesis testing, ANOVA, regression, least squares fitting, parametric and nonparametric approaches, and then focuses on random and mixed-effects models, likelihood based fitting, GAMs, GLMs, ordination, and model selection.

Prerequisites: STAT F200X; STAT F401; graduate standing in a biologically oriented field.

Cross-listed with WLF F680.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F686 Vertebrate Paleontology

3 Credits

Offered Spring Odd-numbered Years

The study of vertebrate evolution through geologic time. Covers the temporal range, diversity and systematics of major vertebrate groups as documented in the fossil record, with an emphasis on current problems in vertebrate evolutionary pattern and process. Labs emphasize comparative morphology and identification of major vertebrate groups.

Prerequisites: Graduate standing.

Cross-listed with BIOL F486; GEOS F486.

Stacked with GEOS F686.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F687 Conceptual Issues in Evolutionary Biology

3 Credits

Offered As Demand Warrants

Analysis of some of the main models which explain evolutionary change followed by consideration of the practical implications these models have on the study of biological phenomena in general.

Cross-listed with PHIL F687.

Stacked with BIOL F487; PHIL F487.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F688 Arctic Vegetation Ecology: Geobotany

3 Credits

Offered Fall Odd-numbered Years

Arctic plants in relationship to Earth, including Arctic plant identification, climate, geology and geography controls on Arctic plant communities, snow ecology, applications to wildlife studies and current Arctic issues. Consists of lecture, labs and field trips.

Prerequisites: BIOL F115X and BIOL F116X; BIOL F239 or BIOL F371.

Stacked with BIOL F488.

Lecture + Lab + Other: 2.5 + 0.5 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F689 Vegetation Description and Analysis

3 Credits

Offered As Demand Warrants

Methods of vegetation science including sampling, classification, gradient analysis, ordination, field description and mapping. Field trips to the plant communities of interior Alaska.

Prerequisites: BIOL F239, BIOL F371 or BIOL F331.

Stacked with BIOL F489.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F691 The Human Microbiome

4 Credits

Offered Fall

Biology of host-associated microbiomes with an emphasis on the human microbiome. Investigate microbial impacts on the behavior, physiology and fitness of their host. Explore model and non-model systems. Student projects in this course may satisfy the capstone project requirements of the biological science degree.

Stacked with BIOL F491.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

BIOL F692 Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 6 credits

BIOL F692P Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 6 credits

BIOL F698 Non-thesis Research/Project

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 98 times for up to unlimited credits

BIOL F699 Thesis

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Biomedical Science (BMSC)

College of Natural Science and Mathematics

Biomedical Science Program (<https://www.uaf.edu/bw/research/biomedical-science.php>)

907-474-7608

BMSC F214 Introduction to Biomedical Research (s)

2 Credits

Offered Fall

This seminar aims to introduce students to research methods by providing students who are new to research and research methods opportunities to learn about, discuss and conduct ethical activities in a low stress, small group seminar setting. Organized in a small group, seminar format, the ultimate objective is for seminar participants to develop self-efficacy and interest in pursuing research methods courses and research opportunities early on and throughout their undergraduate studies.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BMSC F224 Entering Research: Undergraduate Research Experience

2 Credits

Offered Spring

Required course for BLaST scholars and open to all UAF students. This course will facilitate mentored research experience for undergraduate students. Students will participate in advanced research topics from outside the usual undergraduate laboratory offerings. Course will conclude with a semester research report and presentation on research activities.

Prerequisites: BMSC F214.**Special Notes:** Students will be required to actively participate in research activities and report on progress and growth throughout the course.**Lecture + Lab + Other:** 1 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**BMSC F314 Research Project Foundations**

1 Credit

Offered Fall

Supports undergraduate research projects with strategies and methodologies when establishing a scientific research project. Also foster the personal, academic and career growth of the student. Topics include personal wellness, academic and career planning, mentoring relationships, project management, scientific writing, and communication strategies.

Prerequisites: BMSC F224.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BMSC F324 Biomedical Research Skills**

1 Credit

Offered Spring

Biomedical Research Skills supports student research projects by highlighting foundational skills, methodologies and techniques commonly used in biomedical research. Guest speakers from UAF and BLaST research community present and share their experience with students through discussions, primary literature and visits to UAF laboratories. Open to any UAF undergraduate student.

Prerequisites: BMSC F314.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades

Business Administration (BA)

College of Business and Security ManagementBusiness Administration Program (<https://www.uaf.edu/som/degrees/undergraduate/ba/>)

907-474-7461

BA F151X Introduction to Business (s)

3 Credits

Offered Fall, Spring and Summer

Main components: business organization, business theory and the nature of major business functions such as management, finance, accounting, marketing and personnel administration. Also, focus on methods and data required to research and analyze good business practices and decisions while developing these major business functions. Review professional business career opportunities/requirements.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F241 Advertising, Sales and Promotion**

3 Credits

Offered As Demand Warrants

Advertising, publicity, sales management, sales promotion, direct marketing and the interrelationships necessary for effective promotions in domestic or international, small or large, goods or services, and for-profit or nonprofit organizations.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F253 Internship in Business**

1-3 Credits

Offered As Demand Warrants

Supervised work experience in an approved position related to the student's career interests or objectives. Number of credits depends on type of position and time worked. No student can count more than eight internship credits towards a degree.

Prerequisites: Approval of program or department head.**Lecture + Lab + Other:** 1-3 + 1-3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits**BA F254X Personal Finance (s) (s)**

3 Credits

Offered Fall, Spring and Summer

This course will allow students to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being. Personal finance concepts and information will be learned, as well as practical application that can empower to save, budget, avoid debt and spend wisely.

Special Notes: Students will take what is taught and start practicing sound financial habits throughout the semester that can serve well for a lifetime.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F280 Sport Leadership**

3 Credits

Offered Fall

Provides leadership theory and develop leadership skills for application internal and external to their sport. Focus on the identification and development of leadership skills/abilities and application within the classroom, a sport and for an on-campus project.

Cross-listed with LEAD F280; SPRT F280.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F281X Introduction to Sport Management**

3 Credits

Offered Fall, Spring and Summer

An introduction to the field of sport management, including different segments, components and career paths within the industry. Topics such as collective bargaining, leadership in sports, legal aspects of sports, sports agents, sports analytics, sports marketing, stadium financing and the sociology of sports will be examined.

Cross-listed with SPRT F281X.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

BA F307 Introductory Human Resources Management

3 Credits

Offered Fall, Spring and Summer

Introduction to management principles and personnel practice in industry, analysis of labor-management problems, methods and administration of recruiting, selecting, training and compensating employees, and labor laws and their applications.

Prerequisite: WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F308 Professional Development: How to Prepare for a Job and Other Survival Skills**

1 Credit

Offered Fall, Spring and Summer

Learn how to compose and analyze essential business and personal communications with an emphasis on those related to the job search, including resumes, letters and emails. Learn and apply job seeking and career advancement skills related to interviews, business etiquette and personal brand.

Prerequisites: WRTG F111X; COM F121X, COM F131X or COM F141X; BA F151X (may be taken concurrently), ACCT F261X (may be taken concurrently) or AIS F101 (may be taken concurrently).**Crosslisted with** BAM F308.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F309 Professional Development: Finding a Career**

1 Credit

Offered Fall, Spring and Summer

Further your understanding of business and personal communications, with an emphasis on communications used in the typical workplace, including letters, reports and memoranda. Learn and apply career advancement skills related social media presence, advanced interviewing techniques and site visits.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; BA F308.**Cross-listed with** BAM F309.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F310 Professional Development: Being Successful in Your Career**

1 Credit

Offered Fall, Spring and Summer

Master the business and personal communications needed for career advancement and success in a typical work environment. Learn about negotiations, networking, meeting and presentation facilitation, on-the-job conflict management, ethics, using social media and interpersonal communications on the job.

Prerequisites: BA F308; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Cross-listed with** BAM F310.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F317 Employment Law**

3 Credits

Offered Fall

Basic personnel and human resource management law, including labor law and current management practices in administering collective bargaining agreements. Emphasis on the major federal and Alaska state laws affecting personnel management.

Prerequisites: BA F307 or concurrent enrollment; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F323X Business Ethics (h)**

3 Credits

Offered Fall, Spring and Summer

A grounding in ethical theories and basic issues of moral thought, with examples which highlight the pitfalls in practical ethics which future managers are likely to face, and the need to design organizations so as to promote ethical behavior.

Prerequisites: Junior standing.**Attributes:** UAF GER Ethics Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F325 Financial Management**

3 Credits

Offered Fall, Spring and Summer

Time value of money, bond and stock valuation, capital budgeting, risk-return trade-offs and option pricing.

Prerequisites: ACCT F261X; ECON F101X; ECON F102X; ECON F227; MATH F122X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F330 The Legal Environment of Business**

4 Credits

Offered Fall, Spring and Summer

The judicial system, legal processes, administrative procedures, law of torts, contract and agency government regulation of business, business ethics, corporate social responsibility and the uniform commercial code.

Lecture + Lab + Other: 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F343 Principles of Marketing**

3 Credits

Offered Fall, Spring and Summer

Management of a firm's marketing effort focusing on products, distribution, pricing and promotion to targeted consumers. Practices appropriate to domestic or international, small or large, goods or services, and for-profit or nonprofit organizations included.

Prerequisites: WRTG F111X; COM F131X or COM F141X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

BA F360 Operations Management

3 Credits

Offered Fall, Spring and Summer

Operations management with an emphasis on systematic planning, design and operation of the processes that produce goods and deliver services that customers recognize to be of superior quality. Topics include operations strategy, process design, quality control, statistical process control, project scheduling, material requirements planning and just-in-time systems.

Prerequisites: AIS F101; ECON F227.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F375 Introduction to Esports Management**

3 Credits

Offered Fall

This course is designed to introduce students to business concepts related to the esports industry. Students will be exposed to topics including: the definition of esports, content marketing, event management, management, governance and legal aspects of esports.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Cross-listed with** SPRT F375.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F390 Organizational Theory and Behavior**

3 Credits

Offered Fall, Spring and Summer

Understanding how and why organizations behave as they do, assessing whether the behavior is functional or dysfunctional, and learning to understand and change motivation, leadership, communications, group dynamics, conflict management, layout, technology, structure and policies to create high-functioning organizations.

Prerequisite: WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F391 Alaska Native Corporations: A Historical and Contemporaneous Perspective (an)**

3 Credits

Offered As Demand Warrants

Explore management within Alaska Native Corporations to understand the cultural origins and behavioral adaptations unique to these organizations. Alaska Native Claims Settlement Act, Alaska National Interest Lands Conservation Act, indigenous leadership, cultural anthropology, contrasting cultural values and managing and maintaining organizational culture will be covered.

Prerequisites: WRTG F111X and junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F421 Business Analytics**

3 Credits

Offered As Demand Warrants

This class provides an introduction and application of data analytics in accounting and business contexts. Students will develop an understanding of analytic concepts and how they apply to the investigation of business data relationships and trends.

Prerequisites: ECON F227 or STAT F200X; ACCT F261X; MATH F122X, MATH F151X, MATH F156X, MATH F230X, MATH F251X, MATH F252X or MATH F253X.**Stacked with** MBA F623.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F423 Investment Analysis**

3 Credits

Offered As Demand Warrants

Introduction to investment analysis. Presents an understanding of the investment environment and analytical tools in investing. Intended for undergraduate students.

Prerequisites: BA F325; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F424 Real Estate and Alternative Investments**

3 Credits

Offered As Demand Warrants

Develop skills required to value and finance residential and commercial real estate. Financing instruments, markets and taxation issues specific to real estate are covered in the first half; alternative investments such as REITs will be presented in the second half of the course.

Prerequisites: BA F325.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F435 Entrepreneurship**

3 Credits

Offered Fall

This course will provide students with the steps toward starting and growing their own business and entrepreneurial ventures for other businesses. They will learn methods, mindset and approaches necessary to form a business. Upon completion, students will have the resources, behaviors and confidence to develop a new venture.

Prerequisites: BA F151X; ACCT F261X or BAM F352.**Crosslisted with** BAM F435.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F436 Consumer Behavior (s)**

3 Credits

Offered Spring

Effects of nationality, culture, social class, family, personality, symbolism and persuasion on consumptive behavior. Qualitative methodologies such as focus groups covered.

Prerequisites: BA F343 or PSY F330.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

BA F443 Social Media Marketing

3 Credits

Offered As Demand Warrants

Learn the concepts, methods and practices of social media marketing (SMM) as applied by large firms, small businesses and non-profits. Prepare, implement and measure a social media marketing campaign. Covers consumer response, SMM campaign planning and measurement.

Prerequisites: BA F343; AIS F101.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F445 Marketing Research**

3 Credits

Offered As Demand Warrants

Basic processes and tools of marketing research emphasizing utilization of research findings as an integral part of the managerial decision-making process. Techniques of qualitative and quantitative data-gathering and analysis to solve marketing problems. Practices appropriate to domestic or international, small or large, goods or services, and for-profit or nonprofit organizations.

Prerequisites: BA F343; ECON F227; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; upper division Bachelor of Business Administration standing or permission of the SOM advisor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F453 Internship in Business Administration**

3 Credits

Offered As Demand Warrants

A supervised practical work experience that engages students in structured exploration of the business environment and an opportunity to demonstrate and apply previous coursework and prior learning to their current internship. Focus on applying previous learning, developing business acumen, and preparing for future employment. Admission requires approved job arrangements.

Prerequisites: Junior standing; cumulative 3.0 GPA in ACCT and BA courses.**Stacked with** MBA F653.**Lecture + Lab + Other:** 0 + 3 + 20**Grading System:** Letter Grades with option of Plus/Minus**BA F454 Student Investment Fund**

3 Credits

Offered Fall and Spring

Hands-on experience in portfolio management. Students will be making investment and diversification decisions affecting the \$1.6 million Student Investment Fund.

Prerequisites: COM F121X, COM F131X or COM F141X; BA F325 (may be taken concurrently); upper-division BBA standing; permission of the CBSM advisor or instructor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F455 Portfolio Management**

3 Credits

Offered Fall and Spring

The second course involved with the hands-on management of the \$1.2 million Student Investment Fund. Students will carry out the duties of officers of the fund and will be responsible for portfolio diversification and management decisions affecting the fund.

Prerequisites: BA F454; upper division BBA standing; permission of the SOM advisor or instructor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F457 Training and Management Development**

3 Credits

Offered Fall, Spring and Summer

Theory and practice of employee training programs, needs assessments, learning theories, instructional design, training techniques and evaluation, management development and career development techniques and practices.

Prerequisites: BA F307.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F460 International Business**

3 Credits

Offered Fall and Spring

Relationships among nations with particular emphasis on the business, economic and socio-cultural institutions that influence the performance of managers. Formulation of objectives, strategies and organizational structures within the context of international diversity.

Prerequisites: COM F121X, COM F131X or COM F141X.**Recommended:** Senior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F461 International Finance**

3 Credits

Offered Fall

Development of analytical skills, logical thought processes and information literacy necessary to make and implement investment decisions in a global setting.

Prerequisites: BA F325.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F462 Corporate Strategy**

3 Credits

Offered Fall and Spring

An integrative approach to strategy formation and implementation to achieve organization goals. Students will be introduced to theoretical perspectives and associated methodologies directed toward resolving the unstructured problems and opportunities which confront general managers at the highest levels of an organization.

Prerequisites: ACCT F262; BA F325; BA F343; BA F360; BA F390 or BA F391; COM F131X or COM F141X; ECON F101X; ECON F102X; upper-division BBA standing; or permission of the CBSM advisor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F464 Project Management**

3 Credits

Offered Fall and Spring

This course is designed to cover key components of project management with emphasis on the practical approach to managing and delivering projects. We will focus on concepts, techniques, and best practices that allow the project manager to deliver simple or complex projects and lead project teams successfully.

Prerequisites: BAM F320 or BA F390; BAM F352 or ACCT F261X; WRTG F111X; BA F343; upper division standing.**Cross-listed with** BAM F462.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

BA F467 Current Topics in Management

3 Credits

Offered As Demand Warrants

Examines current management trends with regard to major theories and practices in the field. Topics of interest could include organizational development, performance appraisal, personnel selection and international human resources management.

Prerequisites: BA F307; BA F390.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits**BA F470 Leadership Theory and Development**

3 Credits

Offered As Demand Warrants

A guide for interpreting leadership theory and research as well as practical advice on how to be a better leader. Reviews functional leadership theories, how the theories relate to one another and how students can apply the leadership theories to their own personal development.

Prerequisite: BA F390; COM F121X, COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F472 Leading Change**

3 Credits

Offered As Demand Warrants

Explore how organizations to develop their capability and to achieve change, including the way change agents deal with conflicting demands. Learn the capabilities necessary to become a change agent within an organization and extend your understanding of key leadership theories.

Prerequisite: BA F390; COM F121X, COM F131X or COM F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F480 Current Topics in Sport & Recreation Management**

3 Credits

Offered As Demand Warrants

This course examines current trends in critical areas of sport & recreation business from a management perspective. Topics of interest include corporate social responsibility, climate change, diversity, media relations, and technology.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X; SPRT F281X.**Cross-listed with** SPRT F480.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F481 Event Management**

3 Credits

Offered Fall, Spring and Summer

This course is designed to provide the student with knowledge pertaining to the various aspects of managing a public sport and/or entertainment event and their production. Topics discussed include economic impact, sponsorship, risk management, staff and volunteers, customer service, concessions, crowd management and technology.

Prerequisites: BA F343; BA F281X or SPRT F281X; COM F121X, COM F131X or COM F141X.**Cross-listed with** SPRT F481.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F482 Sport Marketing**

3 Credits

Offered Spring

This course provides a decision-orientated overview of sport marketing management in sport organizations. This course is designed to acquaint students with comprehensive fundamental theories and issues in sport marketing, grounded within traditional marketing principles, and emphasizing unique application to the sport industry.

Prerequisites: BA F343; BA F281X or SPRT F281X; COM F121X, COM F131X or COM F141X.**Cross-listed with** SPRT F482.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F483 Sport and Recreation Sales**

3 Credits

Offered Fall

This course is designed to provide the student with knowledge pertaining to the various aspects of sales and pricing techniques used within sport and recreation organizations. Some of the topics discussed include ticket distribution, customer service, software and real-life sales campaigns.

Prerequisites: BA F343, BA F281X/SPRT F281X; COM F121X, COM F131X or COM F141X.**Cross-listed with** SPRT F483.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F484 Legal Aspects of Sport and Recreation Management**

3 Credits

Offered As Demand Warrants

This course will focus on the three major areas of law that have a direct impact on the management of sport and recreation: tort liability and risk management; contract law; and constitutional law.

Prerequisites: SPRT F281X.**Cross-listed with** SPRT F484.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**BA F485 Sport and Recreation Facilities**

3 Credits

Offered Fall

This course provides a foundation for the planning process, operations, and specific design features for various park, recreation, and sport facilities. This course is designed to provide students the opportunity to learn multiple aspects of sports facilities and the management of events held at these facilities.

Prerequisites: SPRT F281X, BA F281X, SPRT F280 or BA F280.**Cross-listed with** SPRT F485.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

BA F486 Entrepreneurship in Outdoor Recreation Industries

3 Credits

Offered Spring

This course is an introduction in the development and management of outdoor recreation businesses. Topics covered include business plan development, financial structures, and risk management specific to remote recreation businesses commonly found in Alaska, such as big-game commercial services, sport fishing operations, remote expediting, and aviation-related services.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; BA/SPRT F281X.

Cross-listed with SPRT F486.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BA F488 Sport Analytics

3 Credits

Offered Fall, Spring and Summer

This course is an introduction to the application of analytical tools and techniques used within the sports industry. It will discuss theory, development, and application of analytics in the sports industry.

Prerequisites: SPRT F280 or SPRT F281X.

Crosslisted with SPRT F488.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BA F489 Public Sector Labor Relations

3 Credits

Offered As Demand Warrants

Builds the knowledge and skills to manage effectively in a highly-unionized public sector context. Uses recent cases to explore the bargaining process, dispute resolution, contract administration and contemporary political and legal context.

Prerequisites: COM F121X, COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Special Notes: Completion of BA F307 is recommended but not required.

Lecture + Lab + Other: 7 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BA F490 Services Marketing Strategy

3 Credits

Offered As Demand Warrants

Service industries like banking, healthcare and tourism are some of the largest and fastest-growing segments in the U.S. economy. Marketing a service or experience requires a different approach than promoting a product. This course explores strategies to increase customer satisfaction, improve service quality and build long-term customer relationships.

Prerequisites: BA F343.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

BA F491 Current Topics in Marketing

3 Credits

Offered As Demand Warrants

Examines current marketing trends with regard to production, distribution, promotion, pricing and target markets. Focus on trends in Alaska, the U.S. and worldwide. Course may be repeated for credit when content varies.

Prerequisites: BA F343.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 9 credits

BA F692 Seminar

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

BA F692P Seminar

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

BA F698 Research

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

BA F699 Thesis

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Chemistry (CHEM)

College of Natural Science and Mathematics

Department of Chemistry and Biochemistry (<https://www.uaf.edu/chem/>)
907-474-5510

CHEM F100X Chemistry in Complex Systems (n)

4 Credits

Offered Fall, Spring and Summer

Fundamentals of chemistry with an emphasis on the role of chemistry in environmental and life systems. The role of feedback systems on chemical behavior is illustrated in atmospheric, aquatic, nuclear and nutritional systems.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.

Special Notes: For non-science majors.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F103L CHEM F103X Laboratory

0 Credit

Co-requisites: CHEM F103X.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

CHEM F103X Introduction to General Chemistry (n)

4 Credits

Offered Fall

Introductory chemistry survey course for health science majors and preparatory course for science majors. Topics include: measurement, energy and matter, periodic trends, chemical composition, chemical reactions, solutions, bond theory, phases, oxidation-reduction, nuclear chemistry, problem-solving (applied mathematics), and special topics.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.

Co-requisites: CHEM F103L.

Special Notes: This course fulfills the laboratory part of the natural science requirement and provides preparation for subsequent training in chemistry in CHEM F104X and CHEM F105X.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F104L CHEM F104X Laboratory

0 Credit

Co-requisites: CHEM F104X.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

CHEM F104X Introduction to Organic Chemistry and Biochemistry (n)

4 Credits

Offered Spring

This is the second semester course in the sequence for health-science majors and comprises a survey of the fundamentals of chemistry as applied to biological systems. Topics include nomenclature of organic compounds, organic functional groups and reactions, biochemical processes and pathways, biological macromolecules, and metabolites.

Prerequisites: CHEM F103X; placement in WRTG F111X; placement in MATH F105.

Co-requisites: CHEM F104L.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F105L Chemistry F105X Lab

0 Credit

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

CHEM F105X General Chemistry I (n)

4 Credits

Offered Fall, Spring and Summer

This course is an introduction to general chemistry and explores topics to a much greater depth than preparatory courses. Topics include: measurement, energy and matter, periodic trends, chemical composition, chemical reactions, solutions, bond theory, gases, thermodynamics, problem-solving (applied mathematics), and special topics. Students must be enrolled in both CHEM F105X and CHEM F105L to receive full credit.

Prerequisites: B- or better in CHEM F103X or (placement in WRTG F111X; placement in MATH F151X) or permission of instructor and department.

Corequisite: CHEM F105L.

Special Notes: CHEM F105X-CHEM F106X, together with their laboratory components, constitute the standard one year engineering and science major general chemistry course.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F106L Chemistry F106X Lab

0 Credit

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

CHEM F106X General Chemistry II (n)

4 Credits

Offered Fall, Spring and Summer

The second semester in the general chemistry sequence. Topics include: kinetics, equilibrium chemistry (including acids and bases, solubility, and complex ion formation), nuclear chemistry, electrochemistry, thermodynamics, and special topics. Students must be enrolled in both CHEM F106X and CHEM F106L to receive full credit.

Prerequisites: Grade of C- or better in CHEM F105X; placement in WRTG F111X; placement in MATH F151X; or permission of instructor and department chair.

Corequisites: CHEM F106L.

Special Notes: CHEM F105X-CHEM F106X, together with their laboratory components, constitute the standard one year engineering and science major general chemistry course.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F111X Introduction to Environmental Chemistry of the Arctic

4 Credits

Offered As Demand Warrants

This course introduces students to environmental chemistry through investigating the air, water and soil quality of the Arctic environment as affected by natural and anthropogenic cycling of nutrients and contaminants. The lab component will focus on characterization of natural waters collected around the state. Presented both on-campus and by distance.

Prerequisites: MATH F105.

Attributes: UAF GER Natural Science Req

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F190 Alaska Statewide High School Science Symposium

2 Credits

Offered Spring

Students employ the scientific method to approach a problem of personal interest. Student work is molded into a research paper delivered orally in a formal scientific presentation for judges with wide-ranging experiences.

Prerequisites: High School student grades 9-12.

Recommended: Research completion, abstract and paper writing/submission, ASHSSS presentation.

Lecture + Lab + Other: 0 + 10 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 4 times for up to unlimited credits

CHEM F202 Basic Inorganic Chemistry (n)

3 Credits

Offered Spring

Introduction to coordination theory, crystal field theory, kinetics and mechanisms of substitutions and redox reactions, unit cells and ionic bonding, periodic law, and descriptive chemistry of selected main group elements.

Prerequisites: CHEM F106X.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F212 Chemical Equilibrium and Analysis (n)

4 Credits

Offered Fall

Aqueous chemical equilibrium as applied to chemical analysis, separations, spectrophotometry, potentiometry and factors considered in the analytical approach. Lab portion will include introductory experiments in analytical and instrumental techniques.

Prerequisites: Grade of C or better in CHEM F106X; MATH F151X.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F288 Introduction to Chemical Research

2 Credits

Offered As Demand Warrants

Scientific research is creative and engaging when properly planned and executed. This course introduces students to the process of planning and executing a research project. We will begin with an idea, review primary literature, brainstorm project ideas, pose a testable hypothesis, plan experiments and execute a small research project.

Prerequisites: CHEM F212, CHEM F321.

Lecture + Lab + Other: 1 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F314 Analytical Instrumental Laboratory (n)

3 Credits

Offered Spring

A laboratory course focusing on the acquisition and interpretation of spectroscopic and chromatographic data for qualitative characterization and quantitative chemical measurements. Students will learn to design and execute experiments with a variety of instruments, critically evaluate experimental data, and communicate their findings through scientific writing.

Prerequisites: CHEM F212; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; must be a chemistry major.

Lecture + Lab + Other: 1 + 6 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F321 Organic Chemistry I (n)

4 Credits

Offered Fall

A systematic study of the more important functional groups of carbon compounds, including their mechanisms of reaction, methods of synthesis, and physical and spectroscopic properties. Lab portion will include an introduction to synthetic techniques and spectroscopy.

Prerequisites: CHEM F106X.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F325 Organic Chemistry II (n)

4 Credits

Offered Spring

A systematic study of the more important functional groups of carbon compounds, including their mechanisms of reaction, methods of synthesis and physical and spectroscopic properties. Lab portion will include synthesis and characterization by spectroscopy.

Prerequisites: CHEM F321.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F331 Physical Chemistry I (n)

4 Credits

Offered Fall

Principles of thermodynamics and kinetics with applications to phase equilibria, solutions, chemical equilibrium and electrochemistry. Course teaches these concepts using both lecture and laboratory instruction.

Prerequisites: CHEM F106X; MATH F252X; PHYS F124X or PHYS F212X.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F332 Physical Chemistry II (n)

4 Credits

Offered Spring

Atomic and molecular structure, and spectroscopy, and statistical mechanics. Course teaches these concepts using both lecture and laboratory instruction.

Prerequisites: CHEM F331; MATH F253X.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F360 Cell and Molecular Biology (n)

3 Credits

Offered Fall and Spring

An introduction to the structure and function of cells. Topics include: the structure and function of cellular components, including proteins, membranes and organelles; understanding how cells communicate; and how information is processed in the cell via DNA replication, transcription and translation.

Prerequisites: BIOL F260; CHEM F105X; CHEM F106X (may be taken concurrently).

Cross-listed with BIOL F360.

Special Notes: Taught asynchronously online in fall, face to face in spring.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F402 Inorganic Chemistry (n)

3 Credits

Offered Fall

Symmetry and group theory, molecular orbital theory, solid state chemistry, acids and bases, redox reactions, non-aqueous solvents, descriptive chemistry of some main group elements.

Prerequisites: CHEM F202; CHEM F325.

Lecture + Lab + Other: 1 + 6 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F403 Biological Inorganic Chemistry

3 Credits

Offered Fall

Survey of structure, functions, and chemical properties of natural metalloproteins and metalloenzymes, roles of metalloproteins in nucleic acid formation and replication, metal-based medicines.

Prerequisites: CHEM F202; CHEM F449.

Stacked with CHEM F603.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F406 Atmospheric Chemistry

3 Credits

Offered Spring Odd-numbered Years

Chemistry of the lower atmosphere (troposphere and stratosphere) including photochemistry, kinetics, thermodynamics, box modeling, biogeochemical cycles and measurement techniques for atmospheric pollutants; study of important impacts to the atmosphere which result from anthropogenic emissions of pollutants, including acid rain, the "greenhouse" effect, urban smog and stratospheric ozone depletion.

Prerequisites: CHEM F332.

Stacked with CHEM F606; ATM F606.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F419 Practical Nuclear Magnetic Resonance

2 Credits

Offered Spring

Students will be trained in the basic operation of NMR instruments. Students will spend much of the class time getting hands-on experience on the NMR with student-driven NMR-based research projects. At the end of the course, students will present their projects to the rest of the class.

Prerequisites: CHEM F321.

Lecture + Lab + Other: 1 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F420 Applications of NMR Spectroscopy

3 Credits

Offered Fall Even-numbered Years

Applications of nuclear magnetic resonance (NMR) spectroscopy in the chemical and biochemical sciences. The course will focus on the implementation and interpretation of NMR experiments for solving research problems. Topics include the basic theory of NMR and one- and two-dimensional techniques.

Prerequisites: CHEM F321.

Stacked with CHEM F620.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F434 Chemistry Capstone Laboratory (n)

3 Credits

Offered Fall

A capstone laboratory course with three major components: 1) experiments related to concepts learned in physical, analytical and inorganic chemistry courses emphasizing kinetics, spectroscopy and thermodynamics; 2) computer use in problem solving, data analysis and word processing; and 3) technical writing with emphasis on preparation of papers for publication.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; CHEM F212; CHEM F202; CHEM F332 (may be taken concurrently).

Lecture + Lab + Other: 1 + 6 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F449 General Biochemistry: Metabolism

3 Credits

Offered Spring

This course is an introduction to metabolism at the molecular level and covers the molecular structures and classification of the three major macromolecules: carbohydrates, lipids and proteins. Individual metabolic pathways and regulation will be studied, as well as the big picture and how all the pathways are tied together.

Prerequisites: CHEM F321.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F450 Information Storage and Transfer: Molecules and Pathways

3 Credits

Offered Fall

Focuses on the biochemistry of the two principal macromolecules: nucleic acids and proteins. Topics include: nucleotides metabolism, DNA structure and topology, DNA replication, DNA repair and recombination, cell cycle regulation, RNA transcription and processing. Gene expression, translation and protein metabolism. Biomedical relevance and contemporary techniques will be addressed if appropriate.

Prerequisites: CHEM F321.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F455 Environmental Toxicology

3 Credits

Offered Fall

Environmental toxicology will focus on the general properties and principles of persistent and/or poisonous (toxic) chemicals commonly encountered in air, water, fish and wildlife. Numerous natural and synthetic chemicals in the environment will be discussed from a global perspective with some bias towards Arctic and sub-Arctic regions.

Prerequisites: CHEM F449 or one semester each of organic chemistry and cell or molecular biology; COM F121X, COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Cross-listed with BIOL F455.

Stacked with BIOL F656; CHEM F655.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F466 Advanced Cell and Molecular Laboratory

3 Credits

Offered Spring

Modern molecular biological techniques including protein and nucleic acid gel electrophoresis, western blotting, cell fractionation, cellular respiration, enzymology and fluorescence microscopy. Lectures will be supplemented with reading from the primary literature. Student projects in this course may satisfy the capstone project requirements of the biological science degree.

Prerequisites: BIOL F360 or CHEM F360 may be taken concurrently.

Cross-listed with BIOL F466.

Lecture + Lab + Other: 2 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F470 Cellular and Molecular Neuroscience

3 Credits

Offered Spring Odd-numbered Years

The cellular and molecular underpinnings of signaling in the nervous system. Topics include properties of excitable membranes, synaptic transmission, neurological integration, the cellular and molecular basis of learning and memory, and pharmacological treatment of neuronal pathologies.

Prerequisites: Two F300-level courses in BIOL or CHEM; MATH F230X or MATH F251X.

Recommended: MATH F252X.

Stacked with CHEM F670; BIOL F679.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F474 Neurochemistry

3 Credits

Offered Fall Odd-numbered Years

Covers basic and applied aspects of interneuronal signaling of specific neurotransmitter systems. Lectures will be based on chapters from assigned text as well as recent and historical literature relevant to these topics. Basic concepts introduced in lectures will be applied through guided discussion of original research papers.

Prerequisites: BIOL F115X; CHEM F325; BIOL F417 or CHEM F470 or PSY F335.

Stacked with CHEM F676.

Special Notes: Students will learn to prepare "peer reviews" of selected papers and critically discuss original research.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F481 Seminar

1 Credit

Offered Fall and Spring

Introduction to the techniques and style of technical oral presentation generally accepted by professional chemists. Class meets two hours/week, the first hour in closed session, the second, open to the public. Seminar attendance and participation in observing and critiquing presentations by graduate students, chemistry faculty and their peers is required.

Prerequisites: COM F131X or COM F141X.

Special Notes: Oral communication intensive credit is earned upon successful completion of CHEM F482.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Pass/Fail Grades

CHEM F482 Seminar

2 Credits

Offered Fall and Spring

Introduction to the techniques and style of technical oral presentation generally accepted by professional chemists. Class will meet two hours per week, the first hour in closed session, the second, open to the public. Preparation of a 40 minute presentation to be delivered twice, first, to others in the course.

Prerequisites: CHEM F481; COM F131X or COM F141X.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F488 Undergraduate Chemistry and Biochemistry Research

2-3 Credits

Offered Fall and Spring

Advanced research topics from outside the usual undergraduate laboratory offerings. The student will be required to make presentations and turn in a final report. Research areas range from atmospheric chemistry to molecular biology. A substantial level of chemistry or biochemistry background is assumed.

Prerequisites: CHEM F434 or CHEM F314.

Lecture + Lab + Other: 0 + 6-9 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 4 times for up to 12 credits

CHEM F498 Research

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

CHEM F601 Introduction to Atmospheric Sciences

3 Credits

Offered Fall

Fundamentals of atmospheric science. Includes energy and mass conservation, internal energy and entropy, atmospheric water vapor, cloud microphysics, equations of motion, hydrostatics, phase oxidation, heterogeneous chemistry, the ozone layer, fundamentals of biogeochemical cycles, solar and terrestrial radiation and radiative-convective equilibrium. Also includes molecular, cloud and aerosol absorption and scattering.

Prerequisites: Graduate standing.

Cross-listed with ATM F601.

Stacked with ATM F401.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F603 Biological Inorganic Chemistry

3 Credits

Offered Fall

Survey of structure, functions, and chemical properties of natural metalloproteins and metalloenzymes, roles of metalloproteins in nucleic acid formation and replication, metal-based medicines.

Stacked with CHEM F403.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CHEM F605 Aquatic Chemistry

3 Credits

Offered As Demand Warrants

Chemistry of aquatic systems, including the development of equilibrium and kinetic models to understanding the speciation, transformation and partitioning of inorganic chemical species in aqueous systems. Emphasis is on the study of acid-base chemistry, complexation, precipitation-dissolution and reduction-oxidation reactions.

Prerequisites: Graduate standing.**Cross-listed with** ENVE F641.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F606 Atmospheric Chemistry**

3 Credits

Offered Spring Odd-numbered Years

Chemistry of the lower atmosphere (troposphere and stratosphere) including photochemistry, kinetics, thermodynamics, box modeling, biogeochemical cycles and measurement techniques for atmospheric pollutants; study of important impacts to the atmosphere which result from anthropogenic emissions of pollutants, including acid rain, the "greenhouse" effect, urban smog and stratospheric ozone depletion.

Prerequisites: ATM F601.**Cross-listed with** ATM F606.**Stacked with** CHEM F406.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F609 Aqueous and Environmental Geochemistry**

3 Credits

Offered Spring Odd-numbered Years

Chemistry of aquatic and terrestrial environments, including thermodynamic, kinetic and structural principles applied to aqueous geochemical systems. Emphasis on aqueous speciation and heterogeneous interactions (e.g., dissolution/precipitation and sorption) involved in the partitioning, transformation and transport of chemical species in the environment.

Prerequisites: CHEM F331 or Graduate standing.**Cross-listed with** GEOS F633.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F620 Applications of NMR Spectroscopy**

3 Credits

Offered Fall Even-numbered Years

Applications of nuclear magnetic resonance (NMR) spectroscopy in the chemical and biochemical sciences. The course will focus on the implementation and interpretation of NMR experiments for solving research problems. Topics include the basic theory of NMR and one- and two-dimensional techniques.

Prerequisites: Graduate standing.**Stacked with** CHEM F420.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F631 Environmental Fate and Transport**

3 Credits

Offered Spring Even-numbered Years

Examination of the physical properties that govern the behavior, fate and transport of contaminants released into the environment. Topics include air-water partitioning and exchange, organic solvent-water partitioning, diffusion, sorption, chemical and biological transformation reactions, and modeling concepts.

Cross-listed with ATM F631.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F632 Molecular Spectroscopy**

3 Credits

Offered Fall Odd-numbered Years

Application of quantum mechanics to molecular bonding and spectroscopy. Topics include: applications of lasers to probe chemical reactivity, photochemistry and the detection of trace compounds in mixtures. Variable content. May be repeated for credit.

Prerequisites: CHEM F332.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F654 Protein Structure and Function**

3 Credits

Offered Spring Even-numbered Years

Contemporary topics in peptide and protein biochemistry. Topics include peptide synthesis, protein modification, comparative aspects of structure, protein engineering, enzyme and receptor function as well as molecular modeling.

Prerequisite: CHEM F449.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F655 Environmental Toxicology**

3 Credits

Offered Fall

Environmental toxicology will focus on the general properties and principles of persistent and/or poisonous (toxic) chemicals commonly encountered in air, water, fish and wildlife. Numerous natural and synthetic chemicals in the environment will be discussed from a global perspective with some bias towards Arctic and sub-Arctic regions.

Prerequisites: CHEM F449 or one semester each of organic chemistry and cell or molecular biology.**Cross-listed with** BIOL F656.**Stacked with** BIOL F455; CHEM F455.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F657 Molecular Foundations of Gene Expression**

3 Credits

Offered Spring Even-numbered Years

The molecular regulation of gene expression in prokaryotes and eukaryotes in the context of development and disease. Major topics include: protein/DNA interactions, structure-function relations of transcription factors, signal transduction, control of transcription and translation, chromatin structure and DNA replication.

Prerequisites: CHEM F449; CHEM F450.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

CHEM F660 Chemical Oceanography

3 Credits

Offered Spring

An integrated study of the chemical, biological, geological and physical processes that control the chemical composition of seawater. Boundary interactions with the atmosphere and lithosphere, biogeochemical cycles and tracers of these complex cycles are examined. The marine chemistry of inorganic carbon is considered in detail.

Prerequisites: Graduate standing.**Cross-listed with** OCN F660.**Stacked with** OCN F460.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F666 Scientific Teaching**

2 Credits

Offered Spring Even-numbered Years

This course explores methods for teaching science at the university level. Emphasis is placed on methods of course design, instructional techniques, assessment, and course management that have been shown by research to improve student learning. This course is intended for graduate students who have an interest in science teaching.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F670 Cellular and Molecular Neuroscience**

3 Credits

Offered Spring Odd-numbered Years

The cellular and molecular underpinnings of signaling in the nervous system. Topics include properties of excitable membranes, synaptic transmission, neurological integration, the cellular and molecular basis of learning and memory, and pharmacological treatment of neuronal pathologies.

Prerequisites: Two F300-level courses in BIOL or CHEM; MATH F230X or MATH F251X.**Recommended:** MATH F252X.**Cross-listed with** BIOL F679.**Stacked with** CHEM F470.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F671 Receptor Pharmacology**

3 Credits

Offered Fall Even-numbered Years

Covers basic drug/receptor theory to train students to assess affinity and efficacy of receptor ligands, interpret functional assays and binding results, and critically evaluate original research regarding receptor pharmacology with an emphasis on ligand-gated ion channels and G-protein coupled receptors.

Prerequisites: Upper-division or graduate biochemistry or neurochemistry course.**Recommended:** BIOL F417.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F674 Membrane Biochemistry and Biophysics**

3 Credits

Offered Fall Even-numbered Years

Basic biophysical and molecular processes associated with membrane-mediated events in the context of cellular physiology. Major topics includes biochemical and biophysical characteristics of membrane lipids; structure-function relation of membrane proteins; protein trafficking/targeting; vesicle transport and membrane fusion/exocytosis; the nature of membrane excitability; and the role of membrane in bioenergetics.

Prerequisites: CHEM F449; CHEM F450.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F675 Cellular Signaling**

3 Credits

Offered Spring Odd-numbered Years

Cellular signaling is vitally important in complex biomolecular systems, development, physiology, and pathology and thus constitutes a major topic in modern medical and pharmacological research. This course concentrates on cellular signal transduction and regulation in higher mammals. Major topics include G-proteins, protein kinases, signaling molecules, lipid mediators, and adaptor proteins.

Prerequisites: Upper division or graduate biochemistry or neurochemistry course.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F676 Neurochemistry**

3 Credits

Offered Fall Odd-numbered Years

Covers basic and applied aspects of interneuronal signaling of specific neurotransmitter systems. Lectures will be based on chapters from assigned text as well as recent and historical literature relevant to these topics. Basic concepts introduced in lectures will be applied through guided discussion of original research papers.

Prerequisites: BIOL F115X; CHEM F325; BIOL F417 or CHEM F470 or PSY F335.**Stacked with** CHEM F474.**Special Notes:** Students will learn to prepare "peer reviews" of selected papers and critically discuss original research.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHEM F686 Chemical Research Mentoring**

2 Credits

Offered As Demand Warrants

This course provides graduate students the opportunity to mentor undergraduates in chemical research within a structured environment, from developing a research idea to executing a small research project. The focus of this course is to refine mentoring skills that contribute to the professional development of maturing chemical professionals.

Prerequisites: Graduate standing in a scientific discipline.**Lecture + Lab + Other:** 1 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 4 credits**CHEM F688 Biochemical and Molecular Biology Seminar**

1 Credit

Offered Fall and Spring

A seminar on various topics related to biochemistry and molecular biology including discussions of recent literature and research results.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

CHEM F691 Research Presentation Techniques

1 Credit

Offered Fall

Review of recent research in chemistry to expose students to recent findings, methodologies and concepts in a broad range of chemistry and related disciplines. How to present and defend research proposals. Course may be repeated for credit.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**CHEM F692 Seminar**

1-6 Credits

Graded Pass/Fail.

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**CHEM F698 Non-thesis Research/Project**

1-9 Credits

Graded Pass/Fail.

Lecture + Lab + Other: 0 + 1-9 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**CHEM F699 Thesis**

1-12 Credits

Offered Fall, Spring and Summer

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Chinese (CHNS)

College of Liberal ArtsForeign Languages & Literature (<https://www.uaf.edu/language/languages/chinese.php>)

907-474-0928

Community and Technical CollegeGeneral Academic & Technical Programs (<https://www.ctc.uaf.edu/>)
907-455-2800

FOREIGN LANGUAGES & LITERATURE DEPARTMENT COURSES

CHNS F101X Elementary Chinese I (h)

5 Credits

Offered Fall

First year spoken and written Chinese. Emphasis on the basic elements of the language to acquire skills in listening, speaking, reading and writing. About 300 characters will be taught. Cultural aspects will be presented.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F102X Elementary Chinese II (h)**

5 Credits

Offered Spring

First year spoken and written Chinese. Emphasis on the basic elements of the language to acquire skills in listening, speaking, reading and writing. Approximately 300 characters will be taught. Cultural aspects are presented.

Prerequisites: CHNS F101X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F201 Intermediate Chinese I (h)**

4 Credits

Offered Fall Even-numbered Years

Continuation of CHNS F102. Continue to gain language skills by learning more characters/vocabulary and broadened sentence patterns. About 200 characters and 700 vocabulary words will be taught.

Prerequisites: CHNS F102X.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F202 Intermediate Chinese II (h)**

4 Credits

Offered Spring Odd-numbered Years

Continuation of CHNS F102. Continue to gain language skills by learning more characters/vocabulary and broadened sentence patterns. About 200 characters and 700 vocabulary words will be taught.

Prerequisites: CHNS F201.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

GENERAL ACADEMIC & TECHNICAL COURSES

CHNS F100A Chinese Culture and Conversation IA

3 Credits

Offered As Demand Warrants

An introductory course in Chinese language and culture with an emphasis on the spoken pronunciation, and contemporary use of the language. This class does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F100B Chinese Culture and Conversation IB**

3 Credits

Offered As Demand Warrants

A continuation of introduction to the Chinese language and culture with an emphasis on the spoken and written language. Course will focus on language skills to include grammar, vocabulary, pronunciation, and contemporary use of the language. This class does not meet Foreign Language major or minor requirements.

Prerequisites: CHNS F100A.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

CHNS F100C Chinese Culture and Conversation IIA

3 Credits

Offered As Demand Warrants

Continuation of CHNS F100B. Students continue to progress in basic skills of listening, speaking, reading, and writing sentence patterns. Grammar and sentence pattern analysis will be presented systematically to help students establish a solid foundation for the use of language.

Prerequisites: CHNS F100B.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F100D Chinese Culture and Conversation IIB**

3 Credits

Offered As Demand Warrants

Continuation of CHNS F100C. Students continue to progress in basic skills of listening, speaking, reading, and writing by learning more characters/vocabulary and broadened sentence patterns. Grammar and sentence pattern analysis will be presented systematically to help students establish a solid foundation for the use of language.

Prerequisites: CHNS F100C.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Chinese (CHNS)

CHNS F100A Chinese Culture and Conversation IA

3 Credits

Offered As Demand Warrants

An introductory course in Chinese language and culture with an emphasis on the spoken pronunciation, and contemporary use of the language. This class does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F100B Chinese Culture and Conversation IB**

3 Credits

Offered As Demand Warrants

A continuation of introduction to the Chinese language and culture with an emphasis on the spoken and written language. Course will focus on language skills to include grammar, vocabulary, pronunciation, and contemporary use of the language. This class does not meet Foreign Language major or minor requirements.

Prerequisites: CHNS F100A.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F100C Chinese Culture and Conversation IIA**

3 Credits

Offered As Demand Warrants

Continuation of CHNS F100B. Students continue to progress in basic skills of listening, speaking, reading, and writing sentence patterns. Grammar and sentence pattern analysis will be presented systematically to help students establish a solid foundation for the use of language.

Prerequisites: CHNS F100B.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F100D Chinese Culture and Conversation IIB**

3 Credits

Offered As Demand Warrants

Continuation of CHNS F100C. Students continue to progress in basic skills of listening, speaking, reading, and writing by learning more characters/vocabulary and broadened sentence patterns. Grammar and sentence pattern analysis will be presented systematically to help students establish a solid foundation for the use of language.

Prerequisites: CHNS F100C.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F101X Elementary Chinese I (h)**

5 Credits

Offered Fall

First year spoken and written Chinese. Emphasis on the basic elements of the language to acquire skills in listening, speaking, reading and writing. About 300 characters will be taught. Cultural aspects will be presented.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F102X Elementary Chinese II (h)**

5 Credits

Offered Spring

First year spoken and written Chinese. Emphasis on the basic elements of the language to acquire skills in listening, speaking, reading and writing. Approximately 300 characters will be taught. Cultural aspects are presented.

Prerequisites: CHNS F101X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F201 Intermediate Chinese I (h)**

4 Credits

Offered Fall Even-numbered Years

Continuation of CHNS F102. Continue to gain language skills by learning more characters/vocabulary and broadened sentence patterns. About 200 characters and 700 vocabulary words will be taught.

Prerequisites: CHNS F102X.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CHNS F202 Intermediate Chinese II (h)**

4 Credits

Offered Spring Odd-numbered Years

Continuation of CHNS F102. Continue to gain language skills by learning more characters/vocabulary and broadened sentence patterns. About 200 characters and 700 vocabulary words will be taught.

Prerequisites: CHNS F201.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Civil Engineering (CE)

College of Engineering and Mines

Department of Civil, Geological and Environmental Engineering (<https://www.uaf.edu/cem/programs/civil-engineering/>)
907-474-7241

CE F112 Elementary Surveying

3 Credits

Offered Fall

Basic plane surveying; use of transit, level, theodolite and total station. Traverses, public land system, circular curves, cross-sectioning and earthwork.

Prerequisites: MATH F152X.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F302 Fundamentals of Transportation Engineering**

3 Credits

Offered Spring

Introduction to multimodal transportation systems and the factors that influence the planning, design and operation of transportation systems. Highway systems are emphasized, with keen focus on issues related to Northern climates.

Prerequisites: CE F112 or MIN F202; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F326 Introduction to Geotechnical Engineering and Foundations**

4 Credits

Offered Fall

Identification and classification of soils; physical and mechanical properties of soil; subsurface exploration; movement of water through soil; soil deformation. Bearing capacity of shallow foundations and piles, and stability of retaining walls. Laboratory testing techniques, and introduction to soil issues related to cold regions.

Prerequisites: ES F331 (may be taken concurrently); GE F261.**Crosslisted with** GE F326.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F331 Structural Analysis**

3 Credits

Offered Spring

Introduces techniques for the analysis of statically determinate and indeterminate structures to include beams, trusses and frames. Reviews internal force resultants, shear and moment diagrams, deflections, internal stresses. Discusses indeterminate analysis of structures, including methods of consistent deflections and slope-deflection.

Provides an introduction to matrix methods.

Prerequisites: ES F208; ES F331.**Lecture + Lab + Other:** 2 + 0 + 3**Grading System:** Letter Grades with option of Plus/Minus**CE F334 Properties of Materials**

3 Credits

Offered Spring

Properties of engineering materials. Bonding, crystal and amorphous structures. Relationships between microstructure and engineering properties. Modification of properties and environmental serviceability. Concrete and asphalt mixes.

Prerequisites: ES F331; may be taken concurrently.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F341 Introduction to Environmental Engineering**

4 Credits

Offered Fall

Introduces fundamentals of environmental engineering theory and application including topics in water chemistry, mass balance, heat transfer, water/wastewater quality and treatment, air quality engineering, and design of natural/engineered processes for contaminant removal. Laboratory activities supplement lecture material and provide an introduction to statistical analyses, data interpretation and preparation of reports.

Prerequisites: CHEM F106X; or graduate standing.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F344 Water Resources Engineering**

3 Credits

Offered Fall

Fundamentals of engineering hydrology and hydraulic engineering. Water cycle and water balance, precipitation, evaporation, runoff, statistical methods, flood control, open channels and groundwater.

Prerequisites: ES F341.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F401 Arctic Engineering**

3 Credits

Offered Fall

Introduces students to a broad spectrum of engineering challenges unique to cold regions. Discusses physical principles and practical data collection methods, analyses, designs and construction methods. Students gain a working knowledge of cold regions engineering problems and modern solutions as a basis for more detailed study.

Prerequisites: Senior standing in engineering or a BS in engineering.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F405 Design of Highways and Streets**

3 Credits

Offered Fall Even-numbered Years

Design and analysis of streets and highways with an emphasis on safety and efficiency. Design topics include: surveys, vertical and horizontal alignments, cross sections, and gravel roads. Analysis topics include: flow and gap acceptance theory, impact and safety analysis, signal timing and coordination.

Prerequisite: CE F302.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F408 Transportation Safety Analysis**

3 Credits

Offered Fall Odd-numbered Years

Analysis of streets and highways with an emphasis on safety. Analysis of alternatives and control strategies with respect to crash probabilities. Statistical models for safety analysis; crash data collection, database management and data analysis; safety improvement programs; statistical modeling; and before-and-after studies.

Prerequisites: CE F302.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

CE F420 Groundwater Engineering

3 Credits

Offered Fall

Fundamentals of groundwater occurrence, hydrology, resource development, water quality, monitoring and remediation. Field methods and modeling.

Prerequisites: CE F326, GE F326; ES F341.

Crosslisted with GE F420.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CE F422 Foundation Engineering

3 Credits

Offered Fall

Reviews slope stability analysis. Introduces bearing capacity of soils and effects of settlements on structure; discusses design of footings and rafts, pile and pier foundations, retaining walls and anchored bulkheads, foundations on frozen soils, and construction problems in foundation engineering.

Prerequisites: CE F326; ES F301.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CE F424 Permafrost Engineering

3 Credits

Offered Spring

Permafrost and frozen ground engineering, types of permafrost and ways of its formations, factors important for permafrost existence, hazards related to permafrost, index, thermal, and mechanical properties of frozen and thawing soils, thermal analysis methods of soil freezing and thawing, foundations design alternatives, pipelines, roads and airfields in permafrost regions.

Prerequisites: CE F326.

Recommended: CE F422.

Stacked with CE F624.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CE F432 Steel Design

3 Credits

Offered Fall

Introduces structural design philosophies and current practices related to steel design. Utilizes the AISC Specification to discuss the design of basic structural elements in steel including tension members, fasteners, welds, column buckling, beam behavior, beam-columns, and composite floor systems.

Prerequisites: CE F331; ES F331.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

CE F433 Reinforced Concrete Design

3 Credits

Offered Spring

Introduces structural design philosophies and current practices related to reinforced concrete design. Utilizes the ACI 318 Specification to discuss the behavior of reinforced concrete members and their design including flexural members, such as rectangular, T-beams, one-way slabs, and axial members. Crack control, anchorage, development lengths and deflections are covered.

Prerequisites: CE F331; ES F331.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CE F434 Timber Design

3 Credits

Offered Fall

Design loads. Building systems and loading path. Physical and mechanical properties of wood. Design values and adjustment factors. Design of axial members, beams and columns. Connection details. Design of wood frame structures. Current National Design Specifications (NDS) for Wood Construction used.

Prerequisites: CE F331; ES F331.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CE F438 Design of Engineered Systems

3 Credits

Offered Spring

Capstone design experience where students demonstrate understanding of system design principles using service learning projects with civil and environmental engineering focus. Practical applications of fundamental engineering concepts such as codes and standards, ethics and safety, and liability and legal principles. Emphasis on teamwork, leadership and oral communication with diverse audiences.

Prerequisites: Civil engineering major with senior standing; COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; A minimum of two upper-division CE design courses, such as CE F405, CE F408, CE F422, CE F432, CE F433, CE F434, CE F442 or CE F445.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CE F442 Water and Wastewater Treatment Design

3 Credits

Offered Spring

Presents design methods for pollution control and remediation in water systems. Applies theories and engineering principles for the design of physical, chemical, and biological processes for the treatment of water and wastewater.

Prerequisites: CE F341, CHEM F106X or graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CE F443 Air Pollution Management

3 Credits

Offered Spring Odd-numbered Years

Major principles and problems associated with air quality, stationary and moving sources, air pollution effects; major air pollution legislation and compliance calculations; meteorology and modeling of pollutant concentrations near a source; greenhouse gas emissions and climate change; control equipment and design of control strategies for specific air pollution problems.

Prerequisites: CHEM F106X; graduate standing.

Recommended: MATH F252X.

Stacked with ENVE F643.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CE F445 Hydrologic Analysis and Design

3 Credits

Offered Spring

Design and analysis; extended coverage of hydrologic concepts from CE F344. Precipitation, snow cover and evaporation analysis; groundwater hydraulics; runoff analysis and prediction; statistical hydrology; application of simulation models. Design of structures such as culverts, reservoirs, wells, pumps and pipe networks.

Prerequisites: CE F344.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F451 Construction Cost Estimating and Bid Preparation**

3 Credits

Offered Fall

Compilation and analysis of the many items that influence and contribute to the cost of projects to be constructed. Preparation of cost proposals and study of bidding procedures.

Recommended: College math.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F601 Engineering Research Communication**

3 Credits

Offered As Demand Warrants

Oral and written communication techniques to describe results on current issues in environmental science and engineering.

Prerequisites: Graduate Standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F605 Pavement Design**

3 Credits

Offered As Demand Warrants

Provides instruction on the current practices of analysis and design of highway and airport pavements. The instruction includes theoretical and practical approaches for the design of flexible and rigid pavements. Materials characterization, load considerations, empirical and mechanistic design methods as well as rehabilitation are covered.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F607 GIS Applications in Civil Engineering**

3 Credits

Offered As Demand Warrants

Theories and advanced methods of Geographic Information Systems for civil engineering practice. Students will apply and execute concepts related to data integration, analysis and management in the ArcGIS suite during labs.

Prerequisites: Graduate standing in CE.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F620 Construction Project Management**

3 Credits

Offered As Demand Warrants

Construction equipment, methods, planning and scheduling, construction contracts, management and accounting, construction estimates, costs, and project control.

Recommended: ESM F450 or equivalent.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F622 Foundations and Retaining Structures**

3 Credits

Offered As Demand Warrants

Advanced study of shallow and deep foundations; analyses and design of retaining walls, free-standing sheet-pile walls, braced excavations, slurry walls, tied-back retention systems, reinforced earth, frozen soil walls, anchored bulkheads, and cellular cofferdams.

Prerequisites: CE F422.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F624 Permafrost Engineering**

3 Credits

Offered Spring

Permafrost and frozen ground engineering, types of permafrost and ways of its formations, factors important for permafrost existence, hazards related to permafrost, index, thermal, and mechanical properties of frozen and thawing soils, thermal analysis methods of soil freezing and thawing, foundations design alternatives, pipelines, roads and airfields in permafrost regions.

Prerequisites: Training or experience in soil mechanics.**Stacked with** CE F424.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F625 Soil Stabilization and Embankment Design**

3 Credits

Offered As Demand Warrants

Soil and site improvement using deep and shallow compaction, additives, pre-loading, vertical and horizontal drains, electro-osmosis and soil reinforcement, dewatering and stabilization; embankment design, earth pressure theories and pressure in embankment, embankment stability, embankment construction, control and instrumentation.

Prerequisites: CE F422.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F626 Thermal Geotechnics**

3 Credits

Offered As Demand Warrants

Fundamentals of thermal regimes of soils and rocks. Thermal impact of structures on soils. Thawing of permafrost beneath roads, buildings and around pipelines. Natural and artificial freezing of soils. Engineering means to maintain thermal regime of soils. Thermal design considerations.

Prerequisites: CE F326; CE F422.**Cross-listed with** GE F626.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F627 Geotechnical Earthquake Engineering**

3 Credits

Offered As Demand Warrants

Introduction to soil dynamics and geotechnical aspects of earthquakes; influences of soils on ground motion, determination of soil response under strong seismic motion, causes of soil failures, soil liquefaction, lateral spreading, the seismic response of earth structures, and seismic-deformation procedures for slopes.

Prerequisites: CE F326.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

CE F628 Unsaturated Soils Mechanics

3 Credits

Offered As Demand Warrants

Fundamentals of soil behavior under load; pore pressure during monotonic loading; Ladd's "Simple Clay" model; densification and drained cyclic loading of sand; undrained cycle loading of soil.

Prerequisites: CE F326.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F630 Advanced Structural Mechanics**

3 Credits

Offered As Demand Warrants

Shear and torsion, nonsymmetrical bending, shear center, curved beams, introduction to composite material mechanics, application in bridge engineering.

Prerequisites: MATH F302; ES F331.**Recommended:** Graduate standing in engineering.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F631 Advanced Structural Analysis**

3 Credits

Offered As Demand Warrants

Derivation of the basic equations governing linear structural systems. Application of stiffness and flexibility methods to trusses and frames. Solution techniques utilizing digital computers. Planar structures and space structures (trusses and frames) will be covered. Both exact and approximate solution techniques will be reviewed.

Prerequisites: CE F331.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F633 Theory of Elastic Stability**

3 Credits

Offered As Demand Warrants

The theories of elastic and inelastic buckling are studied with practical implementation to slender structural members. Both lateral and local buckling concepts will be examined. Lateral torsional buckling of beams; buckling of beam-columns and frame members; and buckling of members with various cross-section shapes are extensively discussed.

Prerequisites: CE F331; CE F432; MATH F302.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F634 Structural Dynamics**

3 Credits

Offered As Demand Warrants

The theories of structural dynamics are studied with an emphasis on analysis and design of civil engineering structures under various dynamic loading. Topics include single and multiple degree-of-freedom systems subjected to free vibration, harmonic excitations and earthquakes. The basic concepts related to seismic design of structures will be discussed.

Prerequisites: ES F208, ES F210; CE F331; MATH F302.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F635 Numerical Methods for Geomechanics and Soil-Structure Interaction**

3 Credits

Offered As Demand Warrants

Applications of numerical methods for problems involving seepage, consolidation, foundation on expansive soils and pile installation. Finite difference and element methods, non-linear analysis techniques, elasto-plastic formulation with a tangent stiffness approach, seepage analysis, flow-deformation, coupled analysis, models for soil-structure interaction, solution accuracy and reliability.

Prerequisites: CE F326; graduate standing.**Recommended:** MATH F302.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F637 Earthquakes: Seismic Response of Structures**

3 Credits

Offered As Demand Warrants

Fundamentals of structural earthquake engineering are provided. Topics include earthquake engineering; current seismic design criteria and practice; structural analysis for seismic load; design of lateral force resisting systems such as moment frames, braced frames and shear walls; design of diaphragms; and design of non-structural components.

Prerequisites: ES F208, ES F210.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F640 Prestressed Concrete**

3 Credits

Offered As Demand Warrants

Theory and practice of prestressed concrete design. Pre-tensioning and post-tensioning. Anchorage of steel. Materials, design specifications. Application in bridges, tanks and slabs.

Prerequisites: CE F331; CE F433.**Recommended:** Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F646 Structural Composites**

3 Credits

Offered As Demand Warrants

The basics of structural composite theory. Basic design procedures related to structural composite members and the structural analysis of members made of various materials to create laminates or sandwich panels will be covered.

Prerequisites: ES F331; CE F331.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F650 Bridge Engineering**

3 Credits

Offered As Demand Warrants

Covers structural systems, loading and analysis by influence lines. Slab and girder bridges considering composite design, prestressed and concrete bridges and how these bridges are designed and rated using AASHTO specifications.

Prerequisites: CE F432; CE F433.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

CE F661 Advanced Water Resources Engineering

3 Credits

Offered Spring Odd-numbered Years

Engineering hydraulics and hydrology including use of standard computer models to solve water resource engineering problems.

Recommended: Permission of instructor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F662 Open Channel and River Engineering**

3 Credits

Offered Spring Even-numbered Years

Principles of open channel flow, specific energy, hydraulic jump, transitions and controls, uniform and non-uniform flows, steady and unsteady flows, numerical solution for unsteady flows. River engineering, stream channel mechanics, and mechanics of sedimentation.

Recommended: Permission of instructor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F663 Groundwater Hydrology**

3 Credits

Offered Fall Even-numbered Years

Fundamentals of groundwater aquifer formations, groundwater flow, resource development, management and protection.

Cross-listed with GE F663.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F664 Sediment Transport**

3 Credits

Offered Spring Even-numbered Years

Fundamentals of sediment transport processes in rivers, oceans and reservoirs. Bed-load and suspended-load transports. Mechanics of turbidity currents. Reservoir sedimentation. Numerical modeling.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F665 Watershed Hydrology**

3 Credits

Offered As Demand Warrants

A broad view of the water cycle at the watershed scale and introduction to the quantitative relations between components of the water cycle.

Emphasis is placed on precipitation, evapotranspiration, water in soils and stream response to water-input events.

Prerequisites: MATH F253X; PHYS F211X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F682 Ice Engineering**

3 Credits

Offered As Demand Warrants

The factors governing design of marine structures, which must contend with the presence of ice. Topics include ice growth, ice structure, mechanical properties and their dependence on temperature and structure, creep and fracture, mechanics of ice sheets, forces on structures, and experimental methods.

Prerequisites: ES F331, MATH F253X, training or experience in soil mechanics.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F683 Arctic Hydrology and Hydraulic Engineering**

3 Credits

Offered As Demand Warrants

Aspects of hydrology and hydraulics unique to engineering problems of the north. Although the emphasis will be on Alaskan conditions, information from Canada and other circumpolar countries will be included in the course.

Prerequisites: CE F344.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F684 Arctic Utility Distribution**

3 Credits

Offered As Demand Warrants

Practices and considerations of utility distribution in Arctic regions.

Emphasis on proper design to include freeze protection, materials, energy conservation and system selection.

Prerequisites: ES F341.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F685 Topics in Frozen Ground Engineering**

3 Credits

Offered As Demand Warrants

Selected frozen ground foundation engineering problems will be explored in depth including refrigerated foundations and pile foundations.

Prerequisites: CE F424 or CE F624.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CE F692 Seminar**

1-3 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**CE F698 Non-thesis Research/Project**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**CE F699 Thesis**

1-15 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Communication (COM)

College of Liberal Arts

Department of Communication

907-474-6591

COM F121X Introduction to Interpersonal Communication

3 Credits

Offered Fall, Spring and Summer

This course features the fundamental principles of effective oral

communication, emphasizing interpersonal communication as well as public speaking. Through role playing, speeches and evaluations of other speakers, students explore the complexities of communication in today's society.

Attributes: UAF GER Oral Communication**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

COM F131X Fundamentals of Oral Communication: Group Context

3 Credits

Offered Fall, Spring and Summer

Presentational speaking skills: individual and group. Includes verbal/nonverbal skills, critical thinking in selecting and organizing materials, audience analysis and speaking presentation. Group skills include task and relational interaction, required interdependence, working across cultural differences, group decision-making and shared logistics of presentation. Student evaluations are based on nationally normed speaking competencies.

Attributes: UAF GER Oral Communication**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F141X Fundamentals of Oral Communication: Public Context**

3 Credits

Offered Fall, Spring and Summer

Speaking skills for individual presentation. Includes verbal and nonverbal skills, critical thinking in selecting and organizing materials, audience analysis, informative and persuasive speaking, and actual presentations. Student evaluations are based on nationally normed speaking competencies.

Attributes: UAF GER Oral Communication**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F181 Introduction to Communication Theory (s)**

3 Credits

Offered Spring

Students explore a range of communication theories. The course is organized into six units: (1) Overview, (2) Intrapyschic Communication, (3) Interpersonal Communication, (4) Group Communication, (5) Organizational Communication, and (6) Public Communication. Students also examine different methodological approaches to the study of communication theory.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F210 Argumentation and Critical Thinking**

3 Credits

Offered As Demand Warrants

Introduction to argumentation, emphasizing the process of constructing and evaluating sound arguments based on reasoning, evidence, and strategy.

Prerequisites: WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F211 Introduction to Science Communication: Theory & Practice**

3 Credits

Offered Fall

This course provides an introduction to science communication theories, empirical research, contexts and practices. Students are challenged to develop an understanding of science communication as a discipline and practice.

Prerequisites: COM F121X, COM F131X or COM F141X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F220 Professional Interviewing**

3 Credits

Offered As Demand Warrants

The theory and practice of methods in selected interview settings: emphasis on interpersonal communication between two persons, questioning techniques, and the logical and psychological bases of interpersonal persuasion.

Prerequisites: WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F300X Communicating Ethics (h)**

3 Credits

Offered Fall, Spring and Summer

An examination of ethical choices which are communicated in everyday encounters. Examines human moral development from a variety of perspectives, including feminist interpretations. Creation and communication of human values explored through the discussion of a series of contemporary dilemmas.

Prerequisites: Placement in WRTG F111X; junior standing.**Attributes:** UAF GER Ethics Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F312 Science Communication & the Environment**

3 Credits

Offered Spring

Students will explore the internal and external communication factors that influence our understanding of and relationship with science and the environment.

Prerequisites: COM F211.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F313 Science & Intersectionality: Race, Gender and Sexuality**

3 Credits

Offered Fall Even-numbered Years

This course introduces students to the complex factors that impact our experience in and connection to science and the environment. Using intersectionality as the framework to guide the discussion, students will consider critical aspects of self, including gender, race, sexuality and disability status.

Prerequisites: COM F121X, COM F131X or COM F141X; COM F211.**Crosslisted with** WGS F313.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F321 Nonverbal Communication (s)**

3 Credits

Offered Spring Even-numbered Years

Non-lexical behavior in human communication, including consideration of space, physical environment, physical appearance and dress, kinesics, facial expression and non-lexical vocal behavior.

Prerequisites: Any lower-division communication course; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

COM F330 Intercultural Communication (s)

3 Credits

Offered Spring

The nature and sources of problems in communication that may arise when persons with different cultural backgrounds interact. Emphasis on problems in intercultural communication in Alaska.

Prerequisites: Any lower-division communication course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F331 Advanced Group Communication (s)

3 Credits

Offered As Demand Warrants

Current research and theory in intergroup and intragroup relations. Topics include the study of leadership, power, group structure, participation and conflict.

Prerequisites: COM F131X, COM F141X; any lower-division communication course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F351 Communication and the Military

3 Credits

Offered Spring

In this course, students will explore the military as a context for understanding how communication (dys)functions and the impact on service members, intimate partner relationships, parent-child relationships and interactions with the civilian world.

Prerequisites: COM F121X, COM F131X or COM F141X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F352 Family Communication (s)

3 Credits

Offered Fall

Exploration of the functions of communication in marriage and the family, sequences and patterns of family communication, family communication as a continual process of coping with dialectical tensions, and the complexity of changing family life in Western societies.

Prerequisites: Any lower-division communication course.

Recommended: COM F422.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F353 Conflict, Mediation and Communication (s)

3 Credits

Offered Fall

Examines conflict as a complex communication event, together with the role of the mediator in building constructive outcomes in conflicts. Emphasis on developing skills to engage in mediation.

Prerequisites: Any F100-level communication course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F356 Gender and Communication

3 Credits

Offered Fall

Basic socialization differences exist in the communication practices of women and men in every culture, resulting in differing cultural constructions of male and female gender. Those differences are addressed in interpersonal, organizational and cultural contexts. Explores cultural female/male dichotomy as well as individual similarities.

Cross-listed with WGS F351.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F380 Women, Minorities and the Media (h)

3 Credits

Offered As Demand Warrants

Basic socialization differences that exist in the communication practices of women and men in every culture are addressed in the interpersonal organizational and cultural contexts. Examination of how women and minorities are portrayed in the mass media, the employment of women and minorities in the media, as well as how.

Prerequisites: COM F131X or COM F141X; junior standing.

Cross-listed with WGS F380.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F400 Professional Internship

1-3 Credits

Offered As Demand Warrants

Practical training in a supervised, professional media environment. Participation at an approved publication, TV or radio station, or other media- or communication-related office agency, organization or business is required.

Prerequisites: Senior standing.

Cross-listed with JOUR F400.

Lecture + Lab + Other: 1 + 6 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

COM F401 Quantitative Research Methods in Communication (s)

3 Credits

Offered Fall

Quantitative research methodologies employed in the conduct of research on communication phenomena.

Prerequisites: Any F300-level communication course; senior standing.

Stacked with COM F601.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F410 Public Engagement in Science Communication

3 Credits

Offered As Demand Warrants

This class offers both theory and practice for public engagement with science (PES). Students will design, execute and evaluate the effectiveness of a PES event and activity using the Theory of Change.

Prerequisites: COM F121X, COM F131X or COM F141X; COM F211.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F422 Communication in Interpersonal Relationships (s)

3 Credits

Offered Spring

COM F422/F622 explores and emphasizes the ongoing co-construction of the relationship as communicative action. Topics include interpersonal relationships generally, patterns of coming together, relationship maintenance, relational and personal growth in relationships and relational conflict from a variety of paradigmatic and ontological positions.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Stacked with COM F622.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F425 Communication Theory (s)

3 Credits

Offered Fall

COM F425/F625 explores theories of human communication, to acquaint students with the historical evolution of the discipline. Topics covered include the nature of communication as a discipline, critical and scientific inquiry and major paradigms or perspectives within which communication theories are created.

Prerequisites: Any lower division COM course.

Stacked with COM F625.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F431 Public Relations Campaigns

3 Credits

Offered As Demand Warrants

This course focuses on the application of public relations principles and practices, which is the research, planning and execution of the public relations campaign. It includes public relations writing for news releases and press kits, radio, television, and cable production, web and new technologies production, writing for newsletters and magazines.

Prerequisites: ABUS F263.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F432 Professional Public Speaking

3 Credits

Offered As Demand Warrants

Professional clear effective speaking. Uses evaluation criteria and assignments to build speaking competencies. Professional preparation for students whose career path includes public speaking.

Prerequisites: COM F131X or COM F141X; senior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F433 Public Relations Theory and Practice

3 Credits

Offered Fall

Public Relations Theory and Practice examines current theoretical, methodological and practical approaches guiding public relations research and practice. Topics explored in this course include foundational public relations theories, critical perspectives of public relations, as well as theories within the many subdisciplines of public relations research.

Prerequisites: COM F121X, COM F131X or COM F141X; COM F181; COM F330; COM F356.

Stacked with COM F633.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F435 Political Media and Discourses of the American Right (s)

3 Credits

Offered As Demand Warrants

This class uses "hands-on" discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts.

Prerequisites: COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Cross-listed with ANTH F435; LING F435.

Stacked with ANTH F635; COM F635; LING F635.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F441 Persuasion (s)

3 Credits

Offered As Demand Warrants

Examination of communication situations which involve attempts to modify the beliefs, attitudes, values, intentions or behaviors of another individual or group of individuals. Explores the process, methods and ethics of attempts to affect change via persuasive communication.

Prerequisites: any F300-level communication course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F442 Strategic Interviewing for the Career You Want

1 Credit

Offered Fall and Spring

Provides a practical one-credit, career-focused online asynchronous experience for students. Students will gain the knowledge, skills and experience necessary to research and understand what organizations are looking for in hiring, the dynamics of the interview process, and communication aptitudes and skills that distinguish top candidates.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F445 Organizational Communication (s)

3 Credits

Offered Fall

Examines current foundational theoretical and methodological approaches to the construction of organizations via communication. Acknowledging historical, cultural and structural contexts, this course includes functional (message flow) as well as interpretive (metaphor, narrative) approaches to the study of organizational communication.

Prerequisites: COM F131X or COM F141X; any lower-division communication course.

Stacked with COM F645.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F462 Communication in Health Contexts (s)

3 Credits

Offered Spring

Communication within the context of the healthcare exchange. Problems in health communication examined as well as how problems are complicated by aspects of diversity. Communication between healthcare professionals, between healthcare providers and healthcare consumers. Apply theory by designing, launching and evaluating the effectiveness of health campaigns.

Prerequisites: Any F300-level communication course; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Stacked with COM F642.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F467 Communication Activism, Advocacy and Social Movements

3 Credits

Offered As Demand Warrants

This course will delve into activism and social change from a local and global perspective in order to enhance students' perspectives of social change as it manifests via communication. This course will also introduce and analyze activist rhetoric, strategies for social justice and methods for communicative organizing.

Prerequisites: COM F121X, COM F131X or COM F141X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F475 Applied Communication in Training and Development (s)
3 Credits

Offered Fall Even-numbered Years

Applies communication theory and research to organizational settings. Includes the identification and assessment of problems and opportunities that would benefit from the application of communication interventions including training, development and transformation technologies.

Prerequisites: Any F300-level communication course; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F482 Capstone Seminar in Communication (s)
3 Credits

Offered Spring

Original research to demonstrate ability to read and understand social research, synthesize information, formalize a research question and use research skills. This senior capstone course requires a research project presented in a public speaking forum.

Prerequisites: COM F131X or COM F141X; COM F401; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F492 Seminar

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 15 times for up to unlimited credits

COM F498 Undergraduate Research

3 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 9 credits

COM F600 Introduction to Professional Communication

3 Credits

Offered Fall

An introduction to professional practices important to communication careers. Professional writing and editing methods and techniques used in academic and/or professional careers. Development and presentation of professional reports, which would include quantitatively- and qualitatively-based support. A.P.A. style guide will be covered.

Prerequisites: Enrollment in M.A. in Professional Communication.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F601 Quantitative Research Methods in Communication

3 Credits

Offered Fall

Quantitative research methodologies employed in the conduct of research on communication phenomena.

Stacked with COM F401.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F602 Communication Research Methodologies: Human Science
3 Credits

Offered Spring

An introduction to research using a constructionist epistemology and the methodologies of the human science contexture. Includes evaluation and preparation of research using a variety of methodologies and to employ the data collection techniques that are implied by those methodologies.

Prerequisites: COM F601; COM F625.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F622 Communication in Interpersonal Relationships

3 Credits

Offered Spring

COM F422/F622 explores and emphasizes the ongoing co-construction of the relationship as communicative action. Topics include interpersonal relationships generally, patterns of coming together, relationship maintenance, relational and personal growth in relationships and relational conflict from a variety of paradigmatic and ontological positions.

Prerequisites: Enrollment in M.A. in Professional Communication degree.

Stacked with COM F422.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F625 Communication Theory

3 Credits

Offered Fall

COM F425/F625 explores theories of human communication, to acquaint students with the historical evolution of the discipline. Topics covered include the nature of communication as a discipline, critical and scientific inquiry and major paradigms or perspectives within which communication theories are created.

Prerequisites: Graduate standing.

Stacked with COM F425.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F631 Teambuilding

3 Credits

Offered As Demand Warrants

Small group communication theory and methods linked to professional applications. Ways to create, maintain and reward productive work teams. Face-to-face and mediated group sessions will be discussed as well as the impact of professional work groups on organizational teambuilding.

Prerequisites: COM F600.

Recommended: COM F625.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F633 Public Relations Theory and Practice

3 Credits

Offered Fall

Public Relations Theory and Practice examines current theoretical, methodological and practical approaches guiding public relations research and practice. Topics explored in this course include foundational public relations theories, critical perspectives of public relations, as well as theories within the many subdisciplines of public relations research.

Prerequisites: Graduate standing.

Stacked with COM F433.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COM F635 Political Media and Discourses of the American Right

3 Credits

Offered As Demand Warrants

This class uses "hands-on" discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts.

Prerequisites: Graduate standing.**Cross-listed with** ANTH F635; LING F635.**Stacked with** ANTH F435; COM F435; LING F435.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F642 Communication in Health Contexts**

3 Credits

Offered Spring

Communication within the context of the healthcare exchange. Problems in health communication examined as well as how problems are complicated by aspects of diversity. Communication between healthcare professionals, between healthcare providers and healthcare consumers. Apply theory by designing, launching and evaluating the effectiveness of health campaigns.

Prerequisites: Enrollment in M.A. in Professional Communication degree.**Stacked with** COM F462.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F645 Organizational Communication**

3 Credits

Offered Fall

Examines current foundational theoretical and methodological approaches to the construction of organizations via communication. Acknowledging historical, cultural and structural contexts, this course includes functional (message flow) as well as interpretive (metaphor, narrative) approaches to the study of organizational communication.

Stacked with COM F445.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F661 Mentored Teaching in Communication**

1 Credit

Offered Fall and Spring

Mentored teaching provides consistent contact on course-related issues between teaching assistants and mentoring faculty. May be repeated up to four times for credit.

Prerequisites: Enrollment in M.A. in Professional Communication; award of teaching assistantship in communication.**Special Notes:** Teaching assistants are required to be enrolled in a mentoring teaching section while teaching.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 4 credits**COM F675 Training and Development Communication**

3 Credits

Offered Fall Even-numbered Years

Training and Development Communication offers students practical, current understandings of planned training, development and transformation processes as they are applied in the organizational setting. The information and class projects will help prepare training and development specialists, consultants and others whose interest is in this growing communication field.

Prerequisites: Enrollment in M.A. in Professional Communication degree.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F680 Communication and Diversity in the Professional World**

3 Credits

Offered Spring Odd-numbered Years

Case study methods applied to the ever-expanding problems of communication in a changing workplace. The diversity of gender, race, ethnicity, nationality, physical ability, sexual orientation and age are reshaping the professional world at every level and communication professionals are increasingly called upon to formulate ways of accommodating this change.

Prerequisites: Enrollment in M.A. in Professional Communication degree.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F682 Seminar in Communication**

3 Credits

Offered Fall and Spring

A variable content seminar intended to give students an opportunity to work closely with communication faculty in the study of topics, ideas or methodologies significant to the communication discipline (e.g., relational conflict, social construction, narrative research, etc.).

Prerequisites: Enrollment in M.A. in Professional Communication degree.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COM F692 MFA Seminar**

3 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**COM F698 Non-thesis Research/Project**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 6 times for up to 6 credits**COM F699 Thesis**

1-9 Credits

Every candidate for the communication concentration of the master's degree in professional communication will complete a thesis project. The requirement consists of an original piece of communication research directed by a member of the graduate faculty in the communication department. The completed and accepted thesis will be presented in an appropriate public forum.

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Computer and Information Technology Systems (CITS)

Community and Technical College

Computer & Information Technology Systems Program (<https://www.ctc.uaf.edu/its/>)

907-455-2800

CITS F201 Operating Systems Support

1-3 Credits

Offered As Demand Warrants

Comprehensive exploration of a current operating system: use, configuring, installing and administering. Topics include end-user and technical support.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CITS F202 Microcomputer Hardware Support

1-3 Credits

Offered As Demand Warrants

Fundamental hardware and software (associated with hardware) configuration and troubleshooting. Includes installing, removing and configuring computer hardware components; installing and configuring software applications and operating systems to support hardware; diagnosing hardware and software problems; and developing troubleshooting and configuration procedures.

Recommended: CITS F201 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CITS F203 Information Technology Support Fundamentals

4 Credits

Offered As Demand Warrants

Overview of skills/knowledge required by professional computer support technicians to support/troubleshoot computer operating systems and computer hardware. Includes: purpose and function of internal computer components, how to assemble a computer system, how to install an operating system, basic skills/knowledge required to connect to and share resources in a network environment.

Recommended: CIOS F150 or equivalent skills.

Special Notes: Course covers objectives defined for CompTIA A+ certification.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F204 Introduction to Computer Networks

3 Credits

Offered As Demand Warrants

This foundational course introduces several ways that computers interact and the tools used in analysis and troubleshooting. Examples include local and wide area networks, also known as LANs and WANs; the "internet of things"; and cloud computing. Networking careers may also be explored. CITS F203 may be taken concurrently.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F205 Introduction to Coding and Programming

1-3 Credits

Offered As Demand Warrants

Computer programming focused on programming concepts with programming tools.

Prerequisites: Math placement at the 100-level.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CITS F212 Server Operating Systems

3 Credits

Offered As Demand Warrants

Fundamentals in installing, configuring and maintaining server operating systems. Learn how to configure and administer network accounts, resources, and common services deployed on server operating systems. Course covers foundation server operating system knowledge required for Microsoft Certified Solutions Associate (MCSA) certification exams related to server technologies.

Prerequisite: CITS F204 (may be taken concurrently) or equivalent skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F219 Operating Systems: Topics

1-4 Credits

Offered As Demand Warrants

In-depth and comprehensive technical class covering operating system skills and concepts.

Recommended: CITS F203 or equivalent skills.

Lecture + Lab + Other: 1-4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 6 times for up to 6 credits

CITS F220 Implementing Internet Tools and Technologies

3 Credits

Offered As Demand Warrants

Exploration of advanced Internet topics. Building a presence on the Internet – evaluate web hosting services, domain names and registration services. How to implement and understand web communication tools and develop and understand the impact of participating in social networks and the changing nature of these networks.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F221 Graphics and Multimedia for the Web

3 Credits

Offered As Demand Warrants

Creating graphics and multimedia content for the Web. Graphic topics include formats, size and resolution, optimization and design fundamentals. Multimedia topics include animation, interactivity and combining sound, speech, graphics, photographs and video.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F222 Website Design

1-3 Credits

Offered As Demand Warrants

A comprehensive survey of professional website design and authoring tools used to create Internet websites. Topics include website design and planning, HTML and CSS.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CITS F224 Web Scripting

3 Credits

Offered As Demand Warrants

Introduction to client-side Web page scripting. Covers basic programming concepts, including data representation, functions, control structures and arrays. Topics include client-side scripting with JavaScript, object-oriented JavaScript, design issues, error handling, security, the Document Object Model and dynamic HTML and AJAX.

Prerequisite: CITS F205 or CS F103; CITS F222; or equivalent skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F225 Web Databases and Programming

3 Credits

Offered As Demand Warrants

Programming and database design as it relates to creating dynamic web sites and applications. Develop web applications to automate websites, create and access web databases, provide tools for users to modify parts of their own website, create and access files on the fly and reduce repetitive maintenance.

Prerequisites: CITS F205 or CS F103; CITS F222; or equivalent skills.

Special Notes: Course topics include CSS, SSI, DHTML, SQL, PHP and other web technologies.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F228 Advanced Website Design and Development

3 Credits

Offered As Demand Warrants

Plan and implement professional and comprehensive websites that utilize and integrate multiple website design and development technologies such as XHTML, CSS, XML, Ajax, Web APIs, client-side and server-side programming, graphics and multimedia, and web communication tools.

Prerequisites: CITS F221; CITS F222; CITS F224; CITS F225; or equivalent skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F240 System and Network Services Administration

3 Credits

Offered As Demand Warrants

Implement and administer core network services operating within a network environment. Topics include: WSUS, WDS, DHCP, DNS, remote access, file and print, security and network management services. Course covers system and network services objectives required for Microsoft Certified Solutions Associate (MCSA) certification exams related to server technologies.

Prerequisites: CITS F212 (may be taken concurrently) or equivalent skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F241 Networking and LAN Infrastructure Basics

4 Credits

Offered As Demand Warrants

The first of three courses (with CITS F242 and CITS F243) providing coverage of networking topics designed to prepare students for the CCNA certification exam. Covers the OSI and Internet models, IPv4 and IPv6 addressing, and network security fundamentals, while providing hands-on practical experience and career skills.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F242 Routing and Switching Essentials

4 Credits

Offered As Demand Warrants

Second of three courses providing integrated coverage of networking topics designed to prepare students for the CCNA certification exam. Covers an in-depth study of the network switching concepts, VLANs, STP, DHCP, SLAC and DHCPv6 addressing, LAN security, and an introduction to routing concepts while providing learners for hands-on practical experience.

Prerequisites: CITS F241.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F243 Intermediate Networking and LAN Infrastructure

4 Credits

Offered As Demand Warrants

Third of three courses providing coverage of networking topics designed to prepare students for the CCNA certification exam. Covers network routing concepts, including OSPF, ACL concepts, WAN, VPN and IPSEC, QoS, and network design, troubleshooting, virtualization and automation, while providing opportunities for hands-on, practical experience and career skills development.

Prerequisites: CITS F241.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F244 Advanced Network Infrastructure Services

4 Credits

Offered As Demand Warrants

Covers the architecture, components and operations of cloud-based computer systems. Covers topics that prepare students for the AWS cloud foundations certification as well as other cloud formats.

Prerequisites: CITS F241.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F245 Cloud Computing Foundations

3 Credits

Offered As Demand Warrants

Cloud Computing Foundations is intended for students who seek an overall understanding of cloud computing concepts, independent of specific technical roles. It provides a detailed overview of cloud concepts, Amazon Web Services (AWS) core services, security, architecture, pricing and support. Students will study AWS and other cloud computing models.

Prerequisites: CITS F204.

Recommended: CITS F203, CITS F212, CITS F241.

Lecture + Lab + Other: 3 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F249 Networking and Communications: Topics

1-4 Credits

Offered As Demand Warrants

In-depth technical and comprehensive coverage of networking and communications skills and concepts.

Recommended: CITS F204 or equivalent skills.

Lecture + Lab + Other: 1-4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 6 times for up to 6 credits

CITS F261 Computer and Network Security

3 Credits

Offered As Demand Warrants

The fundamental concepts of computer and network security.

Course topics include: understanding threats to a computing infrastructure, understanding encryption technologies, securing network communications and applications, security policies and responding to incidents. Course covers objectives defined for CompTIA Security+ certification.

Prerequisites: CITS F204 or equivalent skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F262 Cybersecurity Defense and Countermeasures

3 Credits

This course focuses on network and information systems security from a defensive point of view. Students will learn how to analyze internal and external security threats, develop security policies, and implement security measures to protect information within an enterprise. Topics include risk assessment, security policies and procedures, incident response, cryptographic services, network and host-based security.

Prerequisites: CITS F261 or equivalent skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F263 Network Security Penetration Testing

3 Credits

Offered As Demand Warrants

This course focuses on network and information systems security from an offensive point of view. Students will learn technical testing and examination techniques used to identify, validate and assess technical vulnerabilities within an enterprise. Topics include penetration testing methodology, footprinting and reconnaissance, scanning and enumeration, vulnerability validation, data collection and reporting.

Prerequisites: CITS F261 or equivalent skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F265 Directory Services Administration

3 Credits

Offered As Demand Warrants

Creation and configuration of directory service objects to manage access to network resources, implement and manage group policy objects, and to backup, restore, monitor and troubleshoot directory service related issues. Course covers advanced directory services administration objectives required for Microsoft Certified Solutions Associate (MCSA) certification exams related to server technologies.

Prerequisite: CITS F212 (may be taken concurrently) or equivalent skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F281 Professional Practices in IT

1-3 Credits

Offered As Demand Warrants

Prepares students for work as an IT professional. Topics include: providing computer technical support, user support management, soft skills in IT, resume writing and career exploration, diagnosing problems, researching and documenting solutions, meeting user needs, developing training materials and giving workshops and lessons.

Prerequisites: 24 credits in CITS courses.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F282 IT Troubleshooting Skills

1-3 Credits

Offered As Demand Warrants

Practical IT troubleshooting skills, including hardware, software, networks and operating systems. The course will include practical and useful troubleshooting scenarios.

Prerequisites: CITS F203; CITS F204 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F284 Independent Project

1-3 Credits

Offered As Demand Warrants

Student created project or internship that includes learning new skills, applying the skills to significant problems, and demonstrating the results to other computer users. Includes application of learned skills in a professional manner.

Prerequisites: 12 credits in CITS courses.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CITS F285 Cooperative Work Experience

3 Credits

Offered As Demand Warrants

On-the-job training related to occupational objectives. Weekly seminar with coordinator required.

Prerequisites: 12 credits in CITS courses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CITS F288 Professional Certification Review

1-3 Credits

Offered As Demand Warrants

Prepares students for national or industry specific certification examination.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CITS F289 Information Technology: Topics

1-3 Credits

Offered As Demand Warrants

Comprehensive coverage of a specific information technology topic.

Recommended: CITS F203 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 6 times for up to 6 credits

Computer Information and Office Systems (CIOS)

Community & Technical College

Computer & Information Technology Systems Program (<https://www.ctc.uaf.edu/programs/information-technology/>)

907-455-2800

CIOS F100 Introduction to Personal Computers

1 Credit

Offered As Demand Warrants

Introduction to basic computer skills including using the mouse and menus, opening and exiting applications, creating basic word processing and spreadsheet files, basic file management, web browsing, email and virus protection.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

CIOS F103 Computer Survey

1-3 Credits

Offered As Demand Warrants

An introduction to the world of computers emphasizing microcomputers. Provides computer terminology and how to use computers as a tool to make work easier and to extend the reach of the mind.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CIOS F128 Microcomputer Operating Systems

3 Credits

Offered As Demand Warrants

Introduces the use and configuration of a current microcomputer operating system. Topics include: basic use, configuration, troubleshooting and maintenance, connecting to the Internet and security basics and safe computing practices.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CIOS F130 Word Processing

1-3 Credits

Offered As Demand Warrants

Comprehensive exploration of topics related to using word processors. Includes creating, formatting and revising documents; using proofreading and editing tools; implementing styles; using templates; and customizing the application.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CIOS F133 Microcomputer Presentation Software

1-3 Credits

Offered As Demand Warrants

Designing effective presentations. Includes organizing and designing an effective presentation of information using current microcomputer software.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CIOS F135 Microcomputer Spreadsheets

1-3 Credits

Offered As Demand Warrants

Comprehensive exploration of topics related to using microcomputer spreadsheets. Includes creating, formatting and revising spreadsheets; creating formulas, graphics and charts; and using spreadsheets to organize, analyze and query information.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CIOS F146 Using Internet Tools and Technologies

1-3 Credits

Offered As Demand Warrants

Presentation of the Internet. Includes using and configuring current World Wide Web and email, and other communication tools; developing searching strategies; current and future trends; and basic web authoring. Develop a basic understanding of technologies and protocols used on the Internet.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CIOS F146C Using the Internet

1-3 Credits

Presentation of the Internet. Includes using and configuring current World Wide Web and e-mail tools; developing searching strategies; current and future trends; and basic web authoring.

Recommended: Basic computer literacy, including saving and retrieving files and using basic software.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 3 credits

CIOS F150 Computer Business Applications

1-3 Credits

Offered As Demand Warrants

Designed to develop computer literacy in the use and understanding of computer systems, office productivity applications and the Internet. Topics include operating system fundamentals, file management, word processing and spreadsheet fundamentals and safe, secure and effective use of Internet technologies.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CIOS F189 Microcomputer Applications: Topics

1-3 Credits

Offered As Demand Warrants

Extensive coverage of a specific microcomputer application. May be repeated for credit.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 6 times for up to 6 credits

CIOS F230 Advanced Word Processing

1-3 Credits

Offered As Demand Warrants

Advanced concepts of word processing using various software.

Prerequisites: CIOS F130.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CIOS F231 Introduction to Desktop Publishing

1-2 Credits

Offered As Demand Warrants

Entry-level desktop publishing course introducing the chief features of a page layout program. Step-by-step instructions to create at least three simple publications.

Prerequisites: Previous computer experience.

Lecture + Lab + Other: 1-2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 2 credits

CIOS F233 Desktop Publishing

1-3 Credits

Offered As Demand Warrants

Publication design and layout using desktop publishing software. Includes integrating text and graphics, page layout design, scanning and basic image editing.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CIOS F240 Microcomputer Databases

1-3 Credits

Offered As Demand Warrants

Comprehensive introduction to microcomputer databases. Includes basic database concepts; how to maintain and update databases; how to build and use queries and forms; and how to build reports. Introduction to database design.

Recommended: CIOS F135 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CIOS F255 Digital Graphics

1-3 Credits

Offered As Demand Warrants

This course provides a foundation in the techniques, methods and principles of digital graphics creation. Through the use of professional software applications, students gain skills and knowledge useful for graphic design and visual communication in today's world.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

CIOS F257 Digital Video

1-3 Credits

Offered As Demand Warrants

Comprehensive survey of creating and editing digital video using microcomputer tools. Includes the use of professional-level digital video applications to create short videos for a variety of uses.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CIOS F258 Digital Photography

1-3 Credits

Offered As Demand Warrants

Comprehensive survey of tools and methods to create and edit digital images using microcomputer tools. Includes the use of professional-level digital photography applications.

Recommended: CIOS F150 or equivalent skills.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Computer Science (CS)

College of Engineering and Mines

Department of Computer Science (<https://www.cs.uaf.edu/>)
907-474-2777

CS F101 Computers and Society (m)

3 Credits

Offered Fall, Spring and Summer

Computer literacy for everyone. Overview of computing machines and automatic data processing. Interaction between social institutions and automated decision-making. Introduction to business applications software and electronic mail. Some programming for understanding, not for skill development.

Prerequisites: Two years of high school mathematics, including at least one year of algebra.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CS F103 Introduction to Computer Programming

3 Credits

Offered Fall and Spring

Computer programming for students without the background for CS F201. Concepts of object-oriented programming and algorithm design using the Python programming language.

Prerequisites: Math placement at the 100-level.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CS F180 Introduction to Programming and Algorithmic Thinking

1 Credit

Offered As Demand Warrants

Introduction to fundamental concepts across different programming languages including: variables, looping, conditional statements, flow, maintainable code, searching and sorting algorithms. This course is designed as an advance layer over the materials and activities associated with the T3 Alliance grant funded program (T3.alliance.org).

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CS F201 Computer Science I

3 Credits

Offered Fall and Spring

The discipline of computer science including problem solving, algorithm development, good programming style, control flow, I/O and elementary data structures. Concepts implemented with extensive programming experience in C++, and a group programming project.

Prerequisites: Mathematics placement at the F100-level.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CS F202 Computer Science II

3 Credits

Offered Fall and Spring

The discipline of computer science including classes, object-oriented programming, operators, RAII, inheritance, exceptions and generic programming with templates. Concepts implemented with extensive programming experience in C++ and a group programming project.

Prerequisites: CS F201.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CS F241 Computer Hardware Concepts

4 Credits

Offered Spring

A programmer-centric approach to electrical circuits and microcontroller interfacing, with applications to smart devices and robotics. Covers bit-level arithmetic and logic, microcontrollers, battery-powered systems, sensor and actuator interfacing, and interdevice communication. These technologies form the foundation for smart vehicles, devices and buildings.

Prerequisites: CS F201, ES F201.**Corequisites:** CS F241L.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F241L Computer Hardware Concepts Lab**

0 Credit

Offered Spring

Laboratory section for CS F241 Computer Hardware Concepts. Activities may include simulated and physical electronic circuits, microcontroller programming, digital and analog circuits.

Corequisites: CS F241.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**CS F254 Unmanned Aircraft Systems (UAS) Design**

3 Credits

Offered As Demand Warrants

A multidisciplinary team of students will design, build, test and deliver an unmanned aircraft system (UAS) in support of university research mission requirements. Students will learn basic concepts related to the systems engineering design process. Graded events include team briefings, written reports, multimedia products and a finished UAS product.

Prerequisites: AERO F254; ME F254.**Cross-listed with** AERO F256, ME F256.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F258 Unmanned Aircraft Systems (UAS) Operations**

3 Credits

Offered As Demand Warrants

Covers the use of unmanned aircraft systems (UAS), sensors, and support infrastructure required to conduct a selected mission set. Emphasis is on mission analysis, planning, and conduct, including definition of requirements/constraints, identification of appropriate assets, flight planning considerations, and data analysis requirements. Teams coordinate resources for mission and report results.

Cross-listed with AERO F258; GEOS F258; and ME F258.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F301 Assembly Language Programming**

3 Credits

Offered Fall

The low level structure of a modern computer: hardware instruction set architecture, registers, the call stack, pointers, the heap, the page table, and threads. Applications include performance and security.

Prerequisites: CS F201.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F311 Data Structures and Algorithms**

3 Credits

Offered Fall

Data structures and the algorithms for their manipulation. Algorithmic efficiency and asymptotic notation. Algorithms for searching and sorting. Abstract data types and container data structures: arrays, linked lists, stacks, queues, trees, tables, heaps, balanced search trees, hash tables.

Prerequisites: CS F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F321 Operating Systems**

3 Credits

Offered Spring

The software stack in a modern computer: thread, process, container, kernel, hypervisor and network. Enforcing access control and securing communication between these layers, and designing services to use them effectively.

Prerequisites: CS F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F331 Programming Languages**

3 Credits

Offered Spring

Syntax and semantics of widely differing programming languages. Syntax specification, lexical analysis, parsing and interpretation. Comparison of diverse languages such as Python, Haskell, Forth and Prolog.

Prerequisites: CS F311.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F371 Computer Ethics and Technical Communication**

3 Credits

Offered Fall

This course explores the social, legal and ethical issues aggravated, transformed or created by computer technology. Additional focus is on technical communication skills needed in the computer industry.

Prerequisites: COM F121X, COM F131X or COM F141X; CS F202; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F372 Software Construction**

3 Credits

Offered Spring

Methods for programming and construction of complete computer applications, including refactoring, performance measurement, process documentation, unit testing, version control, integrated development environments, debugging and debuggers, interpreting requirements, and design patterns.

Prerequisites: CS F311.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F392 Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 6 credits

CS F405 Introduction to Artificial Intelligence

3 Credits

Offered Spring

Examine diverse branches of AI placing AI in the context of computer science. Knowledge representation formalism and search technology. Programming methodologies; procedural systems such as expert systems and blackboard systems and non-procedural systems such as neural networks.

Prerequisites: CS F311.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F411 Analysis of Algorithms**

3 Credits

Offered Fall

Analysis of classic algorithms, their implementation and efficiency. Topics from combinatorics (sets, graphs), algebra (integer arithmetic, primes, polynomial arithmetic, GCD, Diophantine equations, encryption), systems (parsing searching, sorting) and theory (recursion, Turing machines). The complexity classes P, NP and NP complete.

Prerequisites: MATH F307, CS F311.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F425 Database Systems**

3 Credits

Offered Fall

Data independence, modeling, relationships and organization. Hierarchical, network and relational data models; canonical schema. Data description languages, SQL, query facilities, functional dependencies, normalization, data integrity and reliability. Review of current database software packages.

Prerequisites: CS F311; CS F321.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F441 System Architecture**

3 Credits

Offered Spring

Computer design fundamentals, performance and cost, pipelining, instruction-level parallelism, memory hierarchy design, storage systems, and parallel processing.

Prerequisites: CS F321; CS F241, EE F243, EE F341.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F453 Robotics & 3D Printing**

3 Credits

Offered As Demand Warrants

Covers self-driving cars, 3D printers, and computer-controlled machine tools as modern applications of a common software core of path planning and motion control. Includes mathematical background in 3D computational geometry, hands-on applications such as designing and fabricating resilient robot parts, and online algorithms for robot driving.

Prerequisites: MATH F253X; CS F311 or equivalent experience programming complex applications in a modern language like C++ or Python.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F463 Cryptography and Data Security**

3 Credits

Offered As Demand Warrants

Specialized study of cryptography and its application in securing data systems, with an emphasis on applied cryptography. Topics include history of cryptography, encryption, digital signatures, authentication, electronic commerce, key distribution and management, private and public key cryptography, and protocols.

Prerequisites: MATH F307; CS F311.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F465 Computer and Network Security**

3 Credits

Offered As Demand Warrants

Analyzes computer software, hardware and network vulnerabilities. Mechanisms to detect and defend against attacks, including authentication, access control and cryptography. Includes code vulnerabilities like buffer overflow, web issues like command injection, network protocol design and storage security. Legal and ethical issues concerning privacy, intellectual property and computer crime.

Prerequisites: CS F202, CS F301 (may be taken concurrently).**Stacked with** CS F665.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F471 Senior Capstone I**

3 Credits

Offered Fall

Introduction to software engineering and project management principles, techniques, methods and standards for software system development. Additional topics include technical communication, computer ethics and legal issues.

Prerequisites: CS major; senior standing; CS F311; CS F371.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F472 Senior Capstone II**

3 Credits

Offered Spring

Group projects in a real computer industry environment and produce appropriate documentation and reports. Nature, ethics and legal considerations of the computer science profession are discussed with an emphasis on ethics. Additional topics include project management, design methodologies, technical presentation, human-machine interface and programming team interactions.

Prerequisites: CS F372; CS F471.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F480 Topics in Computer Science**

3 Credits

Offered As Demand Warrants

Topics include, but are not limited to; computational linear algebra, cryptography, parallel algorithm development and analysis.

Special Notes: Course may be repeated when topics change.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 15 times for up to 45 credits

CS F484 Computer Graphics Fundamentals

3 Credits

Offered Fall

Creation of computer-generated images using 3D graphics hardware. Mathematics and data structures in 3D graphics. Sprites, Tiles, Typography, and Vector Graphics in 2D graphics. Color, lighting, textures, hidden surface removal. Loading and saving scene graphs; Using physically based and nonphotorealistic shading. Software design principles to create interactive applications.

Prerequisites: CS F202; MATH F253X.**Stacked with** CS F684.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F485 Computer Graphics Rendering**

3 Credits

Offered As Demand Warrants

Designing graphics engines for realtime rendering of computer generated imagery; physically based approaches to shading and shadows; artistic approaches to shading and nonphotorealistic rendering; algorithms for rendering an image including ray tracing, deferred rendering, and global illumination; image space algorithms for simulation of camera effects.

Prerequisites: CS F202; MATH F253X.**Stacked with** CS F685.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F486 Computer Graphics Animation and Simulation**

3 Credits

Offered As Demand Warrants

Creation of computer graphics animation and simulation of physically based phenomena; designing simulation systems for computer graphics applications; physically based phenomena using particle systems, fluid simulation, and rigid body dynamics; key frame animation, bones, and rigging; and other related topics.

Prerequisites: CS F202; MATH F253X; PHYS F212X.**Stacked with** CS F686.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F600 Professional Software Development**

4 Credits

Offered Fall

Participate in a group project to explore the technical, social and ethical aspects of software development. Topics include: requirements engineering, enterprise-level data storage, software architecture, security, software testing, legal issues, computer ethics, risk management and project management.

Prerequisites: CS F472.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F601 Algorithms, Architecture and Languages**

4 Credits

Offered Spring

Current research on, and cross-cutting interrelationships between computer algorithms, machine architecture and languages. Covers asymptotic performance analysis including NP-completeness, modern parallel hardware including multicore, and grammars and parsing from regular expressions to BNF.

Prerequisites: CS F331; CS F411; CS F441 or EE F443.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F605 Artificial Intelligence**

3 Credits

Offered Spring

Study and writing of AI programs: expert systems, expert system shells, blackboard systems, neural networks. Representation of knowledge, pattern analysis, inference networks, neural network training. Study of software engineering aspects of AI software.

Prerequisites: Graduate standing or permission of CS graduate advisor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F658 Unmanned Aircraft Systems (UAS) Operations**

3 Credits

Offered Spring

Covers application of unmanned aircraft systems (UAS) to satisfy scientific research or public service missions. Students analyze mission requirements and recommend appropriate UAS vehicles, subsystems, sensors and data analysis tools to accomplish a specified mission. Students design mission profiles, conduct representative missions, produce required data products and present mission results.

Prerequisites: Graduate standing.**Cross-listed with** AERO F658; EE F658.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F665 Computer and Network Security**

3 Credits

Offered As Demand Warrants

Analyzes computer software, hardware and network vulnerabilities. Mechanisms to detect and defend against attacks, including authentication, access control and cryptography. Includes code vulnerabilities like buffer overflow, web issues like command injection, network protocol design and storage security. Legal and ethical issues concerning privacy, intellectual property and computer crime.

Stacked with CS F465.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F680 Topics in Computer Science**

1-4 Credits

Offered As Demand Warrants

Example topics include, but are not limited to, software requirements engineering, cryptography, parallel algorithm development and analysis. May be repeated for credit with change of topic.

Prerequisites: Varies with each topic.**Recommended:** Varies with each topic.**Lecture + Lab + Other:** 1-4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 15 times for up to 45 credits**CS F681 Topics in Computer Graphics**

3 Credits

Offered Fall

Hardware, software and techniques used in computer graphics taken from topics such as refresh, storage, raster scan technology, volume rendering, particle systems, shading, image processing, computer aided design, video effects, animation and virtual environments.

Prerequisites: CS F202 and MATH F253X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 12 credits

CS F684 Computer Graphics Fundamentals

3 Credits

Offered Fall

Creation of computer-generated images using 3D graphics hardware. Mathematics and data structures in 3D graphics. Sprites, Tiles, Typography, and Vector Graphics in 2D graphics. Color, lighting, textures, hidden surface removal. Loading and saving scene graphs; Using physically based and nonphotorealistic shading. Software design principles to create interactive applications.

Prerequisites: CS F202; MATH F253X.**Stacked with** CS F484.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F685 Computer Graphics Rendering**

3 Credits

Offered As Demand Warrants

Designing graphics engines for realtime rendering of computer generated imagery; physically based approaches to shading and shadows; artistic approaches to shading and nonphotorealistic rendering; algorithms for rendering an image including ray tracing, deferred rendering, and global illumination; image space algorithms for simulation of camera effects.

Prerequisites: CS F202; MATH F253X.**Stacked with** CS F485.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F686 Computer Graphics Animation and Simulation**

3 Credits

Offered As Demand Warrants

Creation of computer graphics animation and simulation of physically based phenomena; designing simulation systems for computer graphics applications; physically based phenomena using particle systems, fluid simulation, and rigid body dynamics; key frame animation, bones, and rigging; and other related topics.

Prerequisites: CS F202 and PHYS F212X.**Stacked with** CS F486.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CS F690 Graduate Seminar and Project**

3 Credits

Offered Fall

First semester of two-semester seminar in which students will work on and present the results of major programming or literature survey projects in computer science. Written and oral reports will be required.

Prerequisites: 12 credits in graduate computer science courses; or permission of Computer Science graduate advisor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Pass/Fail Grades**CS F691 Graduate Seminar and Project**

3 Credits

Offered Spring

Second semester of a two-semester seminar in which students will work on and present the results of major programming or literature survey projects in computer science. Written and oral reports will be required.

Prerequisites: CS F690; 12 credits in graduate computer science courses; or permission of Computer Science advisor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Pass/Fail Grades**CS F692 Seminar**

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**CS F698 Non-thesis Research/Project**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**CS F699 Thesis**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Construction Management (CM)

Community and Technical College

Construction Management Program (<https://www.ctc.uaf.edu/programs/construction-management/>)

907-455-2846

CM F102 Methods of Building Construction

3 Credits

Offered As Demand Warrants

Introduces basic knowledge of building materials, technical specifications, techniques, and systems. Outlines structural systems, construction processes, and assemblies. Includes a field project student team research of current Alaskan building type.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CM F123 Codes and Standards**

3 Credits

Offered As Demand Warrants

Provides an introduction and overview of the fundamental provisions of the building codes used for plan review, life-safety evaluation of buildings, and community development.

Prerequisites: CM F102; DRT F170.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CM F142 Mechanical and Electrical Technology**

3 Credits

Offered As Demand Warrants

Introduces the basic mechanical and electrical systems required in all buildings for the safety, health, comfort, and convenience of the occupants. Emphasizes design criteria, code requirements and interpretation of construction drawings.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CM F163 Building Construction Cost Estimating**

3 Credits

Offered As Demand Warrants

Presents methods and techniques for preparing accurate cost estimates for building construction projects. Emphasizes quantity surveys, productivity, bidding and negotiation procedures, and cost control systems.

Prerequisites: CM F102; DRT F170; MATH F151X.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus

CM F201 Construction Project Management

3 Credits

Offered As Demand Warrants

Examines construction project management methods and processes. Includes project delivery systems, contract agreements, contract general and supplementary conditions and contract administration procedures.

Prerequisites: CM F102; DRT F170.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CM F202 Project Planning and Scheduling**

3 Credits

Offered As Demand Warrants

Examines concepts and methods for planning and scheduling of construction projects. Includes identifying work elements, analyzing resources, determining activity durations, preparing CPM schedules using computer scheduling software, preparing schedule updates and analyzing planning versus actual progress for cost control.

Prerequisites: CM F201; MATH F152X.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CM F205 Construction Safety**

3 Credits

Offered As Demand Warrants

Examines safety and health practices for the construction industry. Includes developing and implementing construction project site-specific safety plans, analyzing the laws and regulations that govern safety, evaluating construction site hazards and environmental conditions and incident investigation and reporting.

Prerequisites: CM F201.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CM F213 Civil Technology**

3 Credits

Offered As Demand Warrants

Outlines elements of civil design, including soils and soil mechanics, foundations, roads, and utilities using local, state and federal regulations. Students will also be introduced to elements of construction surveying.

Prerequisites: CM F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CM F231 Structural Technology**

3 Credits

Offered As Demand Warrants

Examines structural theory and the physical principles that underlie structural behavior. Includes the use of materials in a manner to maintain structural stability against such natural forces as gravity, wind, snow and earthquakes. Covers connection detailing and code requirements for wood, steel and reinforced concrete.

Prerequisites: CM F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CM F263 Civil Construction Cost Estimating**

3 Credits

Offered As Demand Warrants

Presents methods and techniques for preparing accurate cost estimates for earthwork, roads, highways, underground utilities and site work. Emphasizes quantity surveys, unit costs, production factors, bidding and construction equipment management.

Prerequisites: CM F213; MATH F152X.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CM F299 Construction Management Internship**

3 Credits

Offered As Demand Warrants

Places students in building construction offices related to student's educational program and occupational objectives. Direct supervision by contractor professional, program faculty and Career Services coordinator.

Prerequisites: Department approval.**Lecture + Lab + Other:** 0 + 0 + 225**Grading System:** Pass/Fail Grades

Construction Trades Technology (CTT)

College of Rural and Community Development

Workforce Development Program (<https://www.uaf.edu/rural/academics/departments/>)

907-474-7143 Toll-free 1-866-478-2721

CTT F100 Construction Technology Core

3 Credits

Offered As Demand Warrants

Basic construction techniques using OSHA approved standards by stressing how to follow safe work practices and procedures, how to safely use hand and power tools, how to extract information from construction blueprints and drawings, good housekeeping habits, and material handling on the construction site.

Lecture + Lab + Other: 2.5 + 1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**CTT F101 Basic Construction Safety**

1 Credit

Offered As Demand Warrants

Introduction to basic construction safety using OSHA approved standards. Focus is on safe work practices and procedures, the proper inspection of safety equipment before use and the proper use of safety equipment. (Alternative to CTT F100 when taken with CTT F102; CTT F103; CTT F104.)

Lecture + Lab + Other: 1 + 0.5 + 0**Grading System:** Letter Grades with option of Plus/Minus

CTT F102 Introduction to Hand and Power Tools

1 Credit

Offered As Demand Warrants

Introduction to basic hand and power tools used in construction and maintenance and the importance of their care and use. Valuable safety information for each type of tool is discussed. Understanding proper usage helps trainees to prevent accidents. Some specialty tools used by different crafts are also introduced.

Prerequisites: CTT F101.**Special Notes:** Alternative to CTT F100 when taken with CTT F101; CTT F103; CTT F104.**Lecture + Lab + Other:** 0.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F103 Introduction to Blueprint Reading**

1 Credit

Offered As Demand Warrants

Introduction to basic blueprint terms, components and symbols. Different types of construction drawings commonly used on job sites and why each type of drawing is important will be presented. Standardized information contained on blueprints such as identification, revision status, symbols, project titles, dimension and scale will be covered.

Prerequisites: CTT F102.**Special Notes:** Alternative to CTT F100 when taken with CTT F101; CTT F103; CTT F104.**Lecture + Lab + Other:** 1 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F104 Basic Communication and Employability Skills**

2 Credits

Offered As Demand Warrants

Techniques for communicating effectively with co-workers and supervisors. Includes critical thinking and problem-solving skills and reviews effective relationship skills, effective presentation and key workforce issues such as sexual harassment, stress and substance abuse. (Alternative to CTT F100 when taken with CTT F101; CTT F102; CTT F103.)

Prerequisites: CTT F103.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F106 Construction Measuring**

3 Credits

Offered As Demand Warrants

Introduction to basic mathematical procedures commonly used in the construction and maintenance crafts. Includes multiplication, subtraction, addition, division, working with fractions and measuring areas, volume and capacity of shapes.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F110 Residential Carpentry I**

8.5 Credits

Offered As Demand Warrants

Introduction to basic materials and framing techniques used in the construction trades. Includes an orientation, introduction to materials and advanced tools used in the trades. Includes techniques used in framing a structure and to exterior doors and windows commonly installed on construction projects and their proper installation.

Prerequisites: CTT F100.**Special Notes:** Alternative to CTT F111; CTT F112; CTT F113; CTT F114.**Lecture + Lab + Other:** 5 + 7 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F111 Materials and Tools Used in the Trade**

2.5 Credits

Offered As Demand Warrants

Examines the sources and uses of various softwoods and hardwoods, the grading system for lumber and plywood, composition and uses of various engineered sheet materials and laminated lumber products and the many kinds of fasteners and adhesives used with wood and masonry construction.

Prerequisites: CTT F100.**Special Notes:** Alternative to CTT 110 when taken with CTT F111; CTT F112; CTT F113; CTT F114.**Lecture + Lab + Other:** 2 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F112 Floor Systems, Wall and Ceiling Framing**

2 Credits

Offered As Demand Warrants

Focuses on framing basics. Includes the procedures for laying out and constructing a wood floor using common lumber as well as engineered building materials, laying out and framing walls and ceilings, roughing in doors and window openings, construction corners and partition Ts, bracing walls and ceilings, and applying sheathing.

Prerequisites: CTT F111.**Special Notes:** Alternative to CTT F110 when taken with CTT F111; CTT F112; CTT F113; CTT F114.**Lecture + Lab + Other:** 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F113 Roof Framing, Windows and Exterior Doors**

2 Credits

Offered As Demand Warrants

Describes the various kinds of roofs and instructions for laying out rafters for gable roof, hip roof and valley intersections. Includes both stick built and truss built roofs, various types of windows, skylights, exterior doors and instructions for installing weather stripping and lock sets.

Prerequisites: CTT F112.**Special Notes:** Alternative to CTT F110 when taken with CTT F111; CTT F112; CTT F113; CTT F114.**Lecture + Lab + Other:** 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F114 Introduction to Concrete Materials and Forms**

2 Credits

Offered As Demand Warrants

Introduction to various cements and other materials which when mixed form various types of concrete. Includes concrete volume estimates, concrete tests, concrete curing methods, reinforcement materials such as rebar, bar supports and welded-wire fabric and tasks in the construction of foundations and flat work.

Prerequisites: CTT F113.**Special Notes:** Alternative to CTT F110 when taken with CTT F111; CTT F112; CTT F113; CTT F114.**Lecture + Lab + Other:** 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus

CTT F115 Residential Carpentry--Level II

12 Credits

Offered As Demand Warrants

This course builds upon the skills learned in CTT F110. Includes methods and techniques used to locate structures and install exterior siding and related element protection. Various types of roofing and installation of those materials, types and methods of drywall and its installation and interior finish applications.

Prerequisites: CTT F110.**Special Notes:** Alternative: CTT F116; CTT F117; CTT F118.**Lecture + Lab + Other:** 6 + 12 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F116 Reading Plans and Site Layout--Level I**

2 Credits

Offered As Demand Warrants

This course builds upon CTT F110. Introduces the principles, equipment and methods used to perform site layout tasks of distance measurements, differential leveling and the site layout responsibilities of individuals on the site. (Alternative to CTT F115 when taken with CTT F117; CTT F118; CTT F119.)

Prerequisites: CTT F110.**Lecture + Lab + Other:** 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F117 Exterior Finish and Moisture Protection**

2 Credits

Offered As Demand Warrants

Introduction to materials and installation techniques used in various types of siding. Includes the installation procedures and basic requirements for insulation, moisture control and ventilation. (Alternative to CTT F115 when taken with CTT F116; CTT F118; CTT F119.)

Prerequisites: CTT F116.**Lecture + Lab + Other:** 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F118 Roofing, Stairs and Metal Studs Applications**

3 Credits

Offered As Demand Warrants

Introduction to materials and installation techniques for a number of basic types of roofing. Includes installation techniques of stairs and metal studs. (Alternative to CTT F115 when taken with CTT F116; CTT F117; CTT F119.)

Prerequisites: CTT F117.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F119 Drywall and Interior Finish Applications**

5 Credits

Offered As Demand Warrants

Introduction to materials, tools and procedures used to install and finish gypsum drywall on walls and ceilings and to correct drywall finishing problems. Includes installation of various types of doors and their related hardware in several types of walls, materials, tools, installation, trim, and maintain suspended ceilings.

Prerequisites: CTT F118.**Special Notes:** Alternative to CTT F115 when taken with CTT F116; CTT F117; CTT F118.**Lecture + Lab + Other:** 2 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F121 Train the Trainer**

2 Credits

Offered As Demand Warrants

Journeypersons are needed to transfer their skills to younger workers and this program will provide the skilled person with an intense series of discussions related to teaching strategies, classroom management and leadership, group dynamics and evaluation of training. Program completers may qualify for adjunct status with UAF.

Prerequisites: Skilled journeyperson in specific skill area.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F130 Introduction to Facility Maintenance**

1 Credit

Offered As Demand Warrants

Introduction to building systems and different types of building maintenance; deferred, preventative, emergency, proactive and reactive. Provides students with basic safety instruction of hand and power tools and chemicals used in the facility maintenance occupation in accordance with Federal OSHA regulations. Instruction in Personal Protective Equipment (PPE) requirements.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 2 credits**CTT F131 Interior Repairs**

1 Credit

Offered As Demand Warrants

Provides students with basic skills needed to install and repair drywall. Students will learn how to identify components of drywall assembly and identify tools and fasteners needed to install drywall. Students will identify different materials and proper tools needed in drywall finishing.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 2 credits**CTT F132 Flooring Installation**

1 Credit

Offered As Demand Warrants

Introduces students to concepts and practical applications of floor coverings. Students will learn how to install underlayment, floor coverings and trim. Introduction to special tools necessary for safely and correctly installing flooring.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 2 credits**CTT F133 Cabinet Installation with Countertops**

1 Credit

Offered As Demand Warrants

Provides students with basic concepts of installing cabinets with countertops. Identify various types of cabinet construction (stock/semi-custom/custom-built). Introduction to different types of wood products and special tools. Instruction in and practical application of different techniques of installing base cabinets and top or wall cabinets.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

CTT F134 Garbage Disposal Installation

1 Credit

Offered As Demand Warrants

Inform students of the basic knowledge of installing a garbage disposal unit in a basic kitchen cabinet. Students will learn how to use special tools in connecting drain and waste piping and venting systems from a house unit. Students will review safety issues related to the installation process.

Lecture + Lab + Other: 0.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 2 credits**CTT F135 Boiler Troubleshooting and Burner Repair**

2 Credits

Offered As Demand Warrants

Focuses on the basic components of boilers and burners used for heating residential and commercial properties. Key concepts and strategies related to the process and safety operations of combustion, boiler thermodynamics, control systems, fuel pumps, ignition systems, draft, venting principles and boiler operation according to hydronic principals and Alaska code.

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 2 credits**CTT F136 Landscaping and Horticulture**

2 Credits

Offered As Demand Warrants

Introduces students to the process/procedure of preparing and landscaping a grounded area. Students will be introduced to concepts of placement of appropriate plants and vegetation, maintenance of edged and mowed lawn area, weed and fertilization control and watering schedules.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 4 credits**CTT F137 Appliance Troubleshooting and Repair**

2 Credits

Offered As Demand Warrants

Provides students with conceptual and practical applications in troubleshooting and repairing appliances. Students will be instructed in diagnostic skills that support repairing and replacing components in various equipment such as refrigerators, washing machines, dishwashers, clothes dryer and oven and cook-tops.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 4 credits**CTT F138 Residential Heating Controls**

2 Credits

Offered As Demand Warrants

Provides conceptual and practical applications for students wishing to become a residential heating control technician. Topics will explore diagnosis of equipment problems in operation, testing and adjusting conventional and electronic thermostats. Students will receive instruction on the operation of common electrical and electronic circuits used to control residential heating systems.

Prerequisites: Recommended: Instructor approval if student has not taken CTT courses.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 4 credits**CTT F141 Door and Window Installation**

1 Credit

Offered As Demand Warrants

Introduces students to door and window installation. Students will learn skills and trade techniques of installation, finish casing and trim. Course will identify Rough Openings (RO) and RO sizing. Introduction to tools necessary for correctly and safely installing doors and windows.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F150 Plumbing--Level I**

4 Credits

Offered As Demand Warrants

Introduction to basic plumbing techniques, math, hand and power tools, extraction of information from construction drawings and materials used in the plumbing trade. This course is divided into ten (10) modules. Each module must be successfully completed.

Prerequisites: CTT F110.**Lecture + Lab + Other:** 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F151 Introduction to Plumbing Tools and Drawings**

1 Credit

Offered As Demand Warrants

Introduction to a plumber's basic hand and power tools, their care and maintenance, and safety procedures. Includes the basics of reading plumbing blueprints and drawings and specific plumbing drawings such as isometric and oblique pictorial drawings, orthographic drawings and schematic drawings.

Prerequisites: CTT F110.**Lecture + Lab + Other:** 1 + 0.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F153 Plumbing Piping and Tools**

2 Credits

Offered As Demand Warrants

Introduction to basic hand and power tools and various types of piping used in the plumbing industry. Methods of joining various types of pipe and fittings commonly found in commercial and residential dwellings. Basics of reading plumbing blueprints and drawings, including specific drawings such as isometrics and oblique pictorial.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F154 Fixtures, Faucets and Venting Systems**

1 Credit

Offered As Demand Warrants

Covers the various types of fixtures plumbers install, including sinks, bathtubs, water closets, garbage disposals, dishwashers and mop basins. An overview of the drain, waste and vent system from inside the building, where the liquid drains into pipes, to the sewer and waste treatment plants.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

CTT F155 Plumbing--Level II

8 Credits

Offered As Demand Warrants

Introduction to basic plumbing techniques, math, hand and power tools, extraction of information from construction drawings and materials used in the plumbing trade. This course is divided into thirteen modules. Each module must be successfully completed. Generally, each will have two components, a written exam and a hands-on competency test.

Prerequisites: CTT F150.**Lecture + Lab + Other:** 4.5 + 7 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F160 Photovoltaic Systems I**

5 Credits

Offered As Demand Warrants

This course is a practical introduction to electric power generation through photovoltaic cells. During this course the student will build a solar panel to understand its operation, installation and maintenance.

Prerequisites: CTT F106 and CTT F100.**Lecture + Lab + Other:** 4 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F161 Photovoltaic Systems II**

5 Credits

Offered As Demand Warrants

This course covers practical methods of installing photovoltaic systems in residential settings. The students will also learn basic troubleshooting techniques.

Prerequisites: CTT F160.**Lecture + Lab + Other:** 4 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F170 Residential Electrical--Level I**

9 Credits

Offered As Demand Warrants

Introduction to basic electrical techniques, electrical theory, and extraction of information from construction drawings, tools, and materials used in the electrical trades. Course is divided into twelve modules. Each module must be successfully completed.

Prerequisites: CTT F115.**Lecture + Lab + Other:** 8 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F171 Electrical Safety and Electric Theory**

2 Credits

Offered As Demand Warrants

Course covers safety as applied to handling and working with electrical systems and circuits. Includes the required OSHA-mandated lockout/tag-out procedure, basic electrical theory and circuit calculations involving the application of Ohm's and Kirchoff's laws. Students are made aware of precautions for various electrical hazards found on the job site.

Prerequisites: CTT F115.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F172 Alternating Current, Electrical Test Equipment and the NEC**

2 Credits

Offered As Demand Warrants

Introduction to the principles of alternating current and the operation and applications of various types of electrical test equipment. Includes National Electrical Code.

Prerequisites: CTT F171.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F175 Residential Electrical--Level II**

8 Credits

Offered As Demand Warrants

Introduction to basic electrical techniques, electrical theory and extraction of information from construction drawings, tools and materials used in the electrical trades. This course is divided into ten modules. Each module must be successfully completed.

Prerequisites: CTT F170.**Lecture + Lab + Other:** 4 + 8 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F199 Student Practicum I**

1-3 Credits

Provides the student the opportunity to practice and develop the skills learned in the classroom. Skills will be developed under the guidance of journeyman and/or qualified personnel on the job site. Course may be repeated twice for a total of three credits.

Prerequisites: CTT F115.**Lecture + Lab + Other:** 0 + 2-6 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 3 credits**CTT F240 Introduction to Project Development for Tribal Residential Construction**

3 Credits

Offered As Demand Warrants

Course introduces the roles and responsibilities of project managers who manage and supervise the construction of housing projects in rural Alaska. Students will gain skills in developing plans and specifications for rural construction projects, ensuring building code compliance, and learn processes and materials unique to isolated locations with limited services.

Prerequisites: CIOS F150, CTT F106, Certificate in Construction Trades Technology.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F241 Introduction to Estimating, Cost Control, and Quality Control for Tribal Residential Construction**

3 Credits

Offered As Demand Warrants

Course builds upon skills obtained in CTT F240 by introducing roles and responsibilities of project managers relative to project scheduling, estimating, cost control and quality control. Students will learn to use project scheduling and cost control tools to address complicating factors such as material availability, transportation, logistics and workforce capacity.

Prerequisites: CTT F240, Certificate in Construction Trades Technology.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F250 Current Topics in Construction Trades**

1-3 Credits

Offered As Demand Warrants

Various topics of current interest in the Construction Trades. Topics announced prior to each semester. Course may be repeated for credit.

Prerequisites: CTT F100.**Recommended:** CTT F106.**Lecture + Lab + Other:** 1-3 + 0.5-1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 4 times for up to 8 credits

CTT F299 Student Practicum II

1.5 Credits

Offered As Demand Warrants

Provides the student the opportunity to practice and develop the skills learned in the classroom. Skills will be developed under the guidance of journeyman and/or qualified personnel on the job site.

Prerequisites: CTT F155.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**CTT F299P Student Practicum II**

1.5 Credits

Offered As Demand Warrants

Provides the student the opportunity to practice and develop the skills learned in the classroom. Skills will be developed under the guidance of journeyman and/or qualified personnel on the job site.

Prerequisites: CTT F155.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Pass/Fail Grades

Counseling (COUN)

School of Education

Counseling Program (<https://www.uaf.edu/soe/academics.php>)
907-474-7341

COUN F601 Research in Counseling and Educational Settings

3 Credits

Offered Summer

Provides an understanding of research occurring in educational and behavioral healthcare settings. Provides basic knowledge in utilizing a needs assessment and program evaluation to guide program planning and evaluate effectiveness. Addresses basic qualitative, quantitative, mixed methods and indigenous research designs. Addresses knowledge and skills for becoming critical consumers of research.

Prerequisites: Admittance to Master of Education Counseling or School Counselor Graduate Certification program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F615 Foundations of Counseling**

3 Credits

Offered Fall and Spring

Introduction to the philosophies, organization, patterns and techniques that aid counselors in preparing clients for responsible decision-making in modern society. Contact counseling department for semesters offered.

Prerequisites: Admittance to Master of Education Counseling or School Counselor Graduate Certification program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F617P Counseling Skills**

2 Credits

Offered Fall and Spring

This course is a fundamental counseling skills course, with the purpose of developing relationship building, basic assessments, goal setting, selecting client-aligned interventions, and evaluation of client outcomes required for Field Practicum. The course is designed as a content and practice-oriented skills development experience within a safe and encouraging environment.

Prerequisites: COUN F615; COUN F623; COUN F647; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Pass/Fail Grades**COUN F623 Counseling Theories and Applications I**

3 Credits

Offered Spring and Summer

A survey of the major theoretical systems of counseling and psychotherapy combined with a laboratory experience focused on building microskills in counseling. Specific application of theoretical principles will be investigated, analyzed and described. Contact counseling department for semesters offered.

Prerequisites: Admittance to Master of Education Counseling or School Counselor Graduate Certification program.**Lecture + Lab + Other:** 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F627 Developmental Interventions**

3 Credits

Offered Spring

Designed to give students an opportunity for limited practice in applying developmental theory to work with children and youth. Attention is placed on assisting children and youth to accomplish developmental tasks appropriate to their psychological growth.

Prerequisites: COUN F623; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F628 Child and Adolescent Development**

3 Credits

Offered Fall and Summer

Focus on developmental processes and sequences of change that children experience within each developmental domain from birth through adolescence. Contact counseling department for semesters offered.

Prerequisites: Admittance to Master of Education Counseling or School Counselor Graduate Certification program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

COUN F629 Counseling Interventions for Adults

3 Credits

Offered Fall

Examines various intervention strategies for working primarily with adult individuals in a variety of settings. Attention is placed on assisting adults in accomplishing developmental tasks appropriate to their psychosocial growth. Descriptive intervention techniques with respect to assessing individuals in crisis will be discussed and strategies for handling those crisis situations will be examined.

Prerequisites: COUN F623; admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COUN F630 Appraisal for Counselors

3 Credits

Offered Fall and Spring

Introduction to the kinds of assessment information school and community counselors utilize in the assessment process.

Prerequisites: COUN F623; admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COUN F632 Career Development

3 Credits

Offered Spring and Summer

An introduction to the theories of career development, career choices and how to translate theory into practice. Emphasis will be on career education development and the utilization of information resources for facilitating the career choice decision-making process.

Prerequisites: COUN F615; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COUN F634P Practicum

4 Credits

Offered Fall and Spring

Supervised practice in basic counseling skills and techniques. Supervised work with one-on-one counseling relationships. Actual practice in listening, problem identification, goal setting and session management.

Prerequisites: COUN F615; COUN F623; COUN F647; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Lecture + Lab + Other: 3 + 10 + 0

Grading System: Pass/Fail Grades

COUN F635 Field Practicum

3 Credits

Offered Fall and Spring

Field practicum serves as the first external training placement in the Counseling program's practicum and internship training series. This placement offers the counselor-in-training introductory exposure, experience and supervised practice in the broad scope of activities engaged in by fully credentialed school counselors or licensed professional counselors.

Prerequisites: COUN F627, COUN F628, COUN F629, COUN F638, COUN F617P or COUN F634P; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Lecture + Lab + Other: 3 + 0 + 5

Grading System: Pass/Fail Grades

COUN F636 Internship I

3 Credits

Offered Fall, Spring and Summer

Supervised practice in school or community setting. Focus on directed practice of particular skills relevant to the counselor's role. Weekly seminars will cover actual and role-playing situations providing opportunities to operationalize theory in counseling, interventions and ethical issues.

Prerequisites: COUN F634P; COUN F635; COUN F674; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Lecture + Lab + Other: 3 + 0 + 20

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 2 times for up to 6 credits

COUN F638 Adult Development

3 Credits

Offered Spring

An overview of physical, cognitive, personality and social development across the adult life span, from high school graduation through death. Major theories and research findings in the field of adult development are explored with an emphasis on examining how individuals progress through a series of predictable stages during their lifetime.

Prerequisites: COUN F615; admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COUN F646 Introduction to School Counseling

3 Credits

Offered Fall

Introduction to School Counseling is designed to provide students with an overview of the roles, responsibilities, functions, and characteristics of the school counselor within a comprehensive K-12 counseling program.

Prerequisites: COUN F623; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

COUN F647 Professional Ethics

3 Credits

Offered Fall and Spring

The ethical standards of the American Counseling Association and the American School Counseling Association will be examined, discussed and compared. Students will be provided with opportunities to apply these general principles to specific cases. Students will be expected to demonstrate knowledge of the principles of these ethical codes in practice.

Prerequisites: Admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

COUN F648 Advanced School Counseling

3 Credits

Offered Spring

Students gain an in-depth understanding of specialized topics, school counseling models and how to implement and manage a comprehensive developmental school counseling program, meeting the diverse needs of children and adolescents. Specialized topics are examined in more depth as students are taught models that can be applied in school settings.

Prerequisites: COUN F646.**Special Notes:** This is an advanced-level course that is an extension of COUN F646 – Introduction to School Counseling.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F649 Child Psychopathology**

3 Credits

Offered Fall

This course provides an overview of emotional and behavior disorders of children and adolescents, emphasizing epidemiology, etiology and relevant diagnostic criteria. Common diagnoses experienced by school-aged youth, such as autism spectrum disorder, ADHD, bipolar disorder, eating disorders, obsessive-compulsive disorder, social anxiety disorder, PTSD, self-harm, grief and bereavement will be examined.

Prerequisites: COUN F623; COUN F628.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F650 Multicultural Psychopathology**

3 Credits

Offered Fall

Overview of child and adult psychological disorders from the perspective of cultural psychology. Fundamentals of therapeutic interviewing. Training in clinical application of the DSM-IV diagnostic system. Examination of the role of culture, ethnicity, gender and social class in symptom formation and the experience of illness.

Prerequisites: PSY F345; COUN F623; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.**Cross-listed with** PSY F650.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F651 Counseling for Addictions**

3 Credits

Offered Spring

An in-depth analysis of the theoretical models explaining addiction, guiding treatment, and supporting recovery. The physiological, psychological, and behavioral influences of various substances and addictions and their associated classifications are addressed. Attention on the most common substances of use in Alaska as well as rural communities in the circumpolar North.

Prerequisites: COUN F650; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F660 Multicultural Counseling**

3 Credits

Offered Spring

An examination of cultural and ethnic variables in human nature and their effect on the counseling process. Focus on the nature and function of culture, universal- and culture-specific aspects of the counseling process, barriers to effective cross-cultural counseling, and methods of intellectual training with emphasis on Alaskan applications.

Prerequisites: Admittance to Master of Education Counseling or School Counselor Graduate Certification program.**Cross-listed with** PSY F661.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F666 Family and Couples Counseling**

3 Credits

Offered Fall

Survey of concepts and theories of function and dysfunction in the area of couples and families as social networks. Introduction to the skills necessary for intervention in these systems.

Prerequisites: COUN F623; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F667 Ethnicity and Family Studies**

3 Credits

Offered As Demand Warrants

Focus on the contribution of ethnic background to family makeup and functioning. Course topics include: counseling, social justice, and advocacy approaches for major ethnic groups; cultural context of relationships; theories of multicultural counseling, and systems-oriented intervention strategies; the role of counseling in eliminating biases, prejudice, oppression, and discrimination.

Prerequisites: COUN F666.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F674 Group Counseling**

3 Credits

Offered Spring and Summer

Kinds and types of groups with emphasis on methods, problems and skills needed in working with groups in a counseling situation.

Prerequisites: COUN F623; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**COUN F686 Internship II**

3 Credits

Offered Fall, Spring and Summer

Opportunity to perform all the activities that a regularly employed counselor is expected to perform in a school or community setting. At the completion of the internship, the student will be able to demonstrate knowledge and skills needed to administer school and/or community counseling services.

Prerequisites: COUN F636; COUN F650; admittance to Counseling program or School Counseling Certification program.**Lecture + Lab + Other:** 3 + 0 + 20**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 2 times for up to 6 credits

COUN F687 Internship III

3 Credits

Offered Fall, Spring and Summer

The course is designed to give counseling program candidates experience and supervised practice in the broad scope of activities (i.e. record keeping, individual and group counseling, information and referral, consultation, in-service and staff/faculty meetings, supervision) engaged in by either fully credentialed school counselors or licensed professional counselors.

Prerequisites: COUN F686; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Lecture + Lab + Other: 3 + 0 + 20

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 2 times for up to 6 credits

COUN F688 Internship IV

3 Credits

Offered As Demand Warrants

The course is designed to give counseling program candidates experience and supervised practice in the broad scope of activities (i.e. record keeping, individual and group counseling, information and referral, consultation, in-service and staff/faculty meetings, supervision) engaged in by either fully credentialed school counselors or licensed professional counselors.

Prerequisites: COUN F687; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Lecture + Lab + Other: 3 + 0 + 20

Grading System: Pass/Fail Grades

COUN F692 Seminar

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 98 times for up to unlimited credits

COUN F698 Non-thesis Research/Project

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

COUN F699 Thesis

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Cross-Cultural Studies (CCS)

College of Rural and Community Development

Center for Cross-Cultural Studies (<https://www.uaf.edu/cxcs/>)
907-474-1902

CCS F602 Cultural and Intellectual Property Rights

3 Credits

Offered Spring

Examines issues associated with recognizing and respecting cultural and intellectual property rights with respect to the documentation, publication and display of knowledge, practices, beliefs and artifacts of cultural traditions. Appropriate research principles, ethical guidelines and legal protections will be reviewed for their application to cross-cultural studies.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CCS F603 Field Study Research Methods

3 Credits

Offered Spring and Summer

Focus on techniques for conducting both quantitative and qualitative field research. Particular emphasis on considerations for conducting field research in cross-cultural settings.

Prerequisites: Graduate standing.

Cross-listed with ED F603.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CCS F604 Documenting Indigenous Knowledge

3 Credits

Offered Fall

A thorough grounding in research methodologies and issues associated with documenting and conveying the depth and breadth of Indigenous knowledge systems and their epistemological structures. Includes a survey of oral and literate data-gathering techniques, a review of various modes of analysis and presentation, and a practical experience in real-life settings.

Recommended: Graduate-level survey course in research methods.

Cross-listed with ED F604.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CCS F605 Indigenous Food Security and Sovereignty

3 Credits

Offered Spring

Food security includes physical and economic access to food that meets people's dietary needs as well as their food preferences. Indigenous food sovereignty is a policy approach to addressing the issues impacting Indigenous peoples' ability to respond to needs for healthy, culturally adapted Indigenous foods. This course comprehensively reviews both.

Prerequisites: Permission of instructor.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CCS F606 Indigenous Ways of Healing

3 Credits

Offered As Demand Warrants

Explores healing from a variety of Indigenous perspectives, particularly from an Alaska Native perspective. Emphasizes the preparation and education of healers, their roles and work and integration within the community. Students will have the opportunity to examine the possible integration of clinical and community psychology with indigenous approaches to healing.

Prerequisites: Graduate standing in Psychology.

Crosslisted with PSY F606.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CCS F608 Indigenous Knowledge Systems

3 Credits

Offered Fall

A comparative survey and analysis of the epistemological properties, world views and modes of transmission associated with various Indigenous knowledge systems. Emphasis on knowledge systems practiced in Alaska.

Prerequisites: Graduate standing.

Cross-listed with RD F608; ED F608; ANL F608.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

CCS F610 Education and Cultural Processes

3 Credits

Offered Fall Even-numbered Years

Advanced study of the function of education as a cultural process and its relation to other aspects of a cultural system. Students will be required to prepare a study in which they examine some aspect of education in a particular cultural context.

Cross-listed with ED F610.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CCS F611 Culture, Cognition and Knowledge Acquisition**

3 Credits

Offered Fall Odd-numbered Years

An examination of the relationship between learning, thinking and perception in multicultural contexts. Particular emphasis will be on the implications of these relationships for schooling. Content will focus on cultural influences on perception, conceptual processes, learning, memory and problem solving. Content will also reflect concern for practical teaching problems.

Cross-listed with ED F611.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CCS F612 Traditional Ecological Knowledge**

3 Credits

Offered Spring

Examines the acquisition and utilization of knowledge associated with long-term inhabitation of particular ecological systems and adaptations that arise from the accumulation of such knowledge. Attention will be given to the contemporary significance of traditional ecological knowledge as a complement to academic fields of study.

Prerequisites: Graduate standing.**Cross-listed with** RD F612.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CCS F613 Alaska Standards for Culturally Responsive Schools**

3 Credits

Offered As Demand Warrants

Guidelines, rationale and resources for adapting educational policies, programs and practices to better address the cultural well-being of the students and communities they serve. Content will be grounded in the "Alaska Standards for Culturally Responsive Schools" including standards for students, teachers, curriculum, schools and communities.

Cross-listed with ED F613.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CCS F616 Education and Socioeconomic Change**

3 Credits

Offered Fall

An examination of social change processes, particularly in relation to the deliberate development of new institutions and resulting forms of new consciousness. Emphasis is placed on the role of education and schooling in this development dynamic.

Cross-listed with ED F616.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CCS F619 Cultural Atlases as a Pedagogical Strategy**

3 Credits

Offered Spring Even-numbered Years

The course provides an in-depth look at how teachers can utilize technology and academics with oral traditions and offers a vehicle for helping communities define themselves and their unique cultural identity.

Prerequisites: Graduate standing.**Cross-listed with** ED F619.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CCS F621 Indigenous Ways of Knowing**

3 Credits

Offered Fall

Covers the appropriate and valid ways of describing and explaining human behavior by using the social context, culture and history of Indigenous groups. Includes Indigenous approaches to values, health, the interconnection of family and community; the nature of spirituality and Indigenous healing; and the importance of Elders and spiritual healers.

Prerequisites: Admittance to the Indigenous Studies or the Psychology Ph.D. program.**Cross-listed with** PSY F621.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CCS F631 Culture, Community and the Curriculum**

3 Credits

Offered As Demand Warrants

Salient issues involved with the development of effective programs of instruction in small schools, including foundational design, conceptual models, organizational strategies, technical skills, current issues and trends, and their implications and application to the environment of rural Alaska.

Cross-listed with ED F631.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CCS F656 Sustainable Livelihoods and Community Well-being (s)**

3 Credits

Offered Fall

Review principles governing the sustainability of systems, cultural practices and behaviors that enhance or degrade sustainable livelihoods and community wellbeing. Emphasis is on historical context of sustainability, nature and magnitude of the social, economic and ecological dimensions of contemporary change, and "best practices" for communities to respond effectively to change.

Prerequisites: Graduate standing.**Cross-listed with** NRM F656.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CCS F681 Place-based Education**

3 Credits

Offered As Demand Warrants

An examination of the relationship between local landscape and community and the development of human perception. Emphasis on the importance of the development of ecologically appropriate community-based educational programs in rural and urban schools.

Prerequisites: Graduate standing.**Cross-listed with** ED F681.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

CCS F682 Rethinking Multicultural Education

3 Credits

Offered Spring Odd-numbered Years

This multi-disciplinary course focuses on two parts: 1) critically analyze and reflect on current multicultural education issues at the national, state, and local level; 2) translate/apply what is learned to individual classrooms, schools, school districts and beyond. Fieldwork required.

Prerequisite: Graduate standing.**Crosslisted with** ED F682.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits**CCS F690 Seminar in Cross-Cultural Studies**

3 Credits

Offered Fall

Investigation of current issues in cross-cultural contexts. Opportunity for students to synthesize prior graduate studies and research. Seminar is taken near the terminus of a graduate program.

Prerequisites: Advancement to candidacy; permission of student's graduate committee.**Cross-listed with** ANL F690; ED F690; RD F690.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**CCS F692 Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**CCS F692P Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**CCS F698 Non-thesis Research/Project**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 1-12**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**CCS F699 Thesis**

1-12 Credits

Lecture + Lab + Other: 1-12 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Culinary Arts and Hospitality (CAH)

Community & Technical College

Culinary Arts & Hospitality Program

907-455-2800

CAH F101 Introduction to the Culinary Field

1 Credit

Offered Fall and Spring

Provides an overview of the many facets of the food industry and begins the student portfolio. Students will learn culinary related math concepts; topics include basic math principles, weights and measures, recipe conversion and baking formulas. These lessons will be used throughout the culinary program.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F117 Introduction to Cake Decorating**

2 Credits

Offered As Demand Warrants

A fun and informative introduction to classic and contemporary cake decorating. Students will work with a variety of frosting types and cake decorating tools to develop a foundation of cake decorating skills. Class will be in the CAH bakery lab and professional food safety and sanitation practices will be utilized.

Lecture + Lab + Other: 1 + 2 + 0**Grading System:** Pass/Fail Grades**CAH F140 Culinary I: Principles and Techniques**

4 Credits

Offered Fall

Students learn concepts of sanitation and safety as related to the foodservice industry. Areas addressed include: tools, equipment, knife skills, kitchen safety, food and plate presentation, food evaluation, basic cooking principles to include moist and dry heat methods, seasonings, flavorings and aromatics, fats, emulsions, dairy products, eggs and palate development.

Prerequisites: CAH F101; CAH F150 (both may be taken concurrently).**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F141 Culinary II: Stocks, Soups and Sauces**

4 Credits

Offered Spring

Students study and apply cooking methods of scratch cookery through small batch assignments. Areas of study include stocks, thickeners, roux based sauces to include the four mother sauces, hot and cold emulsions, butter sauces, salsas, vinaigrettes, and reductions as well as soups to include cream, clear and potage soups.

Prerequisites: CAH F140; CAH F150.**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F146 Introduction to Baking and Pastry**

4 Credits

Offered Fall

Students learn to apply fundamental baking skills in preparing yeast breads, quick breads, cookies, pies, pastries, cakes, custards, creams and sauces. Students will gain confidence in their abilities while learning in a professional bakery setting.

Prerequisites: CAH F101; CAH F140; CAH F150 (may be taken concurrently).**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus

CAH F150 Food Service Sanitation

2 Credits

Offered Fall and Spring

Designed for entry-level through supervisory positions of food service establishments. Basic microbiology, safe food handling techniques, good hygienic practices, pest control, employee training, and the Alaska laws governing food service establishments. Upon successful completion the student can earn ServSafe Managers Certification from the National Restaurant Association Education Foundation.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F154 Food and Beverage Service**

2 Credits

Offered Spring

Introduce students to dining room and front-of-the-house operations. Students will gain competence in dining room operation and table service techniques. Students will perform duties in the dining room of our student-run restaurant.

Prerequisites: CAH F150 (may be taken concurrently).**Lecture + Lab + Other:** 0.5 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F160 Principles of Nutrition**

2 Credits

Offered Spring

Basic principles of nutrition with emphasis on nutrients and their function in relation to human health.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F161 Pastry Tube Art**

1.5 Credits

Offered As Demand Warrants

Basic cake and food product techniques including borders, flowers, cake designing and proper use of pastry tube bags.

Lecture + Lab + Other: 0.5 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F170 Gourmet Cooking**

2 Credits

Offered As Demand Warrants

Preparation and service of gourmet beef, poultry and seafood entrees for the home cook. Recipes represent new ideas in home entertainment and menus change every semester.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Pass/Fail Grades**CAH F171 Fundamentals of Baking**

2 Credits

Offered As Demand Warrants

Preparation of a wide range of breads, pastries, fancy desserts, French pastry and simple tortes. Recipes represent traditional methods of baking along with current trends in home entertainment.

Lecture + Lab + Other: 0.5 + 3 + 0**Grading System:** Pass/Fail Grades**CAH F172 Gourmet Asian Cooking**

2 Credits

Offered As Demand Warrants

Preparing and serving Asian dishes. Study and use of proper cooking methods will be emphasized. Students prepare and enjoy a full meal

Lecture + Lab + Other: 0.5 + 3 + 0**Grading System:** Pass/Fail Grades**CAH F173 Introduction to Italian Cuisine**

2 Credits

Offered As Demand Warrants

An introduction to Italy's regional cuisines, signature dishes of various cities and historical context of preparations. Students will learn to use authentic and high-quality ingredients to create various Italian dishes. Emphasis on techniques used to prepare and handle various types of meats, pasta and desserts associated with different Italian dishes.

Lecture + Lab + Other: 0.5 + 3 + 0**Grading System:** Pass/Fail Grades**CAH F174 Vegetarian Cooking**

2 Credits

Offered As Demand Warrants

Preparation and service of vegetarian foods and balanced meals. Use of nourishing condiments will be explored. Recipes will include some seasonal, ethnic and gourmet foods; however the emphasis will be on preparing quick, healthful, tasty meatless meals.

Lecture + Lab + Other: 0.5 + 3 + 0**Grading System:** Pass/Fail Grades**CAH F175 Protein Fabrication**

3 Credits

Offered Fall

Study focuses on the identification and fabrication of protein items to include poultry, beef, veal, pork, lamb, shellfish, and finfish. Students will be introduced to the concepts of protein cookery. Emphasis is on product fabrication to practical industry applications.

Lecture + Lab + Other: 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F176 Techniques of Healthy Cooking**

2 Credits

Offered As Demand Warrants

Demonstrations of healthy cooking techniques employing limited quantities of salt, sugar and fat. Participants will explore the use of fresh herbs, acidity, seasonings and cooking methods to provide flavor in a healthy and nutritional way. Basic cooking skills and recipe utilization will be taught through the semester.

Lecture + Lab + Other: 0.5 + 3 + 0**Grading System:** Pass/Fail Grades**CAH F177 Understanding Brewing and Fermentation**

1 Credit

Offered As Demand Warrants

The student will receive an introduction to the history, science and process of brewing. Focus will be on the importance of sanitation for the home brewery, brewing traditional styles with an introduction to specialty brews. Attention will be given to the pairing of beer styles to food.

Prerequisites: Students must be 21 years of age to enroll.**Lecture + Lab + Other:** 0.5 + 1 + 0**Grading System:** Pass/Fail Grades**CAH F178 Intermediate Brewing and Fermentation**

1 Credit

Offered As Demand Warrants

Emphasis in brewing will focus on the use of adjuncts and their specific purposes. The effects they have on the brewing/fermentation process will be paramount. Focus will be on the more advanced style of brewing called partial mash.

Prerequisites: CAH F177; student must be 21 years of age to enroll.**Lecture + Lab + Other:** 0.5 + 1 + 0**Grading System:** Pass/Fail Grades

CAH F180 Artisan Breads

2 Credits

Offered As Demand Warrants

Learn the fundamentals of bread making. Take simple ingredients and transform them into handcrafted fresh-baked bread. Learn how to mix, ferment, proof, and bake like a skilled artisan baker. Explore the world of breads starting with crusty French baguettes to sourdough, ciabatta, focaccia, multigrain and much more.

Lecture + Lab + Other: 0.5 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F181 International Breads**

2 Credits

Offered As Demand Warrants

Take a culinary tour around the world. Visit all the great bread baking countries and experience the diversity each place has to offer. Flaky and buttery croissants and brioche from France, sweet and fruity panettone from Italy, fresh mocha from Japan and much more!

Lecture + Lab + Other: 0.5 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F199 Culinary Arts Externship**

2 Credits

Offered As Demand Warrants

The student will complete a 240 hour externship. Student will begin to apply their education within the industry providing genuine experience that reflects the student's career goals. The student will study in an approved establishment and will be evaluated by both the employer and the instructor. Enrollment in this class will be after completing the 2nd, 3rd or 4th semester.

Prerequisites: Departmental approval required.**Lecture + Lab + Other:** 0 + 0 + 18**Grading System:** Letter Grades with option of Plus/Minus**CAH F230 Menu Planning**

1 Credit

Offered Fall

The importance of the menu in various food operations will be emphasised. Students will learn contemporary menu planning concepts and be introduced to costing, menu psychology and pricing.

Special Notes: Recommended CAH F140; CAH F146; CAH F150.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F242 Culinary III: Vegetables and Starch**

4 Credits

Offered Fall

Students study and apply cooking methods of scratch cookery through small batch assignments. Areas of study include rice and grains, potato products, pastas, dumplings, beans and soy products, fruits, vegetables, salads, and sandwiches. Students will continually be given the opportunity to express themselves through the art of plate presentation.

Prerequisites: CAH F140.**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F243 Culinary IV: A la Carte Cookery**

4 Credits

Offered Spring

Study focuses on the preparation of food items for service in a guest-centered a la carte environment. Students will work in a la carte stations to include salads, broiler, saute and expediter. Line cooking skills for fine dining as well as time budgeting and management will be emphasized.

Prerequisites: CAH F141, CAH F175, CAH F242.**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F248 Intermediate Baking and Pastry**

4 Credits

Offered Spring

This course is designed to give the student an overall appreciation and increased understanding of bread and fine pastry. Students will learn to effectively produce a variety of specialty dough, pastries, and desserts such as tarts, individual pastries, souffles, chocolates, plated desserts, ice cream and sugar work.

Prerequisites: CAH F146, CAH F150.**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F250 Garde Manger**

4 Credits

Offered Spring

Students study traditional upscale pantry preparation. Students practice techniques for artistic displays of hors d'oeuvres, canape', pate', terrines and charcuterie. The student gains practical experience preparing and serving theme buffets for guests.

Prerequisites: CAH F141, CAH F175, CAH F242.**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F253 Storeroom Purchasing and Receiving**

2 Credits

Offered Fall

Purchasing and receiving methods and specifications in a variety of food operations are covered in this course. Students will gain exposure to purchasing specifications for a variety of foods, using general purchasing methods, requirements, procedures and ethics.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F255 Human Resource and Supervision in Hospitality**

3 Credits

Offered Spring

Approaches for effective culinary or hospitality supervision are considered in this course. Methods of recruiting, selecting, training, and evaluating personnel are covered. Team building and conflict management concepts are examined. Skills in communication, empowerment and planning are introduced. This course fulfills a requirement of certification with the American Culinary Federation.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

CAH F256 Restaurant and Hospitality Cost Management

2 Credits

Offered Spring

A course designed to relate principles of calculation to the food service industry. Recipe computations, food cost estimates, cash procedures, and payroll practices are studied. Practices for controlling portions, inventories and costs are explored as they affect business operations.

Prerequisites: CAH F101.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**CAH F257 Introduction to Wine Appreciation**

1 Credit

Offered As Demand Warrants

This is a foundation wine course with a focus on learning systematic professional tasting techniques, identifying the classic grape varieties, understanding the characteristics of wine, learning the language of wine, and beginning to identify how to pair wine with food. How to navigate a wine list will also be explored.

Prerequisites: Students must be at least 21 years of age to enroll.**Lecture + Lab + Other:** 0.5 + 1 + 0**Grading System:** Pass/Fail Grades**CAH F258 Intermediate Wine Appreciation**

1 Credit

Offered As Demand Warrants

This course will focus on the study of wine from around the world with an emphasis on the similarities and differences of those regions. Consideration will be given to the influence of many factors that affect the grapes. A goal will be to identify the varieties through tastings. Must be 21 years of age to enroll.

Prerequisites: CAH F257.**Lecture + Lab + Other:** 0.5 + 1 + 0**Grading System:** Pass/Fail Grades

Dental Assisting (DA)

Community and Technical College

Allied Health Program (<https://www.ctc.uaf.edu/academics/allied-health/>)

907-455-2800

DA F100 Introduction to Dental Assisting

3 Credits

Offered Fall, Spring and Summer

Introduction to basic concepts of dentistry and the dental assistant role. This includes: dental terminology, patient communication, HIPAA, legal and ethical issues, nutrition, basic anatomy, management of hazardous materials, preparation for patient care, tooth numbering and knowing tooth surfaces, dental charting, pharmacology, basic administrative office duties, and preparing for employment.

Prerequisites: Placement into MATH F055; placement into WRTG F110.**Special Notes:** Submission of dental assisting program packet, including documentation of required immunizations.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**DA F132 Administrative Procedures for the Dental Assistant**

2 Credits

Offered Fall

Administrative responsibilities performed by dental assistants in dental facilities. Includes duties of the office assistant, receptionist or secretary, and insurance coordinator. Focus on reception, telephone procedures, scheduling, public relations, insurance and professionalism.

Prerequisites: High school graduation or GED.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**DA F150 Dental Radiography**

4 Credits

Offered Fall, Spring and Summer

The study of film and digital radiographic techniques in the dental practice. Introduces student to radiographic anatomy and radiation physics. Includes safety in exposing, processing and mounting dental radiographs. Presents hazardous materials handling, equipment operation and maintenance. Prepares students for the Dental Assisting National Board's radiology health and safety examination.

Lecture + Lab + Other: 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**DA F151 Dental Infection Control**

2 Credits

Principles and practices of infection control in the dental office. Includes knowledge of disease, microbiology, transmission prevention and methods of compliance with OSHA and CDC regulations. Prepares students for the Dental Assisting National Boards infection control examination.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**DA F152 Dental Materials and Applications**

4 Credits

Offered Spring and Summer

Physical and chemical properties of restorative dental materials and the application of those materials. Includes properties and manipulation of gypsum material, impression materials and custom trays, basic crown and bridge procedures.

Prerequisites: DA F151 or may be taken concurrently.**Lecture + Lab + Other:** 2 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**DA F153 Anatomy for Dental Assistants**

3 Credits

Offered Fall, Spring and Summer

Study of anatomy as it applies to the field of dental assisting. Includes basic body systems and an in-depth examination of dental embryology, histology, morphology and head/neck anatomy.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**DA F251 Beginning Chairside for Dental Assistants**

4 Credits

Offered Fall, Spring and Summer

Introduction to dental assisting. Beginning skills necessary to function as a chairside dental assistant in a general dentistry practice. Emphasis on developing clinical skills in four-handed dentistry techniques.

Prerequisites: Placement into MATH F055; Placement into WRTG F111X.**Lecture + Lab + Other:** 2 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus

DA F252 Advanced Chairside for Dental Assistants

4 Credits

Offered Spring and Summer

Emphasizes advanced dental assisting skills necessary in general dentistry. Includes taking impressions for study models, radiography, matrix assembly, rubber dam application, assisting with the administration of local anesthetics, temporary crowns, oral health and nutrition. Includes introduction to specialty practices.

Prerequisites: DA F251, Department approval.**Special Notes:** Dental assistant packet and documentation of all required immunizations will need to be submitted.**Lecture + Lab + Other:** 2 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**DA F253 Clinical Chairside III for Dental Assistants**

3 Credits

Offered Spring and Summer

Continued learning in the dental specialties including prosthodontics, endodontics, periodontics, pedodontics, orthodontics, and oral and maxillofacial surgery.

Prerequisites: DA F251; DA F252; permission of program coordinator.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**DA F254 Dental Assistant Practicum**

4 Credits

Offered Fall, Spring and Summer

Clinical, off-campus course for dental assisting students. Placement in general and specialty dental offices under direct supervision by participating dentist and program faculty. Includes seminars to discuss progress and experiences.

Prerequisites: DA F132; DA F150; DA F152; DA F153; DA F251; DA F252; DA F253; enrollment by special permission only.**Lecture + Lab + Other:** 1 + 0 + 20**Grading System:** Pass/Fail Grades

Design Technology (DSGN)

Community and Technical College

Drafting & Design Technology Program (<https://www.ctc.uaf.edu/programs/drafting/>)
907-455-2800

DSGN F130 Modeling, Assembly & 3D Animation: Autodesk Inventor

3 Credits

Offered As Demand Warrants

Students will develop skills and knowledge needed to quickly and accurately create three dimensional parts, assemblies and printed models. Students will develop skills that can later be utilized professionally or in advanced coursework.

Stacked with DSGN F230.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**DSGN F230 Modeling, Assembly & 3D Animation: Autodesk Inventor**

3 Credits

Offered As Demand Warrants

Students will develop skills and knowledge needed to quickly and accurately create three dimensional parts, assemblies and printed models. Students will develop skills that can later be utilized professionally or in advanced coursework.

Stacked with DSGN F130.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Developmental Studies (DEVS)

Community and Technical College

Department of Developmental Education (<https://www.uaf.edu/deved/>)
907-455-2869

DEVS F052 Reading Enhancement

3 Credits

Offered As Demand Warrants

Intensive instruction in reading designed to increase vocabulary and comprehension skills necessary for successful reading in the content areas of college courses. Focus is on improved reading comprehension and vocabulary development.

Prerequisites: Appropriate placement test scores.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**DEVS F058 Reading Skills**

1-3 Credits

Offered As Demand Warrants

Course emphasis is on improving reading comprehension using texts and other materials. Focus is on paragraph structure to recognize main idea, supporting details and author's purpose. Study techniques for recognizing new vocabulary. Small groups allow individually designed course of instruction to meet the needs of the students. May be repeated.

Prerequisites: Placement.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 998 credits**DEVS F101 Skills for College and Career Success**

3 Credits

Offered As Demand Warrants

A diverse menu of study skills for students entering college. Skills include active listening, effective reading, taking notes, test taking, communication, time and money management. Students learn personal development skills addressing intrusive issues impacting learning processes, increasing self-esteem, and relating these skills to the classroom and later a career.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

DEVS F104 University Communications

1-3 Credits

Offered As Demand Warrants

Introduces the unique methods of communication required at the college level, including combinations of reading, writing and oral communication as required for degree content purposes for certificate degree programs. May link with selected lecture and/or discussion courses. May be repeated for credit when content varies.

Recommended: Placement into WRTG F090.**Special Notes:** Does not meet prerequisite requirements for WRTG F111X without further placement testing.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to unlimited credits**DEVS F105 Academic Reading for College**

3 Credits

Offered As Demand Warrants

Strengthens academic and critical reading and literacy skills required for college-level courses. Emphasizes practice and transfer of reading and study skills that increase comprehension and retention of narrative and expository materials typically encountered in college courses, e.g. textbooks, websites, research articles, etc.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**DEVS F107 Reader-writer Workshop**

3 Credits

Offered As Demand Warrants

A reader-writer workshop to develop fluency in reading and writing skills for persons whose first language is not English. Intensive speaking, listening, reading and writing activities.

Prerequisites: Placement by examination or student decision.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**DEVS F108 Study Skills Lab**

1 Credit

Offered As Demand Warrants

Improvement of study skills in areas of greatest need on an individual or small group basis in the lab or other workshop or individualized format. Topics include time and stress management, listening/note taking, library research and memory. Course may be repeated for credit when content varies.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 9 times for up to unlimited credits**DEVS F110 College Success Skills**

1 Credit

Offered As Demand Warrants

Introduction and overview of the diverse skills, strategies and resources available to ensure success in the college experience. Topics include study skills, time management, career planning, stress management, communication skills, test taking and personal development skills.

Special Notes: DEVS F110 is a required co-requisite for students who place into WRTG F111X Plus.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**DEVS F111 Math Study Skills**

1 Credit

Offered As Demand Warrants

This course is designed to help students learn math by developing successful study skills and exam-taking methods. This course addresses learning styles, how to read a math book, completing homework assignments, how to take notes and exams, and techniques for overcoming math anxiety.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 4 credits**DEVS F112 Reading in the Natural Sciences**

1 Credit

Offered As Demand Warrants

Will improve student success in their current and future natural science classes. Will provide supplemental instruction time focusing on introducing and/or developing reading skills that will aid in reading, understanding, and retaining science information delivered in the natural science lecture and lab. Skills emphasized will include identifying, organizing and prioritizing topic, main idea, and details, note taking, and using effective reading to improve test performance. Must be linked to freshman level science class.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 4 credits**DEVS F114 Reading in the Humanities/Social Sciences**

1 Credit

Offered As Demand Warrants

Introduction and application of effective reading strategies for increased comprehension and retention of course content delivered via written formats, e.g., textbooks, articles, web pages, etc.

Corequisites: Core humanities/social science course.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 3 credits**DEVS F150 Life Work Planning**

1 Credit

Offered As Demand Warrants

Planning for a satisfying career choice based on realistic assessment of self, accurate knowledge of the world of work and experience with ways to activate career plans. Enables students to evaluate potential careers and to make educational and job search plans.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**DEVS F160 The Resume: Key to Success**

1 Credit

Offered As Demand Warrants

Use the resume writing process to develop job seeking skills: locating the hidden market; researching job potential; learning to fill out effective applications; designing and printing a custom resume; assembling a portfolio; and developing effective interview skills.

Recommended: DEVS F150.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

DEVS F160P The Resume: Key to Success

1 Credit

Use the resume writing process to develop job seeking skills: locating the hidden market; researching job potential; learning to fill out effective applications; designing and printing a custom resume; assembling a portfolio; and developing effective interview skills.

Recommended: DEVS F150.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**DEVS F185 Critical Thinking**

3 Credits

Offered As Demand Warrants

A study of inductive, deductive and seductive thinking, and skill building to recognize and use all three. Critical thinking skills to analyze newspaper, magazine and spoken arguments. Political speeches and other media presentations examined. Effective and convincing presentation of one's own ideas including formal and informal logic.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Diesel Technology (DSLTL)

Community & Technical College

Diesel & Heavy Equipment Program (<https://www.ctc.uaf.edu/programs/diesel-heavy-equipment/>)
907-455-2800

DSLTL F101 Safety Including Rigging and Lifting

1 Credit

Offered Fall

This course is an introduction to working safely in a shop environment. Discussions and practical exercises cover the proper use of personal protective gear and air ventilation systems; identifying harmful chemicals and interpreting Safety Data Sheets; procedures for lifting heavy items; use of power and hand tools.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**DSLTL F103 Basic Equipment and Truck Operation**

1 Credit

Offered Fall

Basic operation of heavy equipment and diesel trucks to include: staking, clutching, braking, and steering procedures. Basic forklift operation to include: lifting weight, calculation and point of balance of machine versus lifting load.

Lecture + Lab + Other: 0.5 + 1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**DSLTL F105 Preventive Maintenance**

3 Credits

Offered Fall

Perform scheduled preventive maintenance on vehicles and heavy equipment. Gain knowledge of lubricants, filters, lubrication points and proper fluid levels and understanding of what to look for when performing a visual inspection.

Prerequisites: DSLTL F101; DSLTL F103.**Lecture + Lab + Other:** 1.5 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**DSLTL F107 Basic Electrical Systems**

3 Credits

Offered Fall

Basic electrical theory and DC voltage and amperage is followed by battery operation and testing. Circuit protection and control will also be covered culminating in reading and writing electrical schematics as well as identification, testing and repair of basic circuits.

Lecture + Lab + Other: 1.5 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**DSLTL F110 Basic Industrial Fabrication**

2 Credits

Offered Fall

Students will learn the concepts of industrial fabrication. When working with heavy equipment, things can break. This class will teach the basics of how to fabricate and repair heavy equipment in and out of the field using various techniques.

Prerequisite: Department or Instructor approval required.**Lecture + Lab + Other:** 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**DSLTL F111 Diesel Emissions**

2 Credits

Offered Spring

Diesel engine emissions concepts and their air pollution contribution. Knowledge to create cleaner-running diesel engines, promote pollution-control technology, prevent unnecessary idling, and make diesel engine smoke puff an extinct image. Study/practice diesel emission-reducing actions using measuring devices, learn catalytic converter/particulate filter terms and technologies, exhaust fluid usage, troubleshoot emission components.

Prerequisite: Department or Instructor approval required.**Lecture + Lab + Other:** 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**DSLTL F123 Heavy Duty Braking Systems**

3 Credits

Offered Fall

Commercial trucks/heavy equipment braking systems applications; compressor testing/overhaul, relay valves, actuators, wear limits, acceptable tolerances, brake lining replacement, government regulations and pneumatic controls; evolving technologies such as anti-lock brakes. Remove/replace brake shoes, drums, hardware, S-cams and air chambers. Includes inspection, preventive maintenance and a commercial truck/heavy equipment braking system overhaul.

Prerequisites: DSLTL F101; DSLTL F103.**Lecture + Lab + Other:** 1.5 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**DSLTL F154 Diesel Fuel Injection**

3 Credits

Offered Spring

Theory and functional operation of all common diesel fuel injection systems including modern Bosch, Mack, Cummins, Caterpillar and Detroit Diesel. Direct injection and pre-combustion fuel injection systems. Testing procedures, when testing high pressure diesel injection pumps and injectors; removing, installing and adjusting common systems used in the heavy truck/equipment industry.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus

DSLTL F201 Manual Transmissions and Differentials

3 Credits

Offered Spring

Theory, diagnosis and repair of manual transaxles and transmissions, transfer cases, differentials, clutch assemblies, power take off units, driveshafts and axles as well as removing and installing clutches, transmissions and differentials in a truck or piece of heavy equipment. Preventive maintenance and cold weather component problems will also be covered.

Prerequisites: DSLTL F101; DSLTL F103.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**DSLTL F202 Heavy Duty Automatic Transmissions**

2 Credits

Offered Spring

Theory, operation and troubleshooting of heavy duty automatic transmissions; hydraulic, electrohydraulic, pneumatic and electronic controls. Prepares the student to overhaul Allison, ZF and similar automatic transmissions.

Lecture + Lab + Other: 1 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**DSLTL F210 Heavy Equipment Fabrication**

2 Credits

Offered Spring

Students will learn advanced concepts of industrial fabrication in the maintenance of heavy duty equipment, develop a strong understanding of metals and their applications, and have the ability to bend, heat, and apply welding techniques that will support heavy duty equipment for long term use.

Prerequisite: Department or Instructor approval is required.**Lecture + Lab + Other:** 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**DSLTL F254 Engine**

6 Credits

Offered Spring

Theory and operation of the two-cycle and four-cycle diesel engine injection and combustion process. Operation and maintenance of internal components and systems including tune-ups and fuel system troubleshooting, culminating in disassembly and reassembly of a large bore diesel engine commonly found in heavy trucks or heavy equipment.

Prerequisites: DSLTL F101; DSLTL F103; DSLTL F105.**Lecture + Lab + Other:** 2.5 + 6.5 + 0**Grading System:** Letter Grades with option of Plus/Minus

Drafting Technology (DRT)

Community and Technical College

Drafting & Design Technology Program (<https://www.ctc.uaf.edu/programs/drafting-design-technology/>)

907-455-2800

DRT F101 Introduction to Drafting

3 Credits

Offered As Demand Warrants

Introduction to basic drafting skills necessary to communicate in the building, construction, design and process technology industries for freshman-level students and for certificate or associate degree-seeking students. Limited manual drafting techniques are used to gain basic skills and to contrast the speed and accuracy to that of computer-aided drafting (CAD).

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**DRT F121 Construction Documents and Drawings**

3 Credits

Offered As Demand Warrants

Reading and interpretation of construction documents for residential, light commercial and heavy commercial structures using conventional symbols and representation.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**DRT F140 Architectural Drafting**

3 Credits

Offered As Demand Warrants

Architectural drafting principles including site plans, foundations, floor plans, elevations, architectural sections, framing plans, area plans and graphic standards.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**DRT F145 Structural Drafting**

3 Credits

Offered As Demand Warrants

Introduces technical skills needed by structural drafters and technicians to work with structural engineers. Includes office practices, staff relationships, and structural drawing production. Develops computer-aided drafting skills in symbols, conventions, dimensioning systems, sheet organizations, code analysis and research methods for steel, wood, and reinforced concrete buildings.

Prerequisites: DRT F170 or permission of program coordinator.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**DRT F150 Civil Drafting**

3 Credits

Offered As Demand Warrants

Civil drafting principles including plotting traverse and surveys by bearing and distance, latitudes and departures, topographic drawings and maps, contours and elevations, profiles and highway curves, cross-section drawings and grading plans.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**DRT F155 Mechanical and Electrical Drafting**

3 Credits

Offered As Demand Warrants

Introduces technical analysis, theory, code requirements, and CAD techniques to produce construction drawings for mechanical and electrical building systems. Includes drafting conventions, drawing symbols, terminology, and research methods for residential and commercial building systems and equipment.

Prerequisites: DRT F170 or permission of program coordinator.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

DRT F170 Beginning CAD

3 Credits

Offered As Demand Warrants

Instruction in basic working knowledge of CAD software and its applications in drafting. Topics covered include an introduction to CAD software applications, basic CAD skills and tools, through plotting finished drawings. Practical applications.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**DRT F210 Intermediate CAD**

3 Credits

Offered As Demand Warrants

Techniques for construction and drafting output using CAD. Emphasis will be on the construction drawings produced for a building project and the software tools used in this process.

Prerequisites: DRT F170 or enrolled as a CE Major or permission of the program coordinator.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**DRT F260 Drafting Internship**

1-6 Credits

Offered As Demand Warrants

Supervised work experience in process organizations. Assignments will be individually arranged with cooperating organizations from the private and public sectors. A maximum of 6 credits may be earned.

Prerequisites: Permission of program coordinator.

Lecture + Lab + Other: 0 + 3-18 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 6 times for up to 6 credits**DRT F270 Advanced CAD**

3 Credits

Offered As Demand Warrants

Advanced areas of CAD (3-D, menu modifications and Auto lisp).

Prerequisites: DRT F170; DRT F210; or permission of program coordinator.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus

Early Childhood Education (ECE)

Community and Technical College

Early Childhood Education Program (<https://www.ctc.uaf.edu/programs/early-childhood-education/>)

907-455-2800

ECE F101 Early Childhood Professionalism

3 Credits

Offered Fall, Spring and Summer

Includes historical foundation, current issues and trends, exposure to a variety of developmentally appropriate programs, contemporary needs of children and families, the importance of being an advocate, professional standards and career opportunities, introduction to professional organizations including NAEYC and the code of ethical conduct, and explanation for the degree portfolio.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F104X Child Development I: Prenatal, Infants and Toddlers (s)**

3 Credits

Offered Fall, Spring and Summer

Child development: prenatal to age 3 foundation. Includes anticipating the emerging development during the rapid growth of these critical years. Focuses on domains, theories, cultural perspectives and multiple influences on development. Prenatal development, healthy childbirth, the importance of relationships and meaningful environments emphasis. Includes observation, reflection, early intervention and labs.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 2.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F107X Child Development II: The Preschool and Primary Years (s)**

3 Credits

Offered Fall, Spring and Summer

Foundation for the study of children ages 3 to adolescence, including developmental domains, theories, milestones and cultural influences, including Indigenous traditional practices. Emphasis on helping students use their knowledge of child development to predict and promote optimal growth in children. Practical experiences, such as observations and laboratory participation will be included.

Recommended: ECE F104X.**Special Notes:** Not available Odd-numbered Summer years.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 2.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F110 Safe, Healthy Learning Environments**

3 Credits

Offered Fall, Spring and Summer

Establishing and maintaining inclusive, safe, healthy, culturally and developmentally appropriate environments for children ages birth-8 years of age. Topics include preventative health care, safety aspects of field trips and indoor and outdoor settings. Completing coursework fall 2017 or later will meet the SOA Child Care Licensing health and safety requirements.

Lecture + Lab + Other: 2.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F115 Responsive and Reflective Teaching**

3 Credits

How to be ethical, responsive, productive, and well-informed practitioners in the field of early childhood. Emphasis on using traditional and local knowledge and values to inform practice, manage personnel and programs, and provide appropriate services and support to young children and their families. Includes the NAEYC Code of Ethics and NAEYC Standards. Use of observation to transform teaching and management practices. Lab required. This course is comparable to ECE F170. Students should take either ECE F115 or ECE F170 to meet the practicum and reflection requirement for the Certificate and A.A.S. degree.

Prerequisites: ECE F101; placement in WRTG F111X; or permission of program head.

Recommended: Computer with adequate and appropriate software, access to printer, audio conference and internet, and fax machine as needed.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus

ECE F117 Practical Math Skills

3 Credits

Offered As Demand Warrants

Computation involving percentages, estimation, problem-solving, reading and creating graphs and tables, data organization and interpretation. Applications of computational skills will be emphasized.

Cross-listed with HUMS F117.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F119 Curriculum I: Principles and Practices**

3 Credits

Offered Fall, Spring and Summer

Methods of creating and facilitating individually and culturally appropriate curriculum for young children. Establishing integrated, meaningful and relevant experiences applied to the area of language and literacy. Includes a balance of individual and small group experiences, child-centered curriculum and teacher-directed times, as well as transitions. Focus on emergent curriculum, active learning and play. The use of local materials and resources is incorporated. Labs required.

Lecture + Lab + Other: 2.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F130 Culture, Learning and the Young Child**

2 Credits

Offered Fall, Spring and Summer

Ways each child within a culture comes to know, accept and take pride in himself or herself. Maintaining a culturally appropriate, open, friendly and cooperative caring relationship with each child's family.

Special Notes: Not offered Even-numbered Summer years.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F132 Young Child and the Family**

1 Credit

Offered As Demand Warrants

Introduction to the importance of a positive and productive relationship between families and the child development centers. Emphasis on using this relationship to coordinate child rearing efforts of both the family and the educator.

Lecture + Lab + Other: 0.75 + 0.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F140 Positive Social and Emotional Development**

3 Credits

Offered Fall and Spring

Explores the importance of self-regulation, a strong self-concept and methods for helping children develop positive self-esteem. Focus on emotional intelligence, pro-social orientation, and social competence. Anti-bias curriculum is included. Techniques explored for working with groups of children birth-8 years old including social problem solving and developing skills for making friends.

Lecture + Lab + Other: 2.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F170 Practicum I**

3 Credits

Offered Fall, Spring and Summer

A guided student teaching experience in working with a group of 0-8 year old children. Students apply skill in providing quality early care and education based on the knowledge of early childhood theories and approved practices. Assumes increasing responsibility for planning and lead teaching.

Prerequisites: ECE F101; ECE F104X; ECE F107X; ECE F110, ECE F119; ECE F140; ECE F213; ECE F229X.**Lecture + Lab + Other:** 0.5 + 0 + 14**Grading System:** Letter Grades with option of Plus/Minus**ECE F210X Child Guidance (s)**

3 Credits

Offered Fall, Spring and Summer

Guidance and discipline approaches for young children, based on an understanding of child development and of developmentally appropriate education practices. Such an understanding assists teachers and parents in addressing the cause of a behavior problem rather than the symptoms.

Prerequisites: Placement in WRTG F111X; or permission of the program head.**Special Notes:** Not offered Odd-Numbered Summer years.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F213 Curriculum: Thinking, Reasoning and Discovery**

3 Credits

Offered Fall, Spring and Summer

Emphasizes culturally and developmentally appropriate curriculum and activities to advance the cognitive development of young children, with particular focus on science, math and creativity. Includes a variety of approaches to curriculum development, assessment and necessary skills for early childhood teachers. Lab required.

Recommended: ECE F104X; ECE F107X; ECE F119.**Special Notes:** Not available Even-Numbered Fall years.**Lecture + Lab + Other:** 2.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F214 Infants and Toddlers**

3 Credits

Offered Fall, Spring and Summer

Developmentally appropriate care/nurturance of infants and toddlers. Utilizing relationship-based practices and child development knowledge this course prepares students to create, facilitate and evaluate infant/toddler curriculum. Includes activities and routines to stimulate development, learning, communication, guidance and health. Research-based techniques and cultural practices included. Weekly practice labs (14 hours) required.

Prerequisites: ECE F104X; or permission of program head.**Special Notes:** Not available Odd-Numbered Fall years, Odd-Numbered Spring Years, or Even-Numbered Summer Years.**Lecture + Lab + Other:** 2.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus

ECE F229X Foundations in Nutrition and Physical Wellness (s)

3 Credits

Offered Fall, Spring and Summer

Become a good role model/teacher for children's wellness through analysis, problem-solving, planning, participation, teaching and reflection on healthy nutrition and movement education/fitness. Covers science of nutrients for energy/growth/regulation; food safety; planning meals. Includes mind-body connection for academic success; elements of movement; environments; fundamental skills of balance, locomotion, music/rhythm and manipulation.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 2.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F235 Screening, Assessment and Recording**

3 Credits

Offered Fall and Spring

Information to help teachers of young children understand the purpose of screening. Presents use of good screening procedures. Explores the importance of assessing young children's development and provides tools and practice for recording and evaluating children's progress towards goals. Includes a variety of evaluation tools for assessing young children's development.

Prerequisites: ECE F104X; ECE F107X.**Lecture + Lab + Other:** 2.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F240 Inclusion of Children with Special Needs (s)**

3 Credits

Offered Fall and Spring

Using developmental knowledge, study inclusionary practices. Includes description of developmental and social-emotional screening and referral processes. Encompasses: exceptionality, role of teachers in promoting positive outcomes for each child, building effective learning environments, use of assistive technology and legal (PL94-142 and 99-457) issues related to education of children with special needs.

Prerequisites: ECE F104X, ECE F107X, ED F245 or PSY F245 or permission of the program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F242 Child and Family Ecology**

3 Credits

Offered Spring

Examines the family influences on the child, family dynamics and issues impacting families. Focus on the importance of understanding relationship building, support for families and interpersonal skill development that is culturally conducive with individual communities. Examines the ECE program's policies and procedures on families and parental involvement. Includes practical application.

Prerequisites: Placement in WRTG F111X; permission of program head.**Lecture + Lab + Other:** 2.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F249 Current Issues in Early Childhood Education**

1-3 Credits

Offered As Demand Warrants

Selected current issues of importance to the human services, early childhood education or child development and family studies fields. Repeatable for credit by Early Childhood Education and Child Development and Family Studies majors to a maximum of nine credits.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 9 times for up to 9 credits**ECE F270 Practicum II**

3 Credits

Offered Fall, Spring and Summer

An advanced guided field experience in working with a group of young children in a school or center. May include teaching in a team situation and working with families.

Prerequisites: ECE F170; placement in WRTG F111X.**Lecture + Lab + Other:** 0.5 + 0 + 15**Grading System:** Letter Grades with option of Plus/Minus**ECE F299 Practicum for CDAs**

1-3 Credits

A practical application of all previous CDA competency courses. The student will assume responsibility for children in an approved early childhood setting. (CDA curriculum.)

Prerequisites: Placement in WRTG F111X.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 3 credits**ECE F301 Parents as Partners in Education**

3 Credits

Offered Fall Odd-numbered Years

Study of strategies that will assist those who work with children and/or families to facilitate supportive partnerships with parents. Includes partnerships, contemporary issues, school and home-based programs, rights and responsibilities, professional ethics, and parents with special or unique needs.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F302 Building Home Program Relationships: Prenatal to 3 Years**

3 Credits

Offered Fall Even-numbered Years

Focuses on professionalism, family support, ethics, cultural continuity, child development, attachment and curriculum of home-based programs. Addresses the broad continuum of services across multiple domains and how staff that work in these programs can meet the needs of children prenatal to 3 and their families in the home setting.

Prerequisite: WRTG F111X.**Recommended:** WRTG F211X or WRTG F213X; ECE F342.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECE F304 Attachment and Social Development (s)**

3 Credits

Offered Spring

Principles and practices in understanding and supporting attachment and social development in conjunction to reciprocal communication streams and social interactions. Strategies working with families as continuum for each specific child's development.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Recommended:** ECE F104X and ECE F107X, or ECE F110, ED F245 or PSY F245 or other early development course.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ECE F305 Social Emotional Development: Reflection and Practice

3 Credits

Offered Fall

Examination of the many ways teachers can help young children with their social development by addressing the common problems and situations that arise in teaching all children between the ages of 3 and 6 years. Development of strategies to improve teacher practices that will support social and emotional competence.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F306 Building Bridges to Support Family Mental Health

3 Credits

Offered Spring

Understanding and providing assistance to families who live in environments with multi-risk factors requires professionals working together providing best possible interventions. Demonstration and examples of strategies that help multi-risk families that assists in bringing together most effective intervention techniques from a variety of theoretical approaches, parenting strategies and innovative programs.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F310 Constructivist Curriculum

3 Credits

Offered As Demand Warrants

A focus on the issues involved in developing constructive curriculum for young children. Includes a foundation in the aims and assumptions of constructivist teaching and key components of this type of curriculum. Emphasis is on best practices for constructivist classrooms.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F311 Theories, Methodologies and Pedagogy for Early Childhood

3 Credits

Offered Fall

Expanded studies on context and theoretical perspectives of appropriate practice in early care and education for children from birth through age 8. Examines roles of early childhood educators and identifies best practices for curriculum and teaching strategies. Theories and philosophies include Montessori, Erikson, Piaget and Vygotsky, Reggio-Emilia and Project Approach.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F320 Environment and Curriculum for Infants and Toddlers

3 Credits

Offered Spring

Roles and practices adults take for supporting learning and development in infants and toddlers (birth-3 years). Stresses the adoption of the child's individual abilities and interests while supporting their exploration, discovery, relationship building and problem solving through environment development. Prominence for family inclusion in curriculum development through reciprocal relationships.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 2.5 + 0 + 1.5

Grading System: Letter Grades with option of Plus/Minus

ECE F340 Financial Management of Early Childhood Programs

3 Credits

Offered Spring

The financial aspects of managing a child care center or preschool program. Includes budgeting, program resource management, marketing, purchasing, pay and compensation, and fee collection issues important to maintaining quality programs for young children.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F341 Personnel Management of Early Childhood Programs

3 Credits

Offered Fall

Management of personnel of child care programs, including recruitment, hiring, in-service training, staff meetings and communication, supervision, evaluation, motivation, burnout prevention and termination of employees. Focus on maintaining quality programs for young children.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F342 Family Relationships

3 Credits

Offered Fall

Examination of relationships in contemporary family life. Focus on the changing family, gender roles, living together, and relationships with children and grandchildren. Includes current family research and issues within and effect of public policy on families in our multicultural society.

Prerequisites: COM F131X or COM F141X; upper-division standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F345 Screening, Assessment and Data Collection Tools

3 Credits

Offered As Demand Warrants

Overview of the diversity of tools used for screening, ongoing child and classroom assessment, data collection and reporting within early childhood programs. Tools can be used individually or collectively to support the development of a high quality early care and learning environment and positive outcomes for young children.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F350 Play: Foundation for Development (s)

3 Credits

Offered Spring

Concepts, theories, and research in the development of children regarding play; includes the effects of culture, media and technology. Roles of early care professionals, early education curriculum and parent support. Ways of self-expression through quality play experiences support communication and friendships in relation to the whole child development examined.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ECE F104X; ECE F107X; or approved development class.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F360 Assessment in Early Childhood

3 Credits

Offered Spring

Examination of policies and practices related to evaluation and assessment of young children's progress. Includes legal, ethical and professional responsibilities in assessment. Exploration of "what, when, why and how" to assess young children. Includes practice and analysis of various assessment styles and tools as well as how to use information gained through assessment.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F365 Social Studies Pedagogy in Early Childhood

3 Credits

Offered Spring

Guidance on how to teach social studies to young children to cultivate bias and discrimination-free learning communities. Emphasis on encouraging development of teachers' pedagogical practices, and resources for building positive social attitudes and dispositions that value the contributions of young children as citizens of their living and learning communities.

Prerequisites: ECE F311; WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X.

Lecture + Lab + Other: 2.5 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F405 Seminar in Culture and Child-rearing Practices

3 Credits

Offered Spring

Seminar course providing opportunity for students, cross regionally throughout Alaska and beyond, to engage in the comparative study of issues associated with culture and child-rearing practices of families within Alaska and throughout the world. Emphasis placed on the role of caregiver working with children aged birth through three years old.

Prerequisite: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Recommended: ECE F104X, ECE F107X or PSY F245 or ED F245, ECE F130, ECE F342.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F410 Supporting Family Relationships through Mentoring

3 Credits

Offered Fall

Focus on policies, leadership and professional practices inherent of successful relationships with parents. Consideration of individual communication styles and cultural diversity emphasized in relation to best mentoring practices.

Prerequisites: ECE F242; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F420 Developing Literacy in the Early Years

3 Credits

Offered Spring

Principles and practices in understanding and supporting young children's emerging literacy. Links importance of oral language and early exploration with later reading and writing skills. Strategies for assisting emergent readers and writers are included, as well as how to use play and children's interests to assist in developing their literacy.

Prerequisites: ECE F310; ECE F360; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; upper-division standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F421 From Babbling to Talking to Early Literacy

3 Credits

Offered As Demand Warrants

This course provides the opportunity for exploration and understanding of infant-toddler beginning language and early literacy development as it reflects on research from multiple fields. Looks at the importance of oral language development and early explorations with literacy while considering principles and practices that provide support for families and culture.

Prerequisite: ECE F214; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 2.5 + 0 + 1.5

Grading System: Letter Grades with option of Plus/Minus

ECE F430 Fine Arts for the Early Years (h)

3 Credits

Offered Fall

Explores the role of the teacher developing children's awareness of the world around them and expressing through a variety of art forms including: theatre, two- and three-dimensional art, crafts, vocal and instrumental music and dance. Strategies for assessing artistic development and working with families are incorporated.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ECE F240; ECE F310.

Lecture + Lab + Other: 2.5 + 0 + 1.5

Grading System: Letter Grades with option of Plus/Minus

ECE F440 Exploring Math and Science

3 Credits

Offered Fall Odd-numbered Years

Focused on constructivist teaching of math and science. Explores the role of the teacher in helping children become theory builders in an environment designed to promote learning in math and science. Includes specific examples in chemistry, biology, ecology, numbers, patterns, geometry, measurement and data analysis. Emphasis is on teaching children an interactive, analytic and reflective process of inquiry.

Prerequisites: ECE F310; ECE F360; upper-division standing.

Recommended: Completion of at least one natural science course.

Lecture + Lab + Other: 2.5 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F442 Family Resource Management

3 Credits

Offered Fall

Management of resources which help families meet and alter the increasing complexities of life. Involves purposeful actions that affect the use of time, money, energy, skills, talents and knowledge. Explores roles, goals and decision-making within our multicultural society throughout the life cycle.

Prerequisites: ECE F242; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F445 Adolescence Through the Lifespan

3 Credits

Offered Spring

Study of the inter-relationships between early childhood and future development from adolescence through adulthood. Achievement in school, anorexia, chemical dependency and other health issues, family happiness, personal confidence and career success have all been linked to the early years. This course helps students understand these vital connections.

Prerequisites: ECE F107X or ED F245 or PSY F245; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 2.5 + 0 + 1.5

Grading System: Letter Grades with option of Plus/Minus

ECE F450 Leadership and Advocacy in the Early Childhood Field

3 Credits

Offered Spring Odd-numbered Years

An overview of the early childhood field as a profession, the history of policy changes and the origin of policy reform. Topics will include system building strategies and models, ways to promote advocacy in early childhood and leadership qualities necessary to be an advocate in the field.

Prerequisites: WRTG F211X or WRTG F213X; ECE F340 or ECE F341.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F470 Advanced Practicum

3 Credits

Offered As Demand Warrants

Advanced practicum requiring 200 hours of work in an early childhood program or family support agency as a teacher, curriculum specialist, family advocate or in another related position.

Prerequisites: Senior standing; permission of instructor.

Special Notes: A capstone course available only to those who have completed the other required course work for the B.A. in Child Development and Family Studies degree and their designated specialty.

Lecture + Lab + Other: 2.5 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

ECE F471 Clinical Practice: Organizational Action Research

3 Credits

Offered Fall and Spring

Supervised Field Practice: Theory and application of action research within an organization. Emphasis on use of personal reflection to understand practice and the development of a planned theory of action. Techniques for observing action through the use of examining the evidence are learned. Approximate project timeline is 10 weeks/200 hours.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; completion of all CDFS core major and Administration or Family Support concentration course work.

Lecture + Lab + Other: 1 + 0 + 14

Grading System: Letter Grades with option of Plus/Minus

ECE F472 Clinical Practice: Classroom Research

3 Credits

Offered Fall and Spring

Supervised Field Practice: Theory and application of classroom research, emphasizing the teacher as researcher. Techniques of classroom research will be studied and applied through the development and application of a relevant project; including observation, question posing, note-taking, data analysis/interpretation. Approximate project timeline is 10 weeks/200 hours.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; completion of all CDFS core major and concentration course work, excluding ECE F473.

Lecture + Lab + Other: 1 + 0 + 14

Grading System: Letter Grades with option of Plus/Minus

ECE F473 Clinical Practice: Classroom Management

3 Credits

Offered Fall and Spring

Supervised Field Practice: Provides a capstone following completion of course work within the Curriculum and Teaching or Infant and Toddler concentration of the CDFS B.A. program. Activity will demonstrate application of appropriate curriculum, and care enhancing the learning and development of young children. Approximate project timeline is 10 weeks/200 hours. This course may be taken in conjunction with ECE F480.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; completion of all CDFS core major and concentration course work, excluding ECE F472.

Lecture + Lab + Other: 1 + 0 + 14

Grading System: Letter Grades with option of Plus/Minus

ECE F480 Child Development and Family Studies Portfolio

1 Credit

Offered Fall

This course introduces students to the portfolio process, which will be completed with the final assessment as the finishing piece of the CDFS program. The portfolio is required for final completion of the CDFS B.A. degree program in lieu of a written comprehensive exam or thesis.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; admittance to the CDFS B.A. program.

Lecture + Lab + Other: 0.5 + 0 + 1

Grading System: Pass/Fail Grades

Earth System Science (ESS)

Earth System Science

uaf-ess-info@alaska.edu

907-474-7565

ESS F492P Seminar

1 Credit

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**ESS F601 Introduction to Earth System Science**

3 Credits

Offered Fall

Today's wicked problems require a systems approach. Understanding the Arctic from this viewpoint will help the next generation better navigate cross-disciplinary problem solving. This course introduces students to Alaska and the Arctic topics through lectures, discussions, and a team project to build Earth Systems Science thinking.

Prerequisites: Graduate Standing.

Special Notes: Students who take this course will develop a basic understanding of the concept of systems science with a focus on Alaska and the Arctic.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ESS F602 Best Practices for Research in Alaska**

1 Credit

Offered Fall

This seminar-style course is designed to help students plan and execute field projects, from permitting to sample curation. Guest speakers will address preparation and execution of projects at sites throughout Alaska. Topics include land ownership, stakeholder involvement, transportation, freezing temperatures and safety considerations at remote sites.

Lecture + Lab + Other: 1.5 + 0 + 0**Grading System:** Pass/Fail Grades**ESS F692P Seminar**

1 Credit

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits

Economics (ECON)

College of Business and Security Management

Business Administration Program (<https://www.uaf.edu/cbsm/programs/business-administration/>)
907-474-7461

ECON F101X Principles of Microeconomics (s)

3 Credits

Offered Fall, Spring and Summer

Presents the tools and concepts needed for analysis of economic decision-making at the level of the individual (consumer, firm, government), and explores how those decisions affect market outcomes. Explores the theory of prices and markets, industrial organization, public policy, income distribution, and contemporary problems of labor and business.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECON F102X Principles of Macroeconomics (s)**

3 Credits

Offered Fall, Spring and Summer

Theoretical approach to determination of the national income level and economic activity including coverage of the history of macroeconomic theory with special emphasis on economic growth, inflation, business cycles, international finance, and monetary and fiscal policy.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECON F111X The Economy of Rural Alaska (an)**

3 Credits

Offered Fall and Spring

Examine the significance of Alaska Native economies and their role in the modern Alaska economy. To include the challenges facing rural communities, and the role of social and cultural capital. Economic indicators which incorporate Alaska Native health, education, food, energy and resource security, and economic opportunity are evaluated also.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECON F120X Introduction to Economic Analysis (s)**

3 Credits

Offered As Demand Warrants

This course will introduce you to the fundamentals of economic analysis and reasoning and provide you the tools to analyze the behavior of individuals, firms, communities and government under conditions of unlimited wants and scarce resources.

Prerequisites: Placement in WRTG F111X.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECON F227 Introductory Statistics for Economics and Business**

3 Credits

Offered Fall, Spring and Summer

Introduces statistical theory and methods with an emphasis on economics and business applications. Includes descriptive statistics, probability and probability distribution, statistical inference and regression modelling.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ECON F235X Introduction to Natural Resource Economics (s)**

3 Credits

Offered Fall

Microeconomic principles and their application to natural resource issues. Topics include supply, demand, marginality, optimality, elementary production economics, economic rent and comparative advantage. These principles applied to agency budget allocation decisions, multiple use, resource valuation, conservation, market failure and public outdoor recreation problems.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ECON F321 Intermediate Microeconomics (s)

3 Credits

Offered Fall and Spring

Analysis of demand and supply under various market forms, cost and theory of production, factor pricing and theory of distribution and survey of welfare economics.

Prerequisites: ECON F101X; ECON F102X; MATH F122X or equivalent.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F322 Managerial Economics

3 Credits

Offered As Demand Warrants

Interpretation of economic data and applications of economic theory in business firms. Bridging the gap between theory and practice through empirical studies, cases and decision problems. Emphasis upon decision-making using analysis of research data.

Prerequisites: ECON F101X; ECON F102X; MATH F122X or MATH F230X or equivalent.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F324 Intermediate Macroeconomics (s)

3 Credits

Offered As Demand Warrants

This is a one-semester undergraduate-level course in intermediate macroeconomics. We will study the concepts and measurement of income, analysis of aggregate demand and supply and their relation to the level of prices, employment and economic growth.

Prerequisites: ECON F101X; ECON F102X; MATH F122X or equivalent.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F327 Intermediate Econometrics for Forecasting and Business

3 Credits

Offered As Demand Warrants

Extension of topics discussed in ECON F227. Understanding the fundamental theory underlying regression methods and learning how to appropriately apply these techniques in the analysis of economic and business problems. Simple and multiple regression and correlation, analysis of variance, forecasting techniques, quality control, nonparametric methods and decision theory.

Prerequisites: STAT F200X or ECON F227.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F335 Intermediate Natural Resource Economics (s)

3 Credits

Offered Spring

Topics include welfare economics and economic efficiency concepts, benefit/cost analysis, resource allocation over time, resource taxation, common property problems, externalities, public goods, valuation of non-market resources and land use planning issues.

Prerequisites: COM F121X, COM F131X or COM F141X; ECON F101X; ECON F102X or ECON F235X; MATH F122X, MATH F230X or equivalent.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F350 Money and Banking (s)

3 Credits

Offered As Demand Warrants

The liquid wealth system in the United States, including the commercial banking system, the Federal Reserve System and nonbank financial institutions; the regulation of money and credit and its impact on macroeconomic policy objectives.

Prerequisites: ECON F101X; ECON F102X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F351 Public Finance (s)

3 Credits

Offered As Demand Warrants

Economic justifications for government; federal, state and local government, taxation, spending and debt; their effects on allocation, distribution, stabilization and growth.

Prerequisites: ECON F101X; ECON F102X; MATH F122X or equivalent.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F409 Industrial Organization and Public Policy (s)

3 Credits

Offered As Demand Warrants

The relationship of market structure to the economic conduct and performance of firms and industries, the determinants, measurement and classification of market structure, public policy toward mergers, industrial and aggregate concentration.

Prerequisites: ECON F101X; ECON F102X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F122X, MATH F230X or equivalent; upper division standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F420 Labor Markets and Public Policy (s)

3 Credits

Offered As Demand Warrants

Application of labor market analysis and wage theory as they relate to public policy issues. Topics include determination of wages, taxation and employment, economic impact of unions, economics of discrimination, and issues relating to women's and minorities' changing roles in the labor market.

Prerequisites: ECON F101X; ECON F102X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F434 Environmental Economics

3 Credits

Offered As Demand Warrants

An extension of concepts introduced in ECON F235X, using a higher level of economic analysis. An analysis of the economic forces involved in environmental degradation, preservation and regulation. Topics include pollution, biodiversity, wilderness and climatic change.

Prerequisites: ECON F101X and ECON F102X or ECON F235X; MATH F122X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F439 Energy Economics (s)

3 Credits

Offered As Demand Warrants

Market forces and institutions affecting the allocation of energy resources. Special attention to intertemporal allocative decisions and the role that public policy plays in influencing the rate at which energy resources are used over time.

Prerequisites: ECON F101X and ECON F102X or ECON F235X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Stacked with ECON F639.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F451 Public Expenditure Analysis

3 Credits

Offered As Demand Warrants

Purposes and economic effects of governmental expenditures, budgeting techniques, and their effects on resource allocation.

Prerequisites: ECON F101X; ECON F102X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F122X, MATH F230X or equivalent.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F463 International Economics (s)

3 Credits

Offered As Demand Warrants

Pure theory of international trade: comparative cost, terms of trade, and factor movements. International disequilibrium: balance of payments and its impact on national economy, capital movement and economic development through international trade.

Prerequisites: ECON F101X; ECON F102X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F122X, MATH F230X or equivalent.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F613 Resilience Internship

2 Credits

Offered As Demand Warrants

Students of the Resilience and Adaptation Program participate in internships to broaden their interdisciplinary training, develop new research tools and build expertise outside their home disciplines. Internships are for eight to ten weeks of full time commitment and take place during the student's first summer in the program. In autumn students meet to discuss their internship experiences and make public presentations.

Prerequisites: ANTH F667, BIOL F667, ECON F667 or NRM F667; ANTH F668, BIOL F668, ECON F668 or NRM F668.

Cross-listed with ANTH F617; BIOL F613; NRM F613.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F616 Economics Background for Resilience and Adaptation

1 Credit

Offered As Demand Warrants

Provides the economics background that is necessary for understanding the role of economics in complex systems involving interactions among biological, economic, and social processes. Designed for incoming students of the Resilience and Adaptation Program (RAP), who have not received training in ecology.

Prerequisites: Graduate student enrollment.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

ECON F637 Evolution of Conservation Concepts and Policy

3 Credits

Offered As Demand Warrants

Resource policy issues development and implementation including forestry, mining, fisheries, oil, wildlife and other topics as demand warrants. Focus on policy issues involved in management of Alaska's resources.

Prerequisites: Graduate standing.

Cross-listed with NRM F637.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F639 Energy Economics

3 Credits

Offered As Demand Warrants

Market forces and institutions affecting the allocation of energy resources. Special attention to intertemporal allocative decisions and the role that public policy plays in influencing the rate at which energy resources are used over time.

Prerequisites: ECON F101X and ECON F102X or ECON F235X; graduate standing.

Stacked with ECON F439.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F647 Sustainability in the Changing North

3 Credits

Offered Fall

Explores the basic principles of sustainability of environmental and social systems. Principles are applied across a range of scales from local communities to the globe, with an emphasis on examples in Alaska and the Arctic. Specific attention to the theory and practice of boundary spanning and knowledge coproduction.

Prerequisites: Graduate standing.

Cross-listed with ANTH F647; BIOL F647; NRM F647.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F649 Integrated Assessment and Adaptive Management

3 Credits

Offered As Demand Warrants

An interdisciplinary exploration of the theoretical and practical considerations of integrated assessment and adaptive management. Students survey concepts important in understanding societal and professional-level decision-making. Students work as individuals and as a team to undertake case studies with relevance to integrated assessment and adaptive management.

Prerequisites: Graduate student standing in a natural science, social science or interdisciplinary program at UAF or another university.

Recommended: ANTH F647, BIOL F647, ECON F647, NRM F647; ANTH F667, BIOL F667, ECON F667, NRM F667.

Cross-listed with ANTH F649; BIOL F649; NRM F649.

Special Notes: In case of enrollment limit, priority will be given to graduate students in the Resilience and Adaptation Program in order for them to be able to meet their core requirements.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ECON F667 Resilience Seminar I

1 Credit

Offered As Demand Warrants

Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research that are relevant to sustainability. A considerable portion of the seminar is student-directed, with students assuming leadership in planning seminar activities with the instructor.

Prerequisites: Enrolled in Resilience and Adaptation Graduate Program.

Recommended: ANTH F647, BIOL F647, ECON F647 or NRM F647 (taken concurrently).

Cross-listed with ANTH F667; BIOL F667; NRM F667.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Pass/Fail Grades

ECON F668 Interdisciplinary Research Methods-Resilience Seminar II

1 Credit

Offered As Demand Warrants

Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research relevant to sustainability. The seminar provides support to each student planning his/her summer internship and preparing and presenting a thesis research prospectus.

Prerequisites: ANTH F647, BIOL F647, ECON F647 or NRM F647;

ANTH F667, BIOL F667, ECON F667 or NRM F667.

Cross-listed with ANTH F668; BIOL F668; NRM F668.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Pass/Fail Grades

ECON F670 Seminar in Research Methodology

1 Credit

Offered As Demand Warrants

Philosophy of research and importance of the scientific method to solution of research problems.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

ECON F692 Seminar

1-12 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 98 credits

ECON F698 Non-thesis Research/Project

1-9 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

ECON F699 Thesis

1-9 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

ED F099 Practicum in Education

1-3 Credits

Individualized work experience. Credit is variable from 1 to 3 credits, depending upon the quality and quantity of the work experience. Credit may be earned in most disciplines and programs.

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

ED F100 Language, Education, Linguistics (h)

3 Credits

Offered Fall and Spring

Introduction to the field of linguistics as it pertains to the field of education. Includes discussions of language structure, acquisition and bilingualism, and variation and public policy. The course does not satisfy requirements for the B.A. in Linguistics.

Cross-listed with LING F100.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F110 Becoming a Teacher in the 21st Century

1 Credit

Offered Fall and Spring

Introduction to the UAF School of Elementary and Secondary undergraduate teaching degrees with a review of requirements, resources, and opportunities. Overview of K-12 teaching as a career with a focus on working in culturally, linguistically and geographically diverse schools and communities in Alaska and other locations.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

ED F111 Teaching for Alaska's Future

3 Credits

Offered As Demand Warrants

Participants will complete a series of six web-based modules introducing and investigating five core practices in place-based teaching and classroom management. For students interested in pursuing a teaching certification program, this course provides an introduction to the profession and an overview of pathways to teaching in Alaska.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F201 Introduction to Education

3 Credits

Offered Fall and Spring

Introduction to the profession of education and specifically, the field of teaching. Review of social, political, cultural and historical factors that influence education and schools at the national and Alaska state level. Field experience required.

Prerequisites: ED F110, ED F111; WRTG F111X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Education (ED)

School of Education

Education (<https://www.uaf.edu/soe/academics.php>)

907-474-7341

ED F204 Literature for Children

3 Credits

Offered Fall and Spring

Examination of effective uses of literature to promote learning. Critical analysis of authors, illustrators and content of children's literature representative of multiple genres and diverse peoples and perspectives-including Alaska literature. Criteria review for book selection and application of review process to books selected by students based on professional recommendations/reviews.

Prerequisites: ED F201.**Special Notes:** Field experience required.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F206 Core Practices in Place and Arts-Based Teaching (h)**

3 Credits

Offered Fall and Spring

Examination of how to bring local cultural knowledge into the curriculum and equip teachers with the knowledge and skills to teach in and through culture and the arts. Participants will investigate high-leverage teaching practices focused on arts and place-based teaching.

Prerequisites: ED F110, ED F201, WRTG F111X (C or better grade) and sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F237A Technology Tools for Teachers: Collaborate/Hangouts**

0.5 Credit

Offered As Demand Warrants

Designed to equip pre-service teachers with the necessary technical skills to be successful in their pre-service programs. This module covers the use of Blackboard Collaborate and Google Hangouts for participating in UA course work online. Each module will require approximately 6 hours of direct instruction and 4-8 hours of lab work.

Special Notes: Successful challenge or completion of all modules is a prerequisite for ED F329.**Lecture + Lab + Other:** 0.5 + 2 + 0**Grading System:** Pass/Fail Grades**ED F237B Technology Tools for Teachers: Blackboard**

0.5 Credit

Offered As Demand Warrants

Designed to equip pre-service teachers with the necessary technical skills to be successful in their pre-service programs. This module covers the use of a calendar and discussion board, submitting assignments and checking grades. Each module will require approximately six hours of direct instruction and four to eight hours of lab work.

Special Notes: Successful challenge or completion of all modules is a prerequisite for ED F329.**Lecture + Lab + Other:** 0.5 + 2 + 0**Grading System:** Pass/Fail Grades**ED F237C Technology Tools for Teachers: Google Drive**

0.5 Credit

Offered As Demand Warrants

Designed to equip pre-service teachers with the necessary technical skills to be successful in their pre-service programs. This module covers the use of Google Drives (Google Apps) for word processing, creating presentations, working with spreadsheets/charting, converting documents to Office format and sharing of documents. Each module will require approximately six hours of direct instruction and four to eight hours of lab work.

Special Notes: Successful challenge or completion of all modules is a prerequisite for ED F329.**Lecture + Lab + Other:** 0.5 + 2 + 0**Grading System:** Pass/Fail Grades**ED F237D Technology Tools for Teachers: Office**

0.5 Credit

Offered As Demand Warrants

Designed to equip pre-service teachers with the necessary technical skills to be successful in their pre-service programs. Each module will require approximately six hours of direct instruction and four to eight hours of lab work. This module covers the basic uses of Microsoft Office (Word, PowerPoint, Excel) for productivity tasks.

Prerequisite: Access to MS Office is required.**Special Notes:** Successful challenge or completion of all modules is a prerequisite for ED F329.**Lecture + Lab + Other:** 0.5 + 2 + 0**Grading System:** Pass/Fail Grades**ED F245 Child Development (s)**

3 Credits

Offered Fall and Spring

A study of the physical, cultural, emotional, cognitive and social aspects of a child's development from prenatal period through early adolescence. Focus on developmental theories including Erickson, Gardner, Gilligan, Kagen, Sternberg, Vygotsky and other contemporary theories of child and adolescent development.

Prerequisites: WRTG F111X.**Cross-listed with** PSY F245.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F299 Practicum in Education**

1-3 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**ED F303 Language Acquisition (s)**

3 Credits

Offered As Demand Warrants

Theories of the acquisition and development of first and second languages, including consideration of biological and sociocultural factors. Survey of traditional and contemporary theories, and implications for pedagogy and public policy.

Prerequisites: COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Recommended:** LING F101X.**Cross-listed with** LING F303.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ED F329 Teaching with Technology

3 Credits

Offered Fall and Spring

Participants will examine multiple technology-based strategies that promote learning in P-12 classrooms. The class will examine mobile as well as desktop/laptop technologies, exploring a variety of topics including: collaboration, communication, content and classroom management apps, the role of social media in school, and the ISTE Standards for Educators.

Prerequisites: Approval from School of Education academic advisor, laptop or iPad required.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F330 Assessment of Learning

3 Credits

Offered Fall

Review and examination of the range of traditional and alternative assessment and evaluation approaches used in educational contexts. Focus is on developing assessment practices and policies that are appropriate for the diverse student population in Alaska's rural and urban schools. Field experience required.

Prerequisites: ED F201; a mathematics baccalaureate core course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F344 Foundations of Literacy Development

3 Credits

Offered Spring

Introduction to best practices in research-based methods for teaching and learning of reading and writing. Emphasis on a developmental approach to the literacy development of children in school and home settings. Field experience required.

Prerequisites: ED F201; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; upper-division standing; laptop computer required.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F411 Reading, Writing, Language Arts: Methods and Curriculum Development

3 Credits

Offered Fall

Study and application in the classroom of best practices from research-based strategies for the teaching and learning of reading, writing and language arts concepts. Includes content and methods for students in elementary classrooms with diverse populations. Requires development and classroom implementation of integrated reading and writing unit. Concurrent internship required.

Prerequisites: Admission to Internship Year.

Lecture + Lab + Other: 2.5 + 0 + 1.5

Grading System: Letter Grades with option of Plus/Minus

ED F412 Integrated Social Studies and Language Arts: Methods and Curriculum Development

3 Credits

Offered Fall

Study and application in the classroom of best practices from research-based strategies for the teaching and learning of social studies concepts, content, and methods integrated with language arts for students in elementary classrooms with diverse populations. Requires development and classroom implementation of integrated social studies and language arts unit.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; admission to Internship Year.

Co-requisites: Concurrent internship required; ED F411; ED F414; ED F466; ED F467; ED F478.

Stacked with ED F602.

Lecture + Lab + Other: 2 + 0 + 3

Grading System: Letter Grades with option of Plus/Minus

ED F414 Art, Music and Drama in Elementary Classrooms

3 Credits

Offered Fall

Exploration and application, in the classroom, of theory, practice, methods and materials used in teaching in and through visual art, music and drama. Concurrent internship required.

Prerequisites: Admission to the Internship Year.

Co-requisites: ED F411; ED F412; ED F466; ED F467; ED F478.

Stacked with ED F605.

Lecture + Lab + Other: 1.5 + 0 + 4.5

Grading System: Letter Grades with option of Plus/Minus

ED F417 Physical Activity and Health Education for Elementary Teachers

3 Credits

Offered Spring

Introduction and application of the relationship between physical fitness and good health in a school setting. Includes introducing students to fundamental movement activities and games. Includes incorporating health curriculum and injury prevention and safety into practices and policies, and issues specific to the Alaska context. Concurrent internship required.

Prerequisites: Admission to the Internship Year.

Co-requisites: ED F468; ED F469; ED F476; ED F479.

Stacked with ED F617.

Lecture + Lab + Other: 1.5 + 0 + 4.5

Grading System: Letter Grades with option of Plus/Minus

ED F420 Alaska Native Education (an, s)

3 Credits

Offered Fall and Spring

School systems historically serving Native people, current efforts toward local control and the cross-cultural nature of this education. Field experience required.

Prerequisites: ANS F242X; junior standing.

Cross-listed with ANS F420.

Stacked with ED F606.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F431 Web 2.0 Fundamentals: Participate, Produce, Publish

3 Credits

Offered As Demand Warrants

Examine the impact of Web 2.0, cloud computing and mobile technologies on K-12 education and other social institutions. Establish and publish to frameworks—web-based e-portfolio, personal learning network, blog, podcasts—that will form the core elements of the M.Ed. Instructional Technology Innovation (MITI).

Prerequisites: Admission to the Master of Education program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F432 Fundamentals of Media Design**

3 Credits

Offered As Demand Warrants

Create and publish materials with proper media design for use in teaching and learning. Topics include photo and graphics formatting, video production, video podcast production, SMART technologies, static screen capture and motion screen capture. These productions will be included on students' MITI e-portfolios.

Prerequisites: Admission to the Master of Education program.

Special Notes: This course is a prerequisite for subsequent MITI courses and should be taken after or concurrently with ED F431 Web 2.0 Fundamentals: Participate, Produce, Publish.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F439 Supporting Multilingual Learners in the Elementary Classroom (h)**

3 Credits

Offered As Demand Warrants

Participants will complete web-based modules investigating the history of and current teaching practices for supporting English Learners in the classroom. The history and contemporary context of supporting English learners in schools will be explored as well as ways to create positive learning environments and scaffolding instruction throughout content areas.

Prerequisites: Junior or senior standing.**Stacked with** ED F639.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F440 Gender and Education (s)**

3 Credits

Offered As Demand Warrants

Educational practices and processes and their relation to the changing situation of women in society. Examination of schools as sites of pervasive gender socialization and discrimination as well as offering new possibilities for liberation. Topics include social construction of gender, patterns of access and achievements, gender as an organizing principle in schools and classrooms, and feminist agendas and strategies for change.

Prerequisites: Junior standing.**Cross-listed with** WGS F440.**Stacked with** ED F640.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F449 Elementary Art Methods**

3 Credits

Offered As Demand Warrants

Methodologies of instruction and assessment in art education at the elementary level. Focus is on the knowledge and tools necessary to become excellent elementary art educators. Students will be expected to construct lessons reflecting theory and practice that are developmentally appropriate for elementary level students of all ages.

Prerequisites: Admission to K-12 Art post-baccalaureate licensure program or to M Ed in Curriculum and Instruction option for post-baccalaureate students.

Stacked with ED F649.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F452 Elementary Internship**

3-15 Credits

Offered As Demand Warrants

Supervised teaching in elementary schools approved by the School of Education. Students should expect to be involved in the school setting for some or all of the school day (depending on the number of credits taken) for the entire university semester. Post-baccalaureate students must be admitted to the Art K-12 licensure program. Passing Praxis I scores.

Prerequisites: COM F131X or COM F141X; successful completion of methods practicum and methods coursework with a C or better.

Special Notes: The School of Education may limit enrollment, determine assignments and cancel the registration of students doing unsatisfactory work.

Lecture + Lab + Other: 1 + 0 + 42**Grading System:** Pass/Fail Grades**ED F453 Secondary Internship**

3-15 Credits

Offered As Demand Warrants

Supervised teaching in secondary schools approved by the School of Education. Students should expect to be involved in the school setting for some or all of the school day (depending on the number of credits taken) for the entire university semester. The School of Education may limit enrollment, determine assignments. Passing Praxis I scores.

Prerequisites: COM F131X or COM F141X; and successful completion of methods practicum and methods coursework with a C or better.

Special Notes: Post-baccalaureate students must be admitted to K-12 Art licensure program.

Lecture + Lab + Other: 1 + 0 + 42**Grading System:** Pass/Fail Grades**ED F454 Student Teaching K-12**

15 Credits

Offered As Demand Warrants

Supervised teaching in both elementary and secondary schools approved by the Music Department and the School of Education. Open only to Music majors seeking K-12 certification. Students should expect to be involved in the school setting for the entire school day for the entire university semester. The department may limit. Passing Praxis scores. For Bachelor of Music students, see B.M. degree requirements.

Prerequisites: COM F131X or COM F141X, successful completion of methods practicum and methods coursework with a C or better.

Lecture + Lab + Other: 1 + 0 + 42**Grading System:** Pass/Fail Grades

ED F456 Orientation to Teaching in Rural Alaska

3 Credits

Offered As Demand Warrants

Needs of rural schools, their environments and the recipients of school services with special attention given to cross-cultural educational issues.

Prerequisites: Permission of instructor.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F461 Native Ways of Knowing (an, h)

3 Credits

Offered Spring Odd-numbered Years

Focus on how culture and worldview shape who we are and influence the way we come to know the world around us. Emphasis on Alaska Native knowledge systems and ways of knowing.

Prerequisites: Upper-division standing.

Cross-listed with ANS F461.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F466 Internship and Collaborative Student Teaching

3 Credits

Offered Spring

Supervised internship for students in the first half of a year-long professional internship in elementary teacher education. Includes immersion in planning and teaching. Course work is integrated into the internship experience. Interns are assessed in relationship to UAF/Alaska state and national standards.

Prerequisites: Admission to Internship Year.

Lecture + Lab + Other: 1.5 + 0 + 12

Grading System: Pass/Fail Grades

ED F467 Classroom Management Communication and Collaboration I

2 Credits

Offered Spring

For student interns participating in the first half of the professional internship year. Focus, of course, is UAF/Alaska Teacher Standards 6 (Classroom Management and Organization), Standard 7 (Partnerships with Parents, Families and Community) and Standard 8 (Professionalism and Collaboration). Interns complete and reflect on collaborative experiences and activities both within and outside their school and improve classroom communication skills through collection and analysis of selected artifacts to document and provide evidence of professional development and achievement relative to UAF/Alaska Teacher Standards. Concurrent internship required.

Prerequisites: Admission to Internship Year.

Lecture + Lab + Other: 1 + 0 + 8

Grading System: Letter Grades with option of Plus/Minus

ED F468 Internship and Student Teaching

4 Credits

Offered Fall

For student interns participating in the second half of the year-long professional elementary teacher education internship. Interns must spend at least four days per week in the classroom, one month full-time in the classroom including at least three weeks of full responsibility for the classroom. Builds on ED F466 requirements.

Prerequisites: COM F131X or COM F141X; admission to the Internship Year.

Lecture + Lab + Other: 2 + 0 + 6

Grading System: Pass/Fail Grades

ED F469 Classroom Management Communication and Collaboration II

2 Credits

Offered Fall

For student interns participating in the second half of the professional internship year. Interns use the UAF/Alaska Teacher Standards 1 (Philosophy), 5 and 6 (planning components), 7 (Families and Community) and 8 (Professionalism) as a basis for examining field- and course-based experiences and activities during the internship year. Interns formally present completed portfolios for reviews and evaluations. Concurrent internship required.

Prerequisites: Admission to 2nd semester of the Internship Year.

Special Notes: Requires collection and analysis of selected artifacts to document and provide evidence of professional development and achievement relative to UAF/Alaska educational standards.

Lecture + Lab + Other: 1 + 0 + 3

Grading System: Letter Grades with option of Plus/Minus

ED F476 Assessment of Literacy Development

1 Credit

Offered Spring

Interns will review, evaluate and create assessments to document elementary student literacy development. Interns will analyze results of literacy assessments and develop plans for instruction for each elementary student. Assessments may include teacher-made quizzes or tests, anecdotal records based on observing children, student reading and writing samples, and spelling assessments.

Prerequisites: Admission to the internship year.

Lecture + Lab + Other: 1 + 0 + 22

Grading System: Letter Grades with option of Plus/Minus

ED F478 Mathematics Methods and Curriculum Development

3 Credits

Offered Fall

Study and application in the classroom of best practices from research-based strategies for the teaching and learning of mathematical concepts, content and methods for students in elementary classrooms with diverse populations. Requires development and classroom implementation of mathematics unit. Concurrent internship required.

Prerequisites: Admission to Internship Year.

Stacked with ED F678.

Lecture + Lab + Other: 2 + 0 + 8

Grading System: Letter Grades with option of Plus/Minus

ED F479 Science Methods and Curriculum Development

3 Credits

Offered Spring

Study and application in the classroom of the best practices from research-based strategies for the teaching and learning of science concepts, content and methods for students in elementary classrooms with diverse populations. Requires development and classroom implementation of science unit. Classroom internship required.

Prerequisites: Admission to internship year; concurrent enrollment in other internship year courses; Alaska passing scores for three Praxis I exams.

Stacked with ED F688.

Lecture + Lab + Other: 2.5 + 0 + 4

Grading System: Letter Grades with option of Plus/Minus

ED F486 Media Literacy (h)

3 Credits

Offered Fall and Spring

Promotes critical thinking skills that empower people to make independent judgments and informed decisions in response to information conveyed through the channels of mass communications.

Emphasis on developing students and others into critical viewers, listeners and readers of media.

Prerequisites: COM F131X or COM F141X; junior standing; laptop computer.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F601 Introduction to Applied Social Science Research

3 Credits

Offered Fall and Summer

Review of the most common educational research paradigms, data gathering techniques and analytical tools used in the study of human behavior and educational institutions. Attention will be given to collaborative research models, with a focus on the translation of research results into practical application.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F602 Integrated Social Studies and Language Arts: Methods and Curriculum Development

3 Credits

Offered Fall

Study and application in the classroom of best practices from research-based strategies for the teaching and learning of social studies concepts, content, and methods integrated with language arts for students in elementary classrooms with diverse populations. Requires development and classroom implementation of integrated social studies and language arts unit.

Prerequisites: Admission to the Internship Year.

Co-requisites: Concurrent internship required; ED F411; ED F466; ED F467; ED F605; ED F678.

Stacked with ED F412.

Lecture + Lab + Other: 2 + 0 + 3

Grading System: Letter Grades with option of Plus/Minus

ED F603 Field Study Research Methods

3 Credits

Offered Spring and Summer

Focus on techniques for conducting both quantitative and qualitative field research. Particular emphasis on considerations for conducting field research in cross-cultural settings.

Prerequisites: Graduate standing.

Cross-listed with CCS F603.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F604 Documenting Indigenous Knowledge

3 Credits

Offered Fall

A thorough grounding in research methodologies and issues associated with documenting and conveying the depth and breadth of Indigenous knowledge systems and their epistemological structures. Includes a survey of oral and literate data-gathering techniques, a review of various modes of analysis and presentation, and a practical experience in real-life settings.

Recommended: Graduate-level survey course in research methods.

Cross-listed with CCS F604.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F605 Art, Music and Drama in Elementary Classrooms

3 Credits

Offered Fall

Exploration and application, in the classroom, of theory, practice, methods and materials used in teaching in and through visual art, music and drama. Concurrent internship required.

Prerequisites: Admission to the Internship Year.

Co-requisites: ED F411; ED F466; ED F467; ED F602; ED F678.

Stacked with ED F414.

Lecture + Lab + Other: 1.5 + 0 + 4.5

Grading System: Letter Grades with option of Plus/Minus

ED F606 Alaska Native Education

3 Credits

Offered Fall and Spring

School systems historically serving Native people, current efforts toward local control and the cross-cultural nature of this education. Field experience required.

Prerequisite: ANTH F242 and graduate standing.

Stacked with ANS F420; ED F420.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F608 Indigenous Knowledge Systems

3 Credits

Offered Fall

A comparative survey and analysis of the epistemological properties, world views and modes of transmission associated with various Indigenous knowledge systems. Emphasis on knowledge systems practiced in Alaska.

Prerequisites: Graduate standing.

Cross-listed with CCS F608; RD F608; ANL F608.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F610 Education and Cultural Processes

3 Credits

Offered Fall Even-numbered Years

Advanced study of the function of education as a cultural process and its relation to other aspects of a cultural system. Students will be required to prepare a study in which they examine some aspect of education in a particular cultural context.

Cross-listed with CCS F610.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ED F611 Culture, Cognition and Knowledge Acquisition

3 Credits

Offered Fall Odd-numbered Years

An examination of the relationship between learning, thinking and perception in multicultural contexts. Particular emphasis will be on the implications of these relationships for schooling. Content will focus on cultural influences on perception, conceptual processes, learning, memory and problem solving. Content will also reflect concern for practical teaching problems.

Cross-listed with CCS F611.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F612 Foundations of Education**

3 Credits

Offered As Demand Warrants

Students will explore the interplay between cultural processes and various philosophical positions adopted by educators in the design and practice of pedagogy, learn the history of public school education in the U.S. and Alaska and analyze the policies affecting public school education today.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F613 Alaska Standards for Culturally Responsive Schools**

3 Credits

Offered As Demand Warrants

Guidelines, rationale and resources for adapting educational policies, programs and practices to better address the cultural well-being of the students and communities they serve. Content will be grounded in the Alaska Standards for Culturally Responsive Schools, including standards for students, teachers, curriculum, schools and communities.

Cross-listed with CCS F613.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F616 Education and Socioeconomic Change**

3 Credits

Offered Fall

An examination of social change processes, particularly in relation to the deliberate development of new institutions and resulting forms of new consciousness. Emphasis is placed on the role of education and schooling in this development dynamic.

Cross-listed with CCS F616.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F617 Physical Activity and Health Education for Elementary Teachers**

3 Credits

Offered Spring

Introduction and application of the relationship between physical fitness and good health in a school setting. Includes introducing students to fundamental movement activities and games. Includes incorporating health curriculum and injury prevention and safety into practices and policies, and issues specific to the Alaska context. Concurrent internship required.

Prerequisites: Admission to the Internship Year.**Co-requisites:** ED F468; ED F469; ED F476; ED F688.**Stacked with** ED F417.**Lecture + Lab + Other:** 1.5 + 0 + 4.5**Grading System:** Letter Grades with option of Plus/Minus**ED F619 Cultural Atlases as a Pedagogical Strategy**

3 Credits

Offered Spring Even-numbered Years

The course provides an in-depth look at how teachers can utilize technology and academics with oral traditions and offers a vehicle for helping communities define themselves and their unique cultural identity.

Prerequisites: Graduate standing.**Cross-listed with** CCS F619.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F620 Language, Literacy and Learning**

3 Credits

Offered Spring

This course examines the relationship among language, culture and mind to understand literacy. Specific areas of emphasis include literacy theory, literacy acquisition, orality, critical literacy, multi-modal literacies, media literacy and future literacies. The goal is the understand literacy as a cultural and cognitive phenomenon that informs praxis. Fieldwork is required.

Lecture + Lab + Other: 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**ED F621 Cultural Aspects of Language Acquisition**

3 Credits

Offered As Demand Warrants

An expanded view of the ways in which individuals become socialized into particular patterns of first and second language and literacy. The ongoing acquisition of both oral and written language(s) from early childhood through adult life. Topics will include: the cultural dimensions of language development; the relationship between communication and culture; bilingualism; and the role of language in the transmission of sociocultural knowledge.

Cross-listed with LING F621.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F624 Foundations of Education in Alaska: From Segregation to Standards**

3 Credits

Offered Summer

Review the foundation of American and Alaska education and examine historical, political, social and cultural factors that impact today's schools. Examine how local, state and national laws and policies influence the teaching profession. Consider the role standards play in education, and identify ways to utilize assessment data to shape instruction.

Prerequisites: Admission to Internship Year; a laptop computer.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F625 Exceptional Learners and Child Development: Individual and Cultural Characteristics**

3 Credits

Offered Summer

Foundation for understanding, identifying and teaching to developmental abilities of children and early adolescents. Human development examined in context of cognition, personality, social behavior, language and physical development with focus on understanding and using cross-cultural influences specific to Alaska. Emphasis on development of children with exceptional abilities.

Prerequisites: Admission to Internship Year.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ED F626 Teaching Reading, Writing and Language Arts

3 Credits

Offered Summer

Examination of the nature and process of reading and writing for elementary students and focus on process of developing a language arts program. Includes acquisition and role of language in this process. Examination and evaluation of materials and methods of teaching language arts, including those used in some Alaska districts.

Prerequisites: Admission to Internship Year.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F630 Curriculum Development**

3 Credits

Offered Summer

Study of curriculum foundation. Examines types of curricular frameworks, including traditional and indigenous models. Current influences of district, state, national and international curriculum models are discussed. Curriculum design practice connects standards, goals and learning experiences to guide student learning. Fieldwork is required.

Lecture + Lab + Other: 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**ED F631 Culture, Community and the Curriculum**

3 Credits

Offered As Demand Warrants

Salient issues involved with the development of effective programs of instruction in small schools, including foundational design, conceptual models, organizational strategies, technical skills, current issues and trends, and their implications and application to the environment of rural Alaska.

Cross-listed with CCS F631.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F637 Designing Social Science Research Overview**

2 Credits

Offered As Demand Warrants

Overview of designing social science research. Investigations into constructing and analyzing a variety of research designs and data collection methods for social science research. General procedures for conducting literature reviews. Includes overview of Institutional Review Board (IRB) policy and procedures.

Prerequisites: ED F601, ED F603, or similar graduate level introductory research course.**Special Notes:** This course as the first (of six) of the series is intent on learning how to design research.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F638 Designing Social Science Research in Depth**

2 Credits

Offered As Demand Warrants

In-depth learning of quantitative and/or qualitative within social science research. Investigations into constructing and analyzing research designs and data collection methods for social science research. Introductions to the software applications of Atlas.ti for qualitative analysis and SPSS for quantitative analysis.

Prerequisites: ED F637.**Special Notes:** This course as the second of the series is intent on completing students' research design by looking ahead to data collection and refining all of the essential pieces such as problem statement, research questions, methodology and methods.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F639 Supporting Multilingual Learners in the Elementary Classroom**

3 Credits

Offered As Demand Warrants

Participants will complete web-based modules investigating the history of and current teaching practices for supporting English Learners in the classroom. The history and contemporary context of supporting English learners in schools will be explored as well as ways to create positive learning environments and scaffolding instruction throughout content areas.

Prerequisites: Graduate level standing.**Stacked with** ED F439.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F640 Gender and Education**

3 Credits

Offered As Demand Warrants

Educational practices and processes and their relation to the changing situation of women in society. Examination of schools as sites of pervasive gender socialization and discrimination as well as offering new possibilities for liberation. Topics include social construction of gender, patterns of access and achievements, gender as an organizing principle in schools and classrooms, and feminist agendas and strategies for change.

Stacked with ED F440; WGS F440.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F647 Conducting Social Science Research Overview**

2 Credits

Offered As Demand Warrants

Data collection techniques for quantitative and/or qualitative methods. Investigations into collecting and synthesizing quantitative and/or qualitative data for use in social science research. Includes software applications of Atlas.ti for qualitative analysis and SPSS for quantitative analysis. Topics included are often not covered in many other courses such as how to create tools to gather the necessary data. Alignment with the methodology, research questions and design are built-in through the series as the work here continues to build upon the courses prior.

Prerequisites: ED F638.**Special Notes:** As the third of six of the series, this course moves to actual data collection techniques connected to students' social science research.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ED F648 Conducting Social Science Research in Depth

2 Credits

Offered As Demand Warrants

In-depth investigations into collecting and synthesizing quantitative and qualitative data for use in mixed methods research. Includes software applications of Atlas.ti for qualitative analysis and SPSS for quantitative analysis.

Prerequisites: ED F647.

Special Notes: This course as the fourth of six of the series is intent on completing the data collection by investigating psychometrics, looking ahead to data analysis and looking back for consistency with the methodology, research questions and research design.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F649 Elementary Art Methods**

3 Credits

Offered As Demand Warrants

Methodologies of instruction and assessment in art education at the elementary level. Focus is on the knowledge and tools necessary to become excellent elementary art educators. Students will be expected to construct lessons reflecting theory and practice that are developmentally appropriate for elementary level students of all ages.

Prerequisites: Admission to K-12 Art post-baccalaureate licensure program or M Ed in Curriculum and Instruction option for post-baccalaureate students.

Stacked with ED F449.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F650 Multicultural Education And Design**

3 Credits

Offered Fall

Participants study professional and personal technology based topics relevant to various career fields in education, with emphasis on current events, emerging technologies and ethical considerations. Readings, research papers, and discussions lead to the development of an instructionally oriented technology proposal that includes an implementation plan and formal presentation.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F651 Analyzing Social Science Research**

2 Credits

Offered As Demand Warrants

Data analysis techniques for social science research. Investigations into qualitative coding and analysis and/or review of statistical analysis both univariate and multivariate within the context of social science research. Includes use of SPSS and Atlas.ti. Topics included are specialized to support the research design, methodology and data collection efforts of the peer group.

Prerequisites: ED F648.

Special Notes: This course as the fifth of six of the series moves to actual data analysis techniques for social science research.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F652 Presenting Social Science Research Results**

2 Credits

Offered As Demand Warrants

Data presentation techniques for social science research. Investigations into presenting qualitative and/or statistical analysis results within the context of social science research. Includes use of SPSS and Atlas.ti. Topics included are specialized to support the research design, methodology and data collection efforts of the peer group.

Prerequisites: ED F651.

Special Notes: This course as the sixth and final of the series concludes the process with a focus on data presentation from a holistic perspective.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F653 Instructional Design**

3 Credits

Offered As Demand Warrants

Instructional design combines technology skills with application of learning theory to maximize the effectiveness of education. This course explores instructional design from a practical perspective. Students will acquire hands-on practice with a variety of computer-based tools while exploring instructional methods and principles of design.

Prerequisite: Admission to the Master of Education program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F654 Digital Citizenship, Internet Legal Issues, Digital Copyright and Fair Use**

3 Credits

Offered As Demand Warrants

An examination of critical elements of digital citizenship, a survey of contemporary legal issues, and an exploration of copyright, fair use, and intellectual property relevant to educators and instructional designers. Also available online via UAF eCampus.

Prerequisites: Admission to the Master of Education program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F655 Online Pedagogy**

3 Credits

Offered As Demand Warrants

A study of theory, tools and methods for teaching online courses. Topics include prominent learning theories, affordance of new technologies, strategies for assessment and techniques for classroom management in an online environment. Students will develop and articulate a personal philosophy of teaching and learning appropriate for the 21st Century.

Prerequisite: Admission to the Master of Education program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Pass/Fail Grades**ED F659 Multimedia Tools for Educators**

3 Credits

Offered Fall

Emerging technologies and software applications in education. The use of multimedia in designing teaching/learning experiences will be emphasized. Students will develop a multimedia classroom presentation and will demonstrate knowledge of Internet resources.

Lecture + Lab + Other: 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus

ED F660 Educational Administration in Cultural Perspective

3 Credits

Offered As Demand Warrants

Issues related to the social organization and socio-political context of schools, administrative and institutional change processes and the changing role of administrators in education, using a cross-cultural framework for analysis.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F670 Developing Literacy: ECE-12**

3 Credits

Offered As Demand Warrants

Explores literacy from early childhood through grade 12. Includes an emphasis on developmental aspects of literacy, underlying social and cognitive processes, cultural influences, and the pedagogical implications for teachers. Considers the needs of English language learners with respect to reading/literacy.

Prerequisite: LING F602.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F673 Literacy in the Content Area**

3 Credits

Offered As Demand Warrants

Students will develop knowledge of strategies that support literacy in the content areas. Emphasis is on the interrelated processes of thinking, writing, reading, listening and speaking of students across languages, modes, and genres. Explores technology as a tool to enhance disciplinary literacies. The role of teacher as researcher is addressed.

Prerequisite: ED F670.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F676 Emerging Instructional Modalities and Strategies**

3 Credits

Offered As Demand Warrants

The course provides students with the skills necessary to support student learning in a variety of pedagogical and technological environments. Students will study the theory, tools, and methods behind emerging instructional modalities and strategies: personalized, adaptive, blended, and hybrid learning; flipped classroom models; online course facilitation; accessibility; and classroom management.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F677 Digital Storytelling**

3 Credits

Offered As Demand Warrants

Examines principles of storytelling in general and digital storytelling in particular, paying close attention to the use of digital storytelling to inform, persuade and entertain across various social and cultural institutions. Investigating elements of digital storytelling and creating original digital stories in various media.

Prerequisites: Admission to the Master of Education program.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F678 Mathematics Methods and Curriculum Development**

3 Credits

Offered Fall

Study and application in the classroom of best practices from research-based strategies for the teaching and learning of mathematical concepts, content and methods for students in elementary classrooms with diverse populations. Requires development and classroom implementation of mathematics unit. Concurrent internship required.

Prerequisites: Admission to the post-baccalaureate elementary licensure program; graduate standing.**Stacked with** ED F478.**Lecture + Lab + Other:** 2 + 0 + 8**Grading System:** Letter Grades with option of Plus/Minus**ED F681 Place-based Education**

3 Credits

Offered As Demand Warrants

An examination of the relationship between local landscape and community and the development of human perception. Emphasis on the importance of the development of ecologically appropriate community-based educational programs in rural and urban schools.

Prerequisites: Graduate standing.**Cross-listed with** CCS F681.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F682 Rethinking Multicultural Education**

3 Credits

Offered Spring Odd-numbered Years

This multi-disciplinary course focuses on two parts: 1) critically analyze and reflect on current multicultural education issues at the national, state, and local level; 2) translate/apply what is learned to individual classrooms, schools, school districts and beyond. Fieldwork required.

Prerequisite: Graduate standing.**Crosslisted with** CCS F682.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits**ED F683 Instruction and Assessment in Literacy**

3 Credits

Offered As Demand Warrants

Examines standardized assessments and how they are used in schools, with emphasis on the needs of English Language Learners. Formal and informal assessments are examined and evaluated. The links between assessment and instruction and the implications for teachers, families, and communities are explored. Students will conduct action research around assessment.

Prerequisites: ED F673.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F685 Children as Cultural Change Agents**

3 Credits

Offered As Demand Warrants

This course aims at examining, promoting and engaging children as active agents of culture and change. Notions of "children's agency" will be considered in light of Western and non-Western/Indigenous understandings, participatory research methodologies, childhood embodiment, children's rights and ethics, new media technologies, and education for sustainability and social change.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ED F686 Assessment and Testing in Education

3 Credits

Offered As Demand Warrants

This course provides a foundational knowledge of assessment in K-12 public schools, including interpretation and analysis of multiple and varied assessments. Common national and international assessments are examined. Assessment design practice connects standards, goals, instruction, and learning experiences with varied assessment approaches to document student learning and support curricular decisions.

Prerequisites: Admission to the internship year.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F687 Alaska: Resources, People and Perspectives**

3 Credits

Offered Spring and Summer

Introduces a broad range of essential Alaska information for educators including information on history, geography, literature, economics and politics.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ED F688 Science Methods and Curriculum Development**

3 Credits

Offered Spring

Study and application in the classroom of the best practices from research-based strategies for the teaching and learning of science concepts, content and methods for students in elementary classrooms with diverse populations. Requires development and classroom implementation of science unit. Classroom internship required.

Prerequisites: Admission to the post-baccalaureate elementary licensure program; graduate standing.**Stacked with** ED F479.**Lecture + Lab + Other:** 2.5 + 0 + 4**Grading System:** Letter Grades with option of Plus/Minus**ED F689 Proseminar in Applied Educational Research**

3 Credits

Offered As Demand Warrants

Application of social science and educational research methods to the description and analysis of the student's research topic. The research topic chosen will be the substance of each student's literature review and synthesizing paper. Completion and approval of the synthesizing paper, by the committee, is required for successful completion of this course. Acceptance into an MEd degree program; completion of all required core courses; at least nine credits in the area of concentration.

Special Notes: Conceptually integrated with ED F698 (to be taken a subsequent semester), where the final master's project is completed.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Pass/Fail Grades**ED F690 Seminar in Cross-Cultural Studies**

3 Credits

Offered Fall

Investigation of current issues in cross-cultural contexts. Opportunity for students to synthesize prior graduate studies and research. Seminar is taken near the terminus of a graduate program.

Prerequisites: Advancement to candidacy; permission of student's graduate committee.**Cross-listed with** CCS F690; ANL F690; RD F690.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**ED F691 Contemporary Issues in Education**

3 Credits

Offered As Demand Warrants

A critical overview of the current status of the field of education.

Students will participate in a thorough investigation of select problems, trends and issues that presently characterize the institution of public education. Seminar sessions will focus on student research regarding the development, present impact and potential implications of each topic discussed.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**ED F692 Seminar**

1-6 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ED F692P Seminar**

1-6 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ED F698 Non-thesis Research/Project**

1-9 Credits

Offered Fall, Spring and Summer

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ED F699 Thesis**

1-12 Credits

Offered Fall, Spring and Summer

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Education: Secondary Education (EDSC)

School of Education

Secondary Education Program (<https://www.uaf.edu/soe/academics.php>)

907-474-7341

EDSC F110 Becoming a Middle/High School Teacher

1 Credit

Offered Fall and Spring

This course familiarizes students with requirements for becoming a middle or high school teacher. Advisors from the School of Education, guest presenters from area school districts address issues pertaining to licensure and teaching. Current issues in secondary teaching are addressed. Participation in a secondary classroom is required.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

EDSC F205 Introduction to Secondary Education

3 Credits

Offered Spring

Introduction to the profession of teaching in middle/high school. Incorporates historical, cultural and sociological factors, with attention to the Alaska context influencing current practice. Students will have the opportunity to explore current issues and reform facing educators today and to observe master teachers in the field.

Prerequisites: WRTG F111X; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0.5**Grading System:** Letter Grades with option of Plus/Minus**EDSC F407 Developing Literacy in the Content Areas**

3 Credits

Offered Fall and Summer

Preparation for secondary teachers to integrate listening, speaking, reading, writing, viewing and meaning-making strategies into a content area of the classroom. Students examine and evaluate learning theories related to literacy development and varied methods of instruction and assessment to help design and develop an appropriate pedagogical model for teaching.

Prerequisites: Recommended: Completion of a freshman academic writing course, EDSC F205 or EDSC F415, and junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EDSC F414 Learning, Development and Special Needs Instruction**

3 Credits

Offered As Demand Warrants

Survey of learning theory, adolescent development and special needs instruction. Attention will be given to the cognitive, social and moral theories of development, and to current theories of learning. Consideration will be given to cultural and individual differences among learners including those with special needs. Completion of EDSC F205 or EDSC F415 is recommended prior to enrollment in this course.

Prerequisites: WRTG F111X; junior standing or above.**Stacked with** EDSC F614.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EDSC F415 Foundations of Modern Educational Practice**

3 Credits

Offered Fall and Summer

Historical, political, sociological and curricular foundations of secondary education in the U.S. with particular attention to Alaska. For pre-service teachers to understand and reflect on the teaching profession at the secondary level and to explore current issues and controversies confronting education at national, state and local levels.

Prerequisites: WRTG F111X; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EDSC F431 Secondary Instruction and Assessment in the Content Area**

3 Credits

Offered As Demand Warrants

Methodologies of instruction and assessment in the candidate's specific content area. Course is taught by content specialists. Discusses current issues, methodologies and teaching strategies specific to the various disciplines. A maximum of nine credits may be earned.

Prerequisites: Admission to the secondary post-baccalaureate licensure program.**Stacked with** EDSC F631.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 9 credits**EDSC F432 English/Language Arts Secondary Instruction and Assessment**

3 Credits

Offered Fall

Methodologies of instruction and assessment in English/language arts. Course is taught by content specialists. Includes discussion of current issues, methodologies and teaching strategies specific to English/language arts.

Prerequisites: Admission to the Internship year.**Stacked with** EDSC F632.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EDSC F433 Mathematics Secondary Instruction and Assessment**

3 Credits

Offered Fall

Methodologies of instruction and assessment in mathematics. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies and practical application lessons for teaching mathematics.

Prerequisites: Admission to Internship year.**Stacked with** EDSC F633.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EDSC F434 Science Secondary Instruction and Assessment**

3 Credits

Offered Fall

Methodologies of instruction and assessment in science. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, inquiry-based lessons, laboratory experiences and field trips for teaching science.

Prerequisites: Admission to Internship year.**Stacked with** EDSC F634.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EDSC F435 Social Studies Secondary Instruction and Assessment**

3 Credits

Offered Fall

Methodologies of instruction and assessment in social studies. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, project-based activities and community-as-laboratory experiences for teaching social studies.

Prerequisites: Admission to the Internship year.**Stacked with** EDSC F635.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

EDSC F436 Art Secondary Instruction and Assessment

3 Credits

Offered Fall

Methodologies of instruction and assessment in art. Course is taught by content specialists. Includes discussion of current issues, methodologies and teaching strategies specific to arts.

Prerequisites: Admission to Internship year.

Stacked with EDSC F636.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F437 World Language Secondary Instruction and Assessment

3 Credits

Offered Fall

Methodologies of instruction and assessment in world languages. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, and current application of teaching strategies and assessment specific to world languages.

Prerequisites: Admission to the Internship year.

Stacked with EDSC F637.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F442 Technology Applications in Education I

1 Credit

Offered Fall

Focuses on instruction in educational technology and applications as a resource for the delivery of secondary classroom instruction to enhance student learning. Introduces students to technology tools to create, implement, and assess instructional material in a variety of media relative to International Society for Technology in Education (ISTE) Standards.

Prerequisites: Admission to the Internship year.

Stacked with EDSC F642.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F443 Technology Application in Education II

2 Credits

Offered Spring

Facilitates students' use of technology tools to create and implement instructional material in a variety of media to support instruction and assess learning. Participants will develop an electronic portfolio that demonstrates professional development and achievement in their student teaching relative to International Society for Technology in Education (ISTE) Standards.

Prerequisites: Successful completion of EDSC F442.

Stacked with EDSC F643.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F457 Multicultural Education and School-community Relations

3 Credits

Offered Spring

Through a distinct Alaska lens, focuses on multicultural education and development of positive school-community relationships. Encourages pre-service educators to identify their own identity, philosophy and culture, and to value students' identities and cultures as they instruct students. Helps educators clarify the value and impact of diversity on learning and classrooms.

Prerequisites: Admission to Internship year.

Stacked with EDSC F657.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F458 Classroom Organization and Management

3 Credits

Offered Fall

Focus on establishment of a positive learning environment through a review of best practices in classroom management. Investigate techniques for positive student-teacher interactions, setting norms and routines, reinforcing expectations, and communicating effectively with parents. Culminates in development of a research-based classroom management plan. Field experience in a secondary classroom required.

Prerequisites: WRTG F111X; junior standing or above.

Recommended: Completion of EDSC F205 or EDSC F415 prior to enrollment in this course.

Stacked with EDSC F658.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F471 Secondary Teaching: School Internship I and Seminar

3 Credits

Offered Fall

Supervised observation and teaching in secondary schools approved by the School of Education. Seminar topics may include special attention to school-community relations, special needs, curriculum development, teaching strategies and the integration of technology across the curriculum. The School of Education may limit enrollment, determine assignments and cancel registration of candidates doing unsatisfactory work.

Prerequisites: Admission to secondary post-baccalaureate licensure program.

Stacked with EDSC F671.

Lecture + Lab + Other: 1 + 3 + 15

Grading System: Pass/Fail Grades

EDSC F472 Secondary Teaching: School Internship II and Seminar

3-9 Credits

Offered Spring

Supervised observation and teaching in secondary schools approved by the School of Education. Seminar topics may include special attention to school-community relations, special needs, curriculum development, teaching strategies and integration of technology across the curriculum. Credits may be added upon completion of designated special projects developed by students and faculty.

Prerequisites: COM F131X or COM F141X; admission to the secondary post-baccalaureate licensure program.

Stacked with EDSC F672.

Special Notes: The School of Education may limit enrollment, determine assignments and cancel registration of candidates doing unsatisfactory work.

Lecture + Lab + Other: 1 + 6 + 29

Grading System: Pass/Fail Grades

EDSC F614 Learning, Development and Special Needs Instruction

3 Credits

Offered As Demand Warrants

Survey of learning theory, adolescent development and special needs instruction. Attention will be given to the cognitive, social and moral theories of development, and to current theories of learning. Consideration will be given to cultural and individual differences among learners including those with special needs. Completion of EDSC F205 or EDSC F415 is recommended prior to enrollment in this course.

Stacked with EDSC F414.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F631 Secondary Instruction and Assessment in the Content Area

3 Credits

Offered As Demand Warrants

Methodologies of instruction and assessment in the candidate's specific content area. Course is taught by content specialists. Discusses current issues, methodologies and teaching strategies specific to the various disciplines. A maximum of nine credits may be earned.

Prerequisites: Admission to the secondary post-baccalaureate licensure program.

Stacked with EDSC F431.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 9 credits

EDSC F632 English/Language Arts Secondary Instruction and Assessment

3 Credits

Offered Fall

Methodologies of instruction and assessment in English/language arts. Course is taught by content specialists. Includes discussion of current issues, methodologies and teaching strategies specific to English/language arts.

Prerequisites: Admission to Internship year.

Stacked with EDSC F432.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F633 Mathematics Secondary Instruction and Assessment

3 Credits

Offered Fall

Methodologies of instruction and assessment in mathematics. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies and practical application lessons for teaching mathematics.

Prerequisites: Admission to Internship year.

Stacked with EDSC F433.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F634 Science Secondary Instruction and Assessment

3 Credits

Offered Fall

Methodologies of instruction and assessment in science. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, inquiry-based lessons, laboratory experiences and field trips for teaching science.

Prerequisites: Admission to the Internship year.

Stacked with EDSC F434.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F635 Social Studies Secondary Instruction and Assessment

3 Credits

Offered Fall

Methodologies of instruction and assessment in social studies. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, project-based activities and community-as-laboratory experiences for teaching social studies.

Prerequisites: Admission to Internship year.

Stacked with EDSC F435.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F636 Art Secondary Instruction and Assessment

3 Credits

Offered Fall

Methodologies of instruction and assessment in art. Course is taught by content specialists. Includes discussion of current issues, methodologies and teaching strategies specific to arts.

Prerequisites: Admission to Internship year.

Stacked with EDSC F436.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F637 World Language Secondary Instruction and Assessment

3 Credits

Offered Fall

Methodologies of instruction and assessment in world languages. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, and current application of teaching strategies and assessment specific to world languages.

Prerequisites: Admission to the Internship year.

Stacked with EDSC F437.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F642 Technology Applications in Education I

1 Credit

Offered Fall

Focuses on instruction in educational technology and applications as a resource for the delivery of secondary classroom instruction to enhance student learning. Introduces students to technology tools to create, implement, and assess instructional material in a variety of media relative to International Society for Technology in Education (ISTE) Standards.

Prerequisites: Admission to the Internship year.

Stacked with EDSC F442.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F643 Technology Application in Education II

2 Credits

Offered Spring

Facilitates students' use of technology tools to create and implement instructional material in a variety of media to support instruction and assess learning. Participants will develop an electronic portfolio that demonstrates professional development and achievement in their student teaching relative to International Society for Technology in Education (ISTE) Standards.

Prerequisites: Successful completion of EDSC F642.

Stacked with EDSC F443.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F657 Multicultural Education and School-community Relations

3 Credits

Offered Spring

Through a distinct Alaska lens, focuses on multicultural education and development of positive school-community relationships. Encourages pre-service educators to identify their own identity, philosophy and culture, and to value students' identities and cultures as they instruct students. Helps educators clarify the value and impact of diversity on learning and classrooms.

Prerequisites: Admitted to the Internship year.

Stacked with EDSC F457.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EDSC F658 Classroom Organization and Management

3 Credits

Offered Fall

Focus on establishment of a positive learning environment through a review of best practices in classroom management. Investigate techniques for positive student-teacher interactions, setting norms and routines, reinforcing expectations, and communicating effectively with parents. Culminates in development of a research-based classroom management plan. Field experience in a secondary classroom required.

Stacked with EDSC F458.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EDSC F671 Secondary Teaching: School Internship I and Seminar**

3 Credits

Offered Fall

Supervised observation and teaching in secondary schools approved by the School of Education. Seminar topics may include special attention to school-community relations, special needs, curriculum development, teaching strategies and the integration of technology across the curriculum. The School of Education may limit enrollment, determine assignments and cancel registration of candidates doing unsatisfactory work.

Prerequisites: Admission to secondary post-baccalaureate licensure program.**Stacked with** EDSC F471.**Lecture + Lab + Other:** 1 + 3 + 15**Grading System:** Pass/Fail Grades**EDSC F672 Secondary Teaching: School Internship II and Seminar**

3-9 Credits

Offered Spring

Supervised observation and teaching in secondary schools approved by the School of Education. Seminar topics may include special attention to school-community relations, special needs, curriculum development, teaching strategies and integration of technology across the curriculum. Credits may be added upon completion of designated special projects developed by students and faculty.

Prerequisites: COM F131X or COM F141X; admission to the secondary post-baccalaureate licensure program.**Stacked with** EDSC F472.**Special Notes:** The School of Education may limit enrollment, determine assignments and cancel registration of candidates doing unsatisfactory work.**Lecture + Lab + Other:** 1 + 6 + 29**Grading System:** Pass/Fail Grades

Education: Special Education (EDSE)

School of Education

Special Education Program (<https://www.uaf.edu/soe/academics.php>)
907-474-7341

EDSE F316 Introduction to Special Education for Elementary Classroom Teachers

3 Credits

Offered Fall and Spring

Course provides introduction to special education for elementary teachers. It focuses on understanding concepts, strategies and issues identifying and supporting needs of students who experience disabilities. Course includes review of all special education categorical disabilities, developmental disabilities and laws. Fieldwork in special education classroom or inclusive general elementary classroom required.

Prerequisites: ED F201.**Lecture + Lab + Other:** 2.5 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F320 Adapting and Accommodating Instructions for Students with Disabilities**

3 Credits

Offered Fall and Spring

Methods of instruction and strategies for addressing the needs of students with mild learning and behavior problems. A theoretical basis for selecting approaches is presented along with practical strategies that can be used in the classroom. Field experience required.

Prerequisites: ED F201; EDSE F316.**Lecture + Lab + Other:** 2.5 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F410 Assessment of Students with Exceptionalities**

3 Credits

Offered Fall

Techniques and methods used for assessing students with disabilities. Focuses on the purpose of assessment, testing terminology and statistics, and administration and interpretation of formal and informal assessment procedures. Address assessment issues in all Alaskan communities. Field experience required.

Prerequisites: ED F201; Praxis 1; EDSE F320, EDSE F422, or EDSE F482.**Stacked with** EDSE F610.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F412 Curriculum, Management and Strategies I: Low Incidence**

3 Credits

Offered Spring

Provides understanding of best practice strategies for supporting students with low incidence disabilities in culturally responsive ways. Includes development, implementation and evaluation of Individual Education Programs (IEPs), Behavior Intervention Plans (BIPs), and Transition Plans for students with intensive needs. Field experience required.

Prerequisites: ED F201; Praxis I; EDSE F320, EDSE F422, or EDSE F482.**Stacked with** EDSE F612.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus

EDSE F422 Curriculum, Management and Strategies II: High Incidence
3 Credits

Offered Fall, Spring and Summer

Provides strategies for supporting students with high incidence disabilities. Development, implementation, support and evaluation of Individual Education Program (IEP) plan for students with high incidence disabilities as well as classroom management techniques and plans developed for inclusion of high incidence disabilities in culturally responsive ways.

Stacked with EDSE F622.**Special Notes:** Field experience and research are required.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F425 Teaching Mathematics to Special Learners**

3 Credits

Offered Fall

Provides assessment and diverse instructional strategies in mathematics for teachers of students with disabilities. Focuses on standards-based instruction, explicit instruction, curriculum-based assessments and preparation of students for high stakes testing, as well as consumer math for special needs learners who need to develop functional skills. Field experience required.

Prerequisites: ED F201; Praxis I; EDSE F320, EDSE F422, or EDSE F482.**Stacked with** EDSE F625.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F432 Special Education Law: Principles and Practices**

3 Credits

Offered Summer

Examines three federal laws that form the foundation of disability law: Individuals with Disabilities Education Act (IDEA) 2004; Section 504 of the Rehabilitation Act of 1973; and the Americans with Disabilities Act. Focuses on substantive principles that underlie procedural requirements including due process issues, case law analysis, policy changes.

Prerequisites: ED F201; Praxis I; EDSE F320, EDSE F422, or EDSE F482.**Stacked with** EDSE F632.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EDSE F442 Autism Spectrum Disorders and Other Developmental Disabilities: Sensory and Behavioral Interventions**

3 Credits

Offered Summer

Review functional behavioral assessments, development of behavior plans, evaluation of sensory issues, use of social stories, social skills and life skills instruction to assist inclusive practices of students with autism spectrum disorders and other developmental disabilities. Field experience required.

Prerequisites: ED F201; Praxis I; EDSE F320, EDSE F422, or EDSE F482.**Stacked with** EDSE F642.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F448 Understanding FASD: Diagnosis, Intervention and Strategies**

3 Credits

Offered Spring and Summer

This is an overview course designed to educate candidates about Fetal Alcohol Spectrum Disorder: how they are acquired, current diagnostic strategies; intervention strategies within social services, therapeutic environments and school settings; and individual case management strategies. By the end of the course candidates should possess knowledge of working with children affected by fetal alcohol spectrum disorders, understand the psychosocial implications of this disorder, and be able to identify best possible strategies to accommodating and intervening with these individuals in a classroom setting.

Cross-listed with PSY F448.**Stacked with** EDSE F648; PSY F648.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EDSE F477 English Language Arts Assessment, Curriculum and Strategies for Special Learners**

3 Credits

Offered Spring

Provides in-depth review and analysis of current research on language and English Language Arts (reading, writing and spelling) acquisition, assessment and intervention. Emphasizes the use of evidence-based practices. Identifies the link between language and literacy development. Considers academic, cultural and linguistic diversity. Field experience required.

Prerequisites: ED F201; Praxis I; EDSE F320, EDSE F422, or EDSE F482.**Stacked with** EDSE F677.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F478 Special Education Clinical Practice: Initial**

3 Credits

Offered Fall, Spring and Summer

Initial licensure candidates only, must be completed before EDSE F680. Part-time fieldwork experience (minimum 120 hours) with individuals who have disabilities in approved K-12 public schools. Includes immersion in special education planning and teaching under the direction of a supervising teacher and university supervisor, regularly scheduled seminars included.

Prerequisites: 18 hours of special education coursework.**Stacked with** EDSE F678.**Lecture + Lab + Other:** 3 + 0 + 20**Grading System:** Letter Grades with option of Plus/Minus**EDSE F482 Inclusive Classrooms for All Children**

3 Credits

Offered Summer

An in-depth understanding of concepts, strategies and issues that surround supporting the needs of students who experience disabilities in the general education classroom. Field experience required.

Prerequisites: ED F201.**Special Notes:** Elementary Education students are required to submit Praxis I scores to School of Education prior to enrolling in EDSE F482.**Lecture + Lab + Other:** 2.5 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus

EDSE F605 Early Childhood Special Education

3 Credits

Offered Fall Odd-numbered Years

Survey of philosophical, legal, and programmatic foundations of early childhood special education; characteristics of young children with disabilities; strategies to support young children with disabilities in inclusive settings; development, implementation, and evaluation of Individual Family Services Program (IFSP) plans in culturally diverse settings. Field experience required.

Lecture + Lab + Other: 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F610 Assessment of Students with Exceptionalities**

3 Credits

Offered Fall

Techniques and methods used for assessing students with disabilities. Focuses on the purpose of assessment, testing terminology and statistics, and administration and interpretation of formal and informal assessment procedures. Address assessment issues in all Alaskan communities. Field experience required.

Prerequisites: Praxis I, and to have successfully completed an introductory-level course on special education, experience with students who have disabilities, and an understanding of childhood development.

Stacked with EDSE F410.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F612 Curriculum, Management and Strategies I: Low Incidence**

3 Credits

Offered Spring

Provides understanding of best practice strategies for supporting students with low incidence disabilities in culturally responsive ways. Includes development, implementation and evaluation of Individual Education Programs (IEPs), Behavior Intervention Plans (BIPs), and Transition Plans for students with intensive needs. Field experience required.

Prerequisites: Praxis I, and to have successfully completed an introductory-level course on special education, experience with students who have disabilities, and an understanding of childhood development.

Stacked with EDSE F412.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F622 Curriculum, Management and Strategies II: High Incidence**

3 Credits

Offered Fall, Spring and Summer

Provides strategies for supporting students with high incidence disabilities. Development, implementation, support and evaluation of Individual Education Program (IEP) plan for students with high incidence disabilities as well as classroom management techniques and plans developed for inclusion of high incidence disabilities in culturally responsive ways.

Stacked with EDSE F422.**Special Notes:** Field experience and research are required.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F624 Social/Emotional Development, Assessment and Intervention**

3 Credits

Offered Spring Even-numbered Years

Review current research on typical and atypical social/emotional development within a cultural context. Emphasizes the use of research-based practices in assessment and intervention. Explores academic and cultural diversity in the social/emotional growth of students with learning differences. Field experience required.

Lecture + Lab + Other: 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F625 Teaching Mathematics to Special Learners**

3 Credits

Offered Fall

Provides assessment and diverse instructional strategies in mathematics for teachers of students with disabilities. Focuses on standards-based instruction, explicit instruction, curriculum-based assessments and preparation of students for high stakes testing, as well as consumer math for special needs learners who need to develop functional skills. Field experience required.

Prerequisites: Praxis I, and to have successfully completed an introductory-level course on special education, experience with students who have disabilities, and an understanding of childhood development.

Stacked with EDSE F425.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F632 Special Education Law: Principles and Practices**

3 Credits

Offered Summer

Examines three federal laws that form the foundation of disability law: Individuals with Disabilities Education Act (IDEA) 2004; Section 504 of the Rehabilitation Act of 1973; and the Americans with Disabilities Act. Focuses on substantive principles that underlie procedural requirements including due process issues, case law analysis, policy changes.

Prerequisites: Praxis I, and to have successfully completed an introductory-level course on special education, experience with students who have disabilities, and an understanding of childhood development.

Stacked with EDSE F432.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EDSE F633 Autism and Other Developmental Disabilities: Communication and Social Interventions**

3 Credits

Offered Spring Odd-numbered Years

Current methods for assessment and intervention of students with autism and other developmental disabilities Current issues and trends affecting educational practices are analyzed. Case study method used to make assessment and instructional decisions for pro-social solutions. Parent communication is emphasized. Field experience required.

Lecture + Lab + Other: 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus

EDSE F640 Culturally Responsive Collaboration: Working with Parents, Colleagues and Paraprofessionals

3 Credits

Offered Spring Even-numbered Years

How to coordinate with regular education teachers, paraprofessionals, speech language therapists, Alaska Native Education Liaisons, coaches, principals, counselors and outside agencies in culturally responsive ways. Field experience required.

Lecture + Lab + Other: 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F642 Autism Spectrum Disorders and Other Developmental Disabilities: Sensory and Behavioral Interventions**

3 Credits

Offered Summer

Review functional behavioral assessments, development of behavior plans, evaluation of sensory issues, use of social stories, social skills and life skills instruction to assist inclusive practices of students with autism spectrum disorders and other developmental disabilities. Field experience required.

Prerequisites: Praxis I, and to have successfully completed an introductory-level course on special education, experience with students who have disabilities, and an understanding of childhood development.

Stacked with EDSE F442.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F648 Understanding FASD: Diagnosis, Intervention and Strategies**

3 Credits

Offered Spring and Summer

This is an overview course designed to educate candidates about Fetal Alcohol Spectrum Disorder: how they are acquired, current diagnostic strategies; intervention strategies within social services, therapeutic environments and school settings; and individual case management strategies. By the end of the course candidates should possess knowledge of working with children affected by fetal alcohol spectrum disorders, understand the psychosocial implications of this disorder, and be able to identify best possible strategies to accommodating and intervening with these individuals in a classroom setting. Research projects required.

Prerequisites: Graduate standing.**Cross-listed with** PSY F648.**Stacked with** EDSE F448; PSY F448.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EDSE F677 English Language Arts Assessment, Curriculum and Strategies for Special Learners**

3 Credits

Offered Spring

Provides in-depth review and analysis of current research on language and English Language Arts (reading, writing and spelling) acquisition, assessment and intervention. Emphasizes the use of evidence-based practices. Identifies the link between language and literacy development. Considers academic, cultural and linguistic diversity. Field experience required.

Prerequisites: Praxis I, and to have successfully completed an introductory-level course on special education, experience with students who have disabilities, and an understanding of childhood development.

Stacked with EDSE F477.**Lecture + Lab + Other:** 3 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**EDSE F678 Special Education Clinical Practice: Initial**

3 Credits

Offered Fall, Spring and Summer

Initial licensure candidates only, must be completed before EDSE F680.

Part-time fieldwork experience (minimum 120 hours) with individuals who have disabilities in approved K-12 public schools. Includes immersion in special education planning and teaching under the direction of a supervising teacher and university supervisor, regularly scheduled seminars included.

Prerequisites: Successful completion of 18 approved credits in graduate-level special education course work.

Stacked with EDSE F478.**Lecture + Lab + Other:** 3 + 0 + 20**Grading System:** Letter Grades with option of Plus/Minus**EDSE F680 Special Education Clinical Practice**

3 Credits

Offered Fall and Spring

Full time field experience with individuals who have disabilities in approved K-12 public schools and affiliated facilities. Fieldwork assignments vary across areas of teaching specialization. Candidates assume full classroom responsibilities for planning, instruction and assessment under the direction of site and university supervisors. Includes regular seminars.

Prerequisites: Successful completion of 18 approved credits in graduate level special education course work; EDSE F678 (for initial licensure students only).

Special Notes: For certified and initial licensure special education candidates.

Lecture + Lab + Other: 1 + 0 + 35**Grading System:** Letter Grades with option of Plus/Minus

Electrical Engineering (EE)

College of Engineering and Mines

Department of Electrical and Computer Engineering (<http://cem.uaf.edu/ece/>)

907-474-7137

EE F102 Introduction to Electrical and Computer Engineering

3 Credits

Offered Spring

Basic modern devices, concepts, technical skills and instruments of electrical engineering.

Prerequisite: MATH F251X (may be taken concurrently).**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F203 Electric Circuits**

4 Credits

Offered Fall

Introduces DC and AC circuit analysis techniques including transient analysis, steady state analysis, three phase circuits and ideal amplifiers.

Prerequisites: MATH F251X; MATH F252X (may be taken concurrently);

EE F102.

Lecture + Lab + Other: 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

EE F243 Digital Systems Design

4 Credits

Offered Fall

Fundamentals and practices of digital design. Analysis, design and implementation of combinational and sequential logic. CMOS implementation fundamentals. Basic building components of microprocessor architecture – FSM, ALU, registers, memories, counters, control. Design using schematic capture and hardware description language techniques; practical implementation using FPGA devices and discrete components.

Prerequisites: EE F102; ES F201 or CS F201 (may be taken concurrently).

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

EE F253 Circuit Theory

3 Credits

Offered Spring

Transfer functions, passive and active filters, Laplace transforms and applications, introduction to Fourier series and transforms and two port networks.

Prerequisites: EE F203; ES F201 or CS F201; MATH F252X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EE F301 Analytical Methods for Electrical and Computer Engineers

3 Credits

Offered Fall

Discipline-specific analytical methods used in the electrical and computer engineering core subjects. Topics include matrix algebra, eigenanalysis, vector spaces, complex analysis, discrete structures, and probability and statistics with examples from the electrical and computer engineering fields.

Prerequisites: MATH F252X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EE F303 Electric Power Systems and Machines

4 Credits

Offered Fall

Introduction to electromechanical energy conversion principles, phasors and complex power, characteristics and applications of power transformers, network equations, synchronous machines, induction machines, DC machines, symmetrical components, and sequence networks.

Prerequisites: EE F203.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

EE F311 Engineering Electromagnetics I

3 Credits

Offered Fall

Electromagnetic theory and applications. Static electric fields in free space and material media; steady current systems and associated magnetic effects. Includes electrostatics, magnetostatics, Maxwell's equations, electromagnetic wave propagation, and transmission lines. Application of the wave equations to engineering systems.

Prerequisites: EE F253; MATH F302 (may be taken concurrently);

MATH F253X; PHYS F212X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EE F331 High-frequency Lab

1 Credit

Offered Fall

Laboratory experiments in transmission lines, impedances, bridges, scattering parameters, hybrids and waveguides.

Prerequisite: EE F311.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

EE F333 Electronic Devices

4 Credits

Offered Fall

An introduction to the properties of semiconductors and the analysis of electronics and electrical devices including diodes, field effect transistors (FETs), bipolar junction transistors (BJTs). Large signal and small signal analysis techniques, and common electrical circuit topologies.

Prerequisites: EE F253; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

EE F334 Electronic Circuit Design

4 Credits

Offered Spring Odd-numbered Years

Application of semiconductor devices in circuit design in computation, automatic control and communication.

Prerequisites: EE F333.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

EE F341 Digital and Computer Analysis and Design

4 Credits

Offered Fall

Modular structure of computer systems. Analysis, design and implementation of combinational and sequential logic machines.

Introduction to microprocessor architecture and microprocessor programming. Design with traditional and hardware description language techniques.

Prerequisites: CS F201; one year of college physics.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

EE F354 Engineering Signal Analysis

3 Credits

Offered Fall

Analog signals and Fourier transformations. Discrete time signals and DFT. Linear and time-invariant systems. Probability theory and random variables. Random signals and noise.

Prerequisites: EE F253; MATH F302.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EE F404 Electric Power Systems Analysis

4 Credits

Offered Spring

Introduction to electric power systems; phasors; complex power; network equations; power transformers; transmission line parameters; transmission lines steady-state operation; power flow with computer-aided analysis; power distribution and smart grids.

Prerequisites: EE F303.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

EE F406 Electric Power Protection and Control Systems

4 Credits

Offered As Demand Warrants

Deregulation, economic operation of power systems, symmetrical and unsymmetrical faults, power system protection, dynamic power system stability, system controls, and computer-aided fault and transient stability analysis.

Prerequisites: EE F303, EE F404.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F408 Power Electronics Design**

4 Credits

Offered As Demand Warrants

Analysis and design of power electronic conversion, control, and drive systems. Topics will include the theory and application of rectifiers, DC-DC converters, inverters, switching power supplies and variable-frequency drives. Laboratory exercises include simulation using PSpice and construction, measurement, and analysis of prototype power electronic circuits.

Prerequisites: EE F303; EE F333; EE F354.**Stacked with** EE F608.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F412 Engineering Electromagnetics II**

3 Credits

Offered As Demand Warrants

Use of Maxwell's equations in analysis of plane wave propagation, wave reflection, radiation and antennas, waveguides, cavity resonators, transmission lines and radio propagation.

Prerequisites: EE F311; EE F331; MATH F302.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F432 Electromagnetics Laboratory**

1 Credit

Offered As Demand Warrants

Laboratory experiments with microwave sources, propagating electromagnetic waves, waveguides and antennas. Design, construction and testing of antenna systems.

Corequisites: EE F412.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F443 Computer Engineering Analysis and Design**

4 Credits

Offered Spring

Advanced digital design, and principles and practices of computer engineering. Analysis and design of computer architecture and organization. Digital signal processing techniques and hardware. Microprocessor operation, control and interfacing. Design with traditional and hardware description language techniques. Implementation with both medium and large scale integrated chips and programmable logic devices.

Prerequisites: EE F243.**Special Notes:** The syllabus contains a more detailed description for the students.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F444 Embedded Systems Design**

4 Credits

Offered Spring

Issues surrounding design and implementation of microcontroller-based embedded systems. Topics include hardware architecture and glue logic, embedded programs design, analysis, and optimization, hardware/firmware partitioning, firmware architecture and design. Includes laboratory exercises using evaluation board and a complete embedded system design project. Emphasis on robust designs, energy efficiency and proper documentation.

Prerequisites: EE F243; ES F201 or CS F201.**Recommended:** EE F443.**Stacked with** EE F645.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F451 Digital Signal Processing**

4 Credits

Offered Fall

Time, frequency and Z-transformation domain analysis of discrete time systems and signals; discrete Fourier transformation (DFT) and FFT implementations; FIR/IIR filter design and implementation techniques; discrete time random signals and noise analysis; quantization and round off errors; and spectral analysis. Includes applications to medical, speech, electromagnetic and acoustic signal analysis.

Prerequisites: EE F354.**Stacked with** EE F651.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F461 Communication Systems and Networks**

4 Credits

Offered Spring

Foundational information for data communications and computer networking. Data communications, network models, analog and digital signals, transmission media, network switching, wired and wireless networks, multimedia support, and network security considerations.

Prerequisites: EE F354.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F464 Advanced Communications Systems**

4 Credits

Offered As Demand Warrants

Advanced communications systems topics: analog and digital modulation techniques, spectrum power and bandwidth utilization, system noise, multiplexing techniques, signal regeneration and recovery, data encryption and compression, signal processing, antennas and communications systems components. Special emphasis on emergent digital communications systems in space and aerospace applications.

Prerequisites: EE F461.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

EE F471 Automatic Control

3 Credits

Offered Spring

Linear system representation by transfer functions, signal flow graphics and state equations. Feedback, time and frequency response of linear systems. Stability analysis by Routh-Hurwitz criterion and frequency domain methods. Specifications of higher order linear systems. System design and compensation.

Prerequisites: EE F253; MATH F302.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F481 Electrical and Computer Engineering Design I**

1 Credit

Offered Fall

Team-oriented design project with emphasis on practical electrical and computer engineering systems and components, which integrates engineering knowledge and skills that students have acquired. Design process principles, including project management, economics and ethics will be introduced in lecture. Each design team will generate and present a proposal for their design. Special Note: This is the first course in a new two-semester senior capstone design course sequence. The second course is EE F482. This course also meets the upper division effective communication requirement.

Prerequisites: COM F121X, COM F131X or COM F141X; EE F354; EE F444; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; senior standing.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F482 Electrical and Computer Engineering Design II**

3 Credits

Offered Spring

Design teams will continue work towards completing their proposed design from the first semester using engineering design process techniques. Each design team will follow a design schedule to complete a simulation and/or prototype, including weekly meetings and progress reports, ending with a final design report and public presentation. The first course is EE F481. This course also meets the upper-division effective communication requirement.

Prerequisites: EE F481.**Special Notes:** This is the second course in a new two-semester senior capstone design course sequence.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F488 Undergraduate Research**

1-3 Credits

Offered Fall, Spring and Summer

Advanced research topics from outside the usual undergraduate requirements.

Prerequisites: Permission of instructor.**Recommended:** A substantial level of technical/scientific background.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**EE F607 Electric Motor Drives**

3 Credits

Offered Spring

Drive elements and characteristics; four quadrants operation; transportation drive; fully controlled rectifier drives; dc-dc converters-controlled dc motors; three-phase induction motors control; voltage-source and current-source inverter drives; frequency-controlled induction motor drives; vector control of induction motor drives; field oriented control; sensor-less operation, permanent magnet and switched reluctance motor drives.

Prerequisites: EE F303.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F608 Power Electronics Design**

4 Credits

Offered As Demand Warrants

Analysis and design of power electronic conversion, control, and drive systems. Topics will include the theory and application of rectifiers, DC-DC converters, inverters, switching power supplies and variable-frequency drives. Laboratory exercises include simulation using PSpice and construction, measurement, and analysis of prototype power electronic circuits.

Prerequisites: Graduate standing.**Stacked with** EE F408.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F609 Renewable and Sustainable Energy Systems**

3 Credits

Offered As Demand Warrants

Study of renewable energy systems focusing on grid integration of wind turbine generators, solar photovoltaics, geothermal, biomass, hydroelectric, hydrokinetics, and energy storage. Design and analysis for efficient, sustainable, reliable, and resilient grid operation with distributed renewable energy sources considering cogeneration, controls optimization, economic dispatch, emissions, interruptible loads, and waste-heat recovery.

Prerequisites: EE F303.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F611 Waves**

3 Credits

Offered As Demand Warrants

Introduction to waves and wave phenomena. Includes electromagnetic, acoustic, seismic, atmospheric and water waves and their mathematical and physical treatment in terms of Hamilton's principle. Discusses propagation, attenuation, reflection, refraction, surface and laminal guiding, dispersion, energy density, power flow, and phase and group velocities. Treatment limited to plane harmonic waves in isotropic media.

Prerequisites: MATH F302 or MATH F432.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

EE F634 Microwave Design I

3 Credits

Offered As Demand Warrants

Analysis, design, fabrication and measurement of passive microwave components and circuits using microstrip construction techniques. Theoretical and computer-aided design of transmission lines, power dividers, hybrids, directional couplers and filters.

Prerequisites: EE F334; EE F412; EE F432.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F635 Microwave Design II**

3 Credits

Offered As Demand Warrants

Analysis and design of solid-state microwave circuits. Amplifier and oscillator circuits are designed and fabricated using microstrip construction techniques and computer-aided design tools.

Prerequisites: EE F634.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F643 Advanced Architectures for Parallel Computing**

3 Credits

Offered As Demand Warrants

This course covers massively parallel computer architectures and their application for computationally intensive engineering problems. Fundamental hardware concepts and issues in designing such systems are introduced. Compute Unified Device Architecture (CUDA), developed by NVIDIA for the compute engines in their graphic processing units (GPUs), will be used as an example and a practical platform for student assignments. Through assignments and a project students will learn simulation, computational engineering, convolution, correlation, filtering, and similar problems of particular interest to engineering students.

Prerequisites: CS F201 or ES F201; EE F443 graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F645 Embedded Systems Design**

4 Credits

Offered Spring

Issues surrounding design and implementation of microcontroller-based embedded systems. Topics include hardware architecture and glue logic, embedded programs design, analysis, and optimization, hardware/firmware partitioning, firmware architecture and design. Includes laboratory exercises using evaluation board and a complete embedded system design project. Emphasis on robust designs, energy efficiency and proper documentation.

Prerequisites: Graduate standing.**Stacked with** EE F444.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F646 Wireless Sensor Networks**

3 Credits

Offered As Demand Warrants

The course will survey the area of networked sensors, with a special focus on low-power wireless sensor networks. Topics covered will include communication standards and protocols for sensor networks, embedded operating systems, applications, collaborative processing, data fusion, and system architecture. Students will undertake a theoretical or practical research project.

Prerequisites: CS F201 or ES F201; EE F243 or EE F341; graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F647 Data Compression**

3 Credits

Offered As Demand Warrants

Study of algorithms and techniques that reduce information storage and transmission requirements. Both lossless and lossy techniques will be studied including: Huffman coding, arithmetic coding, image compression, and transform techniques.

Prerequisites: ES F201 or CS F201.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F648 VLSI Design**

3 Credits

Offered As Demand Warrants

Study of methods to integrate millions of transistors on a single chip and create optimized design. Topics include CMOS logic design, power and timing issues. VLSI architectures, and full custom layout. Students will use CAD tools to implement a VLSI design.

Prerequisite: EE F243.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F651 Digital Signal Processing**

4 Credits

Offered Fall

Time, frequency and Z-transformation domain analysis of discrete time systems and signals; discrete Fourier transformation (DFT) and FFT implementations; FIR/IIR filter design and implementation techniques; discrete time random signals and noise analysis; quantization and round off errors; and spectral analysis. Includes applications to medical, speech, electromagnetic and acoustic signal analysis.

Prerequisites: Graduate standing.**Stacked with** EE F451.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F654 UAS Systems Design**

3 Credits

Offered Fall Even-numbered Years

Course covers the analysis of unmanned air vehicle subsystems, including support infrastructure elements comprising an unmanned air system. Course contains mission planning considerations, including flight planning and data requirements. Focus is on remote sensing missions which may be accomplished by appropriate UAS. Students participate in a UAS design/build/fly workshop.

Prerequisites: Graduate standing.**Cross-listed with** AERO F654.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

EE F655 Adaptive Filters

3 Credits

Offered As Demand Warrants

Study to self-designing filters which recursively update depending on the statistics of the input data for optimum performance. Topics will include foundational material in probability of stochastic processes, spectral analysis, linear optimum filtering. Wiener-Hopf filters, Yule-Walker equations, forward and backward linear predictors, method of steepest descent, least squares techniques, and auto-regressive filters.

Prerequisites: EE F451.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F656 Aerospace Systems Engineering**

3 Credits

Offered Fall Odd-numbered Years

A multidisciplinary team of students will perform a preliminary design study of a major aerospace system. Design considerations will include requirements for project management, aerospace vehicle design, power, attitude control, thermal control, communications, computer control and data handling.

Prerequisites: Graduate standing.**Cross-listed with** AERO F656; ME F656.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F658 Unmanned Aircraft Systems (UAS) Operations**

3 Credits

Offered Spring

Covers application of unmanned aircraft systems (UAS) to satisfy scientific research or public service missions. Students analyze mission requirements and recommend appropriate UAS vehicles, subsystems, sensors and data analysis tools to accomplish a specified mission. Students design mission profiles, conduct representative missions, produce required data products and present mission results.

Prerequisites: Graduate standing.**Cross-listed with** AERO F658; CS F658.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F662 Digital Communication Theory**

3 Credits

Offered As Demand Warrants

Probability in communication systems, power spectral density, baseband formatting, bandpass modulation and demodulation, link analysis, coding and channel models. Sections of this course offered in Anchorage have an additional fee.

Prerequisites: EE F461.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F663 Computational Electromagnetics**

3 Credits

Offered As Demand Warrants

Course covers basic computational techniques for numerical analysis of electromagnetics problems, including finite difference, finite element, and moment methods. Emphasis is placed on the formulation of physical problems into mathematical boundary-value problems, numerical discretization of continuous problems into discrete problems, and development of rudimentary computer codes for each technique.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F671 Digital Control Systems**

3 Credits

Offered As Demand Warrants

Study of digital control theory. Topics will include signal conversion, Z-transforms, state variable techniques, stability, time and frequency domain analysis and system design.

Prerequisites: EE F471.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EE F698 Non-thesis Research/Project**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**EE F699 Thesis**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Electronics Technology (ELT)

Community & Technical College

Process Technology Program (<https://www.ctc.uaf.edu/programs/process-technology/>)

907-455-2800

ELT F101 Basic Electronics: DC Physics

4 Credits

Offered Fall

Basic terms and units. Use of test equipment, hand tools and techniques of soldering. Ohm's law, fundamentals of magnetism, DC circuit analysis, inductance and capacitance in DC circuits.

Prerequisites: Placement in MATH F054 or TTCH F131.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ELT F102 Basic Electronics: AC Physics**

4 Credits

Offered Spring

Principles of alternating current, vectors, phase relationships, inductive and capacitive reactance and impedance. AC circuit analysis, series and parallel resonant circuits, transformers and network analysis.

Prerequisites: ELT F101, MATH F105 (may be taken concurrently).**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ELT F108 Arithmetic/Dc Circuits**

3 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ELT F109 Arithmetic/Ac Circuits**

3 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ELT F111 FCC Amateur and General Radiotelephone Operator Licensing

3 Credits

Offered As Demand Warrants

An introduction to the study of radio frequency transmission and receiving will be taught. Basic AC electronics in the radio frequency ranges will be studied. Some of the circuits studied are oscillators, modulators, mixers, amplifiers and filters. The classes will include a hands-on demonstration as part of the lecture.

Special Notes: Completion of the class will give the student the instruction necessary to complete an Amateur Radio License test and a background for the General Radiotelephone Operator commercial test (GROL).

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**ELT F122 Intro/Electronic Devices**

3 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ELT F123 Electronic Circuit Fund**

3 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ELT F171 National Electric Code Study**

3 Credits

Offered As Demand Warrants

Systematic study of the National Electric Code and rules governing minimum requirements for installation of electrical services, feeders and branch circuits, and requirements for construction and installation of electrical equipment.

Prerequisites: ELT F102.**Recommended:** MATH F105.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ELT F246 Electronic Industrial Instrumentation**

3 Credits

Offered Spring

Methods of analog electronic signal transmission. Discussion of the details of several pieces of equipment in-depth, providing practice in establishing correct interconnections. Basic concepts used in troubleshooting this type of equipment are also introduced.

Prerequisites: ELT F102.**Recommended:** MATH F105.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Emergency Medical Services (EMS)

Community and Technical College

EMS & Paramedicine Program (<https://www.ctc.uaf.edu/programs/ems-paramedicine/>)

907-455-2800

EMS F150 Wilderness Emergency Care

3 Credits

Offered Summer

Introduction to medicine in a remote setting. Assessment and management of life-threatening and non-threatening injuries, common medical emergencies and a variety of environmental injuries. Academically challenging training includes basic anatomy and physiology, appropriate short-term to multi-day patient care, the incident command system and evacuation and considerations.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EMS F152 Emergency Trauma Training First Responder**

3 Credits

Offered Summer

Basic emergency care knowledge and skills for the student who will provide the first emergency care. The objective of the first person on the emergency scene is to recognize the needs of the victim and deliver quality care to the patient, minimizing discomfort and preventing further complications.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**EMS F152P Emergency Trauma Training First Responder**

3 Credits

Basic emergency care knowledge and skills for the student who will provide the first emergency care. The objective of the first person on the emergency scene is to recognize the needs of the victim and deliver quality care to the patient, minimizing discomfort and preventing further complications.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Pass/Fail Grades**EMS F154 Emergency Trauma Training Refresher**

1 Credit

Offered Summer

For individuals who have been previously certified in Emergency Trauma Training (40 hrs.). Certification is valid for two years.

Prerequisites: EMS F152 or ETT Certification which may not be expired more than one calendar year.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**EMS F154P Emergency Trauma Training Refresher**

1 Credit

For individuals who have been previously certified in Emergency Trauma Training (40 hrs.). Certification is valid for two years.

Prerequisites: EMS F152 or ETT Certification which may not be expired more than one calendar year.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**EMS F170 EMT: Emergency Medical Technician I**

6 Credits

Offered As Demand Warrants

Basic life support such as splinting, hemorrhage control, oxygen therapy, suction, CPR and use of automated external defibrillators (AEDs). EMT I is the foundation of all emergency medical training. Mastering of EMT I level knowledge and techniques must occur before moving on to advanced levels.

Cross-listed with ARSK F170.**Lecture + Lab + Other:** 4 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus

EMS F170P EMT: Emergency Medical Technician I

6 Credits

Basic life support such as splinting, hemorrhage control, oxygen therapy, suction, CPR and use of automated external defibrillators (AEDs). EMT I is the foundation of all emergency medical training. Mastering of EMT I level knowledge and techniques must occur before moving on to advanced levels.

Cross-listed with ARSK F170.

Lecture + Lab + Other: 4 + 4 + 0

Grading System: Pass/Fail Grades

EMS F173 EMT I Internship

6 Credits

Offered As Demand Warrants

Synthesize cognitive and psychomotor skills from the EMT I course and observe skills performed by Advanced Care Providers. Designed for individuals planning to participate in the CTC paramedic program in the fall semester. Interns will perform all aspects of emergency care for an Alaska certified EMT I under the guidance of an Advanced Care Provider.

Prerequisites: EMS F170; concurrent EMT I certification.

Lecture + Lab + Other: 0 + 16 + 0

Grading System: Pass/Fail Grades

EMS F181 Clinical Rotation I

4 Credits

Offered Fall

Perform paramedic skills in the hospital setting under the guidance of a clinical preceptor. Rotations include the emergency department, ICU, operating room, respiratory therapy, and mental health units. Provides an in-depth look at the respiratory, circulatory and nervous systems. Includes interpretation of cardiac rhythms and advanced cardiac life support.

Prerequisites: Permission of program coordinator.

Special Notes: Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.

Lecture + Lab + Other: 0 + 4 + 4

Grading System: Letter Grades with option of Plus/Minus

EMS F183 Clinical Rotation II

4 Credits

Offered Spring

Perform paramedic skills in the hospital setting under the guidance of a clinical preceptor. Rotations include the emergency department, ICU, OR, labor and delivery, pediatrics and geriatrics.

Prerequisites: EMS F181.

Special Notes: Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.

Lecture + Lab + Other: 0 + 4 + 4

Grading System: Letter Grades with option of Plus/Minus

EMS F253 Alaska EMT Instructor Orientation

3 Credits

Offered As Demand Warrants

Adult education and learning environment and regulation governing teaching of EMTs in Alaska. Designed to be an intensive learning experience with extensive out-of-class preparation. Must be certified at EMT level for 3 years.

Prerequisites: Current EMT I, II, III or MICP certification and three years of experience; evidence of successful completion of state of Alaska practical exam and written exam with a score of 90% within the last 12 months.

Recommended: FIRE F216.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Pass/Fail Grades

EMS F257 Arctic Survival

3 Credits

Offered Spring

Use of principles, procedures, techniques and equipment to survive extreme Arctic conditions and assist in safe recovery. Lab required.

Cross-listed with AVTY F231.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EMS F261 EMT: Emergency Medical Technician II

3 Credits

Offered As Demand Warrants

Advancement of EMT I skills and knowledge through advanced techniques in fluid therapy and advance airway management. Includes use of specific drug therapy.

Prerequisites: EMT I certification and proof of 10 patient contacts as an EMT I.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

EMS F261P EMT: Emergency Medical Technician II

3 Credits

Advancement of EMT I skills and knowledge through advanced techniques in fluid therapy and advance airway management. Includes use of specific drug therapy.

Prerequisites: EMT I certification and documentation of 10 patient contacts by the first day of class as described in State EMT regulations: 7AAC26.010.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Pass/Fail Grades

EMS F265P Emergency Medical Technician III

2 Credits

Introduction to basic cardiac anatomy and physiology, cardiac electrophysiology, recognition and treatment of basic lethal arrhythmias, use of monitor, defibrillator and pharmacological management.

Prerequisites: EMT II certification and proof of 10 patient contacts and venipunctures as an EMT II.

Lecture + Lab + Other: 0.5 + 3 + 0

Grading System: Pass/Fail Grades

EMS F270 Advanced Emergency Medical Technician

10 Credits

Offered Fall and Spring

The Advanced Emergency Medical Technician (AEMT) training includes invasive procedures such as IV therapy, the use of advanced airway devices and medication administration. Individuals that complete the course are eligible to take the National Registry AEMT exam.

Prerequisites: Current state or national EMT certification; current AHA CPR certification; departmental approval.

Lecture + Lab + Other: 8 + 6 + 0

Grading System: Letter Grades with option of Plus/Minus

EMS F280 Paramedicine I

12 Credits

Offered Fall

Introduction to emergency medical services, the roles and responsibilities of a paramedic and medical/legal/ethical issues. Basic pathophysiology, pharmacology, venous access and advanced airway management techniques. Also includes an in-depth look at the circulatory, respiratory and nervous systems which includes interpretation of cardiac rhythms, pharmacology and advanced cardiac life support.

Prerequisites: EMS F170.

Recommended: HLTH F114 or equivalent.

Special Notes: Student must apply for admission into the Paramedic Academy; Applications are reviewed by the Paramedic Advisory board; Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.

Lecture + Lab + Other: 8 + 8 + 0

Grading System: Letter Grades with option of Plus/Minus

EMS F282 Paramedicine II

12 Credits

Offered Spring

Assessment and management of medical emergencies, geriatrics, pediatrics and traumatic injuries. Includes pediatric advanced life support and basic trauma life support certifications.

Prerequisites: EMS F280.

Special Notes: Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.

Lecture + Lab + Other: 8 + 8 + 0

Grading System: Letter Grades with option of Plus/Minus

EMS F283 Paramedic Internship

12 Credits

Offered Summer

Prehospital field experience under the guidance of a paramedic preceptor on an advanced life support ambulance. Interns perform all aspects of paramedic care.

Prerequisites: EMS F183.

Special Notes: Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.

Lecture + Lab + Other: 0 + 24 + 0

Grading System: Letter Grades with option of Plus/Minus

EMS F285 Paramedic Testing

1 Credit

Offered As Demand Warrants

This course prepares the paramedic student for the summative paramedic exam. It is a review of the cognitive/affective behaviors and psychomotor skills taught throughout the fall and spring semesters of the paramedic program.

Prerequisites: EMS F283 (may be taken concurrently).

Lecture + Lab + Other: 0.5 + 1 + 0

Grading System: Pass/Fail Grades

EMS F287 Paramedic Refresher

3 Credits

Offered As Demand Warrants

Integration of paramedicine knowledge and techniques with evaluation of applied skills.

Prerequisites: Current State of Alaska or National Registry paramedic license.

Special Notes: Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

Engineering and Science Management (ESM)

College of Engineering and Mines

Department of Civil, Geological, and Environmental Engineering (<https://www.uaf.edu/cem/>)

907-474-7241

ESM F422 Engineering Decisions

3 Credits

Offered Spring

Risk and uncertainty in engineering decisions. Basic applied probability and statistics, data analysis, regression analysis and time series. Practical applications of decision tools: linear programming, inventory analysis, queuing, network models and utility theory. Engineering judgment and uncertainty. Public safety and ethics.

Recommended: Calculus through MATH F302.

Stacked with ESM F622.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ESM F450 Economic Analysis and Operations

3 Credits

Offered Fall and Summer

Fundamentals of engineering economy, project scheduling, estimating, legal principles, professional ethics and human relations. Prepares students for the engineering economics section of the Fundamentals of Engineering licensing exam. May not be used as credit toward the M.S. degree in Engineering Management or Science Management.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; senior standing in engineering.

Special Notes: Undergraduate engineering students taking graduate ESM courses as technical electives should have completed or be concurrently enrolled in ESM F450.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ESM F492 Engineering Mgt Seminar

1 Credit

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ESM F492P Engineering Mgt Seminar**

1 Credit

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ESM F601 Managing and Leading Engineering Organizations**

3 Credits

Offered As Demand Warrants

Leadership knowledge and skills as applied to motivation, direction and communication within engineering and technical organizations, and their relations with other organizations and the public. Leadership training activities include organizational structures, planning, monitoring, directing and controlling. Review of management tools including management theory, communications and conflict resolution.

Prerequisites: Recommended: BS degree in engineering or physical science.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ESM F605 Engineering Economic Analysis**

3 Credits

Offered As Demand Warrants

The economic basis of engineering decisions: capital investment analysis techniques, including present worth, annual cash flow and rate of return. Applications to replacement problems, benefits/cost analysis and capital budgeting. Consideration of impacts of depreciation accounting, income taxes and inflation. Risk and uncertainty in economic decisions.

Recommended: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ESM F608 Legal Principles for Engineering Management**

3 Credits

Offered As Demand Warrants

Those aspects of law specifically related to technical management. Contracts, sales, real property, business organization, labor, patents and insurance.

Recommended: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ESM F609 Project Management**

3 Credits

Offered As Demand Warrants

Organizing, planning, scheduling and controlling projects. Use of CPM and PERT; computer applications. Case studies of project management problems and solutions.

Recommended: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ESM F621 Operations Research**

3 Credits

Offered As Demand Warrants

Mathematical techniques for aiding technical managers in decision making. Linear programming, transportation problem, assignment problem, network models, PERT/CPM, inventory models, waiting line models, computer simulation, dynamic programming. Emphasis on use of techniques in actual technical management situations. Computer applications.

Recommended: MATH F253X; STAT F200X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ESM F622 Engineering Decisions**

3 Credits

Offered As Demand Warrants

Risk and uncertainty in engineering decisions. Basic applied probability and statistics, data analysis, regression analysis and time series. Practical applications of decision tools: linear programming, inventory analysis, queuing, network models, utility theory. A class project and paper are required.

Recommended: Calculus through MATH F302.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ESM F684 Engineering Management Project**

3 Credits

Offered As Demand Warrants

Comprehensive study of an actual engineering management problem resulting in reports and presentations which include recommendations for action.

Prerequisites: Graduate standing in Engineering Science Management.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ESM F692 Engineering Mgt Seminar**

1 Credit

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ESM F698 Non-thesis Research/Project**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ESM F699 Thesis**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits

Engineering Science (ES)

College of Engineering and Mines

907-474-7730

ES F100L Makerspace Alaska - A Laboratory Introduction to Engineering

1 Credit

Offered Fall and Spring

Through hands-on projects, students will learn basic programming with a Raspberry Pi computer kit, basic computer-aided design for 3D printing and using a Laser Cutter. Students will develop leadership, team and communication skills needed to successfully complete project that utilize the engineering design and design thinking processes.

Prerequisites: placement into MATH F105.

Special Notes: In order to fulfill the GER Natural Sciences requirement, both ES F100X and ES F100L need to be completed; If only one course is completed, no credit is given to the GER Natural Sciences requirement.

Attributes: UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ES F100X Engineering Alaska - An Introduction to Engineering**

3 Credits

Offered Fall and Spring

Overview of the engineering profession and introduction to the field of engineering with a focus on engineering in the remote and extreme conditions of Alaska. Basic science, mathematics and engineering concepts are applied to problem solving. Communication skills including communicating engineering calculations, word processing and use of spreadsheets are taught.

Prerequisites: placement into MATH F105.

Special Notes: In order to fulfill the GER Natural Sciences requirement, both ES F100X and ES F100L need to be completed; If only one course is completed, no credit is given to the GER Natural Sciences requirement.

Attributes: UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ES F101 Introduction to Engineering**

3 Credits

Offered Fall and Spring

Overview of the engineering profession and introduction to the fields of engineering. Basic concepts from engineering, physics and mathematics applied to engineering problem solving. Basic skills required of engineers, including an introduction to engineering communications: word processing, descriptive geometry, orthographic and isometric drawings, graphs, computer graphics and use of spreadsheets.

Prerequisites: MATH F151X, MATH F152X, MATH F156X or placement into MATH F251X.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**ES F201 Computer Techniques**

3 Credits

Offered Fall and Spring

Basic computer programming, in C/C++, with applications from all fields of engineering. Introduction to MATLAB.

Prerequisites: (MATH F151X; MATH F152X), MATH F156X or MATH F251X (MATH F251X may be taken concurrently).**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ES F208 Mechanics**

4 Credits

Offered Fall and Spring

Engineering-oriented coverage of statics and dynamics. Vector methods used where appropriate.

Prerequisites: MATH F252X (may be taken concurrently); PHYS F211X (may be taken concurrently); ES F101, GE F101, MIN F110, PETE F101.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ES F209 Statics**

3 Credits

Offered Fall

Analyzes force systems in two and three dimensions; composing and resolving of forces and force systems; applies principles of equilibrium for various bodies and simple structures, friction, centroids and moments of inertia. Applies concept of vector algebra wherever necessary.

Prerequisites: MATH F252X (may be taken concurrently); PHYS F211X (may be taken concurrently); PETE F101 or ES F100X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ES F210 Dynamics**

3 Credits

Offered Spring

Introduces kinematics and kinetics of particles and rigid bodies' motion. Applies principles of work and energy, impulse and momentum to particles and rigid bodies' motion. Applies concept of vector algebra wherever required.

Prerequisites: ES F209; MATH F252X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ES F301 Engineering Analysis**

3 Credits

Offered Fall and Spring

Application of numerical tools, including software, to typical engineering design problems. Selected topics from all fields of engineering.

Prerequisites: MATH F302 (may be taken concurrently); ES F201.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ES F307 Elements of Electrical Engineering**

3 Credits

Offered Fall

Elementary circuits and theorems, natural, forced and steady state response, principles of electronics, circuit models and system parameters, elements of measurement and instrumentation, characteristics of DC machines, and AC machines and transformers.

Prerequisites: MATH F252X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ES F331 Mechanics of Materials**

3 Credits

Offered Fall and Spring

Analysis of internal forces in members subjected to axial, torsional and flexural loads, singly and in combination. Stress-strain relationships and material property definitions; shear and moment diagrams, Mohr's Circle. Applications include beams, columns, connections and indeterminate cases.

Prerequisites: ES F208 or ES F209; MATH F252X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ES F341 Fluid Mechanics

4 Credits

Offered Fall and Spring

Statics and dynamics of fluids; energy and momentum principles. Dimensional analysis; flow in open channels, closed conduits and around submerged bodies.

Prerequisites: ES F208 or ES F210; MATH F252X.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ES F346 Introduction to Thermodynamics**

3 Credits

Offered Fall and Spring

Fundamental principles and elementary applications of thermodynamics, including the first and second laws of thermodynamics, and thermodynamic systems, properties, processes and cycles.

Prerequisites: MATH F252X; PHYS F211X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

English (ENGL)

College of Liberal Arts

Department of English (<https://www.uaf.edu/english/>)
907-474-7231

ENGL F104 Institute on Language, Thought and Culture

3 Credits

Offered As Demand Warrants

Development of critical thinking, writing, and reading skills using the Bard College model. The intensive institute establishes and nurtures learning communities which support bold thinking, risk-taking, collaboration and independence. Only at the Kuskokwim Campus.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F200X World Literature (h)**

3 Credits

Offered Fall, Spring and Summer

Introduction to a wide variety of literary texts from different world cultures. Includes a range of approaches to genres that may include myth, poetry, storytelling, drama and essays. Students will gain an understanding of cross-cultural differences and similarities. Course may be repeated for credit when content varies.

Cross-listed with FL F200X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F201X Texts and Contexts**

3 Credits

Offered Fall and Spring

Introduction to the interpretation of humanities texts and their various contexts. Students will explore how certain cultural, historical, formal, generic, rhetorical, material, and/or linguistic contexts shape humanities texts and vice versa. Specific content to be announced at time of registration. May be repeated for credit when content varies.

Prerequisites: WRTG F111X, placement in WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F217X Introduction to the Study of Film (h)**

3 Credits

Offered Fall and Spring

An appreciation course designed to introduce the student to the various forms of cinematic art with special emphasis on humanistic and artistic aspects.

Prerequisites: WRTG F111X.**Cross-listed with** FLPA F217X.**Attributes:** UAF GER Arts Req**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F218 Themes in Literature (h)**

3 Credits

Offered As Demand Warrants

Exploration of literary themes in various genres of literature, including fiction, poetry and drama. Such themes as "Women in Literature," "Literature of the North," and "Detective Stories in Literature and Film" may be offered. Specific theme is announced at registration. Course may be repeated for credit when content varies.

Prerequisites: WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 30 credits**ENGL F230 English Language Proficiency**

3 Credits

Offered Fall

Intensive listening, speaking, reading and writing in English. Especially recommended for all students for whom English is a foreign language. This course does not meet general degree requirements in written communications and is not classified as a humanities. Course may be repeated once for credit.

Prerequisites: Permission of instructor.**Special Notes:** Open only to students for whom English is a foreign language.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits**ENGL F231 English Language Proficiency**

3 Credits

Offered Spring

Intensive listening, speaking, reading and writing in English. Especially recommended for all students for whom English is a foreign language. This course does not meet general degree requirements in written communications and is not classified as a humanities. Course may be repeated once for credit.

Prerequisites: Permission of instructor.**Special Notes:** Open only to students for whom English is a foreign language.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits

ENGL F270X Introduction to Creative Writing (h)

3 Credits

Offered Fall and Spring

Forms and techniques of fiction, poetry and creative nonfiction for beginning students; discussion of students' work in class and in individual conferences. Close study of the techniques of established writers.

Prerequisites: WRTG F111X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F280 Introduction to Colonial and Postcolonial Literature (h)**

3 Credits

Offered Fall Even-numbered Years

Includes readings from the literature of formerly colonized nations. Texts may be chosen from African, Asian, American and Pacific Rim cultures.

Although the colonial and postcolonial periods will be central to our investigations, pre-colonial and ancient cultures may also be considered for the purpose of establishing cultural perspectives. May be repeated twice for credit.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Recommended:** ENGL F200X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**ENGL F290 Summer Reading Program (Honors) (h)**

2 Credits

Offered Fall

Selected readings in a variety of disciplines. Group discussions and written responses to the readings follow in the fall. Students keep a summer journal. May be repeated for credit.

Prerequisites: WRTG F111X; enrollment in the Honors College.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 6 times for up to unlimited credits**ENGL F301 Literature of the Ancient World (h)**

3 Credits

Offered Fall Even-numbered Years

Ancient Mesopotamian, Greek and Roman texts in translation.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F302 Medieval and Early Modern European Literature (h)**

3 Credits

Offered Fall Odd-numbered Years

Readings from the early Middle Ages through the early modern period.

The majority of texts will be in translation.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F306 Survey of American Literature: Beginnings to the Civil War (h)**

3 Credits

Offered Fall

Comprehensive study of American thought as reflected in the works of early explorers, Calvinists, Rationalists and Transcendentalists.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F307 Survey of American Literature: Civil War to the Present (h)**

3 Credits

Offered Spring

Comprehensive study of American thought as reflected in the writers of Realism, Naturalism, Modernism, and Post-modernism.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F308 Survey of British Literature: Beowulf to the Romantic Period (h)**

3 Credits

Offered Fall

Survey of writers and works in Old and Middle English, including Chaucer, through Elizabethan period (Shakespeare), Restoration, and Neoclassic period of the 18th century.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F309 Survey of British Literature: Romantic Period to the Present (h)**

3 Credits

Offered Spring

Survey of writers and works from the early Romantic period (Blake and Burns), through the Victorian period, James Joyce, and stream-of-consciousness, to the present.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F310 Literary Criticism (h)**

3 Credits

Offered Spring

History and principles of literary criticism, from earliest days to present.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ENGL F314 Technical Writing (h)

3 Credits

Offered Fall, Spring and Summer

Writing business letters (letters of inquiry, complaint, evaluation, and job application with resume), preparing tables, graphs, process descriptions, technical instructions, abstracts, grant proposals, and technical reports (progress, laboratory, survey, incident, inspection, feasibility and research). Course does not fulfill the second half of the requirement in written communication.

Prerequisites: COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F317 Traditional English Grammar (h)

3 Credits

Offered Fall

Identification and usage of the more common types of phrase and sentence structures.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F318 Modern English Grammar (h)

3 Credits

Offered Spring

Structure of current English as seen through traditional and contemporary grammatical theories.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F333 Women's Literature (h)

3 Credits

Offered Fall Odd-numbered Years

Reading, discussing and analyzing literary works dealing with the social, cultural and political implications of patriarchal structures and traditions from the perspective of feminist theory and criticism. Focus may be on a particular theme, period or genre, but readings will include both primary and secondary texts.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Cross-listed with WGS F333.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F340 Contemporary Indigenous Literature in North America (h)

3 Credits

Offered Fall

Contemporary Indigenous literature in North America including novels, short stories, poetry, film, audio expression and genre-fluid texts. Works will be discussed in their cultural contexts and explore connecting themes such as historical trauma, survivance, resurgence and decolonization.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Cross-listed with ANS F340.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F341 Contemporary Alaska Native Literature (h)

3 Credits

Offered As Demand Warrants

Contemporary Alaska Native literature including novels, short stories, poetry and plays. Bibliography, genres and viewpoints, structural and thematic features of stories. May concentrate on specific regional areas of the state.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F347 Voices of Native American Peoples (h)

3 Credits

Offered Spring Even-numbered Years

Exploration of the forms by which Native American peoples have narrated their life experiences. Includes oral narratives, written autobiographies, memoirs and speeches, and an introduction to the social, historical and cultural content surrounding these texts. Readings selected from all of North America with an emphasis on Alaska Natives.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.

Cross-listed with ANS F347.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F349 Narrative Art of Alaska Native Peoples (in English translation) (an, h)

3 Credits

Offered Fall Even-numbered Years

Traditional and historical tales by Aleut, Eskimo, Athabascan Eyak, Tlingit, Haida and Tsimshian storytellers. Bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Cross-listed with ANS F349.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F360 Multiethnic American Literature (h)

3 Credits

Offered Spring Even-numbered Years

Exploration of literary and cultural works by American writers of diverse ethnic backgrounds. Focus may be on a particular theme, period or genre, but readings will include both primary and secondary texts.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F375 Intermediate Creative Writing: Fiction (h)

3 Credits

Offered Fall and Spring

Forms and techniques of fiction. Students' work will be read and discussed in class and in conference with the instructor. Close study of the techniques of established writers.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F270X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F376 Intermediate Creative Writing: Poetry (h)
3 Credits
Offered Fall
Forms and techniques of poetry. Students' work will be read and discussed in class and in conference with the instructor. Close study of the techniques of established writers.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F270X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
Grading System: Letter Grades with option of Plus/Minus

ENGL F377 Intermediate Creative Writing: Nonfiction (h)
3 Credits
Offered Spring
Forms and techniques of literary nonfiction. Students' work will be read and discussed in class and in conference with the instructor. Close study of the techniques of established writers.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F270X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
Grading System: Letter Grades with option of Plus/Minus

ENGL F380 Topics in Colonial and Postcolonial Literature (h)
3 Credits
Offered As Demand Warrants
Focus on a particular topic in selected colonial and postcolonial literary texts. Readings will be chosen for their relevance to a particular theme, to be announced by the instructor. Topic will vary from one semester to another, but the goal will be to explore the significance and importance of the chosen topic as it manifests itself in the literature. Readings and discussions will foster in-depth understanding of texts dealing with the chosen topic. Possible topics might include: war and peace, economic imperatives, environmental perspectives, sickness and health, and gender issues. May be repeated three times for credit.
Prerequisites: ENGL F200X.
Recommended: ENGL F280.
Lecture + Lab + Other: 3 + 0 + 0
Grading System: Letter Grades with option of Plus/Minus
Repeatable for Credit: May be taken unlimited times for up to 9 credits

ENGL F400 Capstone Portfolio
0 Credit
Offered Fall and Spring
This course consists of mandatory attendance at a portfolio-creation workshop and submission of a capstone portfolio. The workshop is designed to support the student's development of the portfolio and shall be taken during the semester in which the student intends to graduate. The portfolio will consist of materials from the student's coursework within the English Major; see the English Department website for more information and deadlines. Mandatory attendance at a portfolio-creation workshop and satisfactory completion and submission of a capstone portfolio.
Prerequisites: Senior standing.
Lecture + Lab + Other: 0 + 0 + 0
Grading System: Pass/Fail Grades

ENGL F410 Studies in American Literature to 1900 (h)
3 Credits
Offered Every Third Spring
Intensive study of variable topics in American literature to 1900. May focus on a specific theme, genre, author or theory. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
Grading System: Letter Grades with option of Plus/Minus
Repeatable for Credit: May be taken 1 time for up to 6 credits

ENGL F414 Research Writing (h)
3 Credits
Offered Fall
Practice in reporting primary and secondary research in the forms and styles appropriate to the student's field. Preference given to seniors.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
Grading System: Letter Grades with option of Plus/Minus

ENGL F415 Studies in 17th- and 18th-Century British Literature (h)
3 Credits
Offered Every Third Fall
Intensive study of variable topics in 17th- and 18th-century British literature. May focus on a specific theme, genre, author or theory. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
Grading System: Letter Grades with option of Plus/Minus
Repeatable for Credit: May be taken 1 time for up to 6 credits

ENGL F420 Studies in Medieval and 16th-Century British Literature (h)
3 Credits
Offered Every Third Spring
Intensive study of variable topics in medieval and 16th century British literature. May focus on a specific theme, genre, author or theory. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
Grading System: Letter Grades with option of Plus/Minus
Repeatable for Credit: May be taken 1 time for up to 6 credits

ENGL F422 Shakespeare: History Plays and Tragedies (h)
3 Credits
Offered Fall
Major chronicle plays and tragedies, including significant criticism.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.
Recommended: ENGL F308 desirable but not required.
Lecture + Lab + Other: 3 + 0 + 0
Grading System: Letter Grades with option of Plus/Minus

ENGL F425 Shakespeare: Comedies and Nondramatic Poetry (h)

3 Credits

Offered Spring

Major comedies and non-dramatic poems, including significant criticism.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.**Recommended:** ENGL F308 desirable but not required.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F427 Topics in Film Studies (h)**

3 Credits

Offered Spring

Intensive study of variable topics in film studies. May focus on themes in film; a specific period of cinematic history; particular genres; an important director; or an aspect of contemporary film theory. Course may be repeated two times for credit when content varies.

Prerequisites: ENGL F217X or FLPA F217X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.**Cross-listed with** FLPA F427.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**ENGL F433 Women, Gender, and Sexuality Studies in Language, Literature, and Culture (h)**

3 Credits

Offered Fall Even-numbered Years

Intensive study of variable topics in women, gender and/or sexuality studies with a focus on humanities fields such as literature, writing, rhetoric, theory, film and cultural studies. Topics will be placed in dialogue with current debates within women, gender and/or sexuality studies. Course may be repeated for credit when content varies.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.**Cross-listed with** WGS F433.**Special Notes:** Specific content to be announced at the time of registration.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits**ENGL F435 Authors (h)**

3 Credits

Offered Fall

Intensive, in-depth study of the works of an individual author. Readings from the author's oeuvre along with significant criticism and commentary on the author's works. Course may be repeated once for credit when content varies.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits**ENGL F440 Studies in 20th- and 21st-Century British Literature (h)**

3 Credits

Offered Every Third Spring

Variable subject matter in significant topics in modern and contemporary British literature. Focus may be prose (fiction and nonfiction), poetry, drama, film, or a combination of the above. Course may be repeated once for credit when content varies.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits**ENGL F449 Northern and Environmental Literature (h)**

3 Credits

Offered Spring Odd-numbered Years

Intensive study of particular aspects of Alaska and circumpolar writing, ecocritical theory and the literature of environmental studies.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.**Cross-listed with** ACNS F449; JOUR F449.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F450 Studies in 19th-Century British Literature (h)**

3 Credits

Offered Every Third Fall

Intensive study of variable topics in 19th-century British literature.

May focus on a specific theme, genre, author or theory. Course may be repeated once for credit when content varies.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits**ENGL F455 Studies in 20th- and 21st-Century American Literature (h)**

3 Credits

Offered Every Third Fall

Intensive study of variable topics in American literature from 1900 to the present. May focus on a specific theme, genre, author or theory. Course may be repeated once for credit when content varies.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits**ENGL F460 Studies in Comparative/World Literature (h)**

3 Credits

Offered Every Third Fall

Intensive study of variable topics in comparative/world literature. May focus on a specific theme, genre, author or theory. Course may be repeated once for credit when content varies.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits

ENGL F462 Applied English Linguistics (h)

3 Credits

Offered Spring Even-numbered Years

Topic(s) for each offering of the course are announced. Examples include teaching English as a second language, dialects and education, dictionaries, stylistics, and composition.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F465 Genre (h)

3 Credits

Offered Spring

Intensive study of genre focusing on variable subjects such as epic, romance, science fiction, horror narratives, detective narratives, utopian fiction, and roman noir. Intensive readings and research in both primary texts and genre theory will foster in-depth understanding of chosen topic.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.

Special Notes: Course may be repeated once for credit when content varies.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 1 time for up to 6 credits

ENGL F470 Topics in Creative Writing (h)

3 Credits

Offered Fall and Spring

Practice and guidance in writing fiction, poetry, drama or essays. Students' work read and discussed in class and in conference with the instructor. Close study of the techniques of established writers.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; ENGL F375, ENGL F376, or ENGL F377; sophomore standing.

Special Notes: Repeatable for credit as long as topics vary.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 1 time for up to 6 credits

ENGL F471 Undergraduate Writers' Workshop (h)

3 Credits

Offered Spring

Discussion of craft and techniques and student work. For advanced students who prepare a manuscript as a final project. May be repeated one time for credit.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F375, ENGL F376 or ENGL F377; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 1 time for up to 3 credits

ENGL F472 History of the English Language (h)

3 Credits

Offered Spring Odd-numbered Years

Origin and development of the English language from prehistoric times to the present.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.

Recommended: ENGL F318 or a linguistics course is desirable, but not required.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F475 Practicum in Literary Publishing (h)

3 Credits

Offered Spring

Practice in literary acquisition, editing and production. Study of editorial theory and career paths. Students will publish Ice Box, the annual undergraduate literary journal on campus.

Prerequisites: ENGL F270X; ENGL F375, ENGL F376 or ENGL F377.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F482 Topics in Language and Literature (h)

3 Credits

Offered Fall and Spring

Intensive study of variable topics in language and literature. May focus on themes, such as race, war, or the natural world; an aspect of language and linguistics; or an aspect of contemporary literary theory. Intensive readings and research in contemporary theory will foster in-depth understanding of chosen topic.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Special Notes: Course may be repeated once for credit when content varies.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 1 time for up to 6 credits

ENGL F485 Teaching Composition in the Schools

3 Credits

Offered Spring Even-numbered Years

Theoretical background and workshop experience for teaching composition in middle and high schools with current pedagogy on teaching of writing stressed. Variety of teaching methods demonstrated, practiced and discussed.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F488 Dramatic Writing (h)

3 Credits

Offered Fall Odd-numbered Years

Introduction to the craft of dramatic writing for theater and film, with an emphasis on dramatic storytelling. Course will focus on giving students a practical understanding of the uses of story structure, setting, character, plot and dialog, and how these elements work together to create compelling drama.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.

Cross-listed with FLPA F488.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F601 Theory, Criticism and Methods

3 Credits

Offered Spring

A study of the theoretical debates that inform contemporary criticism, and of the methods for conducting and evaluating research.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENGL F603 Studies in British Literature: Old and Middle English

3 Credits

Offered Fall Odd-numbered Years

Variable subject matter in significant topics in Anglo-Saxon and Middle English literature. Course may be repeated once for credit when content varies.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F604 Studies in British Literature: Renaissance and 17th-Century**

3 Credits

Offered Fall Even-numbered Years

Variable subject matter in significant topics in 16th- and 17th-century British literature. Course may be repeated once for credit when content varies.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F606 Studies in British Literature: Restoration and 18th Century**

3 Credits

Offered Fall Odd-numbered Years

Variable subject matter in significant topics in British literature of the Restoration period and the 18th century. Course may be repeated once for credit when content varies.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F607 Studies in British Literature: 19th Century**

3 Credits

Offered Fall Even-numbered Years

Variable subject matter in significant topics in British literature of the Romantic and Victorian periods. Course may be repeated once for credit when content varies.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F608 Studies in British Literature After 1900**

3 Credits

Offered Spring Odd-numbered Years

Variable subject matter in significant topics in modern British literature. Course may be repeated once for credit when content varies.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F609 Studies in American Literature to 1865**

3 Credits

Offered Fall Odd-numbered Years

Variable subject matter in significant topics of the colonial, national, and romantic periods of American literature.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F611 Studies in American Literature from 1865-1918**

3 Credits

Offered Fall Even-numbered Years

Variable subject matter in significant topics in American literature of the late 19th and early 20th centuries. Course may be repeated once for credit when content varies.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F612 Studies in American Literature after 1918**

3 Credits

Offered Spring Even-numbered Years

Variable subject matter in American Literature of the 20th-century. Course may be repeated once for credit when content varies.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F614 Studies in Comparative Literature**

3 Credits

Offered Spring Odd-numbered Years

Advanced study in literature on a transnational basis with varying emphases, including literature of particular locales, modes or themes. Course may be repeated once for credit when content varies.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F615 Contemporary Literature**

3 Credits

Offered Spring Even-numbered Years

Variable subject matter in significant topics in post-World War II literature. Course may be repeated once for credit when content varies.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F620 Images of the North**

3 Credits

Offered Spring Even-numbered Years

Interdisciplinary approaches to the variety of images created about and by the people and environment of the circumpolar North. The course will analyze conceptualizations of the North as expressed in a number of media, employing methodologies from many disciplines. Course may be repeated once for credit when content varies.

Prerequisites: Graduate standing.**Cross-listed with** ACNS F620.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F661 Mentored Teaching in English**

1 Credit

Offered Fall and Spring

Mentored teaching provides consistent contact on course-related issues between teaching assistants and mentoring faculty. May be repeated up to six times, for one credit per semester.

Prerequisites: Acceptance into the MA, MFA in creative writing program, or MFA/MA combined degree program, and a teaching assistantship award.

Special Notes: Teaching assistants are required to be enrolled in a mentored teaching section while teaching.

Lecture + Lab + Other: 1 + 0 + 2**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 5 times for up to unlimited credits

ENGL F671 Writers' Workshop

3 Credits

Offered Fall and Spring

The writing of verse, fiction, drama or nonfiction prose in accordance with the individual student's needs and the instructor's specialization. Depending on available staff, the workshop may be limited during any semester to work in a particular genre. Course may be repeated for credit when content varies.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 12 credits**ENGL F675 Internship in Scholarly Publishing**

3 Credits

Offered Fall, Spring and Summer

Training and practice in all aspects of scholarly publishing, including acquisitions, editing, design, and marketing. Informal instruction in historical and contemporary practices in scholarly publishing and the history of the University of Alaska Press.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 0 + 0 + 10-12**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 12 credits**ENGL F681 Forms of Poetry**

3 Credits

Offered Every Third Semester

Intensive study of the forms and techniques of poetry writing. Includes readings and poetry writing exercises.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F682 Forms of Fiction**

3 Credits

Offered Every Third Semester

Advanced study in narrative technique through analysis of selected fiction and the students' own writing. Variable content in terms of the writers to be studied and the kinds of narrative writing to be assigned.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F684 Forms of Nonfiction Prose**

3 Credits

Offered Every Third Semester

Intensive study of the forms and techniques of nonfiction. Includes readings and writing exercises.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F685 Teaching College Composition**

3 Credits

Offered Fall

An investigation into current practice and theory with demonstrations and reports on pedagogy. Required of all teaching assistants in English.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F686 Teaching Writing in a Cross-cultural Context**

3 Credits

Offered As Demand Warrants

Contemporary methods of teaching writing in middle school and high school classrooms, with special emphasis on cross-cultural issues and pedagogy and on contemporary rhetorical theory. Includes methodologies and theoretical underpinnings of teaching grammar and fiction writing.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F688 Writing for Film and Television**

3 Credits

Offered Spring Odd-numbered Years

Advanced training in dramatic writing for film and television, with a focus on cinematic story structure, visual imagery, dialogue, pacing, continuity and manuscript format.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENGL F692 Graduate Seminar**

1-6 Credits

Offered As Demand Warrants

Graduate Seminar Intensive study of selected topics in the discipline.

Lecture + Lab + Other: 0 + 0 + 1-6**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**ENGL F699 Thesis**

1-9 Credits

Lecture + Lab + Other: 1-9 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

English as a Second Language (ESLG)

College of Liberal ArtsLinguistics Program (<https://www.uaf.edu/linguist/>)

907-474-7446

Community and Technical CollegeGeneral Academic & Technical Programs (<https://www.ctc.uaf.edu/>)

907-455-2800

LINGUISTICS PROGRAM COURSES

ESLG F121 Intermediate Academic Listening and Speaking I

4 Credits

Offered Fall

This course provides listening, note taking, and speaking skills development for the American university context. By the end of the course, students will be better able to understand and take notes on lectures covering a variety of academic topics, take an active role in classroom discussions, and give formal presentations.

Prerequisites: A minimum score of 50 on the TOEFL Internet-based test (iBT).**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ESLG F131 Intermediate Academic Listening and Speaking II

4 Credits

Offered Spring

This course provides listening, note taking, and speaking skills development for the American university context. By the end of the course, students will be better able to understand and take notes on lectures covering a variety of academic topics, take an active role in classroom discussions, and give formal presentations.

Prerequisites: A minimum score of 50 on the TOEFL Internet-based test (iBT).

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ESLG F141 Advanced Academic Listening and Speaking I

4 Credits

Offered Fall

This course provides listening, note taking, and speaking skills development for the American university context. By the end of the course, students will be better able to understand and take notes on lectures covering a variety of academic topics, take an active role in classroom discussions, and give formal presentations.

Prerequisites: A minimum score of 60 on the TOEFL Internet-based test (iBT).

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ESLG F215 Applying English Grammar in Everyday Life

2 Credits

Offered Fall

This course provides opportunities for international students to engage in classroom discussions on English grammar, vocabulary and pragmatics with native speakers of English. It is specifically designed for short-term exchange students or recently arrived international students who are developing their English proficiency.

Prerequisites: A minimum score of 46 on the TOEFL Internet based test (iBT).

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Pass/Fail Grades

GENERAL ACADEMIC & TECHNICAL COURSES**ESLG F051 Speaking English as a Second Language**

1-3 Credits

Offered As Demand Warrants

Engaging in English conversation. For students who do not speak English as their first language, but who can understand and follow simple instructions in English. The emphasis is on large quantities of comprehensible English, and building student confidence in understanding and speaking it.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 3 credits

ESLG F061 Reading English as a Second Language

1-3 Credits

Offered As Demand Warrants

Language experience approach and other methods are used to increase students' abilities and to build their confidence in reading English as it is encountered everyday. For students whose first language is not English, this class provides an opportunity to develop the skills involved in reading simple passages in English.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 3 credits

ESLG F071 Writing English as a Second Language

1-3 Credits

Offered As Demand Warrants

Developing skills at writing simple English compositions. For students whose first language is not English. The emphasis is on writing large quantities of English which is understandable to native English speakers, and on building students' confidence in communicating through written English.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 3 credits

English as a Second Language (ESLG)**ESLG F051 Speaking English as a Second Language**

1-3 Credits

Offered As Demand Warrants

Engaging in English conversation. For students who do not speak English as their first language, but who can understand and follow simple instructions in English. The emphasis is on large quantities of comprehensible English, and building student confidence in understanding and speaking it.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 3 credits

ESLG F061 Reading English as a Second Language

1-3 Credits

Offered As Demand Warrants

Language experience approach and other methods are used to increase students' abilities and to build their confidence in reading English as it is encountered everyday. For students whose first language is not English, this class provides an opportunity to develop the skills involved in reading simple passages in English.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 3 credits

ESLG F071 Writing English as a Second Language

1-3 Credits

Offered As Demand Warrants

Developing skills at writing simple English compositions. For students whose first language is not English. The emphasis is on writing large quantities of English which is understandable to native English speakers, and on building students' confidence in communicating through written English.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 3 credits

ESLG F121 Intermediate Academic Listening and Speaking I

4 Credits

Offered Fall

This course provides listening, note taking, and speaking skills development for the American university context. By the end of the course, students will be better able to understand and take notes on lectures covering a variety of academic topics, take an active role in classroom discussions, and give formal presentations.

Prerequisites: A minimum score of 50 on the TOEFL Internet-based test (iBT).

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ESLG F131 Intermediate Academic Listening and Speaking II

4 Credits

Offered Spring

This course provides listening, note taking, and speaking skills development for the American university context. By the end of the course, students will be better able to understand and take notes on lectures covering a variety of academic topics, take an active role in classroom discussions, and give formal presentations.

Prerequisites: A minimum score of 50 on the TOEFL Internet-based test (iBT).

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ESLG F141 Advanced Academic Listening and Speaking I

4 Credits

Offered Fall

This course provides listening, note taking, and speaking skills development for the American university context. By the end of the course, students will be better able to understand and take notes on lectures covering a variety of academic topics, take an active role in classroom discussions, and give formal presentations.

Prerequisites: A minimum score of 60 on the TOEFL Internet-based test (iBT).

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ESLG F215 Applying English Grammar in Everyday Life

2 Credits

Offered Fall

This course provides opportunities for international students to engage in classroom discussions on English grammar, vocabulary and pragmatics with native speakers of English. It is specifically designed for short-term exchange students or recently arrived international students who are developing their English proficiency.

Prerequisites: A minimum score of 46 on the TOEFL Internet based test (iBT).

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Pass/Fail Grades

Environmental Engineering (ENVE)

College of Engineering and Mines

Department of Civil, Geological, and Environmental Engineering (<https://cem.uaf.edu/mingeo/>)
907-474-7241

ENVE F446 Biological Unit Processes

3 Credits

Offered As Demand Warrants

Theoretical and applied aspects of biological wastewater treatment, including waste-activated sludge processes, trickling filters, lagoons, sludge digestion and processing, nutrient removal, biology of polluted waters, state and federal regulations.

Prerequisites: MATH F302.

Recommended: CE F341.

Stacked with ENVE F646.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENVE F641 Aquatic Chemistry

3 Credits

Offered As Demand Warrants

Chemistry of aquatic systems, including the development of equilibrium and kinetic models to understanding the speciation, transformation and partitioning of inorganic chemical species in aqueous systems. Emphasis is on the study of acid-base chemistry, complexation, precipitation-dissolution and reduction-oxidation reactions.

Prerequisites: Graduate standing.

Cross-listed with CHEM F605.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENVE F642 Contaminant Hydrology

3 Credits

Offered Spring Odd-numbered Years

Theoretical and applied aspects of the movement of contaminants through saturated and unsaturated soil.

Recommended: CE F663 or equivalent; graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENVE F643 Air Pollution Management

3 Credits

Offered Spring Odd-numbered Years

Major principles and problems associated with air quality, stationary and moving sources, air pollution effects; major air pollution legislation and compliance calculations; meteorology and modeling of pollutant concentrations near a source; greenhouse gas emissions and climate change; control equipment and design of control strategies for specific air pollution problems.

Prerequisites: CHEM F106X; graduate standing.

Recommended: MATH F252X.

Stacked with CE F443.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENVE F644 Environmental Management and Permitting

3 Credits

Offered Spring Odd-numbered Years

Topics of environmental impact statements, environmental law (local, state and federal), public involvement and environmental quality.

Impact from projects of mining, highways, airports, pipelines, industrial development, water, wastewater and solid waste, and others—theoretical considerations and case studies.

Recommended: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENVE F645 Unit Processes: Chemical and Physical

3 Credits

Offered As Demand Warrants

Theory and design of chemical and physical unit processes for water and wastewater. Sedimentation, coagulation, flocculation, filtration, ion exchange, adsorption/absorption, gas transfer and other special topics. Emphasis on Arctic applications and design.

Recommended: MATH F252X; CHEM F106X or equivalent; graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ENVE F646 Biological Unit Processes

3 Credits

Offered As Demand Warrants

Theoretical and applied aspects of biological wastewater treatment, including waste-activated sludge processes, trickling filters, lagoons, sludge digestion and processing, nutrient removal, biology of polluted waters, state and federal regulations.

Prerequisites: Recommended: Graduate standing.**Stacked with** ENVE F446.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENVE F647 Biotechnology**

3 Credits

Offered As Demand Warrants

Theoretical and applied aspects of bioengineering. Issues studied include microbiology, metabolism, genetics, genetic engineering, enzymes and catalysis, stoichiometry and kinetics, biological reactor design and bioremediation.

Recommended: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENVE F649 Hazardous and Toxic Waste Management**

3 Credits

Offered Fall Odd-numbered Years

Course provides in-depth coverage of hazardous and toxic substance management including legal, economic and technical issues. Topics will include characterization of hazardous materials, economics of toxics minimization, hazardous materials use, storage and disposal, basics of municipal solid waste and technical aspects of landfill siting, and selection and design of treatment technologies. Includes case studies of current waste management issues.

Recommended: Bachelor's degree in science or engineering.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENVE F651 Environmental Risk Assessment**

3 Credits

Offered Spring Odd-numbered Years

The characterization of population exposures and the evidence used to identify environmental substances that may pose a human health risk.

The theory and methods for estimating risk: hazard identification, dose-response assessment, exposure assessment and risk characterization.

Recommended: Undergraduate degree in engineering or natural science.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENVE F652 Introduction to Toxicology for Engineers and Scientists**

3 Credits

Offered Fall Even-numbered Years

Introduction to the science of toxicology for graduate students in fields that use information about hazardous chemicals for input into decisions.

Topics include an overview of the effects of chemicals on cells, organs and organ systems, and the toxic effects of classes of chemicals such as pesticides, metals and solvents. Use of data from animal testing and common lists, factors and extrapolation are reviewed.

Recommended: Undergraduate degree in engineering or natural science.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENVE F653 Environmental Measurements Laboratory**

1 Credit

Offered Spring

Introduction to analytical methods and measurement techniques used in environmental engineering and environmental quality science.

Students will design, conduct and report on a laboratory experiment.

Includes sample preparation techniques and analytical methods such as microscopy, atomic adsorption spectroscopy, gas chromatography, liquid chromatography and mass spectrometry.

Recommended: ENVE F641.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENVE F698 Non-thesis Research/Project**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 1-9**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 15 times for up to unlimited credits**ENVE F699 Thesis**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 1-12**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 15 times for up to unlimited credits

Environmental Studies (ENVI)

College of Rural and Community Development

Community Based Science (<https://www.uaf.edu/rural/academics/departments/>)

907-474-7143

ENVI F101X Introduction to Environmental Science (n)

4 Credits

Offered Once Per Academic Year

Interdisciplinary course provides a foundation in concepts of environmental sciences. Earth's systems and scientific principles used to understand environmental questions. Topics covered include ecological processes, ecosystems, biodiversity, evolution, human population growth, sustainability, resource management, energy challenges, climate change, the human impact on the environment and environmental policy. For non-science majors.

Prerequisites: Recommended: One high school or college-level science course.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENVI F110 Introduction to Water Quality I: Measurement**

1 Credit

Offered As Demand Warrants

Introduces students to standard water quality methods used and applies them to rural Alaska. Students will become familiar with EPA water quality standards and programs that help preserve water quality in rural communities. Key topics covered include: stream ecology, wastewater management, storm water runoff and data analysis.

Lecture + Lab + Other: 0.5 + 0 + 1.5**Grading System:** Letter Grades with option of Plus/Minus

ENVI F111 Introduction to Water Quality II: Monitoring and Assessment

1 Credit

Offered As Demand Warrants

Course builds upon methods in ENVI F110 with emphasis placed upon data quality objectives, electronic storage of data, and information analysis and reporting. Methods and equipment used for surface water monitoring will be introduced. Students will begin developing EPA approved Quality Assurance Project Plan for surface water quality monitoring.

Prerequisites: ENVI F110.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENVI F112 Introduction to Water Quality III: Data Quality Assurance**

1 Credit

Offered As Demand Warrants

Students will review proper use of surface water (SW) quality testing equipment, calibration and operation methods learned in ENVI F110 and F111. Class emphasis is placed on conducting data quality assurance measures; meeting data objectives contributing to writing Quality Assurance Project Plans for continuing their US EPA SW monitoring plan.

Prerequisites: ENVI F111.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENVI F115 Rural Solid and Hazardous Waste Management**

1 Credit

Offered As Demand Warrants

An overview of solid and hazardous waste management focusing on rural Alaskan communities. Topics covered include: workplace safety, worker roles, recycling facility operation, solid waste composting, hazardous material and waste inventorying, toxicology principles, risk assessment, hazardous site community open dumpsite assessment and the implications of the National Environmental Policy Act.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ENVI F116 Rural Alaska Landfill Operator**

1 Credit

Offered As Demand Warrants

Best practices in managing rural landfills in compliance with State of Alaska regulations with an emphasis on operator and public safety. Course is designed to train operators for rural Alaska Class II and Class III landfills; passing grade results in recognition by the Solid Waste Association of North America-Alaska.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ENVI F117 Community Spill Response**

1 Credit

Offered As Demand Warrants

Overview of petroleum and other community health-threatening spill responses with emphasis placed upon the issues, techniques and basic elements of Alaskan community spill response. Topics include: above/underground storage tanks, spill contamination site treatment, state/federal governmental regulations related to spills, spill reporting/incident action plans, and practical procedures in spill response.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ENVI F120 Home Energy Basics**

1 Credit

Offered Fall and Spring

Basics of space heating and electricity use and production for Alaskan homes. Main topics include fundamentals of physics related to home energy, lighting and appliances, energy bills, building science, retrofits, home renewable energy systems. Course emphasizes how to decrease fossil fuel consumption of homes.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ENVI F121 Building Ventilation and Energy**

1 Credit

Offered As Demand Warrants

Basics of indoor air quality and its relationship to ventilation and energy use in buildings. Main topics include indoor air pollutant types; moisture, condensation and mold-related basic science; and heat recovery ventilation. Emphasis: practical ways of how homeowners can maintain healthy indoor air while keeping their energy bill low.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ENVI F122 Energy Efficient Building Design and Simulation**

1 Credit

Offered As Demand Warrants

In this course, students gain basic practical knowledge related to the process of designing energy efficient buildings, as applied to both new construction and retrofits. Main topics covered include basic building science, principles and techniques of energy efficient construction, and building energy simulations.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ENVI F130 Introduction to the National Environmental Policy Act**

1 Credit

Offered As Demand Warrants

Course will explain what community members need to do to be heard in the NEPA process with special emphasis on public involvement and Environmental Impact Analysis (EIA). Course covers the roles and the content of scoping and Environmental Assessments in relation to key natural resource development projects in rural Alaska.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENVI F150 Viewpoints in Environmental Studies**

1 Credit

Offered As Demand Warrants

Discussions and activities will focus on how scientists or research technicians evaluate environmental issues. The course is intended for first year college students and community members. Specific topics may include sustainability, resource development, ecosystem management, indigenous viewpoints, building technology, appropriate energy applications, and analysis of data.

Special Notes: Topics announced prior to each offering; course may be repeated for credit towards a certificate or degree program to a maximum of 3 credits.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 3 credits

ENVI F160 Internship in Environmental Studies

1-2 Credits

Offered As Demand Warrants

Under the guidance of a UAF Bristol Bay Campus-approved agency or business (public or private that monitors, tests, analyzes or studies the environment), students gain supervised pre-professional experience in environmental studies. The intern will explore the interdisciplinary aspects of field or laboratory research, build practical expertise and make contacts.

Prerequisites: ENVI F101.

Special Notes: Internships make one to ten weeks of full-time commitment to the agency or business and when completed make public presentations on the experience.

Lecture + Lab + Other: 0 + 0 + 3.1-15.4**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 2 times for up to 4 credits**ENVI F170 Solar Energy Basics**

1 Credit

Offered Fall and Spring

Presents basics of utilization, design and installation of solar electric and hot water energy systems. Emphasis on residential-scale systems; principles apply to larger applications also. Introduces basic physics related to solar energy, harvesting solar energy, system components, design considerations, energy storage, installation and cost/benefit considerations, career opportunities, and safety.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ENVI F173 Basics of Small Wind Systems**

1 Credit

Offered Fall and Spring

Presents basics of design, installation, and operation of wind energy systems with an emphasis on residential-scale systems. Introduces physics related to wind energy, methods to harvest wind energy, turbine and site selection, energy storage vs. grid-tie considerations, system components, installation techniques, cost/benefit considerations, and safety.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ENVI F174 Basics of Heat Pump Systems**

1 Credit

Offered Fall and Spring

Presents basics of heat pump (geoexchange) systems and their use for space heating/cooling and domestic hot water production. Includes both ground-source and air-source heat pumps. Introduces physical concepts related to harvesting energy at Earth's surface, system components, common installation configurations, cost/benefit considerations, and safety.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ENVI F175 Introduction to Biomass Energy Systems**

1 Credit

Offered Spring

Biomass is a rapidly growing portion of the sustainable energy sector. Innovation meets historic and contemporary organic fuel types such as wood, agricultural, waste and algae. Various technologies and fuel types are covered that contribute to practical biomass energy today, with a focus on wood thermal energy in Alaska.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ENVI F180 Alaska Utility Lecture Series**

1 Credit

Offered As Demand Warrants

Lecture series introduces students to operations, management and employment in Alaska's rural and urban electric utilities. Lecturers will share their expertise and various perspectives related to utility management (small and large utility, agency, project development and integration, training/education, utility customers, etc.). Discussion and reflection/synthesis will be encouraged.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**ENVI F220 Introduction to Sustainable Energy**

3 Credits

Offered Fall and Spring

Introduction to societal problems and solutions related to its energy use and production. Problems discussed are mainly related to the extent of sustainability of current energy practices. Solutions discussed cover both energy efficiency and renewable energy.

Prerequisites: MATH F105 or CTT F106 or TTCH F131.**Recommended:** ENVI F101; ENVI F120.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ENVI F250 Current Topics in Environmental Studies**

1-3 Credits

Offered As Demand Warrants

Using multiple scientific viewpoints, a specific environmental issue is explored through case studies and in-depth discussions with an emphasis on complex connections between ecosystems and society. Themes include sustainability, resource development, indigenous viewpoints, resource management, building technology, and energy applications.

Prerequisites: ENVI F101; WRTG F111X; 100-level science class.

Special Notes: Topics announced prior to each offering and course may be repeated for credit towards a certificate or degree program to a maximum of 3 credits.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 6 credits**ENVI F255 Climate Change and Alaska**

3 Credits

Offered Fall and Spring

This introductory climate science course focuses on climate change causes and subsequent influences on nature and society. Concepts will focus on broad geographical and ecological systems that drive how and why climate changes. The course also investigates many of the contemporary environmental issues Alaskans must face in a warming world.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ENVI F260 Field Techniques for Environmental Technicians

2 Credits

Offered Summer

Provides hands-on instruction in interdisciplinary field and laboratory techniques used by environmental technicians. Basic methods for sampling and studying terrestrial or aquatic ecosystems will be introduced. Students will participate in data collection and analysis procedures as part of an independent research project.

Prerequisites: ENVI F101 or NRM F101; ENVI F110; 4 credit lab-based F100-science course.

Recommended: CIOS F100; CIOS F135.

Lecture + Lab + Other: 1 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

ENVI F265 Introduction to Methods in Environmental Studies**Reporting**

2 Credits

Offered As Demand Warrants

Introduces basic data collection methods and research skills necessary to analyze, interpret, and document, field and laboratory data, including technical reporting processes in environmental studies. Course is designed to integrate raw environmental data into a technical report covering ecosystem functions, energy, biodiversity, that can be presented in scientific meeting format.

Prerequisites: ENVI F101 or NRM F101; ENVI F110; ENVI F260; a lab-based F100 level science course.

Recommended: ENGL F104 or WRTG F111X; ENVI F160.

Lecture + Lab + Other: 1.5 + 0 + 1.5

Grading System: Letter Grades with option of Plus/Minus

Ethnobotany (EBOT)

College of Rural and Community Development

Community Based Science (<https://www.uaf.edu/rural/academics/departments/>)

907-474-7143

EBOT F100 Introduction to Ethnobotany (an)

3 Credits

Offered Summer

This blended online and hands-on course surveys concepts of botany and ethnobotany in the context of Alaska Native cultures, including: plant biology and taxonomy, scientific and ethnobotanic plant collection methods, traditional plant uses (working with Alaska Native Elders), and how the resulting ethical awareness contributes to other fields of study.

Cross-listed with ANTH F102.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

EBOT F200 Seminar in Ethnobotany

2 Credits

Offered Spring

This course surveys basic concepts of the interdisciplinary academic field of ethnobotany. Through readings, integration of Indigenous/Alaska Native plant knowledge, interactive exploration, and discussions of case studies of human-plant relationships, students will learn and reflect on the role and importance of ethnobotany in light of contemporary societal and environmental issues.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EBOT F210 Ethical Wildcrafting

1 Credit

Offered Fall

Students will gain the knowledge and skills necessary to make informed and responsible decisions about ethical harvesting of plants in Alaska and beyond. Based on an interdisciplinary approach inclusive of Indigenous Knowledge, students will learn about the cultural and spiritual aspects, and the ecological, economic and legal dimensions of wildcrafting.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EBOT F220 Research Methods for Ethnobotanists

2 Credits

Offered Fall

Provides skills and knowledge for conducting research about human-plant relationships; focuses on interviewing Elders about plant use and introduces to qualitative and quantitative research methods in ethnobotanical research and documentation of knowledge and practices, e.g. plant collection, participant observation and data analysis; addresses decolonizing methodology and Indigenous knowledge revitalization.

Cross-listed with ANTH F220.

Lecture + Lab + Other: 1.5 + 0 + 1.5

Grading System: Letter Grades with option of Plus/Minus

EBOT F230 Ethnobotanical Chemistry

3 Credits

Offered Fall

Basic understanding of chemical structure and functions of medicinally active plant compounds including Alaskan medicinal flora. How and why plants produce primary and secondary compounds and methods used to isolate and deliver plant-derived compounds used by humans. How drugs are derived from plants and the ethics of bioprospecting.

Prerequisites: EBOT F100; CHEM F103X or CHEM F105X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EBOT F250 Applied Ethnobotany Fall

2 Credits

Offered Fall

This is the fall section of a year-round course cycle consisting of two non-sequential courses that explore the seasonally appropriate cultural uses of plants. Students will deepen their understanding of human-plant relationships through individual hands-on projects, which will guide them into further studies in ethnobotany and related disciplines.

Cross-listed with ANTH F254.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EBOT F251 Applied Ethnobotany Spring

2 Credits

Offered Spring

This is the spring section of a year-round course cycle consisting of two non-sequential courses that explore the seasonally appropriate cultural uses of plants. Students will deepen their understanding of human-plant relationships through individual hands-on projects, which will guide them into further studies in ethnobotany and related disciplines.

Cross-listed with ANTH F255.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

EBOT F336 Ethnomycology (s)

3 Credits

Offered Spring

An integrated perspective of humanities and social sciences on human-fungi relationships, with concentration on the role of mushrooms in food, medicine, art, commerce, spirituality, and recreation in societies around the world, past and present. Mushroom harvesting in communities around Alaska is one of the extensively covered topics.

Prerequisites: EBOT F100 or ANTH F100X.**Cross-listed with** ANTH F336.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Film and Performing Arts (FLPA)

College of Liberal Arts

Department of Theatre and Film (<https://uaf.edu/theatrefilm/>)
907-474-7231

FLPA F101 Theatre Practicum (h)

1-3 Credits

Offered Fall and Spring

Participation in drama workshop or lab production as performer or technical staff member. Credit in this course may not be applied to a FLPA major program.

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 3 credits**FLPA F105X History of the Cinema (h)**

3 Credits

Offered Fall, Spring and Summer

History and development of the medium of film in the U.S. and abroad during the last 100 years. Content will vary each semester.

Attributes: UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F121X Fundamentals of Acting (h)**

3 Credits

Offered Fall and Spring

The goal of this course is to introduce students to the basics of acting for stage and screen. Students will study acting theory and explore core elements of performance through exercises, improvisation, monologues, scene study, and script and character analysis.

Attributes: UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F130L Square Dance**

1 Credit

Instruction and practice in square dance.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**FLPA F130M Round Dance**

1 Credit

Instruction and practice in round dances.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**FLPA F161X Introduction to Alaska Native Performance (an, h)**

3 Credits

Offered As Demand Warrants

For Native and non-Native students with no prior acting or theatre experience. Includes both academic and practical components to examine traditional Alaska Native theatre, mythology, ritual, ceremony and performance methods. Application of exercises and developmental scenes drawn from Alaska Native heritage.

Cross-listed with ANS F161X.**Attributes:** UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F190 Audition or Portfolio Review Participation**

0 Credit

Offered Fall

FLPA Theatre concentration majors are required to participate in auditions and/or portfolio reviews every semester. FLPA Theatre concentration majors are also expected to attend all Theatre UAF productions (tickets are provided free) and to attend all Theatre & Film Department "town" meetings.

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 7 times for up to unlimited credits**FLPA F191 Audition or Portfolio Review Participation**

0 Credit

Offered Spring

FLPA Theatre concentration majors are required to participate in auditions and/or portfolio reviews every semester. FLPA Theatre concentration majors are also expected to attend all Theatre UAF productions (tickets are provided free) and to attend all Theatre & Film Department "town" meetings.

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 7 times for up to unlimited credits**FLPA F200X Discovering Stage & Screen (h)**

3 Credits

Offered Fall

This course introduces students to the basics of theatre and film production and explores these storytelling art forms by studying the journey of source material from page to stage to the digital age. This course prepares students to be more informed and critical audience members.

Prerequisites: Placement in WRTG F111X.**Attributes:** UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F201 Theatre Practicum (h)**

1-3 Credits

Offered Fall and Spring

Participation in drama workshop or lab production as a performer or technical staff member. Credit in this course may not be applied to a FLPA major program.

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 3 credits

FLPA F215X Dramatic Literature and History (h)

3 Credits

Offered Spring

Reading, analyzing, and categorizing plays as maps for theatrical production. Students will be exposed to a broad range of plays from major periods in theatre history including the classical and contemporary Western canon.

Prerequisites: WRTG F111X (may be taken concurrently).

Attributes: UAF GER Arts Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F217X Introduction to the Study of Film (h)

3 Credits

Offered Fall and Spring

An appreciation course designed to introduce the student to the various forms of cinematic art with special emphasis on humanistic and artistic aspects.

Prerequisites: WRTG F111X.

Cross-listed with ENGL F217X.

Attributes: UAF GER Arts Req

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F231 Previsualization and Preproduction (h)

3 Credits

Offered Fall

Previsualization is a collaborative process that generates preliminary versions of shots or sequences, predominantly using 3D animation tools and a virtual environment. It enables filmmakers to visually explore creative ideas, plan technical solutions and communicate a shared vision for efficient production, laying a foundation for cinema production.

Cross-listed with ART F231.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F241 Basic Stagecraft (h)

4 Credits

Offered Spring Even-numbered Years

Materials of scene construction, painting, lighting design and their use, safe use of standard construction tools, fundamentals of theatre drafting. Theatre concentration FLPA majors are encouraged to fulfill this requirement by their junior year.

Lecture + Lab + Other: 2 + 5 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F247 Introduction to Production Design (h)

3 Credits

Offered Spring Odd-numbered Years

Exploration and application of the elements of design as they relate to theatre, dance, film, video and other art forms.

Recommended: FLPA F215X or FLPA F241.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F251 Introduction to Video Production

4 Credits

Offered Fall

An introduction to video production with an emphasis on television studio production.

Lecture + Lab + Other: 2 + 5 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F254 Costume Construction (h)

3 Credits

Offered As Demand Warrants

Introduction to basic methods of construction used by professional shops and costume houses to create theatrical costumes. Students will complete several projects, covering hand and machine sewing, cutting, fabric identification, simple alterations and costume crafts. Class also includes lectures on shop organization, jobs and policies.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F258 Lights, Camera, Audio! (h)

3 Credits

Offered Spring

Focusing on what actually makes a video, we will explore lighting and sound design techniques to improve the quality of video projects. Idealized and practical tactics will be investigated.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F260 Digital Video Editing: Adobe Suite

3 Credits

Offered Fall

Introduction to the technical and aesthetic aspects of non-linear digital video editing. Students will go from little or no experience in non-linear editing to being comfortable with some of the advanced editing techniques. Address motion picture editing theories that are not bound to time or specific editing technology.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F271 Film Set Production I

3 Credits

Offered Fall

Produce a short dramatic film including concept and script development, basic camera and shooting techniques, working with actors/directing fundamentals, location scouting, production schedule development, basic non-linear editing techniques, and post-production workflows. Students do not need previous experience in film making to take this class.

Prerequisites: FLPA F241 or FLPA F258.

Recommended: FLPA F121X; FLPA F231; FLPA F247.

Lecture + Lab + Other: 0.5 + 1 + 1.5

Grading System: Letter Grades with option of Plus/Minus

FLPA F280 Video Storytelling: Content Creation (h)

3 Credits

Offered Fall

Students will learn the basics of professional video production using resources commonly found in the home, such as a smartphone, some affordable audio equipment and everyday objects. The course will address concepts related to composition, audio, lighting and editing. Students will conclude the course by producing their own short videos.

Special Notes: This course is presented as part of the IAC Content Creation Occupational Endorsement.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F281 Modern Dance (h)

2 Credits

Introduction to dance combines elements of modern, jazz and improvisational styles. Includes warm-up, stretches, locomotor movements (walking, running and leaping), set dance combinations, and improvisational activities. Specific readings, individual journals and informal dance presentations required. Open to all experience levels.

Lecture + Lab + Other: 1.5 + 1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F289 Reel Workshop/Review I**

0 Credit

Offered Spring

FLPA Film concentration majors are required to participate in Reel Workshop/Review every year. Annual participation as a registered student begins sophomore year, and continues sequentially for each year of attendance. Students will create and present a film reel and resume. FLPA majors are expected to attend department "Town Hall" meetings.

Lecture + Lab + Other: 0.5 + 0.5 + 0**Grading System:** Pass/Fail Grades**FLPA F290 Audition or Portfolio Review Participation II**

0 Credit

Offered Fall

FLPA Theatre concentration majors are required to participate in auditions and/or portfolio reviews every semester. FLPA Theatre concentration majors are also expected to attend all Theatre UAF productions (tickets are provided free) and to attend all Theatre & Film Department "town" meetings.

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 7 times for up to unlimited credits**FLPA F291 Audition or Portfolio Review Participation II**

0 Credit

Offered Spring

FLPA Theatre concentration majors are required to participate in auditions and/or portfolio reviews every semester. FLPA Theatre concentration majors are also expected to attend all Theatre UAF productions (tickets are provided free) and to attend all Theatre & Film Department "town" meetings.

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 7 times for up to unlimited credits**FLPA F298 Undergraduate Research**

1-3 Credits

Lecture + Lab + Other: 0 + 0 + 1-3**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 9 credits**FLPA F308 Film Criticism (h)**

3 Credits

Offered As Demand Warrants

Theoretical approaches to viewing, analyzing and evaluating film and television program content.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F310 Acting for the Camera (h)**

3 Credits

Offered Spring

Students will apply skills introduced in Fundamentals of Acting, to acting for the camera. By acting in numerous on-camera exercises, television and film scenes, the class will expand each performer's expressiveness for the camera. May be repeated twice for credit.

Prerequisites: FLPA F121X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**FLPA F320 Acting II: Voice and Speech**

3 Credits

Offered Fall Even-numbered Years

Vocal training for actors through introduction to Fitzmaurice and Linklater techniques. Course will include basic vocal anatomy, introduction to the International Phonetic Alphabet, monologue performance and scene study.

Prerequisites: FLPA F121X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F321 Acting III: Movement (h)**

3 Credits

Offered Spring Odd-numbered Years

This course introduces the principles of stage movement and period acting. The class will include introduction to movement dynamics, contact improvisation, stage combat, physical character development, and period scene study.

Prerequisites: FLPA F121X; FLPA F320.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F331 Directing Film/Video (h)**

3 Credits

Offered Spring

Introduction to the history, theory and basic concepts of film direction. Includes interpretative script analysis, creative visualization, conceptualization, use of space, working with actors and designers, and direction of short scenes and videos.

Prerequisites: FLPA F121X; FLPA F231; FLPA F260; FLPA F271.**Recommended:** FLPA F215X; FLPA F217X or ENGL F217X.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F332 Stage Directing I (h)**

3 Credits

Offered Spring Odd-numbered Years

History, theory and basic concepts of stage direction. Interpretive script analysis, creative visualization, conceptualization, use of space, and focus, working with actors and designers and possible direction of short scenes.

Prerequisites: FLPA F121X; FLPA F215X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

FLPA F334 Movies and Films: Watching and Analyzing (h)

3 Credits

Offered Spring

Rotating thematic topics in the art of classic cinema (films) and the popular mass media (movies). Comparative analysis of classics and recent motion pictures is used to present elements of film language, analysis and criticism.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F341 Intermediate Stagecraft (h)

3 Credits

Offered As Demand Warrants

An examination of the less common scenic materials with methods and techniques for their use. Students will spend approximately \$40 for materials.

Prerequisites: FLPA F241.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F347 Lighting Design (h)

3 Credits

Offered As Demand Warrants

Principles and techniques of theatrical lighting design. The student will conduct practical experiments and design projects applying the experience gained. Student will spend approximately \$40 for materials for this class.

Prerequisites: COM F131X or COM F141X.

Recommended: FLPA F241.

Cross-listed with ART F347.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F348 Sound Design for the Entertainment Industry (h)

3 Credits

Offered As Demand Warrants

Exploration and application of the elements of design as they relate to sound for theatre, dance, film, video, and other art forms, and life in American and other cultures. Production work is required.

Recommended: FLPA F241.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F351 Makeup for Theatre (h)

3 Credits

Offered As Demand Warrants

Theatrical makeup for actors, teachers, directors and other theatre workers; makeup materials and use, age and character makeup, injuries and horror, Kabuki, cross-gender, animal, illusory and plastic relief, crepe hair beards, and influence of lighting. Students will spend approximately \$85 for materials and book.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F361 Advanced Alaska Native Performance (an)

3 Credits

Offered As Demand Warrants

In-depth study of Alaska Native theatre techniques and tradition, including traditional dance, song and drumming techniques, mask characterizations and performance application and presentation of a workshop production developed by the students during the semester.

Prerequisites: ANS F161X, FLPA F161X.

Cross-listed with ANS F361.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F368 Topics in American Film History (s)

3 Credits

Offered As Demand Warrants

American film and how it shapes and warps popular perceptions of America's past. A historical contrast according to Hollywood with the views and interpretations of historians. Content will vary depending on the specific genre or period of focus, such as World War II, the Vietnam War or the Great Depression.

Prerequisites: FLPA F217X or FLPA F308; HIST F131 or HIST F132X.

Cross-listed with HIST F368.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 4 times for up to 12 credits

FLPA F371 Digital Imaging (h)

3 Credits

Offered Fall and Spring

This course focuses on creating and manipulating digital images, including digital painting and photography. The varied ethical issues engendered by this expertise will be addressed in depth. Skills and knowledge useful for digital photography, digital video compositing and digital painting will be covered.

Prerequisites: ART F161, ART F271, ART F284 or FLPA F260.

Cross-listed with ART F371.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F381 Indigenous World in Film (an, h)

3 Credits

Offered Spring Even-numbered Years

The history and appreciation of Indigenous films, with emphasis on Alaska Native contributions through select films, readings and guest speakers. Analysis of social impacts of portrayals and treatment of Indigenous peoples while learning to critically analyze films through understanding film techniques and terminology. Preview of film industry business and opportunities.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Recommended: ART F200X, MUS F200X, or FLPA F200X.

Cross-listed with ANS F381.

Lecture + Lab + Other: 1.5 + 2-4 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F389 Reel Workshop/Review II

0 Credit

Offered Spring

FLPA Film concentration majors are required to participate in Reel Workshop/Review every year. Annual participation as a registered student begins sophomore year, and continues sequentially for each year of attendance. Students will create and present a film reel and resume. FLPA majors are expected to attend department "Town Hall" meetings.

Prerequisites: FLPA F289.**Lecture + Lab + Other:** 0.5 + 0.5 + 0**Grading System:** Pass/Fail Grades**FLPA F401 Theatre Practicum: Performance (h)**

1-3 Credits

Offered Fall and Spring

Participation in drama workshop or lab production as a performer. Up to 3 credits of performance practicum may be applied to a FLPA major program. Course may be repeated for credit.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**FLPA F402 Theatre Practicum: Technical (h)**

1-3 Credits

Offered Fall and Spring

Participation in drama workshop or lab production as a technical staff member. Up to 8 credits of technical practicum may be applied to a FLPA major program. Course may be repeated for credit.

Prerequisites: FLPA F241.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**FLPA F403 Practicum in Film Production: FRAME**

3-6 Credits

Offered Fall and Spring

The Film Reel Alaska Mentorship Experience (FRAME) manages a film service company for the University of Alaska Fairbanks. Students will work with program mentors, clients and researchers to develop a variety of content for academic, industrial and creative research activities. May be repeated for credit.

Prerequisites: FLPA F271; FLPA F231; FLPA F260.**Lecture + Lab + Other:** 1-2 + 0 + 4-10**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**FLPA F413 Analyzing Global Performance (h)**

3 Credits

Offered As Demand Warrants

Investigation of the structure of screenplays, playscripts and various performance modes from around the world designed to develop skills in analysis and interpretation for performance in theater and film.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F416 Performance Studies Abroad (h)**

6 Credits

Offered As Demand Warrants

Intensive course for actors, directors, designers, technicians and playwrights interested in script development/training with the participation of international theatre professionals. Develop new scripts and performances in a multicultural environment under the supervision of a theatre faculty member. Previous faculty and student work abroad includes: Russia, Zambia, South Africa and Scandinavia. Course requirements vary according to the project.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 9 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F417 Internship in Theatre Practice**

1-6 Credits

Offered Fall and Spring

Supervised practical work experience to provide application of course work in a professional, semi-professional or community theatre environment. Internships can be in direction, acting, design, management and technical theatre. Internships have included Perseverance Theatre, Fairbanks Shakespeare Theatre, Fairbanks Drama Association, and Out North Theatre. Course may be repeated twice for a maximum of 12 credits.

Prerequisites: Completed at least 18 FLPA credits; upper-division standing.**Recommended:** Previous FLPA credits should be in the student's concentration area: direction, design, etc.**Special Notes:** Internship must be arranged in coordination with advisor, student and host institution.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 12 credits**FLPA F418 Internship in Film Production (h)**

1-6 Credits

Offered Fall and Spring

This course offers students unique opportunities to work in the professional film industry. Professional internships require a faculty advisor as well as professional evaluation for the supervised work. Course can be repeated twice for a maximum of 12 credits. Variable Credit, 40 hours of internship is equal to 1 credit.

Prerequisites: 18 credits in upper division film classes.**Recommended:** FLPA F271.**Lecture + Lab + Other:** 0 + 0 + 1-6**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 12 credits**FLPA F423 Acting IV: Scene Study (h)**

3 Credits

Offered Fall Odd-numbered Years

This course will focus on the refinement of physical, vocal, emotional, and imaginative awareness. This is a scene study class which will include audition technique, acting for the camera skills, and preparation for the professional world of acting.

Prerequisites: FLPA F121X; FLPA F320; FLPA F321.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

FLPA F427 Topics in Film Studies (h)

3 Credits

Offered Spring

Intensive study of variable topics in film studies. May focus on themes in film; a specific period of cinematic history; particular genres; an important director; or an aspect of contemporary film theory. Course may be repeated two times for credit when content varies.

Prerequisites: ENGL F217X or FLPA F217X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.

Cross-listed with ENGL F427.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 6 credits

FLPA F431 Film Set Production II

3 Credits

Offered Fall

In depth practice of film production supported by investigation into the history and theory of cinema. Script preparation, storyboarding and animatics, blocking actors and staging the camera, sound design, special effects and editing techniques will be explored. Students will produce a capstone film project while serving as a department key.

Prerequisites: FLPA F231 or ART F231; FLPA F260; FLPA F271; FLPA F331.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F433 Studies in French and European Cinema (h)

3 Credits

Offered As Demand Warrants

The course discusses the evolution of French and European cinema in historical and artistic contents.

Prerequisites: ENGL F217X or FLPA F217X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; FREN F301 or FREN F302.

Cross-listed with FREN F433, FL F433.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F447 Lighting Design II (h)

3 Credits

Offered As Demand Warrants

Further exploration and application of elements of design (color, texture, intensity, line, composition) as they relate to lighting for theatre, dance, other art forms and life. Production work required.

Prerequisites: FLPA F347.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F458 SFX Up Your Video (h)

3 Credits

Offered Spring Odd-numbered Years

An exploration into adding special effects to your video projects. Will include "green screen," titles, animation, color grading, DVD menu design and more.

Prerequisites: FLPA F260; FLPA F271 or FLPA F280; video editing experience.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F460 Cross-cultural Filmmaking (h)

3 Credits

Offered As Demand Warrants

Explore filmmaking through cultural knowledge, decolonized methodologies, and documentary filmmaking techniques to create content reflective of cultural and/or scientific knowledge. Develop film work with a theoretical base for cultural understanding, scientific communications, and educational potentials. Basic pre-production, production, and post-production processes will be explored within a multi-cultural communications framework.

Prerequisites: Junior, senior or graduate standing.

Cross-listed with ANTH F460; ART F460.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F470 Advanced Film and Video Directing (h)

3 Credits

Offered As Demand Warrants

In depth investigation into the history, theory and basic concepts of film and video direction. Script preparation, story board, blocking actors and staging the camera, sound and editing. Projects include directing and shooting short videos.

Recommended: FLPA F331.

Lecture + Lab + Other: 1 + 6 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F472 3D Animation (h)

3 Credits

Offered Fall

Concept and technique of 3D computer generated animation with applications in fine and commercial art and science. Students will produce a series of three dimensional animation projects which will introduce them to the tools and concepts used by animation and visualization professionals.

Prerequisites: ART F231, FLPA F231, ART F271.

Cross-listed with ART F472.

Special Notes: May be repeated for credit.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 5 times for up to 15 credits

FLPA F473 Politics and Film (s)

3 Credits

Offered As Demand Warrants

Engage film with a critical political perspective. Concepts related to political power, society, and nature are surveyed through political science literature and politics-themed films. Quests for political power, difficulties of governance, politics of campaigns and elections, privacy and government surveillance, and political violence are concepts explored in this course.

Prerequisites: PS F101X.

Cross-listed with PS F473.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FLPA F475 Digital Video Compositing (h)

3 Credits

Offered As Demand Warrants

Digital compositing techniques for creating moving imagery. The course covers video manipulation, layering images, synthesizing realistic video imagery, integration of live action and computer generated animation.

Course can be repeated for a total of nine credits with permission of instructor.

Prerequisites: ART F472, FLPA F472.**Cross-listed with** ART F475.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 9 credits**FLPA F480 Documentary Filmmaking (h)**

3 Credits

Offered Spring Odd-numbered Years

Basics of hands-on documentary filmmaking techniques, including preproduction, production and postproduction. Different documentary filmmaking directing styles and the process of distributing a documentary. Each student will produce a short documentary as the capstone of the course.

Prerequisites: Basic experience in shooting and editing video.**Cross-listed with** JOUR F480.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F481 Advanced Topics in Film or Stage Production**

3 Credits

Offered As Demand Warrants

This course offers advanced students unique opportunities for deeper study in areas of film or stage production. Advanced topics may include cinematography, special effects, audio mixing, costume design, etc.

Prerequisites: Junior or senior standing; FLPA F271.**Recommended:** FLPA F260 or FLPA F121X.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to unlimited credits**FLPA F482 Dance Performance (h)**

2 Credits

Exploration and performance of expressive dance and movement. Includes development of an original choreography for public performance. Course is for advanced dance, acting and directing students with varying experience.

Prerequisites: FLPA F281; or movement performance experience.**Lecture + Lab + Other:** 1.5 + 1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F484 Russian and Soviet Cinema (h)**

3 Credits

Offered As Demand Warrants

Study of Russian culture and society through the medium of film, focusing on the history of Russian cinema and genres. Designed to familiarize students with topics in film theory, and Russian history and culture from 1900s to the present. Readings and topics reflect issues of current interest.

Prerequisites: Junior standing.**Cross-listed with** RUSS F484.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F488 Dramatic Writing (h)**

3 Credits

Offered Fall Odd-numbered Years

Introduction to the craft of dramatic writing for theater and film, with an emphasis on dramatic storytelling. Course will focus on giving students a practical understanding of the uses of story structure, setting, character, plot and dialog, and how these elements work together to create compelling drama.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.**Cross-listed with** ENGL F488.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FLPA F489 Reel Workshop/Review III**

0 Credit

Offered Spring

FLPA Film concentration majors are required to participate in Reel Workshop/Review every year. Annual participation as a registered student begins sophomore year, and continues sequentially for each year of attendance. Students will create and present a film reel and resume. FLPA majors are expected to attend department "Town Hall" meetings.

Prerequisites: FLPA F389.**Lecture + Lab + Other:** 0.5 + 0.5 + 0**Grading System:** Pass/Fail Grades**FLPA F498 Undergraduate Research**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 1-6**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 9 credits**FLPA F498P Undergraduate Research**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 1-6**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 9 credits**FLPA F499 Thesis Project**

1-3 Credits

Final step in film or stage training which involves creating a final film or stage creative project as a filmmaker, actor, director, designer, playwright or screenwriter. Projects can include producing a film project with the support of a faculty advisor, performing a leading role on a theatre/film UAF main-stage film or stage production or directing/designing/writing a project for the theatre/film UAF season.

Prerequisites: Permission of instructor.**Lecture + Lab + Other:** 0 + 0 + 1-3**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 9 credits

Fire Science (FIRE)

Community and Technical College

Fire Science Program (<https://www.ctc.uaf.edu/programs/fire-science/>)
907-455-2800

FIRE F101 Principles of Emergency Services

3 Credits

Offered Spring

Overview of fire protection, career opportunities, philosophy and history of fire protection/service. Fire loss analysis, organization and function of public/private protection services. Fire departments as part of local government, laws/regulations affecting fire services, fire service nomenclature, fire protection functions. Fire chemistry and physics, fire protection systems, fire strategy and tactics.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F105 Fire Prevention**

3 Credits

Offered Spring

The history and philosophy of fire prevention, organization and operation of a fire prevention bureau. Use of fire codes, identification and correction of fire hazards, and the relationships of fire prevention with built-in fire protection systems, fire investigation, and fire and life-safety education.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F107 Strategy and Tactics**

3 Credits

Offered Spring

The principles of fire control through utilization of personnel, equipment and extinguishing agents on the fire ground.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F110 Introduction to Hazardous Waste Operations and Emergency Response**

3 Credits

Offered As Demand Warrants

Review of federal and state hazardous materials laws and regulations. Career opportunities related to the field of hazardous materials including transportation, emergency response, site clean up and Incident Command System (ICS).

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F115 Fire Apparatus and Equipment**

3 Credits

Offered As Demand Warrants

Fire apparatus design, specifications and performance capabilities, effective use of apparatus in fire emergencies.

Prerequisites: FIRE F101.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F117 Rescue Practices**

3 Credits

Offered Fall

Rescue situations and techniques including vehicle extrication, rescue carries, ventilation principles, structural rescue, use of portable hand and power tools, wildland/canine search and rescue, ice and water rescue and emergency life saving principles. All students are required to wear a complete set of fire department-approved protective clothing (turnout gear). Limited quantities are available for loan through the emergency services program coordinator. An eight-hour personal protective equipment and self-contained breathing apparatus safety orientation must be completed in order to participate in live fire exercises.

Prerequisites: EMS F170.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F121 Fire Behavior and Combustion**

3 Credits

Offered Fall and Spring

Theories and fundamentals of how and why fires start, spread, and how they are controlled.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F123 Fire Investigations I**

3 Credits

Offered As Demand Warrants

Fundamentals and technical knowledge needed for proper fire scene interpretations, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the firesetter and types of fire causes.

Prerequisites: FIRE F101.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F127 Vessel Safety: Emergency Equipment, Procedures and Drills**

1 Credit

Offered As Demand Warrants

Introduction to safe boating practices and skills including boat handling, rules of navigation, proper safety equipment, weather, boat trailering, lines and knots, first aid and emergency procedures.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**FIRE F131 Firefighter I, Series I**

3 Credits

Offered Fall and Summer

The initial phase in a four-phase process for achieving Alaska State Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of use. Successful completion of all four phases will qualify students for Alaska State Fire Fighter I certification. Limited quantities are available for loan through the Emergency Services Program coordinator.

Prerequisites: All students are required to wear a complete set of fire department approved protective clothing (turnout gear).**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F133 Firefighter I, Series II**

3 Credits

Offered Fall and Spring

The second phase in a four-phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Limited quantities are available for loan through the emergency services program coordinator. An 8 hour Personal Protective equipment (PPE) and Self-Contained Breathing Apparatus (SCBA) safety orientation available each semester must be completed in order to participate in live fire exercises.

Prerequisites: All students are required to wear a complete set of fire department approved protective clothing (turnout gear).**Special Notes:** Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus

FIRE F135 Firefighter I, Series III

3 Credits

Offered Fall and Spring

The third phase in a four-phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Limited quantities are available for loan through the Emergency Services program coordinator. An 8 hour Personal Protective equipment (PPE) and Self-Contained Breathing Apparatus (SCBA) safety orientation is available each semester and must be completed in order to participate in live fire exercises.

Prerequisites: All students are required to wear a complete set of fire department approved protective clothing (turnout gear).

Special Notes: Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

FIRE F137 Firefighter I, Series IV

3 Credits

Offered Fall and Spring

The final phase in a four-phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use.

Special Notes: Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FIRE F143 Firefighter Internship, Series 1

1 Credit

Offered As Demand Warrants

Practical experience in fire operations and training by arrangement through local fire departments.

Lecture + Lab + Other: 0 + 2 + 0

Grading System: Pass/Fail Grades

FIRE F145 Firefighter Internship, Series 2

1 Credit

Offered As Demand Warrants

Practical experience in fire operations and training by arrangement through local fire departments.

Prerequisites: FIRE F143.

Lecture + Lab + Other: 0 + 2 + 0

Grading System: Pass/Fail Grades

FIRE F147 Firefighter Internship, Series 3

1 Credit

Offered As Demand Warrants

Practical experience in fire operations and training by arrangement through local fire departments.

Prerequisites: FIRE F145.

Lecture + Lab + Other: 0 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

FIRE F151 Wildland Firefighter I

3 Credits

Offered As Demand Warrants

Designed to provide entry-level wildland firefighters the skills and knowledge to safely function as a member of a firefighting crew. Includes fundamental knowledge of wildland fire organization, fire behavior, suppression methods, safety and the incident command system.

Cross-listed with WFS F151.

Special Notes: Successful course completion combined with national age and physical fitness requirements will qualify the student for an interagency fire qualification card (red card) with a rating of Firefighter (FFT2).

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FIRE F154 Basic Wildland Fire Safety

1.5 Credits

Offered As Demand Warrants

Designed to meet the training needs of the Advanced Wildland Firefighter. The course includes development of a personal safety program and creating a list of performance standards based on the LCES mnemonic. This course is based on National Wildfire Coordinating Group (NWCG) courses.

Prerequisites: FIRE F151.

Special Notes: NWCG courses include: S-134 LCES.

Lecture + Lab + Other: 1.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FIRE F155 Wildland Fire Behavior I

2 Credits

Offered As Demand Warrants

This course is a classroom-based skills course designed to prepare the prospective fireline supervisor to undertake safe and effective fire management operations. It serves to develop fire behavior prediction knowledge and skills. Fire environment differences are discussed as necessary; instructor will stress local Alaskan conditions. This course is based on a National Wildfire Coordinating Group (NWCG) course.

Prerequisites: FIRE F151.

Special Notes: NWCG courses include: S-290 Intermediate Wildland Fire Behavior.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FIRE F159 Wildland Fire Urban Interface Operations

2 Credits

Offered As Demand Warrants

Designed to assist both structural and wildland firefighters who will be making tactical decisions when confronting wildland fire that threatens life, property and improvements in the wildland/urban interface. Instructional units include interface awareness, size-up, initial strategy and incident action plan, structure triage, structure protection tactics, incident action plan assessment and update, follow up and public relations, and firefighter safety in the interface. This course is based on a National Wildland Coordinating Group (NWCG) course.

Prerequisites: FIRE F151 and WFS F153.

Special Notes: NWCG courses include: S-215 Fire Operations in the Wildland/Urban Interface.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FIRE F161 Incident Logistics Function

2 Credits

Offered As Demand Warrants

Overview of the support and service branches of the logistics function within the incident command system. Emphasis on entry-level positions of ordering manager, receiving and distribution manager, base camp manager, equipment manager, incident communications manager, security manager and radio operator. This course is based on a number of individual National Wildfire Coordinating Group (NWCG) job aids. NWCG courses include: J-252 Ordering Manager; J-253 Receiving and Distribution Manager; J-254 Base/Camp Manager; J-255 Equipment Manager; J-257 Incident Communications Manager; J-259 Security Manager; J-158 Radio Operator.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F163 Wildland Fire Dispatch I**

2 Credits

Offered As Demand Warrants

The purpose of this course is to provide students with the skills to perform as a dispatch recorder. Topics include the structure of the expanded dispatch organization, description of resource ordering processes, and the importance of effective communication skills and working relationships. Additionally, the course provides a solid foundation on the use of Resource Ordering Statusing System (ROSS), addressing the functions and capabilities of ROSS that will be used by most dispatchers. This is an interactive course that combines lecture and hands on practice in the application. This course is based on National Wildfire Coordinating Group (NWCG) courses: D-110 Expanded Dispatch Recorder; ROSS Dispatch – Basic.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F165 ICS and the Incident Planning Function**

2 Credits

Offered As Demand Warrants

An overview of the Incident Command System principles and planning processes, organizational relationships with other functions, use of planning matrix board, resource management, documentation, demobilization, use of technical specialist and components of an incident action plan. This course is based on Federal Emergency Management Agency (FEMA) courses: I-200 Basic ICS: ICS for Single Resources and Initial Action Incidents; I-300 Intermediate ICS: ICS for Supervisors.

Prerequisites: FIRE F151.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F170 Incident Information**

2 Credits

Offered As Demand Warrants

This course provides students with the skills and knowledge needed to serve as an entry-level public information officer (PIOF) during an incident or event. Establishing and maintaining an incident information operation, internal and external audience communication, working with news media, handling special situations, and long-term planning and strategy.

Prerequisites: FIRE F151.**Special Notes:** This course is based on National Wildfire Coordinating Group (NWCG) courses: S-203 Introduction to Incident Information.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F176 Wildland Fire Ignition Operations**

1 Credit

Offered As Demand Warrants

This course introduces the roles and responsibilities of a firing boss (FIRB), common firing devices, and general firing operations and techniques. The course provides students with important information concerning general tasks required to be successful. This course is based on a National Wildfire Coordinating Group (NWCG) course: S-234: Ignition Operations.

Prerequisites: FIRE F155.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F202 Fire Protection Hydraulics and Water Supply**

3 Credits

Offered As Demand Warrants

Provides a foundation of theoretical knowledge in order to understand the principles of the use of water in fire protection and their application to analyze and solve water supply problems.

Prerequisites: MATH F055 or placement into MATH F105; FIRE F101.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F203 Hazardous Materials Chemistry I**

3 Credits

Offered As Demand Warrants

Basic fire chemistry relating to most categories of hazardous materials including problems of recognition, reactivity and health risks encountered by fire fighters.

Prerequisites: Satisfactory demonstration of basic chemistry knowledge (pretest).**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F206 Building Construction for Fire Protection**

3 Credits

Offered Spring

The components of building construction that relate to fire and life safety. Focuses on fire fighter safety. Includes elements of construction and design of structures shown to be key factors when inspecting buildings, preplanning fire operations and operating emergencies.

Prerequisites: FIRE F101 or employment or experience in related field, such as fire protection, insurance, construction architecture, or engineering.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F207 Hazardous Materials Technician**

3 Credits

Offered As Demand Warrants

Advanced information for protection and safety of personnel engaged in response and field cleanup of hazardous materials and substances at the hazardous materials technician level (EPA course #165.15).

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F210 Fire Administration I**

3 Credits

Offered Fall

Organization and management of a fire department and the relationship of government agencies to the fire service. Emphasis on fire service leadership from the perspective of the company officer.

Prerequisites: FIRE F101.**Lecture + Lab + Other:** 3 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus

FIRE F212 Building and Fire Codes

3 Credits

Offered As Demand Warrants

Introduction to life safety aspects of the uniform building code. Emphasis on uniform fire code for fire inspections on existing buildings, flammable liquids, hazardous materials and special processes. Preparation for the uniform fire code exam administered by the International Conference of Building Officials.

Prerequisites: FIRE F101; FIRE F206.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F214 Fire Protection Systems**

3 Credits

Offered Fall

Features of design and operation of fire detection and alarm systems, heat and smoke control systems, special protection and sprinkler systems, water supply for fire protection and portable fire extinguishers.

Prerequisites: FIRE F101.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F215 Advanced Hazardous Materials Technician**

3 Credits

Offered As Demand Warrants

Provides increased hands-on skills for personnel with a hazardous materials technician rating. Emphasis will be placed on task proficiency in spill containment, plugging, patching, diking and valve shut-offs on large commercial transporters. Stabilization of large and small chlorine leaks and decontamination will also be covered.

Prerequisites: FIRE F207.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F216 Methods of Instruction for Emergency Services Training**

3 Credits

Offered As Demand Warrants

Skills necessary to instruct emergency service courses including adult education techniques, classroom setup, use of audiovisual equipment, presentation, and evaluation methods of students and instruction.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F217 Hazardous Materials Technician Refresher**

1 Credit

Offered As Demand Warrants

Information and skills required for protection and safety of personnel engaged in response and field cleanup of hazardous materials and substances at the hazardous materials technician level.

Prerequisites: FIRE F206 or equivalent with certification that may not be expired for more than one calendar year.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F218 Advanced Rescue Practices**

3 Credits

Offered As Demand Warrants

Provides instruction in four of the most common rescue situations that fire departments encounter in an Interior Alaska rescue: vehicular extrication, rope rescue, confined space rescue and ice/water rescue. Class stresses basic knowledge and hands-on experience. All students are required to wear a complete set of fire department-approved protective clothing (turnout gear). Limited quantities are available for loan through the Emergency Services Program Coordinator.

Prerequisites: EMS F170; FIRE F117.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F219 Rapid Intervention Company Operations**

3 Credits

Offered As Demand Warrants

Provides firefighters with the knowledge and skills necessary to work safely and respond appropriately to life-threatening situations. Includes rapid intervention team building skills, self rescue techniques and the knowledge to handle a mayday or high risk/threat situation. Completion of course will qualify students for the state of Alaska certification testing process. All students are required to wear full firefighter personal protective equipment. Limited quantities of PPE are available for loan through the program coordinator.

Prerequisites: FIRE F117, FIRE F131, FIRE F133, FIRE F135 and FIRE F137; or department head approval.**Lecture + Lab + Other:** 2.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F220 Emergency Services Safety, Health and Survival**

3 Credits

Offered Fall

Introduces basic principles and history related to national firefighter life safety initiatives, focusing on needed cultural and behavior changes throughout the emergency services. Course examines current and future issues in emergency services including close calls, near misses, line of duty deaths, risk management, mitigation and personal and organizational accountability.

Prerequisites: FIRE F101, FIRE F131, FIRE F133, FIRE F135 and FIRE F137.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F232 Firefighter II**

3 Credits

Offered Spring

Advanced technical study of fire alarms, communications, fire behavior, self-contained breathing apparatus, rescue, safety, ladders, fire hose, nozzles and appliances, fire streams, water supplies, sprinklers, overhaul and inspections. Limited quantities are available for loan through the emergency services program coordinator. An eight-hour personal protective equipment and self-contained breathing apparatus safety orientation must be completed in order to participate in live fire exercises.

Prerequisites: FIRE F131; FIRE F133; FIRE F135; FIRE F137.**Special Notes:** All students are required to wear a complete set of fire department approved protective clothing (turnout gear).**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus

FIRE F244 Firefighter Internship, Series 4

1 Credit

Offered As Demand Warrants

Practical experience in fire operations and training by arrangement through local fire departments.

Prerequisites: FIRE F145 or FIRE F147.**Lecture + Lab + Other:** 0 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F246 Firefighter Internship, Series 5**

1 Credit

Offered As Demand Warrants

Practical experience in fire operations and training by arrangement through local fire departments.

Prerequisites: FIRE F244.**Lecture + Lab + Other:** 0 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F248 Firefighter Internship, Series 6**

1 Credit

Offered As Demand Warrants

Practical experience in fire operations and training by arrangement through local fire departments.

Prerequisites: FIRE F246.**Lecture + Lab + Other:** 0 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F251 Wildland Firefighter IV**

3 Credits

Offered As Demand Warrants

This course is intended to meet the training needs of the first line leadership positions in wildland fire suppression. Lessons are designed to produce student proficiency in the performance of duties from initial dispatch through demobilization back to the home unit. Topics include operational leadership, preparation and mobilization, assignment preparation, size up, developing a plan of action, risk management, entrapment avoidance, safety and tactics, offline duties, demobilization, and post incident responsibilities. Portions of the course will be blended learning with some lessons online. This course is based on National Wildlife Coordinating Group (NWCG) courses: S-200 Initial Attack Incident Commander; S-230 Crew Boss (Single Resource).

Prerequisites: FIRE F151; WFS F153 and FIRE F155.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F252 Wildland Fire Prevention I**

3 Credits

Offered As Demand Warrants

Designed to enhance basic skills and knowledge of personnel assigned responsibilities for wildfire prevention. This course teaches sound wildland fire observations and scene of origin protection practices that enable first responders to identify and preserve fire cause evidence. Introduction to Alaskan wildland fire prevention statutes, regulations and enforcement procedures.

Prerequisites: FIRE F151.**Special Notes:** This course is based on National Wildfire Coordinating Group (NWCG) courses: P-101 Fire Prevention Education I; FI-110 Wildland Fire Observation and Origin Protection.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F253 Wildland Fire Investigation I**

3 Credits

Offered As Demand Warrants

Consistent fundamentals and technical knowledge base needed for the wildland fire origin and cause determination investigator (INVF). The concepts taught will include recognizing and conducting origin and cause determination, preservation of evidence and documentation, which will aid an investigator to perform at a professional level on a national basis.

Prerequisites: FIRE F151; FIRE F155 and FIRE F252.**Special Notes:** This course is based on a National Wildlife Coordinating Group (NWCG) course: FI-210 Wildland Fire Origin and Cause Determination.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F254 Incident Finance and Administration**

1.5 Credits

Offered As Demand Warrants

Incident business management objectives, including duties and responsibilities of the Incident Command System (ICS) finance/administration section relating to management practices and programs. Parts of this course are presented in a blended learning format. This course is based on a National Wildfire Coordinating Group (NWCG) course: S-260 Interagency Incident Business Management.

Lecture + Lab + Other: 1.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F255 Wildland Fire Behavior II**

2 Credits

Offered As Demand Warrants

This course will give students an understanding of the determinants of fire behavior through studying input datum for fire (weather, slope, fuels and fuel moisture). Operation of fire behavior prediction tools, assessing and selecting proper inputs, interpreting the results in terms of rate of spread, fire line intensity, potential for extreme fire behavior; and documentation processes. This course is based on a National Wildlife Coordinating Group (NWCG) course: S-390 Introduction to Wildland Fire Behavior Calculations.

Prerequisites: FIRE F155.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F256 Wildland Fire Planning and Multiple Use Management**

3 Credits

Offered As Demand Warrants

Fire management and its role in a multiple use resource program. Includes prescribed and wildfire practices, environmental concerns, management goals and objectives, and pre-fire planning.

Prerequisites: FIRE F151; WFS F153; FIRE F155.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

FIRE F257 Wildland Fire Helicopter Management

2 Credits

Offered As Demand Warrants

A comprehensive examination of interagency government helicopter operations to prepare the student to perform the job of Helicopter Manager. Topics covered include: agency policy, flight manuals, helicopter capabilities and communications, flight following, fueling procedures, contract administration and pay documents, pre and post-use inspections, risk management and required safety procedures, general and specialized helicopter operations such as qualifying landing areas, transportation of passengers and cargo, initial attack operations, and sustained support to incidents. This course is based on a National Wildlife Coordinating Group (NWCG) course: S-372 Helicopter Management.

Prerequisites: WFS F157.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F258 Wildland Fuels Management**

3 Credits

Offered As Demand Warrants

Use of fire as a resource management tool. Natural and prescribed fire planning. Development and procedures to meet management objectives, components for conducting safe, prescribed burning.

Prerequisites: FIRE F151; FIRE F155; FIRE F262; WFS F153.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F262 Wildland Fire Tactical Operations**

2 Credits

Offered As Demand Warrants

This course is intended to produce proficiency in the selection and implementation of wildland fire suppression tactics necessary at the strike team/task force leader level. Topics include fire line construction, use of hand tools, heavy equipment, water and engines, firing operations and using combinations of resources. This is an advanced level course for trained and experienced wildland firefighters. This course is based on a National Wildland Coordinating Group (NWCG) course: S-336 Tactical Decision Making in Wildland Fire.

Prerequisites: FIRE F155 and FIRE F251.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F264 Incident Business Practices**

1.5 Credits

Offered As Demand Warrants

Incident business procedures required in entry level staff positions including financial management of a large complex incident. This course is based on a National Wildlife Coordinating Group (NWCG) course: S-261 Applied Interagency Incident Business Management.

Prerequisites: FIRE F254.**Lecture + Lab + Other:** 1.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F270 Wildland Fire Command Function**

3 Credits

Offered As Demand Warrants

An overview of the command function including use of single and unified command, roles and responsibilities of the incident commander and staff, development and implementation of strategic decisions, providing information to the media, and managing the incident from initial attack of small, non-complex fires to larger, more complex initial attack suppression organizations dealing with escape attack situations.

Prerequisites: FIRE F151; FIRE F155; FIRE F252; WFS F153.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F276 Prescribed Fire I**

2 Credits

Offered As Demand Warrants

Provide a thorough familiarization with the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide. Students will develop the knowledge and skills needed to prepare a prescribed fire plan, in accordance with the guide, ready for technical review and approval.

This course is based on a National Wildlife Coordinating Group (NWCG) course: RX-341 Prescribed Fire Burn Plan Preparation.

Prerequisites: FIRE F255.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F277 Prescribed Fire II**

2 Credits

Offered As Demand Warrants

This course is designed to introduce students to the tools and techniques used to perform in the role of a prescribed fire burn boss. It leads the students through the duties and responsibilities associated with the position including evaluation and implementation of a prescribed fire plan. This course is based on a National Wildlife Coordinating Group (NWCG) course: RX-301 Prescribed Fire Implementation.

Prerequisites: FIRE F251; FIRE F255.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FIRE F278 Prescribed Fire III**

2 Credits

Offered As Demand Warrants

This course is designed to provide students with the knowledge and skills necessary to recognize and communicate the relationships between basic fire regimes and first order fire effects, the effects of fire treatments on first order fire effects, and to maintain fire treatments to achieve desired first order fire effects. This course is based on a National Wildlife Coordinating Group (NWCG) course: RX-310 Introduction to Fire Effects.

Prerequisites: FIRE F255.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

First Year Experience (FYE)

Undergraduate Interdisciplinary StudiesInterdisciplinary Studies (<http://www.uaf.edu/inds/>)

907-474-1849

FYE F100 First Year Seminar

1 Credit

Offered Fall and Spring

An introduction, intended for first-year college students, to a current area of scholarly pursuit by faculty. Learn how faculty pursue scholarship in their discipline. An opportunity for first-year students to connect to one another and a faculty member with similar interests in small group-discussion settings and learn about collegiate life. Topics will vary by instructor.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 2 times for up to 2 credits

Fisheries (FISH)

College of Fisheries and Ocean Sciences

Department of Fisheries (<https://www.uaf.edu/cfos/academics/departments/fisheries/>)
907-474-7289

FISH F100 Skeleton Articulation as an Introduction to Marine**Conservation Biology**

2 Credits

Offered As Demand Warrants

Course designed for high school students.

Prerequisites: GPA of 2.5 or higher; offered to high school juniors and seniors with at least 1 biology and 1 math class completed.

Lecture + Lab + Other: 1 + 3 + 0**Grading System:** Pass/Fail Grades**FISH F102 Fact or Fishin': Case Studies in Fisheries and Marine Sciences**

1 Credit

Offered Fall

This seminar will promote active learning, critical thinking and problem-solving through a series of case studies involving current issues in fisheries and marine sciences conservation and management. Students enrolled in this course will also receive instruction on fundamental skills required to successfully complete a four-year degree at UAF.

Cross-listed with MBI F102; OCN F102.**Lecture + Lab + Other:** 1.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F103 The Harvest of the Sea**

2 Credits

Offered Spring

This course will explore the scientific and popular literature related to the exploitation of global marine resources. Specific topics of the course will be based on three core themes: (1) early exploitation of marine resources; (2) overexploitation of marine stocks; and (3) the status and sustainability of marine resources.

Prerequisites: FISH F102; FISH F110; placement in WRTG F111X.**Cross-listed with** MBI F103; OCN F103.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F110 Fish and Fisheries in a Changing World**

3 Credits

Offered Fall

This course is an exploration of the patterns of fish diversity, and the resilience and sustainability that results. The topics that we will cover are intended to act as foundational principles that fisheries resource professionals will use throughout their careers. Together we will examine the complexity of what constitutes a "fishery" and better understand the factors that have led some fisheries to collapse and others to persist. In addition to lectures, students will read, discuss and write extensively and by doing so, can expect to gain better understanding of the "science of sustainability" with regards to 21st century fisheries in Alaska and beyond.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F192 Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**FISH F261 Introduction to Fisheries Utilization**

3 Credits

Offered Fall

Application of harvesting, processing, preservation and marketing of Alaska's rich fisheries resources. Core course requirement for all B.A. students completing a minor in fisheries and for B.S. fisheries students. Course is offered via videoconference.

Prerequisites: BIOL F103X or CHEM F100X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F288 Fish and Fisheries of Alaska**

3 Credits

Offered Spring

An introduction to finfish, shellfish and marine mammals of Alaska, including their biology, ecology, fisheries, uses, management, economics and conservation issues.

Prerequisites: FISH F110.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F290 Fisheries Internship**

1 Credit

Offered Fall, Spring and Summer

Under the supervision of a fisheries professional, students gain practical, professional experience through employment. Can be repeated up to four times, each for a different type of employment. The primary learning objectives for students are to gain professional experience in fisheries and refine career goals.

Prerequisites: Permission of the Fisheries Experiential Learning Coordinator/instructor; a student internship agreement form turned into the Experiential Learning Coordinator.

Recommended: STAT F200X.**Lecture + Lab + Other:** 0 + 0 + 1-4**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 4 times for up to 4 credits**FISH F292 Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits

FISH F315 Freshwater Fisheries Techniques

3 Credits

Offered Summer Even-numbered Years

Introduction to laboratory and field sampling methods in aquaculture, limnology, and fisheries biology. Emphasis will be placed on the proper care and use of laboratory equipment and field sampling gears, as well as the development of sampling protocols for collecting representative, non-biased fisheries and aquatic sciences data.

Prerequisites: FISH F110; FISH F288; STAT F200X.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F320 Salmon, People and Place**

3 Credits

Offered Spring

An examination of the deep ties between salmon and Indigenous peoples' food security, subsistence traditions and ways of life; contemporary Western society connections to salmon, including governance structures, recreational and commercial fishing, and global economies; case studies of pressing challenges facing salmon-dependent communities.

Prerequisites: ANTH F100X, FISH F110, WRTG F111X, or FISH F288.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F336 Introduction to Aquaculture**

3 Credits

Offered Spring Odd-numbered Years

Introduction to the species, methodology, economics and environmental impacts of world aquaculture, with a focus on the contribution of Alaska's aquaculture industries including salmon ocean ranching, shellfish and kelp mariculture. Survey of worldwide production, including an introduction to production systems and familiarization with Alaska systems.

Prerequisites: BIOL F115X.**Special Notes:** This course is taught in Juneau.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F340 Seafood Business**

3 Credits

Offered Fall

Development and management of a successful seafood business from inception to operation. Practical application of business planning, obtaining financing, accounting, permitting, feasibility analysis, marketing, human resource management, and operational aspects of seafood harvesting and processing using case studies and guest lecturers from seafood industry.

Prerequisites: FISH F261.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F411 Human Dimensions of Environmental Systems**

3 Credits

Offered Fall

Study of human-environment relationships and applications to resource management. Draws on a range of social scientific approaches to the study of environmental systems, including: environmental anthropology, environmental history, historical ecology, political ecology, ethnecology, property theory and environmental justice.

Prerequisites: COM F131X or COM F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; F200-level course in cultural anthropology, human geography, sociology or political science.**Stacked with** FISH F611.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F412 Human-environment Research Methods**

3 Credits

Offered Fall Even-numbered Years

Basic overview of qualitative and quantitative social science methods for studying human-environment relationships. Introduction to research ethics, research design, data collection, data analysis and data reporting. Methods and data analysis techniques include interviews, text analysis, surveys, scales, cognitive anthropology and ethnecology, social networks, behavioral observation and visual methods.

Prerequisites: COM F131X or COM F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; upper level standing.**Cross-listed with** ANTH F412.**Stacked with** FISH F613.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F414 Field Methods in Marine Ecology and Fisheries**

3 Credits

Offered Summer Odd-numbered Years

Hands-on introduction to ecological methods in fisheries and the marine environment. Class will consist of a series of group field exercises and sampling methods conducted in local marine habitats as well as instruction on experimental designs for testing hypotheses and statistical interpretation of results.

Prerequisites: BIOL F371, MBI F320.**Lecture + Lab + Other:** 13.5 + 20 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F425 Fish Ecology**

3 Credits

Offered Fall Odd-numbered Years

An exploration of how fishes interact with and adapt to their physical and biological environments. Examples focus on individual and population level of biological organization. Human impacts to the ecology of major freshwater and marine habitats are examined.

Prerequisites: FISH F110; BIOL F371.**Stacked with** FISH F650.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

FISH F426 Behavioral Ecology of Fishes

3 Credits

Offered Spring Even-numbered Years

This course will provide upper-level undergraduate and graduate students with an advanced understanding of behavioral responses and adaptations of fishes in both freshwater and marine systems to natural and anthropogenic environmental variables. It provides students an option to fulfill upper-level undergraduate and graduate required and elective course work. Before enrolling, students should have a sound understanding of both ecological and biological concepts relating to fishes.

Prerequisites: BIOL F371 or FISH F427.**Recommended:** FISH F425.**Stacked with** FISH F626.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F427 Ichthyology (n)**

4 Credits

Offered Spring

Major groups of fishes, emphasizing fishes of northwestern North America. Classification structure, evolution, general biology and importance to man.

Prerequisites: BIOL F116X.**Cross-listed with** BIOL F427.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F428 Physiological Ecology of Fishes**

3 Credits

Offered Spring Odd-numbered Years

An advanced exploration of the physiological responses and adaptations of fishes in both freshwater and marine systems to natural and human-induced environmental changes.

Prerequisites: BIOL F310, FISH F427 or BIOL F427.**Stacked with** FISH F628.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F433 Pacific Salmon Life Histories**

3 Credits

Offered Spring Even-numbered Years

Introduction to the life histories of Pacific salmon. Exploring variation in life history traits within and among species, within and among populations, at each stage of the salmon life cycle. Understanding evolutionary and ecological contexts life histories. Discussing management and conservation of Pacific salmonid species throughout their range- Alaskan focused.

Prerequisites: BIOL F115X; BIOL F116X.**Stacked with** FISH F633.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F435 Data Visualization in Fisheries**

2 Credits

Offered Spring

Fundamental methods for presenting fisheries data visually, including figures, tables and visual abstracts. Focus will be on effective design and the preparation of publication-ready figures and tables. Student activities will include critiquing figures and tables published in fisheries literature as well as creating their own from existing datasets.

Prerequisites: STAT F200X.**Stacked with** FISH F635.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F443 Fisheries Oceanography**

4 Credits

Offered Fall Odd-numbered Years

Oceanography of marine processes affecting vertebrates and invertebrates. Interactions between fisheries resources and physical and biological oceanography, and climatological and meteorological conditions that support sustainable management. Topics include recruitment, transport, mortality, feeding, distribution, abundance, El Nino/La Nina, regime shifts, and climate change. Global to local scales. Worldwide ecosystems and examples.

Prerequisites: FISH F110 or FISH F288; STAT F200X, OCN F111X, or CHEM F105X; PHYS F123X.**Cross-listed with** OCN F443.**Stacked with** OCN F643, FISH F643.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F446 Freshwater Habitat Dynamics**

3 Credits

Offered Fall Even-numbered Years

Theoretical background of habitat dynamics in freshwaters with a focus on the response of biota and practical application of current sampling methods.

Prerequisites: FISH F110, BIOL F371.**Cross-listed with** BIOL F446.**Stacked with** FISH F646, BIOL F646.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F451 Aquatic Conservation and Management Genetics**

3 Credits

Offered Fall Even-numbered Years

Genetics is one of the most rapidly growing fields of science and is fundamental for ecology, conservation and natural resource management. This course will cover population genetics, molecular ecology, evolutionary theory and quantitative methods, with an emphasis on genomic applications to marine and freshwater resource management.

Prerequisites: BIOL F260; STAT F401 (STAT course may be taken concurrently).**Stacked with** FISH F651.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

FISH F476 Aquatic Food Web Ecology

3 Credits

Offered Fall Even-numbered Years

Examines theoretical and applied aspects of aquatic food web ecology, from the ecological processes that give rise to patterns in aquatic communities to the incorporation of trophic interactions into ecosystem-based management. Includes a lecture component focused on peer reviewed studies and a lab component focused on applying concepts with data.

Prerequisites: Upper-level undergraduate standing.**Cross-listed with** BIOL F470; MBI F476.**Stacked with** BIOL F670; FISH F676; MBI F676.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F487 Fisheries Management (n)**

3 Credits

Offered Spring

Theory and practice of fisheries management, including strategies utilized for the management of freshwater and marine fisheries. Application of quantitative methodologies for the assessment and manipulation of aquatic habitats, fish populations and human resource users are considered, as is the setting of appropriate goals and objectives for science-based management.

Prerequisites: COM F131X or COM F141X; FISH F288; STAT F200X.**Stacked with** FISH F687.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F490 Experiential Learning: Fisheries and Marine Sciences Internship**

1 Credit

Offered Fall, Spring and Summer

Under the supervision of a faculty member and a fisheries or marine sciences professional, upper-division students gain professional experience through employment. Requirements are decided prior to enrollment based on a 3-way agreement between the employer, student, and faculty member, which contains learning objectives that reflect upper-division credit.

Prerequisites: Junior or senior standing plus permission of Faculty Sponsor and the Fisheries Experiential Learning Coordinator/instructor (the Coordinator can be a sponsor as well); signing of a student internship agreement form that contains learning objectives for the internship that reflects upper-division internship credit.

Recommended: FISH F315; STAT F200X; STAT F401.**Special Notes:** Can be repeated up to 4 times, each for a different type of employment.**Lecture + Lab + Other:** 0 + 0 + 1-4**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 4 times for up to 4 credits**FISH F492 Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**FISH F492P Seminar**

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**FISH F498 Senior Thesis Proposal**

1-3 Credits

Students will complete the first part of a year-long, self-designed scholarly project that is the capstone of a student's exemplary academic performance. For this component of senior thesis, the student will develop a proposal that will reflect a thorough understanding of the existing literature, study objectives and testable hypotheses, the methodology by which data will be collected through field and/or laboratory research, including data analyses, and a timeline by which the senior thesis will be completed. The student should also complete the collection of field and/or laboratory data and begin data analysis.

Prerequisites: Fisheries major with senior standing; a GPA of 3.2 or higher and permission of a Fisheries Division faculty mentor and the SFOS Internship Coordinator (the coordinator may also be a mentor); STAT F200X and ENGL F414.

Recommended: FISH F315; STAT F401 or STAT F402.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F499 Fisheries Senior Thesis**

2-4 Credits

Students will complete the second part of a year-long, self-designed scholarly project that is the capstone of a student's exemplary academic performance. For this component of senior thesis, the student will complete analysis of field and/or laboratory data collected during FISH F498 and develop a research paper/manuscript that will interpret the study results and cast them within the context of the existing literature relevant to the study topic. Students will be expected to work with their senior thesis mentor to submit the manuscript for peer review to a scientific journal and will be required to present their study results as an oral or poster presentation.

Prerequisites: Fisheries major with senior standing; with a GPA of 3.2 or higher; and permission of a Fisheries Division faculty mentor and the SFOS Internship Coordinator (the coordinator may also be a mentor); FISH F498.

Recommended: FISH F315; STAT F401; STAT F402.**Lecture + Lab + Other:** 0 + 0 + 2-4**Grading System:** Letter Grades with option of Plus/Minus**FISH F604 Modern Applied Statistics for Fisheries**

4 Credits

Offered As Demand Warrants

Covers general statistical approaches to quantitative problems in marine science and fisheries with guidance on how to collect and organize data, how to select appropriate statistical methods and how to communicate results. A variety of advanced statistical methods for analyzing environmental data sets will be illustrated in theory and practice.

Prerequisites: STAT F200X; STAT F401; proficiency in computing with R.**Cross-listed with** MBI F604.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F605 Communicating Science to the Public**

2 Credits

Offered Spring Odd-numbered Years

A focus on practical skills in communicating research to peers and public audiences. Short lectures, readings and discussion will focus on communication issues in environmental science and management and best practices for good oral and written communication.

Prerequisites: Graduate standing in the sciences.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

FISH F611 Human Dimensions of Environmental Systems

3 Credits

Offered Fall

Study of human-environment relationships and applications to resource management. Draws on a range of social scientific approaches to the study of environmental systems, including: environmental anthropology, environmental history, historical ecology, political ecology, ethnecology, property theory and environmental justice.

Prerequisites: Graduate standing.**Stacked with** FISH F411.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F613 Human-environment Research Methods**

3 Credits

Offered Fall Even-numbered Years

Basic overview of qualitative and quantitative social science methods for studying human-environment relationships. Introduction to research ethics, research design, data collection, data analysis and data reporting. Methods and data analysis techniques include interviews, text analysis, surveys, scales, cognitive anthropology and ethnecology, social networks, behavioral observation and visual methods.

Prerequisites: Graduate standing.**Stacked with** FISH F412 and ANTH F412.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F616 Indigenous Fisheries of Alaska**

3 Credits

Offered Fall Odd-numbered Years

Introduces students to the breadth and depth of Indigenous knowledge, practice and governance of fisheries and environmental systems across Alaska. Explores and compares European ontological and epistemological positions that form the base of Western science. This course pairs weekly class meetings with an intensive in-person retreat.

Prerequisites: Permission by Department.**Lecture + Lab + Other:** 2.64 + 0 + 1.64**Grading System:** Letter Grades with option of Plus/Minus**FISH F621 Estimation of Fish Abundance**

3 Credits

Offered Spring Even-numbered Years

Estimation of abundance of fish and other aquatic populations, using mark-recapture, line-transect, catch-effort and change-in-ratio techniques. Computer lab work and homework from actual and simulated populations.

Prerequisites: MATH F252X; STAT F401.**Recommended:** MATH F302; MATH F314.**Lecture + Lab + Other:** 2 + 2.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F622 Quantitative Fish Population Dynamics**

3 Credits

Offered Spring Odd-numbered Years

Modeling fish population mortality, recruitment individual growth and fecundity. Models and assessment techniques for age- and length-structured populations. Biological reference points and management strategies derived from population and harvesting parameters. Computer lab work and homework with data from actual and simulated populations.

Prerequisites: MATH F252X; STAT F401.**Recommended:** MATH F302; MATH F314.**Lecture + Lab + Other:** 2 + 2.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F625 Population Dynamics of Vertebrates**

3 Credits

Offered Spring Even-numbered Years

Sampling vertebrate populations, modeling their population dynamics and the implications for management. Focus will be on study design, model assumptions, estimation of population parameters and inference. State-of-the-art computer applications will be employed in laboratory exercises of actual and simulated data.

Prerequisites: BIOL F371; STAT F401.**Cross-listed with** WLF F625.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F626 Behavioral Ecology of Fishes**

3 Credits

Offered Spring Even-numbered Years

This course will provide upper-level undergraduate and graduate students with an advanced understanding of behavioral responses and adaptations of fishes in both freshwater and marine systems to natural and anthropogenic environmental variables. It provides students an option to fulfill upper-level undergraduate and graduate required and elective course work. Before enrolling, students should have a sound understanding of both ecological and biological concepts relating to fishes.

Prerequisites: BIOL F371 or FISH F427.**Recommended:** FISH F425.**Stacked with** FISH F426.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F627 Statistical Computing with R**

2 Credits

Offered Fall

Using the free, open-source software R to teach computing, programming, and modeling concepts for the statistical computing of fisheries and biological data. Prepares students for other graduate-level, quantitative fisheries courses and covers exploratory statistical and graphical analyses, as well as computer-intensive methods such as bootstrapping and randomization tests.

Prerequisites: STAT F200X; STAT F401; proficiency with Excel.**Cross-listed with** MBI F627; OCN F627.**Lecture + Lab + Other:** 1 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F628 Physiological Ecology of Fishes**

3 Credits

Offered Spring Odd-numbered Years

An advanced exploration of the physiological responses and adaptations of fishes in both freshwater and marine systems to natural and human-induced environmental changes.

Prerequisites: BIOL F310, FISH F427 or BIOL F427; graduate standing.**Stacked with** FISH F428.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

FISH F631 Data Analysis in Community Ecology

3 Credits

Offered Spring Odd-numbered Years

This course will provide an overview of statistical methods that have been specifically developed to aid our understanding and interpretation of the structure, abundance, and distribution of species and communities in relation to resources and the environment.

Prerequisites: STAT F200X; STAT F401; FISH F627 (Statistical Computing with R) or familiarity with R, general ecology, graduate standing in fisheries.

Cross-listed with MBI F631; OCN F631.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FISH F633 Pacific Salmon Life Histories

3 Credits

Offered Spring Even-numbered Years

Introduction to the life histories of Pacific salmon. Exploring variation in life history traits within and among species, within and among populations, at each stage of the salmon life cycle. Understanding evolutionary and ecological contexts life histories. Discussing management and conservation of Pacific salmonid species throughout their range- Alaskan focused.

Prerequisites: BIOL F115X; BIOL F116X.

Stacked with FISH F433.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FISH F635 Data Visualization in Fisheries

2 Credits

Offered Spring

Fundamental methods for presenting fisheries data visually, including figures, tables and visual abstracts. Focus will be on effective design and the preparation of publication-ready figures and tables. Student activities will include critiquing figures and tables published in fisheries literature as well as creating their own from existing datasets.

Prerequisites: STAT F401.

Stacked with FISH F435.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FISH F641 Ecosystem-based Fisheries Management

2 Credits

Offered Spring Odd-numbered Years

This course examines the theory and practice of ecosystem-based fisheries management (EBFM). Topics include legal frameworks, principles, governance, approaches, scientific basis, management implementation and outcomes of EBFM. Emphasis is placed on Alaska with other illustrative examples from around the world.

Prerequisites: FISH F487 or graduate standing.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FISH F643 Fisheries Oceanography

4 Credits

Offered Fall Odd-numbered Years

Oceanography of marine processes affecting vertebrates and invertebrates. Interactions between fisheries resources and physical and biological oceanography, and climatological and meteorological conditions that support sustainable management. Topics include recruitment, transport, mortality, feeding, distribution, abundance, El Nino/La Nina, regime shifts, and climate change. Global to local scales. Worldwide ecosystems and examples.

Prerequisites: Graduate standing.

Cross-listed with OCN F643.

Stacked with OCN F443, FISH F443.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FISH F645 Bioeconomic Modeling and Fisheries Management

3 Credits

Offered Fall Odd-numbered Years

An introduction to analytic and computational models of discrete-time representations of bioeconomic systems, including comparative static and optimal control approaches to optimizing unitary and multiple criteria subject to deterministic and stochastic dynamic processes. Particular attention is given to bioeconomic models of optimal management of exploited populations of fish and shellfish.

Prerequisites: STAT F401; MATH F230X or MATH F251X; graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FISH F646 Freshwater Habitat Dynamics

3 Credits

Offered Fall Even-numbered Years

Theoretical background of habitat dynamics in freshwaters with a focus on the response of biota and practical application of current sampling methods.

Prerequisites: Graduate standing.

Cross-listed with BIOL F646.

Stacked with FISH F446, BIOL F446.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FISH F650 Fish Ecology

3 Credits

Offered Fall Odd-numbered Years

An exploration of how fishes interact with and adapt to their physical and biological environments. Examples focus on individual and population level of biological organization. Human impacts to the ecology of major freshwater and marine habitats are examined.

Prerequisites: Graduate standing.

Stacked with FISH F425.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

FISH F651 Aquatic Conservation and Management Genetics

3 Credits

Offered Fall Even-numbered Years

Genetics is one of the most rapidly growing fields of science and is fundamental for ecology, conservation and natural resource management. This course will cover population genetics, molecular ecology, evolutionary theory and quantitative methods, with an emphasis on genomic applications to marine and freshwater resource management.

Stacked with FISH F451.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F654 Benthic Ecology**

3 Credits

Offered Fall Even-numbered Years

Ecology of marine benthos, from subtidal to hadal zone. Methods of collecting, sorting, narcotizing, preserving and analyzing benthic assemblages, including video analytical techniques from submersibles and ROVs. Hydrothermal vent and cold seep assemblages. Physiology/energetics of benthic organisms, including animal-sediment relationships, feeding, reproduction and growth. Depth, spatial and latitudinal distribution patterns.

Prerequisites: Invertebrate zoology course, marine biology course.**Cross-listed with** MBI F654.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F670 Quantitative Analysis for Marine Policy Decisions**

3 Credits

Offered Spring Odd-numbered Years

An introduction to the practical application of mathematical programming, operations research, simulation, cost-benefit analysis, cost effectiveness analysis, regional impact assessment, economic valuation, risk analysis, adaptive management and other decision theoretic tools in preparation of regulatory documents required for the management of living marine resources and for assessment of environmental damages.

Prerequisites: STAT F401; MATH F230X or MATH F251X; graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F671 Foundations of Marine Policy and Ocean Governance**

3 Credits

Offered Fall

This course provides a foundation in developing, analyzing, and enforcing laws and policies that govern the marine environment and living marine resources. Subjects addressed include transportation, environmental protection, energy development, seabed mining, fisheries, mariculture, coastal zone development and hazard mitigation.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F672 Law and Fisheries**

3 Credits

Offered Fall Even-numbered Years

This course introduces students to the key federal and state laws that govern fisheries in Alaska state waters, U.S. territorial seas, and the U.S. exclusive economic zone off Alaska. In addition, the course introduces students to seminal court rulings that have shaped the application of those laws.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F673 International Maritime Law and IUU Fishing**

3 Credits

Offered Fall Odd-numbered Years

This course introduces students to international maritime law governing territorial seas, exclusive economic zones and the high seas. Particular attention is given to laws and institutions that address illegal, unreported and unregulated (IUU) fishing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F674 Economic Development for Fish-dependent Communities**

3 Credits

Offered Spring Even-numbered Years

An introduction to the economic organization of fishery-dependent communities in Alaska, tools for characterizing community-scale economies, principles of economic development, methods of measuring regional economic impacts of changes in access to fisheries, and a review of policies intended to support the continuity and development of these communities.

Prerequisites: STAT F401 or ECON F227.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F675 Political Ecology**

3 Credits

Offered As Demand Warrants

Introduction to the field of political ecology. Topics include the sociology of scientific knowledge, traditional and local ecological knowledge, politics of resource management, processes of enclosure and privatization, environmental values, conservation, environmental justice, and colonialism and economic development.

Prerequisites: Graduate standing.**Cross-listed with** ANTH F675.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F676 Aquatic Food Web Ecology**

3 Credits

Offered Fall Even-numbered Years

Examines theoretical and applied aspects of aquatic food web ecology, from the ecological processes that give rise to patterns in aquatic communities to the incorporation of trophic interactions into ecosystem-based management. Includes a lecture component focused on peer reviewed studies and a lab component focused on applying concepts with data.

Cross-listed with BIOL F670; MBI F676.**Stacked with** BIOL F470; FISH F476; MBI F476.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F677 Scientific Writing Techniques**

3 Credits

Offered As Demand Warrants

Students learn to write scientifically with skill and clarity by practicing using easy-to-follow writing techniques to write and rewrite a draft manuscript. Topics include writing approaches, storytelling, outlines, style, grammar, punctuation, and editorial review. Most beneficial for graduate students writing theses, but provides excellent writing experience for new students.

Prerequisites: Graduate Standing.**Cross-listed with** OCN F677.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Pass/Fail Grades

FISH F681 The North Pacific Fishery Management Council

2 Credits

Offered Summer

This course immerses students into the scientific and policy basis for federal fisheries management in Alaska. Lectures introduce the laws that underlie federal fisheries management of Alaska and issues scheduled for the upcoming NPFMC meeting. Experiential learning will occur through participation in the meeting and discussions with fishery stakeholders.

Lecture + Lab + Other: 12 + 0 + 26**Grading System:** Pass/Fail Grades**FISH F682 Field Course in Salmon Management**

4 Credits

Offered Summer Odd-numbered Years

A hands-on study of salmon management, with participation of harvesters, processors, managers and scientists. Students will track the return of salmon to Bristol Bay and estimate the total return as the runs develop. Consists of a combination of lectures, computer laboratories and field experience in data collection.

Prerequisites: Permission of instructor.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F683 The Alaska Board of Fisheries**

2 Credits

Offered Spring

An experiential immersion into Alaska's state fisheries management. Classroom sessions explore state and federal laws and fishery management strategies that underpin the management of sport, commercial and subsistence fisheries in Alaska and preview current fishery management issues. Students will experience the decision-making process by observing a BOF meeting.

Prerequisites: Graduate standing.**Special Notes:** Students are responsible for their own travel costs.**Lecture + Lab + Other:** 1.5 + 0 + 2**Grading System:** Pass/Fail Grades**FISH F687 Fisheries Management (n)**

3 Credits

Offered Spring

Theory and practice of fisheries management, including strategies utilized for the management of freshwater and marine fisheries. Application of quantitative methodologies for the assessment and manipulation of aquatic habitats, fish populations and human resource users are considered, as is the setting of appropriate goals and objectives for science-based management.

Prerequisites: graduate standing.**Stacked with** FISH F487.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FISH F690 Marine Policy Internship**

2-6 Credits

Offered Fall, Spring and Summer

Students of the MMP program participate in internships to broaden their interdisciplinary training, develop new research tools and build expertise outside their home disciplines. Internships require 42 hours of directed professional activity per course credit hour.

Special Notes: Internships must be pre-approved by the MMP program coordinator and require a student internship agreement form signed by the student, the instructor, the MMP program coordinator, and the internship host.

Lecture + Lab + Other: 0 + 0 + 84-252**Grading System:** Pass/Fail Grades**FISH F691 Marine Policy Capstone**

3 Credits

Offered Fall, Spring and Summer

A directed project or literature review demonstrating a capacity to gather, interpret, synthesize and apply MMP program coursework and internship experience to a contemporary or historic marine policy issue. In addition, this course explores perspectives on research ethics and the responsible conduct of research.

Prerequisites: FISH F671; graduate standing.

Special Notes: FISH F691 is an advanced course taken after completion of at least 9 credits of required or elective MMP program courses.

Lecture + Lab + Other: 1 + 0 + 10**Grading System:** Pass/Fail Grades**FISH F692 Seminar**

0.5-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**FISH F692P Seminar**

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 15 times for up to unlimited credits**FISH F698 Non-thesis Research/Project**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**FISH F699 Thesis**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Foreign Languages (FL)

College of Liberal Arts

Department of Foreign Languages and Literatures (<https://www.uaf.edu/language/>)

907-474-7396

FL F200X World Literature (h)

3 Credits

Offered Fall, Spring and Summer

Introduction to a wide variety of literary texts from different world cultures. Includes a range of approaches to genres that may include myth, poetry, storytelling, drama and essays. Students will gain an understanding of cross-cultural differences and similarities. Course may be repeated for credit when content varies.

Cross-listed with ENGL F200X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FL F433 Studies in French and European Cinema (h)**

3 Credits

Offered As Demand Warrants

The course discusses the evolution of French and European cinema in historical and artistic contents.

Prerequisites: ENGL F217X or FLPA F217X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; FREN F301 or FREN F302.

Cross-listed with FREN F433, FLPA F433.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**FL F451 Foreign Language Teaching Practicum**

3 Credits

Offered As Demand Warrants

Methodology workshop for the advanced second language student. Includes language acquisition and pedagogy and employment of these techniques in a lower level language classroom under the supervision of a classroom teacher. Enrollment subject to available classroom placement.

Prerequisites: Completion of FREN F302 or SPAN F302 or RUSS F302 language course.

Lecture + Lab + Other: 2 + 0 + 3-5**Grading System:** Letter Grades with option of Plus/Minus

French (FREN)

College of Liberal Arts

Department of Foreign Languages and Literatures (<https://www.uaf.edu/language/languages/french.php>)

907-474-7396

FREN F101X Elementary French I (h)

4 Credits

Offered Fall and Spring

Introduction to French language and culture. Development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 1,000 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FREN F102X Elementary French II (h)**

3 Credits

Offered Spring

Introduction to French language and culture. Development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 1,000 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials.

Prerequisites: FREN F101X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FREN F201 Revision/Early Intermediate French (h)**

3 Credits

Offered Fall

Revision of fundamental French skills via French-language films. Designed for students with previous exposure to French.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FREN F202 Intermediate French II (h)**

3 Credits

Offered Spring

Increasing emphasis on reading ability and cultural material. Conducted in French.

Prerequisites: FREN F201.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FREN F203 Conversational French II (h)**

3 Credits

Offered As Demand Warrants

Oral skills improvement. Includes group work, presentations, skits, discussions and vocabulary to improve speaking on specific topics. Does not satisfy core curriculum or foreign language major requirements.

Prerequisites: FREN F102X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Pass/Fail Grades**FREN F301 Advanced French**

3 Credits

Offered Fall

Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in French.

Prerequisites: FREN F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**FREN F302 Advanced French II (h)**

3 Credits

Offered Spring

Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in French. Continuation of FREN F301.

Prerequisites: FREN F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

FREN F431 Studies in the Culture of the French Speaking World (h)
3 Credits
Offered Fall

Intensive study of selected aspects of the culture of the French-speaking world. Course may be repeated for credit if topic varies.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; FREN F302; junior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 12 credits

FREN F432 Studies of French Literature (h)
3 Credits

Offered As Demand Warrants

Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Course may be repeated for credit if topic varies.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; FREN F302; junior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to unlimited credits

FREN F433 Studies in French and European Cinema (h)
3 Credits

Offered As Demand Warrants

The course discusses the evolution of French and European cinema in historical and artistic contents.

Prerequisites: ENGL F217X or FLPA F217X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; FREN F301 or FREN F302.

Cross-listed with FLPA F433, FL F433.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

General Studies (GENR)

Division of General Studies

Undergraduate Interdisciplinary Studies (<https://www.uaf.edu/inds/>)
907-479-2436

GENR F201 Academic Recovery
3 Credits

This course helps students who are facing academic challenges to identify strengths, weaknesses and goals through self-exploration and the creation of a project that involves building campus relationships and the development of research and presentation skills. Enrollment is highly encouraged for students placed on academic probation or disqualification.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GENR F340 Peer Advisor Training
1 Credit

Offered Spring

Emphasis on developing skills needed to assist exploratory/undecided students with their academic planning and decision making. Topics include resource referral, communication/active listening, academic and career planning, time and stress management, group dynamics, and values clarification.

Prerequisites: Sophomore standing; application.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

GENR F342 Peer Advising Practicum
1-3 Credits

Supervised peer advising experience (both individually and paired with faculty member) in the Academic Advising Center or appropriate department, allowing for application of theory and skills gained in GENR F340. Course may be repeated once for credit.

Prerequisites: GENR F340.

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 1 time for up to unlimited credits

GENR F400 Interdisciplinary Capstone
0 Credit

Offered Fall, Spring and Summer

Students identify their values, strengths, and post-graduation goals. They will prepare a resume and writing sample. Students will also be expected to develop and research an action plan to reach their stated goals. These materials have practical applications and facilitate self-reflection on the learning outcomes of their interdisciplinary degree.

Prerequisites: admittance to an interdisciplinary major; senior standing.

Cross-listed with INDS F400.

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Geological Engineering (GE)

College of Engineering and Mines

Department of Civil, Geological, and Environmental Engineering (<http://cem.uaf.edu/cee.aspx>)
907-474-7241

GE F101 Introduction to Geological Engineering
1 Credit

Offered Fall

Multiple aspects of geological engineering as a profession; the area and scope of the field.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

GE F261 General Geology for Engineers
3 Credits

Offered Spring

Study of common rocks and minerals, landforms and erosion. Geologic materials and engineering application of geology.

Prerequisites: MATH F151X; MATH F152X; Geology, science or engineering majors.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GE F322 Erosion Mechanics and Conservation
3 Credits

Offered As Demand Warrants

Engineering mechanics of water and wind erosion processes, types of geologic or anthropogenic induced erosion, application of engineering principles for design, management and control of erosion and engineering analysis of conservation structures.

Prerequisites: ES F341.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GE F326 Introduction to Geotechnical Engineering and Foundations

4 Credits

Offered Fall

Identification and classification of soils; physical and mechanical properties of soil; subsurface exploration; movement of water through soil; soil deformation. Bearing capacity of shallow foundations and piles, and stability of retaining walls. Laboratory testing techniques, and introduction to soil issues related to cold regions.

Prerequisites: ES F331 (may be taken concurrently); GE F261.

Crosslisted with CE F326.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GE F365 Geological Materials Engineering

3 Credits

Offered Fall

Identification and classification of soils, physical and mechanical properties of soil, interaction of soils with subsurface water, subsurface exploration and case studies with an emphasis on permafrost.

Prerequisites: ES F208; GE F261.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GE F375 Terrain Analysis and GIS

3 Credits

Offered Spring

Evaluation of terrain characteristics and their geomorphic processes, using GIS techniques in combination with remotely sensed data for engineering and environmental applications. Alaska applications are considered.

Prerequisites: GE F261.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GE F376 GIS Applications in Geological and Environmental Engineering

3 Credits

Offered Spring Odd-numbered Years

Fundamentals, concepts and components of geographic information systems (GIS) in engineering design. Introduction to acquiring, manipulating and analyzing digital terrain data for geological engineering and environmental applications, and the assessment of mineral resources. NRM F338 Recommended.

Prerequisites: GE F261; GE F375.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GE F381 Field Methods and Applied Design I

2 Credits

Offered Summer

Techniques and geologic mapping and geotechnical instrumentation applied to engineering design and resource evaluation.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; GE F261; GEOS F213; GEOS F214; GEOS F322; GEOS F314.

Lecture + Lab + Other: 1 + 0 + 40

Grading System: Letter Grades with option of Plus/Minus

GE F382 Field Methods and Applied Design II

2 Credits

Offered Summer

Techniques and geologic mapping and geotechnical instrumentation applied to engineering design and resource evaluation.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; GE F261; GEOS F213; GEOS F214; GEOS F322; GEOS F314.

Lecture + Lab + Other: 1 + 0 + 40

Grading System: Letter Grades with option of Plus/Minus

GE F400 Geological Engineering Internship

1-3 Credits

Offered Summer

Supervised work experience in engineering organizations. Assignments will be individually arranged with cooperating organizations from the private and public sectors. A report of activities must be completed and reviewed by the sponsoring organization. The report may be held in confidence at the request of the sponsoring organization.

Prerequisites: Upper-division standing.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 2 times for up to 6 credits

GE F405 Engineering and Environmental Geophysics

3 Credits

Offered Fall

Theory and application of seismic, electrical, gravity, magnetic, and electromagnetic methods for delineating near-surface features and structures as applied to engineering, environmental, and resource exploration problems. Overview of instrumentation, and the data acquisition, analysis, and interpretation process through hands-on practice.

Prerequisites: GE F375; PHYS F212X.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GE F420 Groundwater Engineering

3 Credits

Offered Fall

Fundamentals of groundwater occurrence, hydrology, resource development, water quality, monitoring and remediation. Field methods and modeling.

Prerequisites: CE F326, GE F326; ES F341.

Cross-listed with CE F420.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GE F430 Geomechanical Instrumentation

3 Credits

Offered As Demand Warrants

Measurement of groundwater pressure, ground deformation, stress and temperature as well as the planning of monitoring programs, instrument calibration, maintenance and installation, data collection, interpretation, and reporting. Case histories are used.

Prerequisites: ES F331; GE F261 or GEOS F101X.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GE F440 Slope Stability

3 Credits

Offered Fall Odd-numbered Years

Slope design for open pit mining and other excavations. Stability analysis by various methods and on-site measuring and monitoring techniques.

Prerequisites: ES F331.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GE F441 Geohazard Analysis

3 Credits

Offered Fall Even-numbered Years

Procedures and techniques to evaluate geological factors for geohazards, such as landslides, earthquakes, volcanoes, flooding, coastal hazards and permafrost-related problems.

Prerequisites: GE F326.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GE F445 Design of Earth Dams and Embankments**

3 Credits

Offered Fall Odd-numbered Years

Preliminary planning for design and construction of dams, site selection, reservoir assessment, foundation and other building materials, procedure for design of earth dams, design of abutment and spillway, estimation of volume of earthworks and storage capacities, site preparation for construction, excavation, slope stability issues and other geological engineering assessments.

Prerequisites: senior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GE F480 Senior Design**

3 Credits

Offered Spring

Design factors and procedures for the solution of geological engineering problems. A design project is the focus of the course.

Prerequisites: Senior standing in the geological engineering program with completion of GE F381; GE F382; GE F405; GE F420.**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**GE F620 Advanced Groundwater Hydrology**

3 Credits

Offered As Demand Warrants

Study of groundwater hydrology with emphasis on solute and contaminant transport, chemical reaction and ion exchange, advection and diffusion and computer modeling.

Prerequisites: GE F610; graduate standing.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GE F622 Advanced Soil Physics**

3 Credits

Offered As Demand Warrants

Fundamentals of soil physical processes, multiphase flow, heat transfer and transport in unsaturated porous media such as soils. Application of principles of unsaturated flow to geo-environmental and geotechnical problems. Characterization of hydraulic properties in relation to soil physical parameters in the context of geoengineering problems of flow, transport and stability.

Prerequisites: GE F610 and Graduate standing in Engineering.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GE F624 Stochastic Hydrology and Geohydrology**

3 Credits

Offered As Demand Warrants

Overview of the stochastic methods used to study and analyze hydrolic and geohydrolic processes. Emphasis on modeling hydrolic processes using statistical methods and stochastic interplay of processes between surface and subsurface hydrology.

Prerequisites: GE F620 and graduate standing in Engineering.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 3 credits**GE F626 Thermal Geotechnics**

3 Credits

Offered As Demand Warrants

Fundamentals of thermal regimes of soils and rocks. Thermal impact of structures on soils. Thawing of permafrost beneath roads, buildings and around pipelines. Natural and artificial freezing of soils. Engineering means to maintain thermal regime of soils. Thermal design considerations.

Prerequisites: CE F326; CE F422.**Cross-listed with** CE F626.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GE F635 Advanced Geostatistical Applications**

3 Credits

Offered As Demand Warrants

Introduction to the theory and application of geostatistics. Review of classical statistics, continuous and discrete distributions, hypothesis testing and global estimation. Presentation of fundamental geostatistical concepts including: variogram, estimation variance, block variance, kriging, geostatistical simulation. Emphasis on the practical application of geostatistical techniques.

Prerequisites: MIN F408; graduate standing.**Cross-listed with** MIN F635.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GE F663 Groundwater Hydrology**

3 Credits

Offered Fall Even-numbered Years

Fundamentals of groundwater aquifer formations, groundwater flow, resource development, management and protection.

Cross-listed with CE F663.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GE F665 Advanced Geological Materials Engineering**

3 Credits

Offered As Demand Warrants

In-depth study of geological materials (aggregates--sand, gravel and crushed rock for construction purposes) exploration, evaluation, testing and production. Emphasis placed on geological materials used for construction in Arctic and sub-Arctic environments, economic analysis of pit and quarry operations and availability of materials in Alaska.

Prerequisites: GE F365.**Recommended:** MIN F408.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

GE F666 Advanced Engineering Geology

3 Credits

Offered As Demand Warrants

The interaction between geology and engineering case histories.

Prerequisites: GE F365; graduate standing.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GE F668 Tunneling Geotechniques**

3 Credits

Offered As Demand Warrants

Tunnel design, case histories, student report.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GE F692 Graduate Seminar**

1 Credit

Topics in geological engineering explored through talks, group discussions and guest speakers with a high level of student participation.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**GE F692P Graduate Seminar**

1 Credit

Offered As Demand Warrants

Topics in geological engineering explored through talks, group discussions and guest speakers with a high level of student participation.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**GE F698 Non-thesis Research/Project**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**GE F699 Thesis**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Geosciences (GEOS)

College of Natural Science & Mathematics

Department of Geosciences

907-474-7565

GEOS F101L GEOS F101X Laboratory

0 Credit

Offered Fall

Co-requisites: GEOS F101X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**GEOS F101X The Dynamic Earth (n)**

4 Credits

Offered Fall

An introduction to how the Earth works and the geophysical and geochemical basis for our understanding of the Earth, emphasizing Alaskan examples. A course theme is that the Earth is changing around us, at a variety of scales. Students collect, analyze and interpret data in all laboratory exercises.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.**Co-requisites:** GEOS F101L.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F102X Wicked Maps for Wicked Problems: Geographic Information Systems Across Disciplines**

4 Credits

Offered Spring

Today's digital maps give instant information about pretty much anything in the world. They help find where people want to go, and also make change possible. Students will learn how to create digital maps that convey all types of information about any place around the globe.

Attributes: UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F106X Life in the Age of Dinosaurs (n)**

4 Credits

Offered Spring Even-numbered Years

Promote a broader understanding of deep time through an examination of life and environments during the Mesozoic, or "Age of Dinosaurs."

Discussions and exercises will focus on major events and processes that shaped the physical environments of the Mesozoic, such as the formation and break up of continents, global climate, and changing sea levels. Building on this foundation, the course will examine the fossil record to learn what it reveals about the major patterns in the diversity of terrestrial and marine life. Special emphasis will be placed on the origin, extinction, and paleobiology of dinosaurs. Important groups of contemporary vertebrates and invertebrates, including marine reptiles, mammals, flying reptiles, and ammonites will also be examined. The rise of flowering plants and the importance of fossil floras in understanding Mesozoic climates will be explored. Labs will provide opportunities to examine and identify fossils and use them to reconstruct ancient environments.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F111X Earth and Environment: Elements of Physical Geography (n)**

4 Credits

Offered Fall

This asynchronous online course focuses on the processes that shape the physical environment, especially in relation to Alaska. Climate change will serve as the capstone topic, which integrates course concepts with current challenges facing society. Labs will build research and skillsets through field and computer-based activities. Special fees will apply.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

GEOS F112L GEOS F112X Laboratory (n)

0 Credit

Offered Spring

Co-requisites: GEOS F112X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**GEOS F112X The History of Earth and Life (n)**

4 Credits

Offered Spring

Historical geologic interpretation, geologic time scale, stratigraphic record and interpretation. Sedimentation and plate tectonics, fossil record and utilization, biostratigraphy, and geologic evolution of the North American continent. Lab examination of fossils, interpretation of geologic maps and stratigraphic columns.

Prerequisites: GEOS F101X; placement in WRTG F111X; placement in MATH F105.**Co-requisites:** GEOS F112L.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F119 Glaciers, Earthquakes and Volcanoes: Past, Present and Future**

3 Credits

Offered Spring

This course provides a basic overview of the science and societal relevance of earthquakes, glaciers and volcanoes, with an emphasis on Alaska.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F120L GEOS F120X Laboratory**

0 Credit

Offered Spring

Co-requisites: GEOS F120X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**GEOS F120X Glaciers, Earthquakes and Volcanoes: Past, Present and Future (n)**

4 Credits

Offered Spring

This course provides a basic overview of the science and societal relevance of earthquakes, glaciers and volcanoes, with an emphasis on Alaska.

Co-requisites: GEOS F120L.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F190 The Geology of Wine**

2 Credits

Offered Spring Even-numbered Years

This course explores the relationship between geology, climate, and viticulture. Aspects of geology that influence landscape, soil development and climate are evaluated in reference to their effects on wine-growing regions. The geology, tectonic setting, soil and climate of individual wine-growing areas will be explored through lectures, discussions, class projects/presentations, and lab wine tastings.

Prerequisites: Student must be 21 years of age to enroll.**Lecture + Lab + Other:** 1.5 + 0.5 + 0**Grading System:** Pass/Fail Grades**GEOS F192 Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**GEOS F213 Mineralogy (n)**

4 Credits

Offered Fall

Mineral chemistry, atomic structure, elementary crystallography, optical crystallography and descriptive and determinative mineralogy. Instrumental determinative techniques (x-ray diffraction, petrographic microscope).

Prerequisites: MATH F151X, MATH F230X, MATH F251X, MATH F252X or MATH F253X (may be taken concurrently); CHEM F105X; GE F261 or GEOS F101X.**Lecture + Lab + Other:** 2 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F214 Petrology and Petrography (n)**

4 Credits

Offered Spring

Origin, occurrence and classification of igneous and metamorphic rocks. Laboratory work involves hand lens identification and thin section examination of representative rocks.

Prerequisites: GEOS F213.**Lecture + Lab + Other:** 2 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F221 Introduction to Field Geology**

2 Credits

Offered Spring Even-numbered Years

This course gives students the opportunity to apply 100-level geologic concepts at field sites with excellent exposures and straightforward stratigraphy. Participants use tools and technology, including a jacob staff, geologic compass, GPS receivers and mapping apps, to measure stratigraphic sections and create a geologic map on a topographic base map.

Prerequisites: GEOS F101X; GEOS F112X.**Lecture + Lab + Other:** 8 + 33 + 24**Grading System:** Letter Grades with option of Plus/Minus**GEOS F225 Field and Computer Methods in Geology (n)**

2 Credits

Offered Spring

We discuss and practice basic geologic field methods, including taking notes, topographic maps, measurement of structural elements, field mapping, and field safety, both with traditional analogue and modern digital tools. Computers are used for collecting data in the field, processing field and analytical data and producing maps and reports.

Prerequisites: GEOS F214 (may be taken concurrently).**Lecture + Lab + Other:** 1 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

GEOS F258 Unmanned Aircraft Systems (UAS) Operations

3 Credits

Offered As Demand Warrants

Covers the use of unmanned aircraft systems (UAS), sensors, and support infrastructure required to conduct a selected mission set. Emphasis is on mission analysis, planning, and conduct, including definition of requirements/constraints, identification of appropriate assets, flight planning considerations, and data analysis requirements. Teams coordinate resources for mission and report results.

Cross-listed with AERO F258; CS F258; and ME F258.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F262 Rocks and Minerals**

3 Credits

Offered Fall Even-numbered Years

Physical properties of minerals and rocks, classification, mode of occurrence and economic applications. Labs on recognition and measurement of physical properties. Course may not be used to satisfy degree requirements in geology or geological engineering.

Prerequisites: GE F261, GEOS F101X.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F292 Seminar**

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**GEOS F292P Seminar**

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**GEOS F304 Geomorphology (n)**

3 Credits

Offered Spring Odd-numbered Years

Surface features of the Earth and the processes which create or modify them. Application to Quaternary history, environmental science and related fields. Laboratory examination of topographic maps and aerial photographs, introduction to geomorphic measurements.

Prerequisites: GEOS F101X or GEOS F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F309 Tectonics**

3 Credits

Offered Fall Odd-numbered Years

In-depth exploration of Plate Tectonics theory including plate boundary interactions- which trigger volcanoes and earthquakes, form mountain belts and oceans- via geochemistry, sedimentology, geophysics and structure. Understanding creation and evolution of lithosphere and mantle, how we detect tectonic processes and how present tectonic environments help reconstruct ancient crustal events.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; GEOS F112X; GEOS F214 or GEOS F262 (either may be taken concurrently).**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F314 Structural Geology (n)**

4 Credits

Offered Spring

Introductory overview of how rocks are deformed, types of geological structures including folds, faults and penetrative fabrics, and the associations of structures characteristic of different tectonic settings. Provides background in structural geology. Emphasis in the laboratory on examples and techniques that are broadly applicable in geology, especially interpreting geologic maps.

Prerequisites: GEOS F320, GEOS F322 or GEOS F214 (GEOS F214 may be taken concurrently); MATH F152X; PHYS F123X or PHYS F211X.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F315 Paleobiology and Paleontology (n)**

4 Credits

Offered Fall Even-numbered Years

Survey of the history of life on Earth as represented in the fossil record. Contribution of paleontology to the study of evolution, past environments and paleogeography; biostratigraphically important invertebrate fossil groups and their temporal ranges; evolution of terrestrial flora and fauna; current issues in paleontology. Emphasis on recognition of major.

Prerequisites: BIOL F103X or BIOL F115X or GEOS F112X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F317 Paleontological Research and Laboratory Methods**

2 Credits

Offered As Demand Warrants

This introductory course covers the fundamentals of paleontological research and laboratory methods including fossil preparation, curation and digital imaging techniques such as microphotography and photogrammetry. Emphasis is placed on oral presentation of research results for both scientific and public audiences.

Prerequisites: GEOS F101X and GEOS F112X.**Lecture + Lab + Other:** 1 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F320 Sedimentology for Geological Engineers**

3 Credits

Offered Fall

Origin, classification, composition, transportation, deposition and diagenesis of sediments. Emphasis on sedimentary processes, sedimentary petrology and interpretation of ancient sedimentary rocks. Not intended for Geoscience majors and does not substitute for GEOS F322.

Corequisites: GEOS F213.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

GEOS F322 Stratigraphy and Sedimentation (n)

4 Credits

Offered Fall

Analysis and interpretation of sedimentary rocks in stratigraphic successions based on comparison with features found in modern depositional environments. Application of the principles of facies analysis and litho-, bio-, sequence, and chronostratigraphy in surface and subsurface examples. Emphasis in the laboratory on interpretation of depositional environments based on lithofacies, biofacies and sedimentary structures and correlation of stratigraphic sequences using surface and subsurface data.

Prerequisites: GEOS F101X or GE F261; GEOS F112X.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F332 Ore Deposits and Structure**

3 Credits

Offered Spring Even-numbered Years

Distribution and characteristics (especially mineralogy, morphology, and structure) of major mineral deposit types with background on structural techniques. Emphasis on application to mineral exploration and development. Laboratory exercises stress recognition of major mineral deposit types, zoning and grade patterns; and use of structural techniques in mineral deposit exploration/development.

Prerequisites: GEOS F262 or GEOS F213 and GEOS F214.**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F370 Sedimentology and Structural Geology for Petroleum Engineers (n)**

4 Credits

Offered Fall

Origin and distribution of sedimentary rocks including depositional environments, stratigraphic relationships and structures. Emphasis on the relationship to petroleum occurrences and petroleum exploration. Laboratory exercises on mapping, structural problems and facies relationships in petroleum exploration.

Prerequisites: GEOS F101X or GE F261.**Cross-listed with** PETE F370.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F375 Oral Communication Skills for Geoscientists**

1 Credit

Offered As Demand Warrants

This course will give you skills and practice in oral communication, especially as applied to professional geology. The course will provide a comfortable environment for students to develop and improve their skills both in creating and delivering oral presentations. The specific focus will vary with the instructor.

Prerequisites: COM F131X or COM F141X; GEOS F225; junior standing.**Lecture + Lab + Other:** 0.5 + 0 + 1.5**Grading System:** Letter Grades with option of Plus/Minus**GEOS F380 Geological Hazards**

3 Credits

Offered Spring

Surveys natural hazards and the disasters they cause, with emphasis on geological hazards in Alaska. Investigates hazardous phenomena, prediction and mitigation. Topics include: earthquakes, volcanoes, tsunamis, weather/climate and asteroid impacts. Provides foundation in basic geological hazards related to science, suitable for use in teaching, communications, policy and emergency management careers.

Prerequisites: GEOS F101X or GEOS F120X or GEOS F106X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F392 Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**GEOS F392P Seminar**

1-6 Credits

Lecture + Lab + Other: 1-6 + 6 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to 99 credits**GEOS F398 Research**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**GEOS F406 Volcanology**

3 Credits

Offered Spring Odd-numbered Years

Physical processes of volcanism. Topics include physical properties of magmas, eruption mechanisms, deposition mechanism and volcanic hazards. Emphasis on explosive volcanism and its products, pyroclastic rocks. Geochemistry and petrology will not be emphasized in this course.

Prerequisites: GEOS F101X or GEOS F120X; MATH F251X; PHYS F123X or PHYS F211X.**Stacked with** GEOS F606.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F413 Geology of Alaska**

2 Credits

Offered Fall Odd-numbered Years

An overview of the geological provinces of Alaska, followed by in-depth exploration of the geologic history and tectonic evolution of those regions.

Prerequisites: GEOS F309 and GEOS F314.**Stacked with** GEOS F612.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 4 credits

GEOS F416 Applied Geophysics (n)

3 Credits

Offered Spring Even-numbered Years

Introduction to the theory and practice of geophysical techniques and the interpretation and modeling of geophysical data. Topics include: gravity, GPS, magnetic seismic, and electrical methods and their application to regional and local geophysical exploration in Alaska.

Prerequisites: GEOS F419.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F417 Introduction to Geochemistry (n)**

3 Credits

Offered Fall

Application of chemical principles and elemental/isotopic behavior to the study of the Earth. Topics include: aqueous geochemistry, high-temperature mineral-elemental chemistry, isotopic chemistry, kinetics and thermochemistry.

Prerequisites: CHEM F106X; GEOS F322 or CHEM F202.**Stacked with** GEOS F618.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F419 Solid Earth Geophysics**

3 Credits

Offered Fall Odd-numbered Years

Concepts and techniques of geophysics including origin of the Earth, its structure and large scale dynamic processes responsible for its surface features. Geophysical techniques including seismology, gravity and magnetic methods are discussed along with measurements of the Earth's thermal structure, rotation rates, and tidal effects.

Prerequisites: MATH F251X; PHYS F124X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F422 Geoscience Applications of Remote Sensing (n)**

3 Credits

Offered Spring Odd-numbered Years

Remote sensing and its applications to geologic, environmental and physical sciences. Includes physical principles, digital image processing and hands-on project experience using satellite images for mapping and change detection.

Prerequisites: PHYS F124X or PHYS F212X.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F424 International Volcanological Field School**

3 Credits

Offered Summer

A field-based course that takes students to designated volcanoes and provides an opportunity to learn about volcanic processes through direct examination of volcanic products. Specific location to be announced at registration. Course may be repeated for credit when location varies. Students registering for the class must complete the course application and provide a reference letter.

Prerequisites: application required, permission of instructor, appropriate background in Geology, Chemistry and Physics.**Stacked with** GEOS F624.**Special Notes:** Students must be in good health, capable of hiking for at least 20 km per day carrying heavy backpacks, and be willing to camp under primitive, remote and possibly uncomfortable conditions.**Lecture + Lab + Other:** 2 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**GEOS F426 Applied Seismology**

4 Credits

Offered Spring Odd-numbered Years

Presentation of modeling techniques for analyzing earthquakes and Earth structure using wave propagation algorithms and real seismic data. Topics include the seismic wavefield (body waves and surface waves), earthquake moment tensors, earthquake location, and seismic tomography.

Prerequisites: MATH F253X; MATH F314.**Stacked with** GEOS F626.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F427 Inverse Problems and Parameter Estimation**

3 Credits

Offered Spring Even-numbered Years

An inverse problem uses observations to infer properties of an unknown physical model. This course covers methods for solving inverse problems, including numerous examples arising in the natural sciences. Topics include linear regression, method of least squares, estimation of uncertainties, iterative optimization, and probabilistic (Bayesian) and sampling approaches.

Prerequisites: MATH F253X; MATH F314.**Cross-listed with** PHYS F625.**Stacked with** GEOS F627.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F428 Elementary Scanning Electron Microscopy**

1 Credit

Offered Spring Even-numbered Years

Basic theory and operating procedures for scanning electron microscopy. Includes sample preparation, imaging and qualitative elemental analysis. Biological and nonbiological applications are covered.

Prerequisites: Junior standing.**Stacked with** GEOS F628.**Lecture + Lab + Other:** 0.5 + 1.5 + 0**Grading System:** Pass/Fail Grades**GEOS F430 Statistics and Data Analysis in Geology (n)**

3 Credits

Offered Spring

Computer-supported geologic applications of elementary statistics, Markov chains, time-series analysis, trend-surface analysis, factor analysis, cluster analysis, discriminant analysis, and multiple regression.

Prerequisites: GEOS F225; STAT F200X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F431 Foundations of Geophysics**

4 Credits

Offered Fall Even-numbered Years

Applications of continuum mechanics, heat flow, and potential theory to geophysical problems. Topics such as postglacial rebound, non-Newtonian fluid flow, thermal convection, stress-relaxation, rheology of Earth materials, gravity and magnetism will be discussed. Emphasis is on methods to solve problems in global and regional geophysics and the interpretation of solutions.

Prerequisites: GEOS F419; MATH F302; MATH F314.**Stacked with** GEOS F631.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

GEOS F436 Programming and Automation for Geoscientists

2 Credits

Offered Fall

Basic concepts of computer programming and effective task automation for computers, with an emphasis on tools and problems common to the geosciences and other physical sciences. Use of Python, Jupyter Notebooks, shell scripting and command line tools, making scientific figures, maps and visualizations. Provided asynchronously remotely.

Prerequisites: Senior standing.**Stacked with** GEOS F636.**Lecture + Lab + Other:** 1 + 3 + 0**Grading System:** Pass/Fail Grades**GEOS F438 Basin Analysis**

3 Credits

Offered As Demand Warrants

Examines sedimentary basins as a record of subsidence. Review and discuss techniques used to image basin stratigraphy as well as the quantitative techniques which can be used to recover basin history.

Prerequisites: GEOS F322 or GEOS F370.**Recommended:** GEOS F314; GEOS F419.**Stacked with** GEOS F638.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F452 Quaternary Seminar**

3 Credits

Offered As Demand Warrants

Discussion of the Quaternary Period (relatively recent past – spanning the past two million years) in order to gain a better understanding of the landscape, biota and climate of the present day. Quaternary studies are concerned with the historical dimension of the natural sciences.

Prerequisites: GEOS F304; GEOS F315; GEOS F322.**Cross-listed with** ANTH F451.**Stacked with** GEOS F651; ANTH F651.

Special Notes: Topics range widely over diverse interdisciplinary subjects of quaternary interest, such as paleoclimatology, paleobiogeography, vertebrate paleontology and sedimentology.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F453 Palynology and Paleopalynology (n)**

4 Credits

Offered Fall Even-numbered Years

Survey of the evolutionary record of palynomorphs and their uses in biostratigraphy and paleoclimatology. Focus on evolution of palynomorphs from Precambrian to the present and concurrent evolutionary developments of producing plants. Use of Quaternary palynofloras in reconstructing global climates. Labs involve collection of herbarium specimens, processing of fossil palynomorphs, study of type slides and a survey of palynofloras from each geologic period.

Prerequisites: BIOL F115X or GEOS F315; senior standing.**Stacked with** GEOS F653.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F454 Field Geology (n)**

6 Credits

Offered Summer Odd-numbered Years

Mapping sedimentary and crystalline rocks in different tectonic settings in central Alaska using analog and digital tools. Collecting structural and lithological data, compiling geologic maps, and drafting written reports. Mapping challenges increase from intensive guidance by "geo buddies" during the initial project to independent mapping during the final capstone project.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X; GEOS F214; GEOS F225; GEOS F309; GEOS F314; GEOS F315; GEOS F322; junior standing.**Lecture + Lab + Other:** 6 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F456 Paleopedology**

3 Credits

Offered As Demand Warrants

Origin, classification, composition, transportation, deposition and diagenesis of sediments. Emphasis on sedimentary processes, sedimentary petrology and interpretation of ancient sedimentary rocks. Not intended for Geoscience majors and does not substitute for Geos 322.

Prerequisites: GEOS F322 or NRM F380.**Stacked with** GEOS F656.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F458 Big Geospatial Data (n)**

3 Credits

Offered Fall Odd-numbered Years

Analysis of large geospatial data sets and data-driven modeling for solving geoscientific problems. The class intertwines i) cloud-based processing of big vector and raster data sets from GPS surveys, models and remote sensing, and ii) predictive modeling using data science techniques such as Random Forests.

Prerequisites: GEOS F422, NRM F338 or senior standing in science or engineering.**Stacked with** GEOS F658.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F459 Visible and Infrared Remote Sensing**

3 Credits

Offered Spring Even-numbered Years

The course covers the principles and practice of remote sensing in the visible and infrared region, including spectral signatures, radiative transfer, image analysis, and information extraction. The laboratory part provides hands-on experience with multispectral, thermal, hyperspectral, and LiDAR data sets. Practical examples are drawn from geology, hydrology, and forestry.

Prerequisites: GEOS F422.**Stacked with** GEOS F659.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

GEOS F460 The Dynamic Alaska Coastline

3 Credits

Offered Spring Even-numbered Years

This course will provide the knowledge base for understanding Alaska's dynamic coastlines with an emphasis on climate and tectonic, driven changes. The class includes a multiday field trip to Homer offering field-based learning activities. Special fees apply.

Prerequisites: Junior standing; GEOS F111X or GEOS F101X; CHEM F105X or PHYS F123X; NRM F338 or equivalent GIS coursework.

Stacked with GEOS F660.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F465 Geoarchaeology

3 Credits

Offered As Demand Warrants

Geological context of archaeological sites and the geologic factors that affect their preservation, with emphasis on Alaska. Includes a one or two-day weekend field trip in late April or early May.

Prerequisites: GEOS F101X, an introductory course in archaeology.

Cross-listed with ANTH F465.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F469 Geodetic Methods and Modeling

3 Credits

Offered Fall Odd-numbered Years

Theory and application of modern geodetic tools to measure Earth's surface deformation with emphasis on GPS and InSAR. Basics of data processing. Evaluation of signals and modeling of their sources. Applications include magma systems, earthquake cycle, and hydro- and cryosphere. Labs in Python require programming experience (GEOS F636/F436).

Prerequisites: MATH F410; MATH F314; MATH F432.

Stacked with GEOS F669.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F477 Ice in the Climate System (n)

3 Credits

Offered As Demand Warrants

Earth's cryosphere includes seasonal snow, permafrost, sea ice, mountain glaciers and ice sheets. This course will cover the formation of each of these forms of snow and ice and their response to changing environmental conditions. Interdisciplinary perspectives allow study of the role snow and ice plays within the Arctic system.

Prerequisites: PHYS F123X or PHYS F211X; MATH F251X.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F480 Climate Change Processes: Past, Present, Future

4 Credits

Offered Fall Odd-numbered Years

This 'synthesis' course for Geography, NRM, or Natural Sciences undergraduates provides literacy in the rapidly developing field of climate-change science. Students will gain an understanding of climate dynamics and Earth's climate history and will be trained to critically evaluate the validity of paleoclimatic reconstructions and climate-model predictions.

Prerequisites: Junior or senior standing.

Cross-listed with ATM F480.

Stacked with ATM F680 and GEOS F680.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F481 Snow in the Environment

3 Credits

Offered As Demand Warrants

Snow is a critical buffer between cold air temperatures and warming permafrost, between harsh winds and vegetation, and between herbivores and their food source. This course focuses on snow properties, metamorphism and redistribution by wind. We will examine the snows interactions with permafrost, glaciers, sea ice, vegetation, wildlife and humans.

Stacked with GEOS F681.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F482 Geoscience Seminar

1 Credit

Offered Fall and Spring

A weekly seminar, given by guest speakers, on a topic in geosciences. Students are expected to prepare for the seminars and to participate in discussion following the seminars.

Stacked with GEOS F682.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 99 times for up to 99 credits

GEOS F483 Research Design, Writing and Presentation Methods (n)

3 Credits

Offered Fall

This is a capstone professional development class where students write a research proposal, participate in engagement activities, and produce professional documents that prepare students for graduate and professional careers. It is writing and oral intensive and will focus on the oral and written presentation of your work.

Prerequisites: COM F131X or COM F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F485 Mass Extinctions, Neocatastrophism and the History of Life

3 Credits

Offered Spring Odd-numbered Years

In-depth analysis of mass extinction, focusing on evidence for catastrophes and impact on the uniformitarian paradigm. Effects of mass extinctions on the evolution of extant fossil biota is explored through classic and current papers. The course emphasizes critical reading and application of scientific methods to reconstruct catastrophic deep-time events.

Prerequisites: GEOS F322 and GEOS F315.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F486 Vertebrate Paleontology (n)

3 Credits

Offered Spring Odd-numbered Years

The study of vertebrate evolution through geologic time. Covers the temporal range, diversity and systematics of major vertebrate groups as documented in the fossil record, with an emphasis on current problems in vertebrate evolutionary pattern and process. Labs emphasize comparative morphology and identification of major vertebrate groups.

Prerequisites: BIOL F310 or GEOS F315.

Cross-listed with BIOL F486.

Stacked with GEOS F686; BIOL F686.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F488 Undergraduate Research

1-3 Credits

Offered As Demand Warrants

Advanced research topics from outside the usual undergraduate requirements.

Prerequisites: Permission of instructor.

Recommended: A substantial level of technical/scientific background.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 8 times for up to 24 credits

GEOS F488P Undergraduate Research

1-3 Credits

Offered As Demand Warrants

Advanced research topics from outside the usual undergraduate requirements.

Prerequisites: Permission of instructor.

Recommended: A substantial level of technical/scientific background.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 8 times for up to 24 credits

GEOS F492 Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

GEOS F492P Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 98 times for up to unlimited credits

GEOS F499 Geology and Geophysics Senior Thesis

3 Credits

This course is intended for talented students to explore geology or geophysics more deeply through research under the mentorship of a faculty member in the department.

Prerequisites: Geology and Geophysics major with senior standing and a GPA of 3.2 or higher, completion of a minimum of 2 credits of GEOS F488 on a project approved by faculty mentor and department chair, and submission of a proposal approved by faculty mentor and department chair.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F602 Geophysical Fields

3 Credits

Offered Spring Odd-numbered Years

Introduction to the application of potential theory and its associated mathematical tools to fields of geophysical interest, namely gravity, magnetics, and heat flow. Emphasis will be placed on methods and tools for solving a variety of problems in global and regional geophysics, and the geophysical interpretation of solutions.

Prerequisites: MATH F410 and MATH F432; or graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F604 Seismology

3 Credits

Offered Spring Odd-numbered Years

Sources of ground motion including focal mechanisms, magnitude and propagation of waves within the earth. Measurement of seismic data by analog and digital techniques and subsequent treatment of seismic data by various techniques including inversion.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F605 Geochronology

3 Credits

Offered Fall Odd-numbered Years

Application of the most commonly used radiometric dating methods to geologic problems. Fundamentals of the K-Ar, Rb-Sr, fission-track, U-Th-Pb and C methods. Laboratory training in K-Ar and fission-track dating techniques.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F606 Volcanology

3 Credits

Offered Spring Odd-numbered Years

Physical processes of volcanism. Topics include physical properties of magmas, eruption mechanisms, deposition mechanism and volcanic hazards. Emphasis on explosive volcanism and its products, pyroclastic rocks. Geochemistry and petrology will not be emphasized in this course.

Prerequisites: Graduate standing.

Stacked with GEOS F406.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F611 Advanced Structural Geology and Tectonics

3 Credits

Offered As Demand Warrants

This advanced course in structural geology and tectonics offers in-depth treatment of topics that may vary with each offering. Examples are tectonics and sedimentation, mountain belts of the world, structural analysis, structural geology of specific tectonic settings, active tectonics and topography, structural interpretation of seismic reflection data, and other topics.

Prerequisites: GEOS F314; graduate standing.

Special Notes: Course may be repeated for different topics up to three times for credit.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F612 Geology of Alaska

2 Credits

Offered Fall Odd-numbered Years

An overview of the geological provinces of Alaska, followed by in-depth exploration of the geologic history and tectonic evolution of those regions.

Prerequisites: Graduate standing.

Stacked with GEOS F413.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 4 credits

GEOS F614 Ice Physics

3 Credits

Offered Spring Even-numbered Years

A survey of the physics of ice. Topics will include the crystal structure and properties of ice, high pressure phases, hydrogen bonding, mechanical, thermal, electrical and acoustic properties, nucleation and growth, and optical and surface properties (adhesion, friction).

Prerequisites: Graduate standing.**Cross-listed with** PHYS F614.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F615 Sea Ice**

3 Credits

Offered As Demand Warrants

A study of sea ice in the natural environment including sea ice properties and processes on the micro-scale and the macro-scale, freezing processes and sea ice growth, ice decay and ice dynamics.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F616 Permafrost**

3 Credits

Offered As Demand Warrants

Study of the occurrence, thickness, environmental problems, and mass and energy transport of permafrost, including soil and ice interaction, freezing and thawing processes, and mechanical and electrical properties and processes.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F617 Glaciers**

3 Credits

Offered As Demand Warrants

The mechanisms responsible for the existence, motion and variations of present-day glaciers and ice sheets, the paleoclimate information they contain and their role in engineering hydrology.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F618 Introduction to Geochemistry**

3 Credits

Offered Fall

Application of chemical principles and elemental/isotopic behavior to study of the Earth. Topics include: aqueous geochemistry, high-temperature mineral-elemental chemistry, isotopic chemistry, kinetics and thermochemistry.

Prerequisites: CHEM F106X; GEOS F322 OR CHEM F331 and CHEM F332; graduate standing.**Stacked with** GEOS F417.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F621 Advanced Petrology**

4 Credits

Offered As Demand Warrants

A detailed treatment of various aspects of petrology. Specific topics to be considered in different semesters include metamorphic petrology, igneous petrology, and igneous and metamorphic petrography. Each time the course is offered, only one topic will be presented.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F621B Adv Petrology: Igneous Petrology**

3-4 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 2-3 + 3-6 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F621C Advanced Petrology**

3-4 Credits

Offered As Demand Warrants

An advanced course providing a detailed treatment of various aspects of petrology. Specific topics to be considered in different semesters include: (A) metamorphic petrology, (B) igneous petrology, and (C) igneous and metamorphic petrography. Each time the course is offered, only one topic will be presented.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 2-3 + 3-6 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F622 Digital Image Processing in the Geosciences**

3 Credits

Offered Fall Even-numbered Years

Image processing and analysis techniques to monitor and understand the Earth system. Geoscience applications to be addressed include thin-section analysis, remote sensing of geohazards and geomorphometry. Apart from lectures and demonstrations, the advantages and drawbacks of image processing techniques will be evaluated through exercises and a course project.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F624 International Volcanological Field School**

3 Credits

Offered Summer

A field-based course that takes students to designated volcanoes and provides an opportunity to learn about volcanic processes through direct examination of volcanic products. Specific location to be announced at registration. Course may be repeated for credit when location varies. Students registering for the class must complete the course application and provide a reference letter.

Prerequisites: graduate standing in volcanology.**Stacked with** GEOS F424.

Special Notes: Students must be in good health, capable of hiking for at least 20 km per day carrying heavy backpacks, and be willing to camp under primitive, remote and possibly uncomfortable conditions.

Lecture + Lab + Other: 2 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits

GEOS F626 Applied Seismology

4 Credits

Offered Spring Odd-numbered Years

Presentation of modeling techniques for analyzing earthquakes and Earth structure using wave propagation algorithms and real seismic data. Topics include the seismic wavefield (body waves and surface waves), earthquake moment tensors, earthquake location, and seismic tomography.

Prerequisites: MATH F253X; MATH F314.**Stacked with** GEOS F426.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F627 Inverse Problems and Parameter Estimation**

3 Credits

Offered Spring Even-numbered Years

An inverse problem uses observations to infer properties of an unknown physical model. This course covers methods for solving inverse problems, including numerous examples arising in the natural sciences. Topics include linear regression, method of least squares, estimation of uncertainties, iterative optimization, and probabilistic (Bayesian) and sampling approaches.

Prerequisites: MATH F253X; MATH F314.**Cross-listed with** PHYS F625.**Stacked with** GEOS F427.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F628 Elementary Scanning Electron Microscopy**

1 Credit

Offered Spring Even-numbered Years

Basic theory and operating procedures for scanning electron microscopy. Includes sample preparation, imaging and qualitative elemental analysis. Biological and nonbiological applications are covered.

Prerequisites: Graduate standing.**Stacked with** GEOS F428.**Lecture + Lab + Other:** 0.5 + 1.5 + 0**Grading System:** Pass/Fail Grades**GEOS F629 Geologic Hazards and Natural Disasters**

3 Credits

Offered Spring Odd-numbered Years

Examination of hazardous geologic processes which produce natural disasters, including volcanism, tectonism, flooding, etc. Includes scientific approaches to evaluating the magnitude and probability of risk from future hazardous events.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F631 Foundations of Geophysics**

4 Credits

Offered Fall Even-numbered Years

Applications of continuum mechanics, heat flow, and potential theory to geophysical problems. Topics such as postglacial rebound, non-Newtonian fluid flow, thermal convection, stress-relaxation, rheology of Earth materials, gravity and magnetism will be discussed. Emphasis is on methods to solve problems in global and regional geophysics and the interpretation of solutions.

Prerequisites: Graduate standing.**Recommended:** GEOS F419; MATH F302; MATH F314.**Stacked with** GEOS F431.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F633 Aqueous and Environmental Geochemistry**

3 Credits

Offered Spring Odd-numbered Years

Chemistry of aquatic and terrestrial environments, including thermodynamic, kinetic and structural principles applied to aqueous geochemical systems. Emphasis on aqueous speciation and heterogeneous interactions (e.g., dissolution/precipitation and sorption) involved in the partitioning, transformation and transport of chemical species in the environment.

Prerequisites: CHEM F331 or Graduate standing.**Cross-listed with** CHEM F609.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F636 Programming and Automation for Geoscientists**

2 Credits

Offered Fall

Basic concepts of computer programming and effective task automation for computers, with an emphasis on tools and problems common to the geosciences and other physical sciences. Use of Python, Jupyter Notebooks, shell scripting and command line tools, making scientific figures, maps and visualizations. Provided asynchronously remotely.

Prerequisites: Graduate standing.**Stacked with** GEOS F436.**Lecture + Lab + Other:** 1 + 3 + 0**Grading System:** Pass/Fail Grades**GEOS F638 Basin Analysis**

3 Credits

Offered As Demand Warrants

Examines sedimentary basins as a record of subsidence. Review and discuss techniques used to image basin stratigraphy as well as the quantitative techniques which can be used to recover basin history.

Prerequisites: Graduate standing.**Stacked with** GEOS F438.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F639 InSar and Its Applications**

3 Credits

Offered As Demand Warrants

Introduction to the concepts of repeat-pass spaceborne SAR interferometry. Practical use of the technique to derive displacements of the solid earth, glaciers and ice sheets to a precision of a few centimeters and accurate digital elevation models of the Earth's surface.

Prerequisites: Basic remote sensing course.**Cross-listed with** PHYS F639.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F640 Petrology of Carbonate Rocks**

4 Credits

Offered As Demand Warrants

Origin, depositional environments, diagenesis and classification of limestones, dolostones and related rocks.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

GEOS F643 Sandstone Depositional Environments

3 Credits

Offered As Demand Warrants

Sedimentary depositional environments treating the hydrodynamics, sediment dispersal patterns and preservation potential of modern terrigenous clastic depositional environments and criteria for recognizing their ancient counterparts in the geologic record.

Prerequisites: GEOS F320 and GEOS F322; or graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F647 Advanced Sedimentology and Stratigraphy

3 Credits

Offered Spring Even-numbered Years

Various topics in sedimentology and stratigraphy. Specific offerings to be presented at various times include sequence stratigraphy and sea-level analysis, paleoclimatic and paleoceanographic analyses, sandstone petrology, thermal maturation and geohistory analysis of sediments.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F651 Quaternary Seminar

3 Credits

Offered As Demand Warrants

Discussion of the Quaternary Period (relatively recent past – spanning the past two million years) in order to gain a better understanding of the landscape, biota and climate of the present day. Quaternary studies are concerned with the historical dimension of the natural sciences.

Prerequisites: Graduate standing.

Cross-listed with ANTH F651.

Stacked with ANTH F451; GEOS F452.

Special Notes: Topics range widely over diverse interdisciplinary subjects of quaternary interest, such as paleoclimatology, paleobiogeography, vertebrate paleontology and sedimentology.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F653 Palynology and Paleopalynology

4 Credits

Offered Fall Even-numbered Years

Survey of the evolutionary record of palynomorphs and their uses in biostratigraphy and paleoclimatology. Focus on evolution of palynomorphs from Precambrian to the present and concurrent evolutionary developments of producing plants. Use of Quaternary palynofloras in reconstructing global climates. Labs involve collection of herbarium specimens, processing of fossil palynomorphs, study of type slides and a survey of palynofloras from each geologic period.

Prerequisites: Graduate standing.

Stacked with GEOS F453.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F654 Visible and Infrared Remote Sensing

3 Credits

Offered Spring Even-numbered Years

In-depth coverage of the principles, physics, sensor technology, processing and applications of remote sensing in the visible and infrared region, including but not limited to electromagnetic spectrum, radiation laws, spectral signatures, atmospheric interactions, temperature emissivity estimation, analysis and feature extraction from data sets. The laboratory part of the course will provide hands-on experience on special processing techniques, and the possibility of using these techniques for a student-defined term project in areas of geology, volcanology, glaciology, hydrology, environmental sciences, etc.

Prerequisites: GEOS F422.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F656 Paleopedology

3 Credits

Offered As Demand Warrants

Origin, classification, composition, transportation, deposition and diagenesis of sediments. Emphasis on sedimentary processes, sedimentary petrology and interpretation of ancient sedimentary rocks. Not intended for Geoscience majors and does not substitute for Geos 322.

Prerequisites: Graduate standing.

Stacked with GEOS F456.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F657 Microwave Remote Sensing

3 Credits

Offered Spring Odd-numbered Years

The principles and applications of active and passive microwave remote sensing with emphasis on spaceborne remote sensing of the Earth's atmosphere, land and oceans. The laboratory section will provide hands-on experience on special processing techniques, and the possibility of using these techniques for a student-defined term project in areas of geology, volcanology, glaciology, hydrology, environmental sciences, etc.

Prerequisites: GEOS F422.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F658 Big Geospatial Data

3 Credits

Offered Fall Odd-numbered Years

Analysis of large geospatial data sets and data-driven modeling for solving geoscientific problems. The class intertwines i) cloud-based processing of big vector and raster data sets from GPS surveys, models and remote sensing, and ii) predictive modeling using data science techniques such as Random Forests.

Prerequisites: Graduate standing in science or engineering.

Stacked with GEOS F458.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

GEOS F659 Visible and Infrared Remote Sensing

3 Credits

Offered Spring Even-numbered Years

The course covers the principles and practice of remote sensing in the visible and infrared region, including spectral signatures, radiative transfer, image analysis, and information extraction. The laboratory part provides hands-on experience with multispectral, thermal, hyperspectral, and LiDAR data sets. Practical examples are drawn from geology, hydrology, and forestry.

Stacked with GEOS F459.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F660 The Dynamic Alaska Coastline**

3 Credits

Offered Spring Even-numbered Years

This course will provide the knowledge base for understanding Alaska's dynamic coastlines with an emphasis on climate and tectonic, driven changes. The class includes a multiday field trip to Homer offering field-based learning activities. Special fees apply.

Prerequisites: Graduate standing.**Stacked with** GEOS F460.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F666 Scientific Teaching**

2 Credits

Offered Spring Even-numbered Years

This course explores methods for teaching science at the university level. Emphasis is placed on methods of course design, instructional techniques, assessment and course management that have been shown by research to improve student learning. This course is intended for graduate students in the sciences who have an interest in improving their teaching skills. The course format will be a mixture of discussion, workshops and seminars. If the course is over-enrolled, priority will be given to teaching assistants who are assigned to teach large, introductory level (100 or 200 level) courses during the semester they are taking this course.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F669 Geodetic Methods and Modeling**

3 Credits

Offered Fall Odd-numbered Years

Theory and application of modern geodetic tools to measure Earth's surface deformation with emphasis on GPS and InSAR. Basics of data processing. Evaluation of signals and modeling of their sources. Applications include magma systems, earthquake cycle, and hydro- and cryosphere. Labs in Python require programming experience (GEOS F636/F436).

Prerequisites: MATH F314; GEOS F436 or GEOS F636; graduate standing.**Stacked with** GEOS F469.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F670 Selected Topics in Volcanology**

2 Credits

Offered Fall

Survey course in subjects relating to volcanology. Possible subjects include, but are not limited to, eruption dynamics, geophysics of eruptions, volatiles in volcanic systems, modeling volcanic systems. May be repeated for credit.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 6 credits**GEOS F671 Volcano Seismology**

3 Credits

Offered Spring Odd-numbered Years

Survey of seismic behavior of volcanoes. Topics include instrumentation, terminology, swarms and their attributes, high-frequency events, volcanic explosions, volcanic tremor, attenuation and velocity structure, cycles of activity, eruption forecasting, detection of magma chambers, case studies and selected topics. Oral and written student presentations will be required.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F676 Remote Sensing of Volcanic Eruptions**

3 Credits

Offered As Demand Warrants

Focuses on the use of satellite images to detect, monitor and mitigate volcanic hazards, and to understand eruption processes. Thermal anomalies, volcanic clouds and surface morphological features will be discussed in the lecture and test cases analyzed in the laboratory. Satellite data include GOES, AVHRR, MODIS, ASTER, Landsat and SAR.

Prerequisites: Recommended: GEOS F422 or equivalent remote sensing class.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**GEOS F680 Climate Change Processes: Past, Present, Future**

4 Credits

Offered Fall Odd-numbered Years

This 'synthesis' course for Geography, NRM, or Natural Sciences undergraduates provides literacy in the rapidly developing field of climate-change science. Students will gain an understanding of climate dynamics and Earth's climate history and will be trained to critically evaluate the validity of paleoclimatic reconstructions and climate-model predictions.

Prerequisites: Junior or senior standing in major; ATM F401, GEOS F315, OCN F419 or OCN F481.**Cross-listed with** ATM F680.**Stacked with** ATM F480, GEOS F480.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

GEOS F681 Snow in the Environment

3 Credits

Offered As Demand Warrants

Snow is a critical buffer between cold air temperatures and warming permafrost, between harsh winds and vegetation, and between herbivores and their food source. This course focuses on snow properties, metamorphism and redistribution by wind. We will examine the snows interactions with permafrost, glaciers, sea ice, vegetation, wildlife and humans.

Prerequisites: Graduate student standing.**Stacked with** GEOS F481.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F682 Geoscience Seminar**

1 Credit

Offered Fall and Spring

A weekly seminar, given by guest speakers, on a topic in geosciences. Students are expected to prepare for the seminars and to participate in discussion following the seminars.

Prerequisites: Graduate standing.**Stacked with** GEOS F482.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 99 times for up to 99 credits**GEOS F686 Vertebrate Paleontology**

3 Credits

Offered Spring Odd-numbered Years

The study of vertebrate evolution through geologic time. Covers the temporal range, diversity and systematics of major vertebrate groups as documented in the fossil record, with an emphasis on current problems in vertebrate evolutionary pattern and process. Labs emphasize comparative morphology and identification of major vertebrate groups.

Prerequisites: Graduate standing.**Cross-listed with** BIOL F686.**Stacked with** BIOL F486; GEOS F486.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**GEOS F692 Geol/Geophys Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**GEOS F692P Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**GEOS F698 Non-thesis Research/Project**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**GEOS F699 Thesis**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

German (GER)

College of Liberal Arts

Department of Foreign Languages & Literatures (<https://www.uaf.edu/language/languages/german.php>)
907-474-7231

GER F101X Elementary German I (h)

4 Credits

Offered Fall

Introduction to the German language and culture: development of proficiency in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 500 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GER F102X Elementary German II (h)**

3 Credits

Offered Spring

Introduction to the German language and culture: development of proficiency in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 1,000 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials.

Prerequisites: GER F101X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GER F103 Elementary German I Part I (h)**

2 Credits

Offered Summer

This is a 2 credit, 6-week online course in German language and culture, divided into 3 chapters. Essential parts are beginning communicative competence and performance, vocabulary and grammar, a high level of proficiency in listening, speaking, reading and writing as well as cultural competence.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GER F104 Elementary German I Part II**

2 Credits

Offered Summer

This is a 6-week online course in German language and culture. Essential components are beginning communicative competency and performance, vocabulary and grammar, a high level of proficiency in listening, speaking, reading and writing as well as cultural competence.

Prerequisites: GER F103.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

GER F105 Elementary German II Part I

2 Credits

Offered Summer

This is a 6-week online course in German language and culture. Essential components are communicative competence and performance, vocabulary and grammar, a high level of proficiency in listening, speaking, reading and writing as well as cultural competence.

Prerequisites: GER F104.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GER F106 Elementary German II, Part II**

2 Credits

Offered Summer

This is the continuation of Elementary German II, Part I, a 2 credit, 6-week online course in German language and culture. Essential components are some communicative competence and performance, vocabulary and grammar, a high level of proficiency in listening, speaking, reading and writing as well as cultural competence.

Prerequisites: GER F105.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GER F201 Intermediate German I (h)**

3 Credits

Offered Fall

Continuation of GER F102X. Increasing emphasis on reading ability and cultural material. Conducted in German.

Prerequisites: GER F102X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GER F202 Intermediate German II (h)**

3 Credits

Offered Spring

Continuation of GER F201. Increasing emphasis on reading ability and cultural material. Conducted in German.

Prerequisites: GER F201.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**GER F301 Topics in Advanced German I (h)**

3 Credits

Offered Fall

Students begin to develop advanced-level German through reading, listening, speaking and writing. The content is organized around a variety of texts selected based on students' interests. Provides review of intermediate grammar and introduces topics of advanced grammar. Class discussions and assignments will be in German.

Prerequisites: GER F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**GER F302 Topics in Advanced German II (h)**

3 Credits

Offered Spring

Students continue to develop advanced-level German through reading, listening, speaking and writing. The content is organized around award winning German movies and associated short texts. Provides intensive work in strengthening vocabulary and a systematic overview of advanced grammar. Class discussions and assignments will be in German.

Prerequisites: GER F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**GER F431 Studies in the Culture of the German Speaking World (h)**

3 Credits

Offered As Demand Warrants

Study of the cultures of the German-speaking world. Students may repeat course for credit if topic varies.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; GER F301; junior standing.**Special Notes:** Course may be repeated for credit if topic varies.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**GER F432 Studies of German Literature (h)**

3 Credits

Offered As Demand Warrants

Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Student may repeat course for credit when topics vary.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; GER F302; junior standing.**Special Notes:** Course may be repeated for credit if topic varies.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 12 credits**GER F460 History of German Film (h)**

3 Credits

Offered As Demand Warrants

In-depth study of a representative selection of films from the 1920s to the present, taught in English and German (films will be in German with English subtitles). Students of German will have a special discussion session in German and will do reading and writing in German.

Prerequisites: Junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Health (HLTH)

Community and Technical College

Allied Health Program (<https://www.ctc.uaf.edu/academics/allied-health/>)

907-455-2800

HLTH F100 Medical Terminology

3 Credits

Offered Fall, Spring and Summer

Study of medical terminology, including analysis and origin of word roots, prefixes and suffixes. Understanding the word components, students will be able to build, spell and define medical words. Content will be presented by body systems focusing on terms for anatomy, diagnostic, laboratory and medical specialties. Designed for health care professionals.

Cross-listed with MA F100.**Special Notes:** Includes use of medical dictionary, word pronunciation and abbreviations.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F105 Introduction to Health Careers**

2 Credits

Offered As Demand Warrants

Introduction to health careers and the psychology of patient care. Roles and responsibilities of different members/functional units of the health care team; information on related job and educational opportunities; needs and roles of health providers in rural and urban Alaska settings.

Prerequisites: High school graduation or GED or permission of program coordinator.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F106 Human Behavior in Health Care (s)**

3 Credits

Offered Fall and Spring

Discussion of general concepts in human behavior and the specialized psychological issues when dealing with patients and loved ones in health care settings. Students perform self-evaluation and survey other cultures to allow examination of perceptions, individual biases, beliefs and their impacts on behavior.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F107 Nurse Aide Training**

9 Credits

Offered Fall, Spring and Summer

Teaches basic nursing skills necessary to assist the nurse as an efficient health care team member. Includes positive communication skills, along with a strong emphasis on personal care of residents' physical and emotional needs in a variety of health care settings. Students are prepared for the National Nurse Aide Examination. Student must be in good physical condition and have documentation of the following immunizations: two varicella, hepatitis B series, two MMRs, two-step PPDs within previous 12 months of the clinical component of class. Students are encouraged to have a titer drawn to prove immunity to the diseases listed above. Other specific immunizations as required by clinical sites.

Prerequisites: High school graduation or GED; placement into MATH F055; placement into WRTG F090.**Lecture + Lab + Other:** 5 + 8 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F110 Professional Skills for the Workplace**

2 Credits

Offered As Demand Warrants

Presents skills to ensure success for the professional administrative assistant, receptionist, medical worker and others. Includes interview skills, business manners, customer service and dressing for success.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F111 Personal Care Attendant Training**

4 Credits

Offered As Demand Warrants

Designed to train personal care attendants in basic care necessary to assist nurses and to be efficient health care team members. Course qualifies students for state certificate of completion as personal care attendants. Eighty-eight (88) hours of class, lab and clinical practice are included. Requires criminal background check.

Prerequisites: Documentation of the following vaccines: Hepatitis B series, two MMRs, two chickenpox and a two-step PPD testing within previous 12 months of the clinical component of the class, Students are encouraged to have a titer drawn to prove immunity for the chickenpox, MMR and hepatitis B; Other immunizations as required by the clinical site; High school graduation or GED; Placement into or completion of DEVM F055; Placement into or completion of WRTG F090; Students must be in good physical condition.

Corequisites: AHA BLS provider or healthcare provider CPR card and first aid card.**Lecture + Lab + Other:** 2.5 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F113 Personal Care Attendant to Nursing Assistant Bridge**

5 Credits

Offered As Demand Warrants

Trains personal care attendants to become nurse assistants. Students build upon basic PCA skills and experience. Provides the additional classroom, laboratory and clinical hours required by the Alaska Board of Nursing for state program approval. Prepares students to sit for the National Nurse Aide Examination.

Prerequisites: HLTH F111; Students must provide documentation of current HLTH F122 card or AHA BLS for healthcare provider CPR card and First Aid card.**Lecture + Lab + Other:** 3 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F114 Fundamentals of Anatomy and Physiology**

4 Credits

Offered Fall, Spring and Summer

Provides a basic understanding of human anatomy and physiology. Recommended for individuals interested in health careers or students desiring an introduction to anatomy and physiology prior to taking in-depth course work in this field.

Prerequisites: Recommended: HLTH F100 or MA F100; high school biology and chemistry.**Cross-listed with** MA F114.**Special Notes:** Students should take HLTH F114 if they took HLTH F100, and MA F114 if they took MA F100.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F116 Mathematics in Health Care**

3 Credits

Offered Fall, Spring and Summer

Practical application of mathematics in health care, including arithmetic review, percentages, interest, ratio, proportion, dimensional analysis, metric system, medication calculation, graphs, charts and measurement instruments.

Prerequisites: MATH F054; or placement in MATH F055.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HLTH F118 Medical Law and Ethics

2 Credits

Offered As Demand Warrants

In-depth coverage of legal and ethical issues encountered in health care settings. Students will gain a practical knowledge of legal and ethical principles and application of these principles in health care settings.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F122 First Aid and CPR for the Health Care Provider**

0 Credit

Offered Fall, Spring and Summer

This course meets the needs of the students entering healthcare professions. The course includes AHA First Aid and BLS CPR for the Healthcare Provider. Instructors follow the American Heart Association's curriculum. Successful completion of the course leads to certification in first aid and basic life support for healthcare providers.

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**HLTH F124 Introduction to Medical Scribe Specialist**

2 Credits

Offered Fall, Spring and Summer

Introduction to duties and responsibilities included in the scope of practice of the Medical Scribe in a variety of healthcare settings. Students will learn the expectations of providers when working with patients in "real time." Practice communication and interactions with providers, patients and families. Students will practice scribing using scenarios.

Prerequisites: Placement into WRTG F110; ALEKS: Placement into or completion of MATH F055 or HLTH F116.**Recommended:** HLTH F100.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F126 Administrative Procedures for the Healthcare Worker**

3 Credits

Offered Fall, Spring and Summer

Introduction to the responsibilities and duties required of medical office assistants and scribes in a variety of healthcare settings. Focus is on reception, scheduling of appointments, insurance, billing and coding, ethical and legal responsibilities, electronic health records, public relations, professionalism and working with the healthcare team.

Prerequisites: Placement into WRTG F110; Placement into MATH F055 or HLTH F116.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F130 Medical Office Technology**

3 Credits

Offered Fall and Spring

Introduces current and potential health care workers to computers in the medical office. Will study medical office management software and electronic health record systems. Includes discussion of computer hardware and software, working with operating systems, keyboarding, word processing, spreadsheets, presentation creation and formatting, and database concepts.

Special Notes: Special fees may apply.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F132 Administrative Procedures I**

2 Credits

Offered As Demand Warrants

Administrative responsibilities performed by medical/dental assistants and other health care providers in outpatient facilities. Includes duties of the office assistant, receptionist or secretary. Focus on reception, telephone procedures, public relations and professionalism.

Prerequisites: High school graduation or GED.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F135 ICD-10-CM Coding**

3 Credits

Offered As Demand Warrants

In-depth study of the International Classification of Diseases (ICD), designed for classification of patient morbidity and mortality information for statistical purposes and for the indexing of health records for the health care profession.

Recommended: HLTH F100.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F203 Science of Nutrition**

3 Credits

Offered Fall, Spring and Summer

Introduction to the principles of nutrition and its relationship to the life cycle. Focus on the importance nutrition plays in personal health and how to objectively evaluate nutritional intake using scientifically sound resources.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F207 Certified Nurse Medication Aide**

6 Credits

Offered As Demand Warrants

Basic pharmacology and medication administration for certified nurse aides and personal care attendants. Includes drug delivery routes, classifications, effects and side effects. Communication principles, ethics, nursing process, and body structure and function will be reviewed. Course prepares students to assist the nurse to pass medications in health care settings. Other vaccines may be required by the clinical site. Must have a current AHA BLS healthcare provider CPR and first aid card. Must be physically capable of performing "hands on" care to residents such as, repositioning, lifting, transferring, dressing, all of which require repetitive motion throughout a work day.

Prerequisites: Current license as a CNA or PCA by the State of Alaska, have at least one full year of experience as a CNA/PCA, supply three letters of reference from healthcare professionals; Placement into MATH F055; Placement into WRTG F110; be 18 years of age or older; Documentation of vaccines or titer for the following: Hepatitis B series, two MMRs, two chickenpox and a 2-step PPD test within previous 12 months of the clinical component of the class.**Lecture + Lab + Other:** 4 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus

HLTH F208 Human Diseases

3 Credits

Offered Fall, Spring and Summer

Introduction to the study of human diseases. Pathogenesis, etiology and predisposing factors will be examined. Common diseases and disorders of each body system are presented along with a review of the pertinent anatomy and physiology. Includes the effects of aging on the systems and the relation of aging to disease.

Prerequisites: HLTH F100 with a C or higher.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F234 Administrative Procedures II**

4 Credits

Offered As Demand Warrants

Office management and financial procedures used in medical offices. Includes medical financial recordkeeping systems and computerized office management systems. Includes ICD-9, CPT coding system, patient insurance billing/reimbursement procedures, the demonstration of computational skills in accounts payable/accounts receivable, and office management in the health care setting.

Prerequisites: CIOS F150; HLTH F100; HLTH F132; placement in WRTG F111X.**Lecture + Lab + Other:** 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F235 Medical Coding**

4 Credits

Offered As Demand Warrants

The current procedural terminology (CPT) and the international classification of diseases (ICD) systems used in the medical setting. Examines the medical and legal uses of the CPT and ICD code systems in inpatient and outpatient medical settings, urgent care settings, billing departments and ancillary medical professions. Prepares students to take national certification exams.

Recommended: HLTH F100; HLTH F132; HLTH F208; HLTH F234.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F236 Outpatient Health Care Reimbursement**

3 Credits

Offered Fall, Spring and Summer

Outpatient reimbursement issues including documentation, insurance carriers, schedules and payment profiles. Collection strategies and legal issues, and the importance of educating the patient to the financial policies of the practice.

Prerequisites: HLTH F126 or MA F144.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F237 Inpatient Health Care Reimbursement**

3 Credits

Offered As Demand Warrants

Rules and regulations governing the reimbursement of inpatient and hospital coding. Includes HIPAA regulations, Medicare, Medicaid, third party billing, and the legal and ethical guidelines of inpatient billing.

Prerequisites: HLTH F132; HLTH F135; HLTH F234.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F238 Medical Coding I**

3 Credits

Offered Fall

Introduction to clinical classification systems including Current Procedural Terminology (CPT) and International Classification of Diseases (ICD) including interpretation of guidelines and official resources, and correct application, in the inpatient, outpatient, and professional fee coding settings. Combined with Medical Coding II, this course prepares students to take national certification examinations.

Prerequisites: HLTH F100; HLTH F114.**Recommended:** HLTH F126; HLTH F208.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F239 Medical Coding II**

3 Credits

Offered Spring

Indepth examination of correct application of clinical classification systems including Current Procedural Terminology (CPT) and International Classification of Diseases (ICD), including principles of confidentiality, coding ethics, and electronic systems for accurate code assignment. Combined with Medical Coding I, this course prepares student to take national certification examinations.

Prerequisites: HLTH F238.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLTH F255 Phlebotomy Principles, Methods and Externship**

5 Credits

Offered Fall and Spring

This comprehensive lecture, lab and 100-hour externship course provides information covering phlebotomy technique, anatomy and physiology, venipuncture and lab testing. Specimen collection and proper handling are essential to completing this course. This course prepares students to take a national phlebotomy certification examination by the American Society of Clinical Pathologists.

Prerequisites: HLTH F122 or AHA BLS for healthcare provider CPR card and First Aid card; Placement into MATH F055; Placement into WRTG F090; Documentation of positive antibody titer for hepatitis B, current immunizations or titers to measles, mumps, rubella, varicella, flu shot and a 2-step PPD within the past year; Other specific immunizations as required by the externship sites.

Lecture + Lab + Other: 2 + 1 + 7**Grading System:** Letter Grades with option of Plus/Minus**HLTH F260 Medical Scribe Specialist Practicum**

2 Credits

Offered As Demand Warrants

Course provides 80 hours of hands on experiences as a Medical Scribe in a Healthcare facility. Students will be working side by side with an employee of the practicum site. Additional time is required for weekly meetings with the faculty practicum coordinators. This is the last course in the Medical Scribe Specialist Occupational Endorsement.

Prerequisites: HLTH F100; HLTH F114; HLTH F124; HLTH F126; HLTH F130; HLTH F235; MA F247; Enrollment is by special permission only; Immunizations as outlined in the MS packet: Hepatitis B series of three, MMR X's 2, Varicella X's 2, two step PPD; Documentation of current BLS Healthcare Provider/First Aid cards.

Lecture + Lab + Other: 0 + 0 + 6**Grading System:** Pass/Fail Grades

HLTH F261 Medical/Dental Office Reception Practicum

2 Credits

Offered As Demand Warrants

Provides students with 80 practicum hours in a medical or dental front office. With additional time required for meeting with the campus practicum coordinator. Students will be expected to perform any and all duties of a receptionist in a medical/dental care setting.

Prerequisites: HLTH F122; enrollment by special permission only.

Recommended: Students taking MA F261 should have passed MA F144, and students taking HLTH F261 should have passed HLTH F132 and HLTH F234.

Cross-listed with MA F261.

Special Notes: Students part of the Medical Assisting program should take the HLTH F261 section of this course.

Lecture + Lab + Other: 0 + 0 + 6

Grading System: Pass/Fail Grades

Healthcare Management and Leadership (HML)

College of Business and Security Management

Business Administration Program (<https://www.uaf.edu/cbsm/programs/business-administration/>)

907-474-7461

HML F636 Survey of Healthcare Administration

3 Credits

Offered Fall

Students will study the specialized area of business and healthcare administration, which involves everything from entrepreneurship (one provider in a private practice) to risk management (malpractice insurance, quality measures, etc.). Students will explore the dynamic field of healthcare and how it is changing rapidly with advancements in technology.

Cross-listed with MBA F636.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HML F637 Information Systems and Decision Making in Health Services

3 Credits

Offered Spring

Overview of clinical and administrative health care data, their uses and impact on quality, cost and operations on a health care organization. The aim of the course is to gain skills to develop, manage and integrate clinical and administrative information, to support timely and informed decision making by all stakeholders.

Cross-listed with MBA F637.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HML F638 Healthcare Law & Ethics

3 Credits

Offered Fall

Students will be introduced to major health care laws, regulations, professional and ethical principles, and industry standards governing health care structure and delivery. This includes health care fraud, professional licensing and credentialing, malpractice, compliance, quality, risk management and privacy and security of health information.

Cross-listed with MBA F638.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HML F639 Healthcare Finance and Economics

3 Credits

Offered Spring

The first half of the course will focus on financial principles to individuals without a finance background as applicable to the healthcare sector. The second half of the course will delve into the economic drivers that influence the demand and supply of the health care industry.

Cross-listed with MBA F639.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

High Latitude Range Management (HLRM)

College of Rural and Community Development

Community Based Science (<https://www.uaf.edu/rural/academics/departments/>)

907-474-7143

HLRM F120 History of Domesticated Alaskan Ungulates

1 Credit

Offered As Demand Warrants

Review the history of domesticated ungulate populations, free-ranging and fenced systems, in Alaska beginning from the 1890s to present.

Emphasis will be placed on traditional activities on the Seward Peninsula.

Prerequisites: WRTG F111X.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HLRM F130 Research Field Logistics

2 Credits

Offered As Demand Warrants

Learn the skills, techniques, and equipment used in remote scientific fieldwork in Alaska. Course includes methods for processing and storing animal/plant tissue samples, orienteering, navigation, GPS, wilderness first aid, Arctic survival, bear safety, boat safety, as well as ATV, boat, and snowmachine operation, maintenance and repair.

Lecture + Lab + Other: 1 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

HLRM F140 High Latitude Range Management

2 Credits

Offered As Demand Warrants

Policies and terminology of range and range management specific to Alaska and the Arctic. Review current vegetation inventory techniques used by federal and state agencies. Identify and sample Alaska forage plants. Examine range production systems and species in Alaska; domesticated and wild. Development of a high latitude range management plan.

Prerequisites: BIOL F104X; NRM F101.

Lecture + Lab + Other: 1.5 + 0 + 1.5

Grading System: Letter Grades with option of Plus/Minus

HLRM F150 Alaskan Ungulate Husbandry

2 Credits

Offered As Demand Warrants

Introduction to management skills, facilities design and nutritional needs for domesticated Alaskan ungulates. Provides exposure and examines traditional knowledge combined with contemporary research in herding and husbandry for open range and fenced systems. Field trips to reindeer, elk, bison, and/or cattle operations will demonstrate husbandry techniques and data collection procedures.

Prerequisites: HLRM F140.**Lecture + Lab + Other:** 1.5 + 0 + 1.5**Grading System:** Letter Grades with option of Plus/Minus**HLRM F160 Meat Production**

2 Credits

Offered As Demand Warrants

Study of meat animal processing sequence. Production of meat-type domesticated ungulates in Alaska science and technology of their conversion to food, value-added products and by-products. Review of the current state regulations and methods on proper field slaughtering, and the preparation, handling and storage of meat will be introduced.

Prerequisites: HLRM F140.**Lecture + Lab + Other:** 1.5 + 0 + 1.5**Grading System:** Letter Grades with option of Plus/Minus**HLRM F170 Health Issues in Domesticated Ungulates**

2 Credits

Offered As Demand Warrants

Ruminant anatomy and physiology specific to high latitude ungulates. Overall health issues and problem solving techniques for domesticated and food animal ungulates, including a review of indicators for disease or parasitic infections, vaccination and Rx treatments, field necropsy techniques and blood and tissue collection procedures. State monitoring and identification policies.

Prerequisites: HLRM F150.**Lecture + Lab + Other:** 1.5 + 0 + 1.5**Grading System:** Letter Grades with option of Plus/Minus**HLRM F201 Field Techniques for Range Management**

2 Credits

Offered As Demand Warrants

Provides hands-on instruction in field and laboratory techniques in range evaluation for domesticated ungulates. Basic methods for sampling and studying grazing systems at the high latitudes will be introduced. Students will participate in data collection and analysis procedures as part of an independent research project.

Prerequisites: ABUS F155 or MATH F113X; HLRM F130; HLRM F140.**Lecture + Lab + Other:** 1 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLRM F205 Report Writing in Range Management**

2 Credits

Offered As Demand Warrants

Provides the basic technical reporting methods, writing, and research skills necessary to analyze, interpret, and document field and laboratory data. Incorporating field data collected in HLRM F201 and the skills, knowledge, and techniques learned in other required courses, the student will produce a written technical report and make a presentation.

Prerequisites: WRTG F111X; HLRM F201.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HLRM F250 High Latitude Range Management Current Topics**

1-3 Credits

Offered As Demand Warrants

Various topics of current interest in High Latitude Range Management. Topics announced prior to each offering and course may be repeated for credit.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits

History (HIST)

College of Liberal ArtsDepartment of History (<https://www.uaf.edu/history/>)

907-474-7126

HIST F100X Modern World History (s)

3 Credits

Offered Fall, Spring and Summer

Significant aspects of modern world history. The chronological approach will examine major global developments in the twentieth century, while the issues approach will deal with such aspects of the modern world as revolutionary change, the interaction of peoples, ideology and the historical background of significant contemporary events.

Prerequisites: Placement in WRTG F111X.**Special Notes:** Either a chronological or an issues approach to be announced when scheduled.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F101 Western Civilization Before 1500 (s)**

3 Credits

Offered Fall

Origins and major political, economic, social and intellectual developments of western civilization to 1500.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F102X Western Civilization Since 1500 (s)**

3 Credits

Offered Spring

This course examines the origins and development of key social, political, economic and cultural trends in Western civilization from 1500 to the present. Students will learn to read and interpret historical documents, how the interplay of historical factors conditions subsequent events and different approaches and perspectives for understanding the past.

Special Notes: Topics to be examined include the Reformation, the scientific revolution, the Enlightenment, the French and Industrial revolutions, nationalism, imperialism, communism, fascism, World Wars I and II, and the Cold War.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HIST F105 Introduction to the History and Culture of the Seward Peninsula

1 Credit

Offered As Demand Warrants

Cultural history of the Seward Peninsula peoples for the last 10,000 years using physical anthropology, ethnography, ethnohistory, linguistics, archaeology, social anthropology, ecology and climatology. Eskimo and Euro-American cultures which have existed in western Alaska.

Cross-listed with ANTH F105.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F110X History of Alaska Natives from Contact to the Present** (an, s)

3 Credits

Offered As Demand Warrants

Surveys Alaska Native history from contact to the present. Provides awareness of how Europeans constructed narratives of the Native past and their continuing influence; a broad overview of complex historical experiences; an understanding of the cultural diversity; overviews of ethnohistorical methods and post-colonial theory; and opportunities to cultivate critical thinking.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F115 Alaska, Land and Its People** (s)

3 Credits

Offered As Demand Warrants

A survey of Alaska from earliest days to present, its peoples, problems and prospects.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F121 East Asian Civilization** (s)

3 Credits

Offered Fall Even-numbered Years

Origin and development of the civilizations of China, Japan and Korea from the beginning to 1800, with emphasis on traditional social, political and cultural institutions.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F122X East Asian Civilization** (s)

3 Credits

Offered Spring

This survey course on East Asian civilization history from 1800-present focuses on political, economic and intellectual history. Students will identify broad trends in this history based on analysis of primary sources from governmental officials, political leaders and intellectuals. Current relations among East Asian countries will be examined.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F131 History of the U.S.** (s)

3 Credits

Offered Fall and Summer

The discovery of America to 1865. Colonial period, revolution, formation of the constitution, western expansion, Civil War.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F132X History of the U.S.** (s)

3 Credits

Offered Spring and Summer

Surveys U.S. history from post-Civil War reconstruction to the present. Focus on cultural, social, political, and economic changes that shaped American life in the twentieth century and beyond. Develops critical thinking and writing skills, introduces methods, theories, and approaches; and considers primary sources.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F202 History of Women in America** (s)

3 Credits

Offered As Demand Warrants

A chronological approach to the history of women in America.

Introduction to major issues of concern to historians of women, as well as different approaches used in analysis of women's past. Consideration of multiracial backgrounds of American women.

Cross-listed with WGS F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F244 Movies: Mirror of the World** (s)

3 Credits

Offered As Demand Warrants

World history using the medium of film to highlight cultural, economic and political conditions of each country. Films will be from the USA, Mexico, Central America, South America, England, France, Russia, Turkey, India, China, Japan, Australia, Africa and the Arctic.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F275 Perspectives on History**

3 Credits

Offered As Demand Warrants

An introduction to the variety of historical approaches and to the "uses" of history. (Course is required for history majors and should be taken soon after declaring a History major as possible; non-majors are strongly discouraged from taking this course.)

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F305 Europe: 1789--1850** (s)

3 Credits

Offered As Demand Warrants

The French Revolution, Napoleon, the Industrial Revolution, the Revolutions of 1848, their impact on political, economic, social and intellectual history.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F306 Europe: 1850--1900** (s)

3 Credits

Offered As Demand Warrants

The European Imperium: industrialization, nationalism, imperialism and their impact on political, economic, social and intellectual history.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HIST F315 Europe: 1900--1945 (s)

3 Credits

Offered Fall Even-numbered Years

Europe through two world wars, the Russian Revolutions the depression, the development of fascism, the evolution of Russian communism.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F316 Europe Since 1945 (s)**

3 Credits

Offered Spring Odd-numbered Years

Germany and problems of the peace, the Soviet Union and the satellites, the Cold War, economic problems and recovery, European integration and the common market, Europe and the world.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F325 The History of Sexuality (s)**

3 Credits

Offered As Demand Warrants

The history of sexuality from a worldwide comparative perspective.

Theories and debates about the history of sexuality in selected times and places, with an emphasis on the modern period.

Prerequisites: HIST F100X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Cross-listed with WGS F325.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F330 Modern China (s)**

3 Credits

Offered Fall Odd-numbered Years

From 1800 to the present: resistance to change, rebellion, reform, revolution and the rise of the People's Republic.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F331 Modern Japan (s)**

3 Credits

Offered Spring Even-numbered Years

From 1600 to the present: change within tradition, rise to world power and the position of Japan in the modern world.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F333 Foundations of Japanese History (s)**

3 Credits

Offered Fall Even-numbered Years

The history of Japan from earliest times to 1600: the aristocratic culture of classical Japan, the rise of the samurai in medieval Japan, the "warring states" period and national unification. Myths, religion and philosophy, and culture, arts and literature will also be covered from a historical point of view.

Prerequisites: HIST F100X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F361 Early American History (s)**

3 Credits

Offered Fall Odd-numbered Years

An advanced survey that examines economic, political and social developments related to the establishment of European colonies, diplomacy and conflict, slavery, American Revolution, constitutional debate and the Early Republic through the War of 1812.

Recommended: HIST F131; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F362 History of the United States 1815-1877 (s)**

3 Credits

Offered Spring Even-numbered Years

An advanced survey that examines economic, political and social developments related to Jacksonian America, western expansion, slavery and sectionalism, the Civil War and reconstruction to 1877.

Recommended: HIST F131; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F363 History of the United States 1877-1945 (s)**

3 Credits

Offered Fall Even-numbered Years

An advanced survey that examines economic, political, and social developments related to Gilded Age America, progressive reform efforts, colonialism and the United States during two world wars.

Recommended: HIST F132X; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F364 History of the United States 1945 to Present (s)**

3 Credits

Offered Spring Odd-numbered Years

An advanced survey course that examines economic, political and social developments related to the Cold War, Civil Rights movement, rise of a counter-culture, Vietnam war and its legacy, and America after the fall of Soviet Union.

Recommended: HIST F132X; sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F368 Topics in American Film History (s)**

3 Credits

Offered As Demand Warrants

American film and how it shapes and warps popular perceptions of America's past. A historical contrast according to Hollywood with the views and interpretations of historians. Content will vary depending on the specific genre or period of focus, such as World War II, the Vietnam War or the Great Depression.

Prerequisites: FLPA F217X or FLPA F308; HIST F131 or HIST F132X.**Cross-listed with** FLPA F368.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 4 times for up to 12 credits**HIST F401 Renaissance and Reformation Europe (s)**

3 Credits

Offered As Demand Warrants

Political, economic and intellectual developments during the 15th and 16th centuries in Europe.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HIST F402 Seventeenth- and Eighteenth-century Europe (s)

3 Credits

Offered As Demand Warrants

Political, social, economic, and cultural developments during the 17th and 18th centuries in Europe.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F404 Modern Scandinavia (s)**

3 Credits

Offered Spring Even-numbered Years

Examines geographical, political, economic, cultural and social forces, as well as the impact of individuals, on the transformation of Scandinavian states from autocratic monarchies to some of the most democratic and egalitarian states in the world.

Stacked with HIST/ACNS F604.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F405 Modern Germany (s)**

3 Credits

Offered As Demand Warrants

The history of Germany from 1848 to the present. Topics include German unification under Prussian leadership; the nature and problems of the Bismarckian Reich; the outbreak of World War I and the war's impact on Germany; the rise and fall of the Weimar Republic and the Third Reich; World War II and Germany's defeat; and the postwar division, reconstruction, and reunification of Germany. Special attention given to social developments in Germany.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F411 Environmental History (s)**

3 Credits

Offered Fall Even-numbered Years

Discussion of significant works of environmental history. Cultural history of the landscape in world civilization with emphasis on Western Europe and North America. Discussion of interdisciplinary approaches to the history of environment and cooperative work across disciplines.

Stacked with ACNS F611.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F414 Women and Gender in East Asian History (s)**

3 Credits

Offered As Demand Warrants

An in-depth seminar on the history of East Asia, with a special emphasis on the experiences of women and on the issue of gender. This seminar will focus on the modern period, and on China and Japan especially, though other regions of East Asia may also be considered. Cross-listed with

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HIST F100X.**Recommended:** HIST F122X, HIST F275.**Cross-listed with** HIST F414.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F424 Topics in Women's History (s)**

3 Credits

Offered As Demand Warrants

An in-depth seminar on a specific topic of current interest. Topics may change and may cover the history of European or American women from the 18th century to the present.

Prerequisites: Junior standing.**Cross-listed with** WGS F424.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 15 credits**HIST F429 History of the Modern Middle East (s)**

3 Credits

Offered As Demand Warrants

An advanced survey of the modern Middle East from the 19th century to the present. It will focus on the birth of the modern Middle Eastern states out of the collapse of the Ottoman Empire and the Oajar Dynasty, and the impact of the Western colonial powers on Middle Eastern societies and culture. Special attention will be given to the birth of modern secular Turkey, Egypt under military governments for the past half-century and the Iranian Revolution of 1979, the partition of Palestine. The origins of the Jewish state and the impact of the on-going Israeli-Palestinian conflict on the political dynamics of the entire Islamic world will also be carefully examined. The contestation between secular nationalisms and the religious nationalisms as well as trans-national Islamic movements will also be given special attention. The impact of radical Islam on the other non-Western countries will be discussed.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F434 Topics in History (s)**

3 Credits

Offered As Demand Warrants

An in-depth seminar on various topics in History. Approach will vary depending on the subject of the study, but will emphasize reading, critical analysis and writing on a major issue in history. Content will vary to take advantage of different directions in history, such as cultural, intellectual or economic history.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 33 times for up to 99 credits**HIST F442 History of the American Military (s)**

3 Credits

Offered As Demand Warrants

The military's place in American life and society from the Colonial era to the present. Role of the military institution in shaping the nature of American society while reflecting the character of the society it serves.

Prerequisites: HIST F275.**Cross-listed with** MILS F442.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F445 History of the American West (s)**

3 Credits

Offered As Demand Warrants

Seminar with emphasis on readings and analysis of primary and secondary sources dealing with the American West to present. Major themes include historiography, expansion, the Federal government, environment, ethnicity and economic development.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HIST F446 American Indian History (s)

3 Credits

Offered As Demand Warrants

Seminar with emphasis on readings and analysis of primary and secondary resources related to American Indians from the pre-contact era to present. Major themes include historiography, inter-cultural relations, subsistence and environment, federal policy and contemporary issues.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F453 Fire, Ice, and the Fate of Humanity: A History of Energy and Climate Change (s)**

3 Credits

Offered Spring

This course examines how energy regimes and climatic changes have structured the history of the world, with a focus on North America. From the Little Ice Age to the Atomic Age and the Anthropocene, energy and climate have contoured the fate of humanity.

Crosslisted with ACNS F453; HONR F453.**Stacked with** ACNS F653.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F455 Military History (s)**

3 Credits

Offered As Demand Warrants

Warfare from classical times to the present: the interrelationships of warfare and society, the role of technology and the development of tactics and strategy.

Prerequisites: Junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F461 History of Alaska (s)**

3 Credits

Offered Fall

Alaska from prehistoric times to the present, including major themes such as Native Alaska, colonial and military Alaska, statehood, Alaska Native Claims Settlement Act of 1971 and the Alaska National Interest Lands Act of 1980.

Stacked with HIST F662; ACNS F661.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F463 Imperial Russia, 1700-1917 (s)**

3 Credits

Offered As Demand Warrants

This course covers Russian history from the reign of Peter the Great (1682-1725) until the collapse of the Tsarist regime in February 1917. Topics will include Russia's complex relationship with Western Europe, the challenges posed by modernization, the Russian Empire as a multi-national state, and the emergence of revolutionary movement.

Stacked with HIST F663; ACNS F663.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F464 Soviet and Post-Soviet Russia (s)**

3 Credits

Offered Spring Odd-numbered Years

Russia from the 1917 Revolution to the present. This course examines the attempts to build a socialist utopia in the former Russian empire and its impact on the peoples of that region and the modern world. We will consider the political, economic, social and cultural nature of the Soviet state.

Stacked with HIST F664; ACNS F664.

Special Notes: Major themes include cultural transformation, industrialization, Stalinism, the Soviet Union as a multi-national empire, the Cold War, the collapse of the Soviet state, and the new Russia of Yeltsin and Putin.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F466 The Russian Arctic**

3 Credits

Offered Fall Odd-numbered Years

Through readings, discussion and writing this course will explore topics such as: the Russian Empire's and the Soviet Union's exploration and colonization of the Arctic, Indigenous peoples, and the ways in which the Arctic was imagined in Imperial, Soviet and post-Soviet Russian culture.

Cross-listed with ACNS F466.**Stacked with** ACNS F666.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F467 Political Development in Latin America and the Caribbean (s)**

3 Credits

Offered As Demand Warrants

Exploration of major issues and concepts in development and governances of modern Latin America and the Caribbean region, including legacies of colonialism, revolution, military rule, economic challenges and the quest for democratic stability. Includes a historical overview of region and cases drawn from the Caribbean, Mexico, Central and South America.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HIST F275.**Cross-listed with** PS F467.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F475 Historiography Capstone (s)**

3 Credits

Offered Fall

Seminar discussions and lectures introduce philosophical approaches to history. Examines various methodological approaches to historical inquiry. Includes the nature of historical evidence, questioning of the role of truth and objectivity in history, an examination of the role of the historian in interpreting historical evidence, and different interpretations of historical events and actions. Designed for history majors and minors, and graduate students seeking to conduct historical research.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HIST F275; history major with senior standing.**Stacked with** ACNS F675.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HIST F476 Senior Thesis Capstone (s)

3 Credits

Offered Spring

Preparation and writing of a senior thesis using primary research materials on a topic of the student's choosing.

Prerequisites: COM F131X or COM F141X; HIST F475; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HIST F481 Polar Exploration and Its Literature (s)

3 Credits

Offered As Demand Warrants

A survey of polar exploration efforts of all Western nations from A.D. 870 to the present and a consideration of the historical sources of this effort.

Stacked with HIST F681; ACNS F681.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HIST F483 20th-century Circumpolar History (s)

3 Credits

Offered Spring

A comparative history of the circumpolar North, including Alaska, Siberia, Scandinavia, Greenland and Canada. Focus on social, economic, political and environmental issues of the 20th century, such as exploration, aboriginal land claims, subsistence, military strategy, transportation, oil development, Arctic haze and scientific research in the Arctic.

Stacked with HIST F683; ACNS F683.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HIST F490 Researching and Writing Northern History

3 Credits

Offered As Demand Warrants

Exploration of the craft and methodology of historical research in the North. Course may be repeated for credit when content varies.

Stacked with ACNS F690.

Lecture + Lab + Other: 1 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 4 times for up to 12 credits

HIST F600 Perspectives on the North

3 Credits

Offered Fall

Explores topics of interest and concern throughout the circumpolar north, including social, historical, environmental, ethnocultural, economic, political and geographic issues in Alaska, Canada, Scandinavia and Russia. Readings represent a variety of perspectives on the topics, including Indigenous and non-Indigenous, as well as insider and outsider, geographic/national and gender.

Cross-listed with ACNS F600.

Stacked with ACNS F484.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HIST F604 Modern Scandinavia

3 Credits

Offered Spring Even-numbered Years

Examines geographical, political, economic, cultural and social forces, as well as the impact of individuals, on the transformation of Scandinavian states from autocratic monarchies to some of the most democratic and egalitarian states in the world.

Cross-listed with ACNS F604.

Stacked with HIST F404.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HIST F611 Environmental History

3 Credits

Offered Fall Even-numbered Years

Discussion of significant works of environmental history. Cultural history of the landscape in world civilization with emphasis on Western Europe and North America. Discussion of interdisciplinary approaches to the history of environment and cooperative work across disciplines.

Cross-listed with ACNS F611.

Stacked with HIST F411.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HIST F662 History of Alaska

3 Credits

Offered Fall

Alaska from prehistoric times to the present, including major themes such as Native Alaska, colonial and military Alaska, statehood, Alaska Native Claims Settlement Act of 1971 and the Alaska National Interest Lands Act of 1980.

Cross-listed with ACNS F661.

Stacked with HIST F461.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HIST F663 Imperial Russia, 1700-1917

3 Credits

Offered As Demand Warrants

This course covers Russian history from the reign of Peter the Great (1682-1725) until the collapse of the Tsarist regime in February 1917. Topics will include Russia's complex relationship with Western Europe, the challenges posed by modernization, the Russian Empire as a multi-national state, and the emergence of revolutionary movement.

Prerequisites: Graduate standing.

Cross-listed with ACNS F663.

Stacked with HIST F463.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HIST F664 Soviet and Post-Soviet Russia

3 Credits

Offered Spring Odd-numbered Years

Russia from the 1917 Revolution to the present. This course examines the attempts to build a socialist utopia in the former Russian empire and its impact on the peoples of that region and the modern world. We will consider the political, economic, social and cultural nature of the Soviet state.

Prerequisites: Graduate standing.**Cross-listed with** ACNS F664.**Stacked with** HIST F464.

Special Notes: Major themes include cultural transformation, industrialization, Stalinism, the Soviet Union as a multi-national empire, the Cold War, the collapse of the Soviet state, and the new Russia of Yeltsin and Putin.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F681 Polar Exploration and Its Literature**

3 Credits

Offered As Demand Warrants

A survey of polar exploration efforts of all Western nations from A.D. 870 to the present and a consideration of the historical sources of this effort.

Prerequisites: Graduate standing.**Cross-listed with** ACNS F681.**Stacked with** HIST F481.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F683 20th-century Circumpolar History**

3 Credits

Offered Spring

A comparative history of the circumpolar North, including Alaska, Siberia, Scandinavia, Greenland and Canada. Focus on social, economic, political and environmental issues of the 20th century, such as exploration, aboriginal land claims, subsistence, military strategy, transportation, oil development, Arctic haze and scientific research in the Arctic.

Prerequisites: Graduate standing.**Cross-listed with** ACNS F683.**Stacked with** HIST F483.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HIST F699 Thesis**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Homeland Security and Emergency Management (HSEM)

College of Business and Security Management

Homeland Security & Emergency Management Program (<https://www.uaf.edu/cbsm/programs/hsem/>)

907-474-7461

HSEM F110 Personal Preparedness (s)

3 Credits

Offered As Demand Warrants

Students will gain the ability to recognize pending crises and the skills to successfully manage events, using preparedness theory. Students will be able to utilize practical applications should a disaster occur. They will then take all of the preparedness skills they have learned and develop a Personal Preparedness Plan.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F120 Introduction to Emergency Management**

3 Credits

Offered Fall and Spring

This course introduces students to vocabulary and core components of emergency management. Students examine the ever-growing and changing field, leadership and management roles and responsibilities, and the complexity of disruptive events such as emergencies and disasters.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F121 Introduction to Homeland Security**

3 Credits

Offered Fall and Spring

This course introduces students to the vocabulary and components of homeland security. Students examine the importance of the roles and responsibilities of agencies associated with the field, laws affecting homeland security, and the most critical threats within the field.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F223 Terrorism: A Global Threat**

3 Credits

Offered As Demand Warrants

This course will investigate the historical origins of global terrorism, the major contemporary terrorist organizations (foreign and domestic), their ideological motivations and their methodologies for employing terror. It will also explore the threats posed to the United States and the West in terms of national security and the economy. An in-depth examination and evaluation of several case studies of terrorist acts will be made. The primary focus of this course will be on terrorist organizations and their acts of terror.

Prerequisites: HSEM F120 or HSEM F121.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F225 Intelligence Analysis and Security Management**

3 Credits

Offered As Demand Warrants

This course will examine the history of intelligence gathering and espionage in the United States. A succinct study and comparative analysis of intelligence collection methods of other nations will also be made. An in-depth study of key U.S. intelligence agencies, their collection methodologies, and their effect upon national security will be examined.

Prerequisites: HSEM F120 or HSEM F121.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HSEM F227 Transportation and Border Security

3 Credits

Offered As Demand Warrants

This course provides an overview of modern border and transportation security challenges, as well as different methods employed to address these challenges. The time period from post 9-11 to the present is covered. Topics explored include those associated with border and transportation infrastructure security; seaports, ships, aircraft, airports, trains, train stations, trucks, highways, bridges, rail lines, pipelines and buses. The course will include an exploration of technological solutions employed to enhance security of borders and transportation systems. Discussions will include such topics as the legal, economic, political and cultural concerns and impacts associated with transportation and border security.

Prerequisites: HSEM F120 or HSEM F121.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F231 The Threat of Weapons of Mass Destruction**

3 Credits

Offered As Demand Warrants

In a post 9/11 environment, concerns surrounding the potential use of weapons of mass destruction have been an ever increasing concern. This course is intended to serve as an introduction to the study and history of weapons of mass destruction as a tool of terrorism.

Prerequisites: WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F233 Critical Infrastructure Protection**

3 Credits

Offered As Demand Warrants

This course provides tools and techniques to students who desire to increase their knowledge, skills and abilities in the protection of critical infrastructure elements. The course focuses on the predominant infrastructure sectors such as water, energy, SCADA, power, telecommunications, internet and cyberinfrastructure.

Prerequisites: HSEM F120 or HSEM F121.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F271 Fiscal Management for Emergency Management****Operations**

3 Credits

Offered Fall, Spring and Summer

Students will learn about the basic accounting and financial requirements for public organizations such as fire, police and similar functions of local governments. The major topics covered include: understanding financial reports, budgeting preparation, and grants and contracts administration.

Prerequisites: Sophomore standing or higher; placement, concurrent enrollment or completion of MATH at the F100-level or above.**Cross-listed with** ACCT F271.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F301 Principles of Emergency Management and Homeland Security**

3 Credits

Offered Fall, Spring and Summer

The course provides a foundational perspective as to how our present federal emergency management and homeland security structure emerged with emphasis placed on the characteristics, functions, and resources of its integrated systems. This course additionally focuses on the principles and practices of homeland security and emergency management at the local, state and federal levels.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F320 Survey of Emergency Management in Rural Alaska**

3 Credits

Offered As Demand Warrants

This course explores the basic emergency and disaster management principles and policies that apply to rural communities in Alaska, including the history of emergency management and the disaster response and recovery relationships between rural Alaska communities, the State of Alaska, and the federal government.

Prerequisites: WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F402 Incident Command for Emergency Medical Services**

3 Credits

Offered As Demand Warrants

Topics explored examine scenarios requiring responders to structure their EMS resources within the guidance of the National Incident Management System (NIMS) and Incident Command System (ICS). Students will practice utilizing the ICS with public safety responders and demonstrate the implementation of EMS components in an ICS system at incidents.

Prerequisites: HSEM F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F403 Public Health in Emergencies**

3 Credits

Offered As Demand Warrants

Students will focus on the role public health plays in disaster and emergency management. Topics include public health's role in fostering community resilience, medical intelligence and disease monitoring, behavioral health recovery, ethical considerations, and planning for vulnerable and special needs populations.

Prerequisites: HSEM F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F404 Public Safety Instruction**

3 Credits

Offered As Demand Warrants

This course provides the student with the tools to help foster public education in their community based on the different resources available to citizens. These resources often include programs at the federal, state, and local governments. Planning for the public safety community, including diverse learning populations, will be also discussed.

Prerequisites: HSEM F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HSEM F405 Introduction to Emergency Management Exercise Design

3 Credits

Offered Fall

This course examines exercise design, evaluation, and development. The course focuses on developing the skills that are imperative to implementing a Homeland Security Exercise Evaluation Program (HSEEP) compliant exercise. The course emphasizes the importance of incorporating emergency exercise planning to effectively prepare and respond to all disaster types and magnitudes.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HSEM F301.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F406 Comparative Homeland Security

3 Credits

Offered Spring

This course aids students in developing an understanding of the homeland security and counterterrorism methods utilized by other countries. The course examines different countries and compares the policies and strategies they have developed.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HSEM F301.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F407 Comparative Emergency Management

3 Credits

Offered Spring

This course will focus on examining regional and global responses to various types of disasters. Topics covered will include the importance of regional collaboration between nations in disaster preparedness, mitigation, response, and recovery. Additionally, the roles that regional partnerships play in disaster mitigation will be examined, as well as issues concerning the requirements to sustain collaborative efforts between nations in the 21st century.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HSEM F301.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F408 Homeland Defense and Security

3 Credits

Offered Fall

The purpose of this course is to provide students with an overview of the categories of military operations (other than war) that require homeland defense and security. A comparative approach will be utilized to compare the U.S. with other countries which use their respective militaries for smaller scale contingencies both internal and external to their borders.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HSEM F301.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F412 Emergency Planning and Preparedness

3 Credits

Offered Fall and Spring

This course will examine the concepts of developing and writing an emergency operations plan and the elements necessary for inclusion in the plan (all-hazards risk analysis). Students will transition through the process of identifying hazards, creating plans and developing a program which specifically addresses planning and preparedness objectives.

Prerequisites: HSEM F301.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F415 Cybersecurity in the 21st Century: Technology and Ethics

3 Credits

Offered As Demand Warrants

This course will provide a theoretical and practical overview of the ethics of cybersecurity as a military domain, cybersecurity as a protective requirement in industry and non-profits, and other contemporary issues.

The course addresses a range of topics to provide the student with a solid overall theoretical foundation of cybersecurity issues.

Prerequisites: HSEM F301, AIS F310 or AIS F316.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F416 Cybersecurity Management

3 Credits

Offered As Demand Warrants

Develop an understanding of the concepts, trends and strategies associated with cybersecurity and managing risk. This course will enable managers to understand risks associated with information technology, develop compensating controls or mitigations and implement them. Planning process, mitigation strategies, detection and recovery associated with cybersecurity and risk management are covered.

Prerequisite: HSEM F301, AIS F310 or AIS F316.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F417 Cybersecurity Resiliency

3 Credits

Offered As Demand Warrants

Cybersecurity resiliency focuses on the challenges faced by organizational leadership resisting, responding, and recovering from cyber-attacks and other events which adversely impact business-critical data. Topics further explore the dynamics of building and maintaining a cyber resilient organization.

Prerequisites: HSEM F301, AIS F310 or AIS F316.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F418 Cybercrime, Fraud and Law

3 Credits

Offered As Demand Warrants

This course introduces cybercrime, including the history of cybercrime in the U.S. and the resulting law and regulatory environment which has resulted. Techniques and resources for investigating cyber incidents will be explored, to include methods used to commit malicious or criminal acts.

Prerequisites: HSEM F301, AIS F310 or AIS F316.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F423 Disaster Response Operations and Management

3 Credits

Offered Fall and Spring

Topics explored within this course creates an understanding of the principles that promote effective disaster response and recovery operations. Students examine the nature of disasters, roles and responsibilities of various actors, and various problems associated with response and recovery operations.

Prerequisites: HSEM F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F434 All-hazards Risk Analysis**

3 Credits

Offered Fall and Spring

This course covers risk analysis and assessment from an All-Hazards emergency management and homeland security perspective. Students will explore vulnerability and risk assessment methodologies for natural, man-made as well as technological disasters/events and develop an understanding of the processes used in identifying and quantifying vulnerabilities in a system (e.g., a physical facility such as a chemical plant, or an infrastructure component such as a power plant).

Prerequisites: HSEM F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F439 Supervising Emergency Services**

3 Credits

Offered Spring

Issues relating to the supervision of firefighters and emergency environment will be explored. Topics include federal laws, labor relations, coaching, counseling and disciplinary action, managing conflict, motivation, stress, time management, and group dynamics. The course aligns with the National Fire Academy Fire and Emergency Services Higher Education model core curriculum.

Prerequisites: HSEM F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F440 Advanced Principles of Fire Service Administration**

3 Credits

Offered Fall

This course examines the emergency services field. Topics include community risk management, strategic planning, labor relations, leadership, visioning, managing change, politics, organizational culture, and data analysis. The course aligns with the United States Fire Administration (USFA) Fire and Emergency Services Higher Education Curriculum.

Prerequisites: HSEM F301.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F445 Business Continuity and Crisis Management**

3 Credits

Offered Fall, Spring and Summer

Topics include comprehensive emergency management, public and private roles and partnerships for emergency and crisis management, the risk management process, strategic crisis management, contingency planning, training and exercises, emergency response, business continuity and recovery, the role of the crisis management team and crisis communication.

Prerequisites: COM F131X or COM F141X; HSEM F301, AIS F310, AIS F316 or BA F360; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F452 Internship in Emergency Management**

3 Credits

Offered As Demand Warrants

A supervised practical work experience to enable students to apply their coursework in a fire department or closely related field of emergency services. Admission dependent upon approved sponsorship arrangements.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; B E M degree major; upper-division standing.**Recommended:** Four semesters of bachelor core; business administration courses.**Lecture + Lab + Other:** 0 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F456 Leaderships in Dangerous Contexts**

3 Credits

Offered Fall, Spring and Summer

Course focuses on the challenges faced by leaders during crisis and emergency circumstances. During emergency circumstances, leading others, being able to influence and motivate them is critical. Topics including leadership and followership, crisis decision making, fear and emotion and the unique circumstances of an emergency manager/homeland security professional are examined.

Prerequisites: HSEM F301; WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Cross-listed with** LEAD F456.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F461 Human Security in Alaska (an)**

3 Credits

Offered As Demand Warrants

This course explores the concept of human security, and takes an individual-centered approach to security, unlike the traditional state-centric approach. Topics covered include economic security, food security, health security, personal security, community security, environmental security and political security. Students will examine Alaska Native life through the human security framework.

Prerequisites: COM F121X, COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HSEM F467 Current Topics in Public Safety

3 Credits

Offered As Demand Warrants

This course examines current public safety topics with regards to relevant trends and practices. Topics of interest may include militarization of the police, mass shootings, police-community partnerships, technology, media relations, and transparency.

Prerequisites: HSEM F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits**HSEM F473 Disaster Risk Reduction & Climate Change**

3 Credits

Offered As Demand Warrants

This course explores the Disaster Risk Reduction framework alongside Climate Change Adaptation approaches, with a focus on proactive planning, risk reduction and comprehensive practices in risk assessment, emphasizing international approaches, focusing on specific hazards, vulnerabilities and potential solutions to climate-driven challenges.

Prerequisites: HSEM F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F601 Legal Aspects of Homeland Security and Emergency Management**

3 Credits

Offered Fall and Spring

An in depth examination of the applicable statutory, regulatory and policy aspects regulating the fields of security and disaster management will be undertaken. Topics include relevant statutes such as the Stafford Act, the Economy Act Insurrection Act, Posse Comitatus Act, and those relating to governmental and individual liability/defenses while performing.

Prerequisites: Must be admitted to the MSDM program; or permission of the MSDM program director.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F603 Disaster Management Policy**

3 Credits

Offered Fall, Spring and Summer

This course provides context for and coverage of disaster management and homeland security. The course explores how social science research can be applied to policy development and everyday practice. Students will discuss and review public policy, organizational management, and leadership issues faced by future practitioners and leaders in the field.

Prerequisites: Must be admitted to MSDM program; or permission of the MSDM program director.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F605 Community Planning in Emergency Management**

3 Credits

Offered Fall

Students will explore how community and urban planning principles affect the homeland security and emergency management enterprise with both traditional emergency manager and urban/community planner in mind to provide a wider perspective as to the considerations of urban and community planning.

Prerequisites: Must be admitted to the MSDM program; or permission of MSDM program director.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F607 Vulnerability and Protection**

3 Credits

Offered Spring

This course examines security as a discipline and responsibility. The key topics include protection of assets, management principles and concepts, the relationship of security to vulnerability, control of access, terrorist attacks, critical infrastructure protection, insider threats, and workplace violence.

Prerequisites: Must be admitted to the MSDM program; or permission of MSDM program director.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F609 Human Security**

3 Credits

Offered Fall

Students will explore the major elements of human security and examine traditional security influencers, such as public and mental health, climate change, and population and pathogen migration. The course focuses on the holistic approach of people as the foundation, in terms of cause, effect, and change agents.

Prerequisites: Must be admitted to the MSDM program; or permission of MSDM program director.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F613 International Disaster Management**

3 Credits

Offered Fall

This course examines international disaster management in relation to historical, socio-economic, risk, hazard, response, preparedness and recovery aspects for international disasters. Special emphasis on the organizations and agencies playing a prominent role in international disaster management will be explored as well.

Prerequisites: Must be admitted to the MSDM program; or permission of the MSDM program director.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F621 Circumpolar Competition-Arctic Diplomacy and Defense**

3 Credits

Offered Fall

The purpose of this course is to provide an understanding on fundamentals involving global competition and how it relates to the Arctic. As a result, an understanding of Arctic Security can be developed through studies defined by the primary security management actors for global issues: diplomatic and defense officials.

Prerequisites: Graduate standing or as approved by the program director.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HSEM F622 Arctic Strategies and Operations**

3 Credits

Offered Spring

The purpose of this course is to provide an understanding of northern national policies of the Arctic states as well as select non-Arctic states. Understanding Arctic national interests and strategies help inform defense authorities of critical Arctic issues required for diplomacy and security planning, regional dynamics and complex international influences.

Prerequisites: Graduate standing or as approved by program director.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HSEM F632 Project Management

3 Credits

Offered Fall and Spring

This course is designed to cover key components of project management fundamentals with emphasis on the project life cycle, project definition, project schedule and cost management, human resource allocation and the challenges facing project managers in every industry.

Prerequisites: Must be admitted to the MSDM or MBA program; or permission of MSDM or MBA program director.

Cross-listed with MBA F632.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F641 Information Assurance and Risk Assessment

3 Credits

Offered As Demand Warrants

Overview of enterprise security, privacy and information security assessment and management, and cybersecurity. Concentration on tangible and intangible costs of risks and examination of information assurance and security risk assessment concepts. Students will understand how to assess information security risks and use that information to develop potential solutions.

Prerequisites: Graduate standing in the MSDM or MBA program or certificates, or as approved by program director.

Cross-listed with MBA F641.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F645 Crisis Management

3 Credits

Offered As Demand Warrants

An in-depth review of crisis management to include the different crises an organization may face. The importance of an ethical and strategic response, developing a solid crisis management plan, strong crisis communication, and developing a crisis management team will be discussed.

Prerequisites: Graduate standing in the MSDM, MBA or certificate program.

Crosslisted with MBA F645.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F646 Business Continuity and Risk Assessment

3 Credits

Offered As Demand Warrants

In-depth analysis of business continuity to include risk analysis and plan assessment. Overview of potential risks from more than a natural disaster standpoint. The correct way to use risk analyzes while developing a continuity plan will be discussed. The importance of exercising and maintaining a plan will also be reviewed.

Prerequisites: Graduate standing in the MSDM, MBA or certificate program.

Cross-listed with MBA F646.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F647 Business Continuity Audit

3 Credits

Offered As Demand Warrants

As part of the business continuity cycle, audits of the business continuity system must be conducted. Topics for this class include: What an audit is, the framework for conducting, how to conduct an audit, the importance of auditing, and what and how the final product should be used.

Prerequisites: Graduate standing in the MSDM, MBA or certificate program.

Cross-listed with MBA F647.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F648 Perspectives in Addressing Cybersecurity & Critical Infrastructure

3 Credits

Offered As Demand Warrants

The course explores the nature of the critical infrastructure, the possible threats that exist or might exist and how they can be countered. Through case studies, we will examine the varied serious potential threats out there to the numerous critical infrastructures we have identified.

Prerequisites: Graduate standing in the MSDM or MBA program or certificates, or as approved by program director.

Crosslisted with MBA F648.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F649 Cyber Threats and Vulnerabilities

3 Credits

Offered As Demand Warrants

This course is focused on threats, vulnerabilities, patch management, incident response, and security operations to identify and protect against internal and external threats. Various security threats will be covered including hacker attacks, e-mail borne viruses, backdoor problems, and internal sabotage. Cybercrime, cybersecurity, and global information security will be discussed.

Prerequisites: Graduate standing in the MSDM or MBA programs, certificates, or as approved by program director.

Cross-listed with MBA F649.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F656 Strategic Leadership

3 Credits

Offered As Demand Warrants

Focus on the understanding and application of strategic leadership. We will discuss the process by which leaders make decisions at the strategic level. We will use historical examples of strategic leaders and assess the success– and failure– of strategic leadership under the challenging and catastrophic scenarios.

Prerequisites: Graduate standing within the MSDM or MBA programs.

Cross-listed with MBA F656.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F665 Strategic Collaboration

3 Credits

Offered As Demand Warrants

This course is designed to explore the techniques of collaboration and communication and their strategic use in managing contemporary organizations. Students will identify their own communication style and how to deploy it in various managerial situations. Topics will include exploring individual personality type and the effect of type on collaboration.

Prerequisites: Must be admitted to the MSDM or MBA program; or permission of MSDM or MBA program manager.

Cross-listed with MBA F665.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F670 Environmental Security

3 Credits

Offered As Demand Warrants

The course examines environmental and climate related issues as they pertain to areas of policy and decision making, the process of securitization involved, areas of conflict as they connect to people and infrastructure, and how these factors affect security and disaster management planning efforts.

Prerequisites: Graduate Standing within the MSDM program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F672 Climate Catastrophes: A Case Study Approach

3 Credits

Offered As Demand Warrants

The course examines connections between climate, natural hazards, and security concerns, through security and disaster case studies. We will cover a range of challenges that societies have faced from climate-driven pressures, how those pressures influence security and resilience, and how those lessons apply to security and disaster management efforts.

Lecture + Lab + Other: 6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F673 Models and Scenarios for Disaster Risk Reduction

3 Credits

Offered As Demand Warrants

The course explores how models and scenario planning are used to prepare for current and future hazards. It covers issues of scale (temporal, spatial, and political), uncertainty and extreme events, and how scientific models and tools are used to improve decision-making and reduce risk, primarily focusing on climate hazards.

Lecture + Lab + Other: 6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F690 Security and Disaster Management

3 Credits

Offered Fall, Spring and Summer

This course serves as the capstone course for the security and disaster management degree. This course should be taken near the end of the student's graduate program. This course will focus on the integration of both security and disaster management in a complex globalized environment.

Prerequisites: Must be admitted to the MSDM program; or permission of MSDM program director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HSEM F692 Security and Disaster Management Seminar

3 Credits

Offered Summer

This course is designed to bring Homeland Security and emergency management topics into the classroom as necessary. Such topics might include international security, disaster logistics or disaster economics. Additional topics will arise out of current events. This course may be taken 2 times as topics change.

Prerequisites: Must be admitted to the MSDM program; or permission of MSDM program director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 1 time for up to 6 credits

Honors College (HONR)

Honors College (<https://www.uaf.edu/honors/>)

907-474-6612

HONR F101 Introduction to the Honors College

1 Credit

Offered Fall

This course explains the services provided by the University in general and the Honors College specifically and how to best achieve goals in this academic setting. Student explores personal interests, strengths and weaknesses. Culminates in the development of an academic plan for a four-year degree program at UAF.

Prerequisites: Admission to the UAF Honors College.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HONR F125 Our Changing Climate: Past, Present, Future (s)

3 Credits

Offered Fall and Spring

Examines how the biophysical impacts of climate change define and intersect with social, ecological, economic, political and cultural dimensions of our lives. Provides a foundation in both Indigenous and Western science perspectives of the causes, impacts and feedbacks of a changing climate. Includes theoretical and project-based experience in climate change.

Prerequisites: Placement in WRTG F111X.

Cross-listed with ACNS F125, NRM F125, RD F125.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HONR F201 Methods of Inquiry

3 Credits

Offered Fall

This course introduces students to epistemology, the theory of knowledge, and provides a broad overview of research methods from the perspectives of the humanities, social sciences and natural sciences. The course content provides a foundation for the Honors student who will be developing independent research for their capstone thesis project.

Prerequisites: COM F131X, COM F141X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; admission to the Honors College.

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HONR F290 Honors Reading Seminar (h)

2 Credits

Offered Fall

Selected readings in a variety of disciplines. Students provide written reflections, respond to specific questions on the books, and meet to discuss the books. May be repeated for credit.

Prerequisites: WRTG F111X; enrollment in the Honors College.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 6 credits

HONR F291 Climate Scholars Field Intensive

2 Credits

Offered Fall, Spring and Summer

In Alaska, rapidly warming temperatures are thawing permafrost, changing vegetation and increasing wildfires at unprecedented rates. This course examines the impacts of climate change through a combination of lecture and praxis with an emphasis on developing student research, transdisciplinary skills and communication capabilities.

Prerequisites: HONR F125.

Special Notes: Check the section notes to identify the field intensive topic and site you wish to register for.

Lecture + Lab + Other: 20 + 0 + 26

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 4 times for up to 8 credits

HONR F298 Research

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 6 times for up to unlimited credits

HONR F301 Honors Interdisciplinary Seminar

3 Credits

Offered Spring

Honors students will explore a problem or challenge of national or international significance from the perspective of the natural sciences, social sciences, and humanities. Students will be expected to research information and present it, to lead discussions, and to propose ways to address the problem.

Prerequisites: COM F131X or COM F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; admission to the Honors College.

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 9 credits

HONR F381 Honors Capstone Development

1 Credit

Offered As Demand Warrants

In recognition of the value of the capstone project, and to support each student's goal to successfully complete it, the sequence of Honors Capstone courses is recommended. Students in this first course will develop their capstone proposal and by the end will be fully prepared to begin their capstone project.

Prerequisites: COM F141X or COM F131X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; enrollment in the Honors College.

Recommended: Honors sections of WRTG F211X or WRTG F213X and of COM F141X.

Special Notes: The single greatest part of the Honors education at UAF is the student's capstone project, which uniquely defines them as a scholar.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HONR F382 Honors Capstone Support

1 Credit

Offered As Demand Warrants

In recognition of the value of the capstone project, and to support each student's goal to successfully complete their capstone project, the sequence of Honors Capstone courses is strongly recommended. By the completion of the course, each student will have made significant advancement towards the completion of their capstone project.

Prerequisites: COM F141X or COM F131X; HONR F381; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; enrollment in the Honors College.

Recommended: Honors sections of WRTG F211X or WRTG F213X and of COM F141X.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 3 credits

HONR F383 Honors Capstone Seminar

1 Credit

Offered As Demand Warrants

To support each Honors student's goal to successfully complete their capstone project, the sequence of Honors Capstone courses is recommended. Students in this last course will present their work to an audience of their peers, and practice the skills of posing substantive questions to speakers outside their own fields.

Prerequisites: COM F141X or COM F131X; HONR F381; HONR F382; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; enrollment in the Honors College.

Recommended: Honors sections of WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X and of COM F141X.

Special Notes: The single greatest part of the Honors education at UAF is the student's capstone project, which uniquely defines them as a scholar.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HONR F390 Liability and Values

3 Credits

Offered As Demand Warrants

The study of standards of conduct and moral judgment. The professional, moral and ethical responsibilities of the individual to employers, employees and society will be examined.

Prerequisites: Sophomore standing; permission of the Honors Director or instructor.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HONR F453 Fire, Ice, and the Fate of Humanity: A History of Energy and Climate Change (s)

3 Credits

Offered Spring

This course examines how energy regimes and climatic changes have structured the history of the world, with a focus on North America. From the Little Ice Age to the Atomic Age and the Anthropocene, energy and climate have contoured the fate of humanity.

Crosslisted with ACNS F453; HIST F453.

Stacked with ACNS F653.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

HONR F498 Research

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 6 times for up to unlimited credits

HONR F499 Senior Thesis

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 6 credits

Human Services (HUMS)

College of Rural and Community DevelopmentDepartment of Social and Human Development (<https://www.uaf.edu/rural/academics/departments/>)

907-474-5439

HUMS F101 Introduction to Human Services

3 Credits

Offered As Demand Warrants

Provides an overview and orientation for individuals who have either started or are exploring human service careers. Designed for entry level behavioral health providers with an emphasis in understanding social service systems in rural and frontier Alaska. Strongly encourage students to be accepted into the Human Services Degree Program.

Special Notes: Recommended, Should be taken within the first academic year when possible.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F102 Standards of Practice**

2 Credits

Offered As Demand Warrants

Designed to provide an integrative approach for ongoing development of critical thinking skills, best practices evaluation, and application of skill based competencies. Development of a professional portfolio and integration of past human service experience.

Special Notes: This course should be taken as soon as possible upon acceptance into the Human Services Program.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F105 Personal Awareness and Growth**

2-3 Credits

Offered As Demand Warrants

Interpersonal and intrapersonal communication explored. Personal growth process presented from a holistic perspective. Focus will identify opportunities for personal enrichment through increased awareness of self and others.

Lecture + Lab + Other: 2-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F117 Practical Math Skills**

3 Credits

Offered As Demand Warrants

Computation involving percentages, estimation, problem-solving, reading and creating graphs and tables, data organization and interpretation. Applications of computational skills will be emphasized.

Cross-listed with ECE F117.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F120 Cultural Diversity in Human Services**

3 Credits

Offered Spring

The impact of culture on the delivery of human services including Alaska Native cultures; examination of relationship of multicultural and multi-ethnic concepts. Issues of age, class, disablement, race, gender and sexual orientation will also be discussed. Student exploration of personal values and cultural world view included.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F125X Introduction to Addictive Processes (s)**

3 Credits

Offered As Demand Warrants

Focus on gaining knowledge of the psycho-social aspects of addiction. Historic and behavioral approaches, disease concept and current trends relating to addiction presented. Twelve step and self-help approaches explored.

Cross-listed with JUST F125X.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F140 Family Dynamics**

3 Credits

Offered As Demand Warrants

Focus is on the family as a system and its involvement in the services provided to elders and children as well as services to family members with mental illness, developmental disabilities and substance abuse or dependence.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F202 Standards of Practice II**

1 Credit

Offered Spring

This course is designed for students who are either in practicum placement or finalizing their Human Services degree program. Students will demonstrate their competencies as lifelong learners, professional readiness and personal development by encompassing their best-written work and self-assessment by refining their human services portfolios. Active verbal participation is required.

Prerequisite: HUMS F102 or departmental approval.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F205 Basic Principles of Group Counseling**

3 Credits

Offered Spring

Concepts and techniques of working with small groups, including establishing group goals, effective group interaction, termination and evaluation. Development of therapeutic group activities presented.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F210 Crisis and Grief Counseling**

3 Credits

Offered Fall

Helping people in crisis from a theoretical and experiential perspective. Understanding how people feel, think and behave during periods of crisis and grieving. Suicide, violence, life transitions and AIDS explored.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HUMS F215 Individual Interviewing

2-3 Credits

Offered As Demand Warrants

Introduction to interpersonal communication skills. Focus on gathering client information through the interviewing process. Emphasis on development of one to one interviewing, behavioral observation and documentation.

Lecture + Lab + Other: 2-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F232 Human Service Practicum I**

3 Credits

Offered As Demand Warrants

Integration of human service theory with skill-based training through a professional, supervised experience in a human service agency. Practicum requires 125 hours. Seminar also meets one hour per week; student-shared learning, peer support and documentation, including progress notes, social history, mental status and case planning.

Prerequisites: Human Services major or minor.**Lecture + Lab + Other:** 1 + 8 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F233 Human Service Practicum II**

3-6 Credits

Offered As Demand Warrants

Continuation of HUMS F232. Course may be repeated once for credit to meet program requirements.

Prerequisites: HUMS F232.**Lecture + Lab + Other:** 1 + 8 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**HUMS F250 Current Issues in Human Services**

1-4 Credits

Offered As Demand Warrants

Selected current issues of importance to the human service field. Emphasis on issues impacting Alaskan communities. Repeatable for credit by Human Services majors to a maximum of 9 credits.

Lecture + Lab + Other: 1-4 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**HUMS F260 History of Alcohol in Alaska**

1 Credit

Offered As Demand Warrants

Significant historical forces, events and consequences related to alcohol and other drug use in Alaska. Includes current impact and trends.

Prerequisites: HUMS F125X.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F261 Substance Abuse Assessment: ASAM PPC II**

1 Credit

Offered As Demand Warrants

Treatment begins with assessment of need and intensity of services required. Students will understand criteria of ASAM: PPC II and have the skill to apply it to specific cases.

Prerequisites: HUMS F125X.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F263 Fetal Alcohol Spectrum Disorder**

1 Credit

Offered As Demand Warrants

Identification of alcohol-related neurodevelopmental disorder (fetal alcohol syndrome/effect), understanding of developmental differences, secondary problems and development of intervention strategies leading to best practice.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F264 Culture, Chemical Dependency and Alaska Natives**

1 Credit

Offered As Demand Warrants

The importance of culture to recovery and the impact of cultural diversity on counseling and service delivery. Meets requirements for certification as substance abuse counselor in Alaska.

Prerequisites: HUMS F125X.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F266 Co-occurring Disorders**

1-2 Credits

Offered As Demand Warrants

Theories and skills related to counseling the mentally ill substance abuser. Includes diagnosis, treatment planning and approaches, and special considerations.

Prerequisites: HUMS F125X.**Lecture + Lab + Other:** 1-2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F280 Prevention and Community Development**

3 Credits

Offered As Demand Warrants

Examine the historical evaluation, conceptual framework, practical realities of community development and prevention in rural Alaska. Surveys diverse approaches, community need evaluation processes for addressing community needs. Review of a multiplicity of approaches which can be considered in designing and implementing culturally respectful projects.

Prerequisite: HUMS F101; HUMS F102; or departmental approval.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F290 Case Management**

3 Credits

Offered As Demand Warrants

Challenge and broaden students' understanding, thinking, and conceptualizing case management. Investigate the case management model emphasizing its useful application to diverse client groups with an emphasis on Alaska and rural communities. The role of community in supporting efforts as well in providing resources such as natural supports will be emphasized.

Prerequisite: HUMS F101; HUMS F102; or departmental approval.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUMS F301 Ethics in Human Service**

3 Credits

Offered Spring

Professional and ethical issues related to the helping professions. Ethical concerns in multicultural and rural human service delivery. Ethics and legal issues related to substance abuse counseling in Alaska.

Prerequisites: PSY F101X or SOC F101X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

HUMS F305 Substance Abuse Counseling

3 Credits

Offered As Demand Warrants

Introduction to the basic principles of substance abuse counseling.

Application of counseling modalities to intervention and treatment of individuals, families and groups experiencing alcohol and drug abuse or dependence. Cross-cultural issues addressed.

Prerequisites: HUMS F125X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Humanities (HUM)

College of Liberal ArtsDepartment of Philosophy and Humanities (<https://www.uaf.edu/phil/>)
907-474-7231**HUM F201X Unity in the Arts (h)**

3 Credits

Offered Spring

Concentration on the interdependence of the visual arts, the performing arts, and literature, as set against a specific social, political and cultural background of selected eras.

Attributes: UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUM F492 Senior Seminar (h)**

3 Credits

Offered Fall Even-numbered Years

Consideration of the humanities at the University of Alaska and on alternate approaches elsewhere. Student project paper required with oral presentation and defense.

Prerequisites: Open requirements.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**HUM F492P Senior Seminar**

3 Credits

Offered Fall Even-numbered Years

Consideration of the humanities at the University of Alaska and on alternate approaches elsewhere. Student project paper required with oral presentation and defense.

Prerequisites: Open requirements.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Pass/Fail Grades

Interdisciplinary Studies (INDS)

Division of General StudiesUndergraduate Interdisciplinary Studies (<https://www.uaf.edu/inds/>)
907-479-2436**Graduate School & Interdisciplinary Studies**

Graduate Interdisciplinary Studies

907-474-7464

Undergraduate Interdisciplinary Studies Courses

INDS F400 Interdisciplinary Capstone

0 Credit

Offered Fall, Spring and Summer

Students identify their values, strengths, and post-graduation goals. They will prepare a resume and writing sample. Students will also be expected to develop and research an action plan to reach their stated goals. These materials have practical applications and facilitate self-reflection on the learning outcomes of their interdisciplinary degree.

Prerequisites: admittance to an interdisciplinary major; senior standing.**Cross-listed with** GENR F400.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Pass/Fail Grades**INDS F498 Research**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits

Graduate Interdisciplinary Studies Courses

INDS F698 Research

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**INDS F699 Thesis**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits

Interdisciplinary Studies (INDS)

INDS F400 Interdisciplinary Capstone

0 Credit

Offered Fall, Spring and Summer

Students identify their values, strengths, and post-graduation goals. They will prepare a resume and writing sample. Students will also be expected to develop and research an action plan to reach their stated goals. These materials have practical applications and facilitate self-reflection on the learning outcomes of their interdisciplinary degree.

Prerequisites: admittance to an interdisciplinary major; senior standing.**Cross-listed with** GENR F400.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Pass/Fail Grades**INDS F498 Research**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**INDS F698 Research**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits

INDS F699 Thesis

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits

Inupiaq (INU)

College of Rural and Community DevelopmentAlaska Native Language Center (<https://www.uaf.edu/anlc/>)

907-474-7874

INU F106 Introduction to Inupiaq (an)

1 Credit

Offered As Demand Warrants

Entry-level course to learn to speak and understand basic words and phrases of the Inupiaq language of the Northwest Arctic. Instruction is thematic and the focus is on communication for everyday situations.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**INU F111X Elementary Inupiaq I (an, h)**

5 Credits

Offered Fall

Introduction to Inupiaq, the language of Unalakleet, Seward Peninsula, Kotzebue Sound and the North Slope. Open to both speakers and nonspeakers. For speakers the course provides literacy and grammatical analysis. For others it provides a framework for learning to speak, read and write the language. Consideration given to dialect differences.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**INU F112X Elementary Inupiaq II (an, h)**

5 Credits

Offered Spring

Introduction to Inupiaq, the language of Unalakleet, Seward Peninsula, Kotzebue Sound, and North Slope. Open to both speakers and non-speakers. For speakers, the course provides literacy and grammatical analysis. For others, it provides a framework for learning to speak, read, and write the language. Consideration given to dialect differences.

Prerequisites: INU F111X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**INU F115 Conversational Inupiaq I (an)**

1-3 Credits

Offered As Demand Warrants

Introduction for students who wish to acquire the ability to speak Inupiaq, the language of Norton Sound, Seward Peninsula, Kotzebue Sound, North Slope, and the arctic portions of Canada and Greenland. Students first learn to understand simple spoken language, to speak simple Inupiaq, developing a beginning level of communicative competence.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**INU F116 Conversational Inupiaq II (an)**

1-3 Credits

Offered As Demand Warrants

Continuation of INU F115. Introduction in Inupiaq, the language of Norton Sound, Seward Peninsula, Kotzebue Sound, North Slope, and the arctic portions of Canada and Greenland. Students first learn to understand simple spoken language, then to speak simple Inupiaq, developing a beginning level of communicative competence.

Prerequisites: INU F115.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**INU F118 Inupiaq Orthography (an)**

3 Credits

Offered As Demand Warrants

Entry-level course designed for students who are fluent in Inupiaq. Reading silently and aloud, and writing. Emphasis on specific skills and practical application of skills through writing assignments.

Prerequisites: Demonstrated conversational Inupiaq skills.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**INU F211 Intermediate Inupiaq I (an, h)**

3 Credits

Offered Fall

Continuation of INU F111X and INU F112X, concentrating on development of conversational ability, with presentation of additional grammar and vocabulary.

Prerequisites: INU F112X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**INU F212 Intermediate Inupiaq II (an, h)**

3 Credits

Offered Spring

Continuation of INU F211, concentrating on development of conversational ability, with presentation of additional grammar and vocabulary.

Prerequisites: INU F211.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**INU F218 Inupiaq Composition (an)**

3 Credits

Offered As Demand Warrants

An examination of the development of written Inupiaq. Open to new genres, rather than simply translating the standard categories of English composition. Students receive extensive practice in the Inupiaq orthography and actively participate in the evaluation of each others' writing.

Prerequisites: INU F118.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**INU F417 Advanced Inupiaq (an, h)**

3 Credits

Offered Spring

Advanced study in Inupiaq. Continuation of INU F212.

Prerequisites: INU F111X; INU F112X; INU F211; INU F212.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits

Italian (ITAL)

Community and Technical College

Associate of Arts Program (<https://www.ctc.uaf.edu/programs/associate-of-arts/>)
907-455-2800

ITAL F100A Elementary Italian I (h)

3 Credits

Offered As Demand Warrants

Introductory study of the Italian language, culture and geography. Focuses on language skills to include grammar, vocabulary, pronunciation, and contemporary use of the language. Students will be introduced to the written and spoken language while learning about Italian culture.

Special Notes: Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ITAL F100B Elementary Italian II (h)

3 Credits

Offered As Demand Warrants

For students already in the process of learning Italian. Will be working individually, in pairs and in small groups toward reading, writing, listening and speaking. Focuses on language skills to include vocabulary terms, grammatical structures and conversational abilities. Will also learn about different cultures in the Italian-speaking world.

Prerequisites: ITAL F100A.

Special Notes: Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Japanese (JPN)

College of Liberal Arts

Department of Foreign Languages & Literatures (<https://www.uaf.edu/language/languages/japanese.php>)
907-474-7396

JPN F100A Japanese Culture and Conversation IA (h)

3 Credits

Offered As Demand Warrants

Courses JPN F100A and JPN F100B are introductory courses in the Japanese language and culture with an emphasis on the spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JPN F100B Japanese Culture and Conversation IB (h)

3 Credits

Offered As Demand Warrants

Courses JPN F100A and JPN F100B are introductory courses in the Japanese language and culture with an emphasis on the spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Prerequisites: JPN F100A.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JPN F100E Japanese Culture and Conversation IIA (h)

3 Credits

Offered As Demand Warrants

This is the first semester of second-year exploration of Japanese culture and conversation and requires completion of JPN F100B with a grade of C- or higher. This course does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Prerequisites: JPN F100B.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JPN F100F Japanese Culture and Conversation IIB (h)

3 Credits

Offered As Demand Warrants

This is the first semester of second-year exploration of Japanese culture and conversation and requires completion of JPN F100E with a grade of C- or higher. This course does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Prerequisites: JPN F100E.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JPN F101X Elementary Japanese I

4 Credits

Offered Fall

Introduction to spoken and written Japanese. Student will acquire a vocabulary of approximately 1,000 words and will learn to read and write the two syllabaries, hiragana and katakana, as well as 150 kanji. Cultural dimension is explored implicitly through language and explicitly through audiovisual materials. Courses are taught in Japanese.

Attributes: UAF GER Humanities Req

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JPN F102X Elementary Japanese II

4 Credits

Offered Spring

Introduction to spoken and written Japanese. Student will acquire a vocabulary of approximately 1,000 words and will learn to read and write the two syllabaries, hiragana and katakana, as well as 150 kanji. Cultural dimension is explored implicitly through language and explicitly through audiovisual materials. Course is taught in Japanese.

Prerequisites: JPN F101X or equivalent.

Attributes: UAF GER Humanities Req

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JPN F201 Intermediate Japanese I (h)

4 Credits

Offered Fall

The student will learn to read and write an additional 250 kanji. Conversational ability and listening comprehension enhanced by using videotape materials. Course is taught in Japanese.

Prerequisites: JPN F102X.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JPN F202 Intermediate Japanese II (h)

4 Credits

Offered Spring

The student will learn to read and write an additional 250 kanji. Conversational ability and listening comprehension enhanced by using videotape materials. Course is taught in Japanese.

Prerequisites: JPN F201.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JPN F210 Beginning Kanji (h)**

2 Credits

Offered Fall

Students will learn to read and write 500 basic kanji (Chinese characters) through studying their history, composition and artistic value.

Prerequisites: Hiragana and Katakana recognition.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JPN F301 Advanced Japanese (h)**

3 Credits

Offered Fall

Development of advanced conversational and reading skills. Topics may include: modern Japanese prose fiction; newspaper Japanese; advanced conversation through the study of common contractions and idiomatic usage in the standard Tokyo dialect; and a study of television drama series. May be repeated with different topics.

Prerequisites: JPN F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 4 times for up to unlimited credits**JPN F302 Advanced Japanese (h)**

3 Credits

Offered Spring

Development of advanced conversational and reading skills. Topics may include: modern Japanese prose fiction; newspaper Japanese; advanced conversation through the study of common contractions and idiomatic usage in the standard Tokyo dialect; and a study of television drama series. May be repeated with different topics.

Prerequisites: COM F131X or COM F141X; JPN F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**JPN F310 Intermediate Kanji (h)**

2 Credits

Offered Spring

Continuation of JPN F210 Beginning Kanji. Students will learn to read and write additional 500 kanji (Chinese characters) through studying their history, composition and artistic value.

Prerequisites: JPN F210.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JPN F311 Advanced Kanji (h)**

2 Credits

Offered As Demand Warrants

Continuation of JPN F310 Intermediate Kanji. Students will learn to read and write additional 1000 kanji (Chinese characters) through studying their history, composition and artistic value.

Prerequisites: JPN F310.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JPN F330 Classical Japanese Literature (h)**

3 Credits

Offered As Demand Warrants

A survey of the major works and genres of Japanese prose and poetry from the 8th to 18th centuries including Heian tales (monogatari), medieval folk tales and military chronicles, and the playful literature of the Edo period. Major emphases include the Tale of Genji, the Tale of the Heike and mastering the conventions that continue to be both adapted and subverted in modern Japanese literature. Course is taught in English.

Prerequisites: Junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JPN F331 Women's Voices in Japanese Literature (h)**

3 Credits

Offered As Demand Warrants

Selected novels, short stories, poems and diaries by Japanese women from the tenth century to the present which reveal the personal, social, aesthetic and intellectual concerns of women in different periods of Japanese history. Focus on the changing role of women in Japanese society and the role of women writers.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F200X or FL F200X.**Recommended:** HIST F121, HIST F122X, HIST F331.**Cross-listed with** WGS F331.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JPN F332 Japanese Cultural Traditions and Arts (h)**

3 Credits

Offered Fall Even-numbered Years

A study of Japanese cultural traditions and arts as influenced by the religious and philosophical systems of Shinto, Buddhism, Confucianism and Taoism. Lectures will cover a wide range of Japanese traditional arts such as tea ceremony, calligraphy, martial arts, Noh, Bunraku, and Kabuki. Course is taught in English.

Prerequisites: Junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JPN F333 20th-Century Japanese Prose Fiction**

3 Credits

Offered As Demand Warrants

A study of selected novels, short stories and film scripts in translation representative of styles and themes which characterize twentieth century Japanese literature. Analysis of each work in terms of characterization, themes, structure, style and as an expression of social problems or intellectual issues in modern Japanese society. Course is taught in English.

Prerequisites: Junior standing.**Special Notes:** Course may be repeated for credit when topic varies.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to unlimited credits

JPN F431 Studies in Japanese Culture (h)

3 Credits

Offered Fall

Further study of advanced written and spoken Japanese through essays, newspaper and journal articles, and television documentaries dealing with topics in Japanese culture.

Prerequisites: JPN F302.

Special Notes: Course may be repeated for credit when topic varies.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to unlimited credits

JPN F432 Studies in Japanese Language (h)

3 Credits

Offered Spring

In-depth study of Japanese language or literature. Course may be repeated for credit when topics vary.

Prerequisites: JPN F302.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to unlimited credits

JPN F475 Seminar on Contemporary Japan (h)

3 Credits

Offered Spring

Ties together various threads of the Japanese studies program and gives students an opportunity to apply their knowledge to contemporary issues in Japan. Provides a forum for student presentations of research papers begun in Japan.

Prerequisites: Upper-division semester in Japan at pre-approved program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JPN F482 Selected Topics in Japanese (h)

3 Credits

Offered As Demand Warrants

Focuses on topics not covered in JPN F431 or JPN F432.

Prerequisites: JPN F302; junior standing.

Special Notes: May be repeated for credit.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to unlimited credits

Journalism (JOUR)

College of Liberal Arts

Department of Journalism (<https://www.uaf.edu/journalism/>)

907-474-7761

JOUR F101X Media and Culture (h)

3 Credits

Offered Fall and Spring

History and principles of mass communications and the role of information media in American society. Introduction to professional aspects of mass communications, including print and broadcast.

Attributes: UAF GER Humanities Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JOUR F201 News Writing for the Media (h)

3 Credits

Offered Fall and Spring

Identifying and focusing news stories, writing the lead, developing story structure, writing on deadline, editing copy, writing headlines and captions, writing styles for print, broadcast and online news presentations.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JOUR F205 Media and the Environment

3 Credits

Offered As Demand Warrants

Exploration of local, national and international environmental problems and their social and political impacts. Analysis of historical and contemporary mass media coverage – including radio, film, print and online outlets – and their treatment of environmental issues. Examination of the media's effects on public opinion and government policies.

Prerequisites: WRTG F111X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JOUR F207 Audio Production (h)

3 Credits

Offered Fall

Audio production theory and practice for video, radio and podcasting.

Survey of types of microphones and their features, including mic placement and operation. Audio recording best practices, location sound, voice overs and audio editing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JOUR F211 If Einstein Were a Photographer

3 Credits

Offered As Demand Warrants

This course will apply photographic techniques and approaches to laboratory and field work photography for scientists and science and environmental journalists in their various areas of interest. This class will prove useful to archeologists, engineers, and other field and lab scientists who desire to better document their work through photography.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JOUR F301 Reporting Science

3 Credits

Offered Spring

News reporting basics with an eye toward science: covering beats including technology, medicine, climate, physics, space, the natural world and science policy. Cultivating sources, interviewing and reporting through public records. Sifting through published research and data. Working with numbers. Segments on print, video and online reporting methods and style conventions.

Prerequisites: JOUR F101X; JOUR F201.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JOUR F303 Copy Editing

3 Credits

Offered Fall

Lay or lie? Who or whom? Find out as this course travels from basic grammar and usage to editing for tone, structure and potential ethical conflicts. Choose the best word or phrase for any occasion, eliminate redundancy and verbosity, and learn why you should never use “really unique.”

Prerequisites: ENGL F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JOUR F307 Video Production (h)**

3 Credits

Offered As Demand Warrants

Digital video production technology overview and techniques of composition, audio, lighting, recording and editing as it relates to non-fiction/journalism production. Students will produce videos of varying lengths, including a final project.

Prerequisites: JOUR F201; JOUR F207.**Special Notes:** Special fees apply.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JOUR F391 Seminar: Issues in Science and the Environment**

3 Credits

Offered Spring Even-numbered Years

Taught by UAF's Snedden Chair in Journalism, this course uses a semester-long focus to examine a single issue or topic in science or environmental journalism.

Prerequisites: JOUR F101X; JOUR F201; JOUR F301; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**JOUR F400 Professional Internship**

1-3 Credits

Offered As Demand Warrants

Practical training in a supervised, professional media environment. Participation at an approved publication, TV or radio station, or other media- or communication-related office agency, organization or business is required.

Prerequisites: Senior standing.**Cross-listed with** COM F400.**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**JOUR F429 Public Relations and Public Information in the Sciences**

3 Credits

Offered Spring Even-numbered Years

Study and analysis of the role of PR/PIO professionals in science, technology, medicine and the environment. Writing relevant materials, including press releases. Discussion of issues management, crisis communication theories, models and concepts are examined, with additional focus on the role, process, strategies and tactics of these strategic elements.

Stacked with JOUR F629.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JOUR F439 Science Writing for Popular Media (h)**

3 Credits

Offered As Demand Warrants

Students write, read and analyze science articles, social media posts, blog posts and/or press releases. Coursework includes writing and reading assignments, class workshops and conferences with the instructor. Emphasis on recognizing, finding and developing science stories; structuring articles; capturing reader interest; maintaining accuracy; and getting published. Scientists are welcome.

Prerequisites: JOUR F201; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Stacked with** JOUR F639.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**JOUR F449 Northern and Environmental Literature (h)**

3 Credits

Offered Spring Odd-numbered Years

Intensive study of particular aspects of Alaska and circumpolar writing, ecocritical theory and the literature of environmental studies.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.**Cross-listed with** ACNS F449; ENGL F449.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JOUR F476 Advanced Digital Photography Portfolio (h)**

3 Credits

Offered Fall, Spring and Summer

This class provides students with the concept of producing a professional digital portfolio of their Commercial and/or Art Photography and/or Photojournalism. Students submit new images each week for editing and critique. Over the semester three smaller bodies of work will become a 20-24 image professional portfolio.

Prerequisites: ART F284.**Cross-listed with** ART F476.**Stacked with** ART F676, JOUR F676.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits**JOUR F480 Documentary Filmmaking (h)**

3 Credits

Offered Spring Odd-numbered Years

Basics of hands-on documentary filmmaking techniques, including preproduction, production and postproduction. Different documentary filmmaking directing styles and the process of distributing a documentary. Each student will produce a short documentary as the capstone of the course.

Prerequisites: Basic experience in shooting and editing video.**Cross-listed with** FLPA F480.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

JOUR F490 Journalism Capstone: Portfolio

0 Credit

Offered Spring

With faculty guidance and collaboration, senior students assemble a portfolio website of work that demonstrates their knowledge and proficiency in print, photographic, broadcast and online journalism.

Prerequisites: JOUR F211; JOUR F301; JOUR F303; JOUR F307; JOUR F400; JOUR F429; JOUR F439.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

JOUR F492 Seminar

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 15 times for up to unlimited credits

JOUR F498 Undergraduate Research

3 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 9 credits

JOUR F629 Public Relations and Public Information in the Sciences

3 Credits

Offered Spring Even-numbered Years

Study and analysis of the role of PR/PIO professionals in science, technology, medicine and the environment. Writing relevant materials, including press releases. Discussion of issues management, crisis communication theories, models and concepts are examined, with additional focus on the role, process, strategies and tactics of these strategic elements.

Stacked with JOUR F429.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JOUR F639 Science Writing for Popular Media

3 Credits

Offered As Demand Warrants

Students write, read and analyze science articles, social media posts, blog posts and/or press releases. Coursework includes writing and reading assignments, class workshops and conferences with the instructor. Emphasis on recognizing, finding and developing science stories; structuring articles; capturing reader interest; maintaining accuracy; and getting published. Scientists are welcome.

Prerequisites: Graduate standing.

Stacked with JOUR F439.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 6 credits

JOUR F676 Advanced Digital Photography Portfolio (h)

3 Credits

Offered Fall, Spring and Summer

This class provides students with the concept of producing a professional digital portfolio of their Commercial and/or Art Photography and/or Photojournalism. Students submit new images each week for editing and critique. Over the semester three smaller bodies of work will become a 20-24 image professional portfolio.

Cross-listed with ART F676.

Stacked with ART F476, JOUR F476.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 9 credits

JOUR F692 MFA Seminar

3 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 98 times for up to unlimited credits

JOUR F698 Non-thesis Research/Project

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 6 times for up to 6 credits

JOUR F699 Thesis

1-9 Credits

Every candidate for the communication concentration of the master's degree in professional communication will complete a thesis project. The requirement consists of an original piece of communication research directed by a member of the graduate faculty in the communication department. The completed and accepted thesis will be presented in an appropriate public forum.

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Justice (JUST)

College of Liberal ArtsJustice Department (<https://www.uaf.edu/justice/>)

907-474-5500

JUST F110X Introduction to Justice (s)

3 Credits

Offered Fall, Spring and Summer

Survey of the structure and process of the agencies of criminal justice. Includes introduction to criminology, criminal law, police, courts and corrections.

Attributes: UAF GER Social Sciences Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JUST F125X Introduction to Addictive Processes (s)

3 Credits

Offered As Demand Warrants

Focus on gaining knowledge of the psycho-social aspects of addiction. Historic and behavioral approaches, disease concept and current trends relating to addiction presented. Twelve step and self-help approaches explored.

Cross-listed with HUMS F125X.

Attributes: UAF GER Social Sciences Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JUST F222 Research Methods (s)

3 Credits

Offered Fall, Spring and Summer

Application of social science research methods to solving scientific and nonscientific questions arising in justice or political science. Basic methods include statistical analysis, survey research, and Internet applications.

Prerequisites: JUST F110X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JUST F251X Criminology (s)

3 Credits

Offered Fall, Spring and Summer

The study of the major areas of deviant behavior and its relationship to society, law and law enforcement, including the theories of crime causation.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JUST F300X Ethics and Justice (h)**

3 Credits

Offered Fall, Spring and Summer

An examination of ethical and moral concepts, and their relationship to criminal justice issues. Applies ethics theories to the criminal justice institutions of police, courts and corrections. Examines ethical and moral dilemmas which confront crime control policymakers.

Prerequisites: Junior standing.**Attributes:** UAF GER Ethics Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JUST F310 Principles of Corrections (s)**

3 Credits

Offered Spring and Summer

An introduction to adult institutions, community-based programs, and theories of incarceration. Correctional programs are examined.

Prerequisites: JUST F110X; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JUST F315 Correctional Counseling and Rehabilitation**

3 Credits

Offered As Demand Warrants

A study of various treatment and rehabilitative/restorative methods utilized in correctional settings. Topics include the roles of correctional personnel, the assessment and treatment of juveniles and adults, casework in correctional settings, crisis intervention, and the assessment and treatment of special populations in the correctional setting.

Prerequisites: Junior standing; JUST F310; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JUST F335 Gender and Crime**

3 Credits

Offered Fall and Summer

An exploration of gender and crime including the extent of female crime, victimization, masculinity and violence, and women professionals in the justice system.

Prerequisites: JUST F110X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.**Cross-listed with** WGS F335.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JUST F340 Rural Justice in Alaska (an, s)**

3 Credits

Offered Fall and Spring

Application of the Western justice system to remote northern Native villages including issues arising from cultural conflicts, difficulties associated with a centralized justice system serving distant roadless communities, the federal/Indian relationship and a description of crime occurring in the villages.

Prerequisites: JUST F110X; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JUST F345 Police Problems**

3 Credits

Offered Fall and Summer

This course examines the following: the potential for abuse of power and the special problems faced by those who assume the responsibility of coercing others; the influence of institutions and organizations on power; the nature of power and types of power; and the organizational tools to better manage power.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; JUST F110X; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JUST F352 Criminal Law**

3 Credits

Offered Fall and Spring

A study of elements, purposes and functions of the substantive criminal law with emphasis upon historical and philosophical concepts.

Prerequisites: JUST F110X; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JUST F354 Procedural Law**

3 Credits

Offered Fall and Spring

The legal limitations of the police and the right of the people to be secure from the government under the protection of the Constitution and the Rules of Evidence.

Prerequisites: WRTG F111X; JUST F110X; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JUST F358 Juvenile Delinquency (s)**

3 Credits

Offered Fall and Spring

Theories of delinquency, the extent of delinquency, the historical development of juvenile justice, the juvenile system, and how it impacts youth in relation to police, courts, institutions and community programs. Includes youth violence, gangs, gender, race and class.

Prerequisites: JUST F110X; JUST F251X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**JUST F360 Gender and Human Trafficking**

3 Credits

Offered Summer

The course will introduce students to human trafficking in its historical, legal, economic, and political/social contexts on a global scale, in the United States, and in Alaska.

Prerequisites: JUST F110X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

JUST F400 Forensic Investigations

3 Credits

Offered As Demand Warrants

Course explores forensic investigation techniques used to preserve evidence for trial. The history and purpose of forensic inquiries are explored. A variety of investigative techniques including hair and fiber analysis, botany, fingerprinting, DNA profiling, blood spatter, toxicology, handwriting analysis, entomology, casts and impressions, and ballistics, among other evidence is examined.

Prerequisites: JUST F110X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X (course may be taken concurrently).

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JUST F453 Comparative Criminology (s)

3 Credits

Offered Fall and Spring

The justice program focuses on the American justice system with an emphasis on restorative processes, alternative dispute resolution and Alaskan justice. This course examines the development of philosophy and law; and the historical and modern practice of justice throughout the world.

Prerequisites: COM F131X or COM F141X; JUST F110X; JUST F251X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JUST F454 Advanced Problems in Procedural Law

3 Credits

Offered As Demand Warrants

Advanced study of the elements of criminal procedural law. Emphasis on the legal limitations of the police and the right of people to be secure from the government under protection of the U.S. Constitution and "rules of evidence."

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; JUST F110X; JUST F354; junior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JUST F460 American Crime Control (s)

3 Credits

Offered As Demand Warrants

Major concepts of the structure and process of criminal justice revisited with emphasis on current issues.

Prerequisites: COM F131X or COM F141X; JUST F110X; JUST F222; JUST F251X; senior standing; justice major.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JUST F475 Internship

3-9 Credits

Offered Fall and Spring

Supervised work experience in criminal justice agencies.

Prerequisites: Permission of director of intern program.

Special Notes: Department approval required for 9 credits.

Lecture + Lab + Other: 0 + 0 + 3-9

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 9 credits

JUST F490 Capstone: Seminar in Critical Issues in Criminal Justice

3 Credits

Offered Spring and Summer

This seminar is one of three ways to satisfy the major capstone experience. Topics covered will be of current interest. Candidates in standing for B.A. degree in justice will examine current debates of a controversial and/or ethical nature.

Prerequisites: Senior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JUST F492 Seminar

1-6 Credits

Various topics of current interest and importance to the justice major will be presented. Topics will be announced prior to each offering.

Prerequisites: JUST F110X; junior standing; permission of instructor.

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 4 times for up to unlimited credits

JUST F492P Seminar

1 Credit

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 98 times for up to unlimited credits

JUST F498 Research Project

3 Credits

Offered Spring

This course surveys the basic practical and theoretical foundations of conflict, conflict resolution and restorative practices. It introduces students to the basic theories and practices of conflict resolution and peace-making, providing students with grounding in theories, applications, and dynamics of conflict and key conflict resolution processes.

Prerequisites: COM F121X, COM F131X or COM F141X; ECON F120X, PS F100X or JUST F110X; WRTG F111X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

JUST F605 Administration and Management of Criminal Justice Organizations

3 Credits

Offered Fall

A comprehensive overview of management and administration of criminal justice agencies with an emphasis on organizational behavior. Included is the study of management theories, leadership roles, and the development of human resources within the organizational context.

Prerequisites: Must be admitted to the Justice Administration master's degree program.

Recommended: B.A. or B.S. in relevant area.

Special Notes: Available online only.

Lecture + Lab + Other: 3 + 0 + 6

Grading System: Letter Grades with option of Plus/Minus

JUST F610 Ethics in Criminal Justice Management

3 Credits

Offered Spring and Summer

Confronting ethical situations that may arise in the management of criminal justice organizations. Examination of the ethical and moral foundations of our current criminal justice system to help make decisions in keeping with the goals of justice.

Prerequisites: Must be admitted to the Justice Administration master's degree program.

Recommended: B.A. or B.S. in relevant area.

Special Notes: Available online only.

Lecture + Lab + Other: 3 + 0 + 6

Grading System: Letter Grades with option of Plus/Minus

JUST F615 Justice Program Planning/ Evaluation and Grant Writing

3 Credits

Offered Spring

Program planning and evaluation. Includes grant proposal writing with emphasis on federal sources of grant funding.

Prerequisites: Must be admitted to the Justice Administration master's degree program.

Recommended: B.A. or B.S. in relevant area.

Special Notes: Available online only.

Lecture + Lab + Other: 3 + 0 + 6

Grading System: Letter Grades with option of Plus/Minus

JUST F620 Personnel Management in Criminal Justice

3 Credits

Offered Spring

Foundation for effective management of personnel in criminal justice by supervisors. Includes recruiting, selection, training, on-site supervision, termination and replacement of subordinates.

Prerequisites: Must be admitted to the Justice Administration master's degree program.

Recommended: B.A. or B.S. in relevant area.

Special Notes: Available online only.

Lecture + Lab + Other: 3 + 0 + 6

Grading System: Letter Grades with option of Plus/Minus

JUST F625 Legal Aspect of Criminal Justice Management

3 Credits

Offered Spring

A basic understanding of legal issues faced by criminal justice managers and administrators. Included is a study of the legal considerations surrounding recruitment and hiring practices, sexual harassment, the Age Discrimination in Employment Act, the Americans with Disabilities Act and the Fair Labor Standards Act.

Prerequisites: Must be admitted to the Justice Administration master's degree program.

Recommended: B.A. or B.S. in relevant area.

Special Notes: Available online only.

Lecture + Lab + Other: 3 + 0 + 6

Grading System: Letter Grades with option of Plus/Minus

JUST F640 Community/Restorative Justice

3 Credits

Offered Fall

Using community resources to address public safety concerns. Includes recent developments and an emerging awareness that public safety solutions can be achieved efficiently by cooperative efforts between justice agencies and community resources.

Prerequisites: Must be admitted to the Justice Administration master's degree program.

Recommended: B.A. or B.S. in relevant area.

Special Notes: Available online only.

Lecture + Lab + Other: 3 + 0 + 6

Grading System: Letter Grades with option of Plus/Minus

JUST F670 Seminar in the Administration of Juvenile Justice

3 Credits

Offered As Demand Warrants

Legal and administrative aspects of the juvenile justice system.

Emphasis will be placed on developing an applied knowledge regarding the administration of juvenile justice within the legal framework. Includes hypothetical situations in an effort to enhance the ability to apply theoretical concepts to real life situations.

Prerequisites: JUST F605; Must be admitted to the Justice Administration master's degree program.

Special Notes: Available online only.

Lecture + Lab + Other: 3 + 0 + 6

Grading System: Letter Grades with option of Plus/Minus

JUST F690 Seminar in Critical Issues and Criminal Justice Policy

3 Credits

Offered Fall and Summer

Over the semester, the candidates will review the core courses in the M.A. program. Candidates will complete projects designed to prepare them for the qualifying exam. Candidates in standing for the M.A. degree in justice will make presentations.

Prerequisites: Must be admitted to the Justice Administration master's degree program.

Recommended: B.A. or B.S. in relevant area.

Special Notes: Available online only.

Lecture + Lab + Other: 3 + 0 + 6

Grading System: Letter Grades with option of Plus/Minus

JUST F692 Justice Administration Seminar

3 Credits

Offered Summer

Various topics of current interest and importance to the Justice Administration majors will be presented. Topics will be announced prior to each offering.

Prerequisites: Must be admitted to the Justice Administration master's degree program; or permission of Justice Administration M.A. program coordinator.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 6 credits

JUST F698 Non-thesis Research/Project

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 1-12

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 15 times for up to unlimited credits

JUST F699 Thesis

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 1-12**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 15 times for up to unlimited credits

Latin (LAT)

College of Liberal ArtsDepartment of Foreign Languages and Literature (<https://uaf.edu/language/languages/latin.php>)

907-474-7396

LAT F101X Beginning Latin I (h)

3 Credits

Offered Fall

Introduction to ancient Latin language and Roman culture, development of competence through reading original authors with emphasis on vocabulary, recognition and correct use of grammar.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LAT F102X Beginning Latin II (h)**

3 Credits

Offered Fall

Continuation of the introduction to ancient Latin language and Roman culture, development of competence through reading original authors with emphasis on vocabulary, recognition and correct use of grammar.

Prerequisites: LAT F101X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LAT F201 Intermediate Latin I (h)**

3 Credits

Offered Spring

Continuation of LAT F102X. Increasing development of competence through reading original authors with growing emphasis on grammar usage and vocabulary.

Prerequisites: First year college Latin.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LAT F202 Intermediate Latin II (h)**

3 Credits

Offered Spring

Continuation of LAT F201. Increasing development of competence through reading original authors with growing emphasis on grammar usage and vocabulary.

Prerequisites: LAT F201.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Law Enforcement (LE)

Community and Technical CollegeLaw Enforcement Program (<https://www.ctc.uaf.edu/programs/lawacad/>)

907-455-2800

LE F110 Cultural and Behavioral Strategies for Law Enforcement Officers

1 Credit

Offered As Demand Warrants

Introduces a number of behavioral strategies to facilitate interaction among various cultures found in Alaska. Giving the student a strong concept of police ethics as it relates to everyday performance of police duties. Introduces the problems and strategies for law enforcement officers in their relationships with their marriages and families.

Prerequisites: Special Conditions: Students must meet basic Police Standards qualifications for police officers.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LE F115 Enforcement Skills for Law Enforcement Officers**

4 Credits

Offered As Demand Warrants

Introduction to basic skills necessary to use firearms, operate motor vehicles under emergency conditions and use Oleoresin Capsicum (pepper) spray and Taser effectively. Topics include use of force, judgement in the use of deadly force, physical defense tactics, physical arrest, radar and courtroom testimony, active shooter response, and officer safety.

Lecture + Lab + Other: 2 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**LE F120 Law Enforcement Operations**

4 Credits

Offered As Demand Warrants

Preparation to conduct specific investigations into auto theft, domestic violence events, DUI detection, juvenile procedures, care of the emotionally disturbed, report writing and jail procedures.

Special Notes: Students must meet basic Police Standards qualifications for police officers.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**LE F125 Basic Police Procedures**

4 Credits

Offered As Demand Warrants

Introduction to conducting investigations, using approved methods, at any major crime scene. Specific skills used in investigating sexual assaults, homicides, arson, gang-related activity and death investigations. Skills are taught in: interview and interrogation, crime scene physical collection, hostage situations, scene investigation and mapping. Blood-borne pathogens and protective measures are introduced.

Special Notes: Students must meet basic Police Standards qualifications for police officers.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**LE F205 Criminal Law for Police**

4 Credits

Offered As Demand Warrants

Introduction to the more complex issues of criminal law. The Alaska Statutes, constitutional law and court decisions as well as traffic law, search and seizure, rights of defendants and warrant procedures. Special Conditions: Students must meet basic Police Standards qualifications for police officers.

Lecture + Lab + Other: 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Leadership (LEAD)

College of Business and Security Management

Business Administration Program (<https://www.uaf.edu/cbsm/programs/business-administration/>)
907-474-7461

LEAD F280 Sport Leadership

3 Credits

Offered Fall

Provides leadership theory and develop leadership skills for application internal and external to their sport. Focus on the identification and development of leadership skills/abilities and application within the classroom, a sport and for an on-campus project.

Cross-listed with BA F280; SPRT F280.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LEAD F456 Leaderships in Dangerous Contexts

3 Credits

Offered Fall, Spring and Summer

Course focuses on the challenges faced by leaders during crisis and emergency circumstances. During emergency circumstances, leading others, being able to influence and motivate them is critical. Topics including leadership and followership, crisis decision making, fear and emotion and the unique circumstances of an emergency manager/homeland security professional are examined.

Prerequisites: HSEM F301; WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Cross-listed with HSEM F456.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LEAD F470 Leadership Theory and Development

3 Credits

Offered As Demand Warrants

A guide for interpreting leadership theory and research as well as practical advice on how to be a better leader. Reviews functional leadership theories, how the theories relate to one another and how students can apply the leadership theories to their own personal development.

Prerequisites: BA F390; COM F121X, COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LEAD F472 Leading Change

3 Credits

Offered As Demand Warrants

Explore how organizations to develop their capability and to achieve change, including the way change agents deal with conflicting demands. Learn the capabilities necessary to become a change agent within an organization and extend your understanding of key leadership theories.

Prerequisite: BA F390; COM F121X, COM F131X or COM F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Library Science (LS)

Elmer E. Rasmuson Library

Department of Library Science (<https://library.uaf.edu/people/experts/library-science/>)

907-474-7224

LS F101X Library Information and Research

1 Credit

Offered Fall, Spring and Summer

Introduction to library research methods and principles of information organization and retrieval. Emphasis on applied experience finding and evaluating information, especially through the use of library catalogs, library databases and internet resources. Some sections are discipline-specific. Students are advised that this course may feature mature content.

Attributes: UAF GER Library Skills Req

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Licensed Practical Nurse (LPN)

Community and Technical College

Allied Health Program (<https://www.ctc.uaf.edu/academics/allied-health/>)
907-455-2800

LPN F100 Foundations of the Professional Licensed Practical Nurse

3 Credits

Offered Fall and Spring

Teaches fundamental nursing and clinical practices essential to providing quality care for patients across the lifespan. Includes an introduction to nursing interventions and nursing care across the lifespan. Students will learn, apply and practice concepts such as HIPAA, scope of practice, the nursing process and infection control.

Prerequisites: HLTH F114 (may be taken concurrently); placement in WRTG F111X; placement into MATH F105; admittance to the LPN program of study.

Co-requisites: LPN F102.

Lecture + Lab + Other: 6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LPN F102 Licensed Practical Nurse Skills I

3 Credits

Offered Fall and Spring

Teaches fundamental nursing skills required of a professional Licensed Practical Nurse. Students will develop proficiency through the practice of skills related to communication techniques, physical assessments, ambulatory care, the nursing process, documentation, medication administration and dosage calculation.

Prerequisites: HLTH F114 (may be taken concurrently); placement in WRTG F111X; placement into MATH F105; admittance to the LPN program of study.

Co-requisites: LPN F100.

Lecture + Lab + Other: 0 + 14 + 0

Grading System: Pass/Fail Grades

LPN F120 Licensed Practical Nurse Clinical I

2 Credits

Offered Fall and Spring

Provides 84 hours of hands-on experience in a healthcare facility. Students will be expected to perform skills and procedures learned in LPN F102 and within the scope of LPN practice. Additional time is required for meetings with an instructor. Students do not receive compensation for clinical experiences.

Prerequisites: HLTH F114; LPN F100; LPN F102 (all may be taken concurrently); placement in WRTG F111X; placement into MATH F105; admittance to the LPN program of study.

Lecture + Lab + Other: 0 + 0 + 10

Grading System: Pass/Fail Grades

LPN F140 Nursing Across the Lifespan for the Licensed Practical Nurse

3 Credits

Offered Spring and Summer

Introduces pathophysiological processes that contribute to different disease states across the lifespan and human responses to those processes. Continued integration and application of the nursing process and pharmacological therapies while reinforcing the LPN scope of practice. Includes topics related to nursing care across the lifespan, medical-surgical nursing and maternal/child health.

Prerequisites: LPN F100; LPN F102; LPN F120.

Co-requisites: LPN F142; LPN F248.

Lecture + Lab + Other: 7 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LPN F142 Licensed Practical Nurse Skills II

2 Credits

Offered Spring and Summer

Teaches clinical nursing skills related to assessment, communication and care of individuals throughout the lifespan who need health maintenance and who have chronic/complex diseases. Mastery of skills that will be assessed include asepsis, wound care, foley catheter care and focus assessment.

Prerequisites: LPN F100; LPN F102; LPN F120.

Co-requisites: LPN F140; LPN F248.

Lecture + Lab + Other: 0 + 14 + 0

Grading System: Pass/Fail Grades

LPN F160 Licensed Practical Nurse Clinical II

3 Credits

Offered Spring and Summer

Provides 112 hours of hands-on experience in a healthcare facility. Students will be expected to perform skills and procedures learned in LPN F102 and LPN F142 and within the scope of LPN practice. Additional time is required for meetings with instructors. Students do not receive compensation for clinical experiences.

Prerequisites: LPN F140; LPN F142; LPN F248 (all may be taken concurrently).

Lecture + Lab + Other: 0 + 0 + 14

Grading System: Pass/Fail Grades

LPN F180 Leadership, Delegation & Scope of Practice for the Licensed Practical Nurse

3 Credits

Offered Fall and Summer

Teaches the important roles the LPN plays in leadership, delegation, supervision and quality improvement. This final course of the LPN program will allow the student to compile previous learning, and begin to build a comprehensive nursing practice within the scope of the LPN.

Prerequisites: LPN F140; LPN F142; LPN F160; LPN F248.

Co-requisites: LPN F182.

Lecture + Lab + Other: 7 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LPN F182 Licensed Practical Nurse Skills III

2 Credits

Offered Fall and Summer

Students will incorporate previously learned skills to form a comprehensive and appropriate approach to patient care within the LPN scope of practice. While demonstrating previously learned skills, students will be taught how to incorporate delegation and leadership into clinical scenarios for a well-rounded practice.

Prerequisites: LPN F140; LPN F142; LPN F160; LPN F248.

Co-requisites: LPN F180.

Lecture + Lab + Other: 0 + 8 + 0

Grading System: Pass/Fail Grades

LPN F190 Licensed Practical Nurse Clinical III

3 Credits

Offered Fall and Summer

Provides hands-on experience in a healthcare facility. Students will be expected to perform skills and procedures learned in LPN F102 and LPN F142 and within the scope of LPN practice. Additional time is required for meetings with the instructor. Students do not receive compensation for clinical experiences.

Prerequisites: LPN F180; LPN F182 (both may be taken concurrently).

Lecture + Lab + Other: 0 + 0 + 15

Grading System: Pass/Fail Grades

LPN F248 Pharmacology for the Licensed Practical Nurse

3 Credits

Offered Fall and Summer

Introduction to the use of therapeutic medications in medical settings. Includes classifications of drugs, pharmacodynamics, clinical applications and adverse effects of the most commonly prescribed medications. Practical concepts including dosage forms and routes of administration are presented utilizing a body system approach.

Prerequisites: HLTH F100 or MA F100; BIOL F100X, HLTH F114 or MA F114.

Co-requisites: LPN F140; LPN F142; LPN F160.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Linguistics (LING)

College of Liberal ArtsLinguistics Program (<https://www.uaf.edu/linguist/>)

907-474-7446

LING F100 Language, Education, Linguistics (h)

3 Credits

Offered Fall and Spring

Introduction to the field of linguistics as it pertains to the field of education. Includes discussions of language structure, acquisition and bilingualism, and variation and public policy. The course does not satisfy requirements for the B.A. in Linguistics.

Cross-listed with ED F100.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F101X Nature of Language (h)**

3 Credits

Offered Fall

The study of language: systematic analysis of human language and description of its grammatical structure, distribution and diversity.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F200 The Field of Teaching English to Speakers of Other Languages**

1 Credit

Offered Spring

The course provides an introduction to the profession of English second language teaching with a focus on the types knowledge, training and experience valued in the field as well as available international and US employment options. The course is offered on a pass/fall basis.

Prerequisites: WRTG F111X.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**LING F216X Languages of the World (h)**

3 Credits

Offered Fall

A comprehensive survey of the world's languages—past and present. Topics include genetic relationships among languages, linguistic change, language universals, language classification and language families, as well as the interaction of culture and language.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F223 Sociolinguistics: Language and Social Inequality**

3 Credits

Offered As Demand Warrants

An Introduction to the concepts and methods of linguistic anthropology and sociolinguistics. It draws from these disciplines to investigate the role of language variation in social inequality. Covers concepts including language varieties, speech styles, language ideologies, the creation of standard languages and portrayals of ethnolinguistic groups in media.

Prerequisites: ANTH F100X or LING F101X.**Cross-listed with** ANTH F223.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F260 Fundamentals of Linguistic Anthropology: Language in Culture and Communication (s)**

3 Credits

Offered Spring

An introduction to the study of the language and culture nexus. Questions addressed include: How does the language you speak affect how you think and view the world? How do ways of speaking structure culture? What do we know about how human language evolved? How does language encode cultural meaning?

Prerequisites: ANTH F100X, ANTH F101X, ANTH F215, SOC F101X or LING F101X.**Cross-listed with** ANTH F260.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F302 Introduction to Second Language Acquisition (s)**

3 Credits

Offered Spring

Survey of traditional and contemporary theories of second language acquisition and implications for language teaching and learning.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F303 Language Acquisition (s)**

3 Credits

Offered As Demand Warrants

Theories of the acquisition and development of first and second languages, including consideration of biological and sociocultural factors. Survey of traditional and contemporary theories, and implications for pedagogy and public policy.

Prerequisites: COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Recommended:** LING F101X.**Cross-listed with** ED F303.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F308 Language and Gender (s)**

3 Credits

Offered As Demand Warrants

Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; LING F101X, LING F216X, ANTH F100X, ANTH F101X or WGS F201X.**Cross-listed with** ANTH F308; WGS F308.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F315 English Language for Second Language Teaching**

3 Credits

Offered Fall

Study of the history, spread and varieties of the English language and the basic elements of its grammar, sound system and its use in discourse. This course is designed for students interested in teaching English as a second language and focuses on teaching implications of course content.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; LING F101X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

LING F318 Introduction to Phonetics and Phonology (h)

3 Credits

Offered Spring

Scientific study of human speech sounds, mechanism of their production and sound systems of languages.

Prerequisites: LING F101X; upper-division standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F320 Introduction to Morphosyntax (h)

3 Credits

Offered Fall

Study of principles and processes of word and sentence construction in language. Morphosyntactic structure of Alaska Native languages and other non-Indo-European languages.

Prerequisites: LING F318.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F389 Klingon, Elvish and Dothraki: The Art and Science of Language Creation (s)

3 Credits

Offered As Demand Warrants

Exposure to linguistics and linguistic anthropology through inventing a language. The range of human linguistic and cultural variation will inform design of the sound system, grammar, orthography, lexicon and cultural context for the language. The class as a whole will collaboratively create a basic ConWorld, lexicon, grammar and writing system.

Prerequisites: WRTG F111X; one semester of foreign language; ENGL F318, LING F101X, LING F223 or ANTH F260.

Cross-listed with ANTH F389.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F410 Theory and Methods of Second Language Teaching

3 Credits

Offered Fall

Theory and methods of teaching a second language, including various pedagogical approaches, overview of second language acquisition theory, discussion of materials and testing.

Prerequisites: COM F131X or COM F141X; three years of a foreign or Alaska Native language.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F420 Semantics (h)

3 Credits

Offered As Demand Warrants

A systematic exploration of the nature of meaning in human language. Focus is on historical and contemporary approaches to understanding problems of reference, categorization and lexical relationships in meaningful contexts.

Prerequisites: LING F101X.

Stacked with LING F620.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F430 Historical Linguistics (h)

3 Credits

Offered As Demand Warrants

Introduction to comparative and historical linguistics: methods of linguistic reconstruction, historical change, genetic relationships, dialectology. Includes Indo-European and Alaskan languages.

Prerequisites: LING F318.

Stacked with LING F630.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F431 Field Methods in Descriptive Linguistics I

3 Credits

Offered As Demand Warrants

Introduction to issues in field linguistics and specific issues around documenting little studied and endangered languages. Focus on making recordings, transcription, elicitation with consultants and ethics in the field. Projects build up to documenting an unfamiliar language with a consultant and designing and carrying out a research project.

Prerequisites: LING F318; LING F320.

Cross-listed with ANTH F432.

Stacked with ANTH F632; LING F631.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F434 Field Methods in Descriptive Linguistics II

3 Credits

Offered As Demand Warrants

Second semester of Field Methods sequence. Planning a field project, including selecting a field site, making community contacts, intellectual property and repatriation. In class group elicitation with a speaker of a non-Indo-European language. Projects may involve either work with a consultant or archival research on languages no longer spoken.

Prerequisites: LING F431, ANTH F432.

Cross-listed with ANTH F434.

Stacked with ANTH F634; LING F634.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F435 Political Media and Discourses of the American Right (s)

3 Credits

Offered As Demand Warrants

This class uses "hands-on" discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts.

Prerequisites: COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Cross-listed with ANTH F435; COM F435.

Stacked with ANTH F635; COM F635; LING F635.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F440 Aspects of Bilingualism (h)

3 Credits

Offered As Demand Warrants

Cognitive, linguistic, sociopolitical and educational aspects of bilingualism at both the individual and societal levels, including factors contributing to language maintenance and language shift.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; LING F101X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F441 Topics in Linguistics

3 Credits

An elective course in linguistics for majors. Content will vary from year to year and may be drawn from many areas of linguistics to include current research and methodologies.

Prerequisites: LING F101X; LING F318; LING F320.

Special Notes: Course may be repeated two times for credit when content varies.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to unlimited credits

LING F450 Language Policy and Planning (s)

3 Credits

Offered Fall Odd-numbered Years

Consideration of minority languages, including Alaskan Native Languages, in light of their histories, current status, and factors affecting future maintenance.

Prerequisites: COM F131X or COM F141X.

Cross-listed with ANTH F450.

Stacked with ANTH F654, LING F650.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F451 English Second Language Teaching Practicum

3 Credits

Offered Spring

Methodology workshop for students interested in teaching English as a second language. Includes language acquisition pedagogy and employment of these techniques in a lower division language classroom under the supervision of a classroom teacher. Enrollment subject to available classroom placement.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; LING F410.

Lecture + Lab + Other: 2 + 0 + 3

Grading System: Letter Grades with option of Plus/Minus

LING F481 Seminar in Applied Linguistic Research

1 Credit

Offered Fall

The course provides an introduction to applied linguistic research with a focus on how research is defined, the ethics of research, the different research paradigms, and the variety of methods used to conduct research in applied linguistics.

Prerequisites: LING F101X, LING F318, LING F320.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

LING F482 Seminar in Linguistics

3 Credits

Offered Spring

Current issues in various subfields of linguistics including semantics and pragmatics, discourse analysis, bilingualism, lexicography, language philosophy and issues within a particular language or language group, e.g. Eskimo phonology, Athabaskan morphology. May be repeated once.

Prerequisites: LING F101X; LING F318; LING F320.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 60 credits

LING F485 Discourse in Society: Analyzing Language in Social Context (s)

3 Credits

Offered Fall Odd-numbered Years

Hands-on experience in collection, transcription and analysis of naturally-occurring written and spoken texts. Offers a critical introduction to contemporary usage-based theories of language structure, including cognitive, cultural and interactional explanations for the distribution of linguistic resources in discourse.

Prerequisites: LING F101X, ANTH F260 or ANTH F320.

Cross-listed with ANTH F485.

Stacked with ANTH F685, LING F685.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F486 Language and Power (s)

3 Credits

Offered Fall Even-numbered Years

Questions and frameworks that drive the study of the language and power nexus. Topics may include: the nature of power, the political economy of language, speech levels and registers, strategies of exclusion and inclusion, markedness, hegemony, linguistic ideology, racialized language varieties, political language, language and colonialism and neoliberal discourse.

Prerequisites: 6 credits in Linguistics or Anthropology at the 300-400 level or graduate student standing.

Cross-listed with ANTH F486.

Stacked with ANTH F686; LING F686.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F600 Research Methods for Applied Linguistics

3 Credits

Offered Spring

Review of quantitative and qualitative research paradigms, data gathering techniques and analytical tools (questionnaires, surveys, observations, testing) used in the study of applied linguistics. Topics will include ethical issues in human subjects research, how to conduct a literature review, how to conduct classroom-based research.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F601 Principles of Linguistic Analysis

3 Credits

Offered Fall

Provides experience in working with various languages to determine systematic principles of transcribing and organizing sounds; isolating morphemes; categorizing words into semantic categories; and understanding narrative and other rhetorical structures. For students whose specialty is other than linguistics who could benefit from a graduate-level introduction to linguistic methods.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F602 Second Language Acquisition

3 Credits

Offered Fall

Central issues in second language acquisition research. Includes a critical review of SLA theories and research.

Prerequisites: LING F101X or LING F601; graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

LING F603 Phonetics and Phonology

3 Credits

Offered As Demand Warrants

Scientific approach to the study of human speech sounds and the mechanism of their production (phonetics), as well as the exploration of the fundamental concepts of the sound systems of languages (phonology) and theories which allow for the analysis of real language data.

Prerequisites: LING F101X or LING F601; graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F604 Morphology and Syntax**

3 Credits

Offered As Demand Warrants

The study of how meaning is encoded in words in languages of the world. Morphological and morphophonemic processes, lexical categories, derivation and inflection, productivity, tense, aspect, mode, case, concord, valence changes, morphological typologies. Similarities and differences among languages in signaling relations between nouns and verbs, negation, comparison, attribution.

Prerequisites: LING F101X or LING F601; graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F610 Theory and Methods of Second Language Teaching**

3 Credits

Offered Spring

Theory and practice of teaching a second language, including methodological approaches, second language acquisition theory, materials, and testing.

Prerequisites: LING F602.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F611 Second Language Materials and Assessment**

3 Credits

Offered As Demand Warrants

Exploration/discussion of theoretical perspectives in Second Language materials development/assessment. Emphasis on interconnectivity of materials, syllabus, curriculum, learning and assessment. After taking this course, students will be able to choose, adapt and construct a variety of language teaching materials and understand the ramifications of syllabus and curriculum design and assessment.

Prerequisites: LING F602; LING F610.**Recommended:** LING F601.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F612 Assessment for the Second Language Classroom**

3 Credits

Offered As Demand Warrants

Exploration/discussion of theoretical perspectives in second language assessment, practical considerations in creating language tests, and statistical methods used for analyzing test data. As a result of this course, students will be able to choose, adapt and construct a variety of language assessments for classroom and institutional purposes as well as evaluate the validity of existing assessments.

Prerequisites: LING F602; LING F610.**Recommended:** LING F601.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F620 Semantics**

3 Credits

Offered As Demand Warrants

A systematic exploration of the nature of meaning in human language. Focus is on historical and contemporary approaches to understanding problems of reference, categorization and lexical relationships in meaningful contexts.

Prerequisites: Graduate standing.**Stacked with** LING F420.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F621 Cultural Aspects of Language Acquisition**

3 Credits

Offered As Demand Warrants

An expanded view of the ways in which individuals become socialized into particular patterns of first and second language and literacy. The ongoing acquisition of both oral and written language(s) from early childhood through adult life. Topics will include the cultural dimensions of language development, the relationship between communication and culture, bilingualism and the role of language in the transmission of sociocultural knowledge.

Cross-listed with ED F621.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F627 Introduction to Linguistic Description and Documentation**

3 Credits

Offered As Demand Warrants

General introduction to lexicography, field phonetics, grammatical documentation, investigation of narrative, other levels of linguistic documentation, the distinction between description and documentation, and differences in structure and method between pedagogical and academic materials resulting from field work.

Prerequisites: LING F601; demonstrated background in phonology and morphology.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F630 Historical Linguistics**

3 Credits

Offered As Demand Warrants

Introduction to comparative and historical linguistics: methods of linguistic reconstruction, historical change, genetic relationships, dialectology. Includes Indo-European and Alaskan languages.

Prerequisites: LING F318.**Stacked with** LING F430.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F631 Field Methods in Descriptive Linguistics I**

3 Credits

Offered As Demand Warrants

Introduction to issues in field linguistics and specific issues around documenting little studied and endangered languages. Focus on making recordings, transcription, elicitation with consultants and ethics in the field. Projects build up to documenting an unfamiliar language with a consultant and designing and carrying out a research project.

Prerequisites: LING F627.**Cross-listed with** ANTH F632.**Stacked with** ANTH F432; LING F431.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

LING F634 Field Methods in Descriptive Linguistics II

3 Credits

Offered As Demand Warrants

Second semester of Field Methods sequence. Planning a field project, including selecting a field site, making community contacts, intellectual property and repatriation. In class group elicitation with a speaker of a non-Indo-European language. Projects may involve either work with a consultant or archival research on languages no longer spoken.

Prerequisites: ANTH F632 or LING F631.**Cross-listed with** ANTH F634.**Stacked with** ANTH F434; LING F434.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F635 Political Media and Discourses of the American Right**

3 Credits

Offered As Demand Warrants

This class uses "hands-on" discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts.

Prerequisites: Graduate standing.**Cross-listed with** ANTH F635; COM F635.**Stacked with** ANTH F435; COM F435; LING F435.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F640 Linguistic Anthropology: Language, Thought and Action**

3 Credits

Offered As Demand Warrants

Course surveys the history of linguistic anthropology and the methods and questions that have driven and distinguished the field. Topics include an introduction to the subfields of linguistics, the evolution of language, human vs. animal communication, language socialization, linguistic relativity, semiotics, language socialization and language ideologies.

Prerequisites: Graduate standing.**Cross-listed with** ANTH F631.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F650 Language Policy and Planning**

3 Credits

Offered Fall Odd-numbered Years

Consideration of minority languages, including Alaskan Native Languages, in light of their histories, current status, and factors affecting future maintenance.

Cross-listed with ANTH F654.**Stacked with** LING F450.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F651 Topics in Athabaskan Linguistics**

3 Credits

Offered As Demand Warrants

Graduate level introduction to important topics in Athabaskan linguistics, including both foundational literature and current research. Topics may include laryngeal features; tonogenesis; syntax-morphology interface; argument structure; lexical semantics; and discourse. Course may be repeated once.

Prerequisites: LING F601; graduate standing.**Recommended:** LING F603; LING F604.**Cross-listed with** ANL F651.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**LING F652 Linguistics Applications**

3 Credits

Offered As Demand Warrants

In-depth investigation of linguistic problems in selected languages. Includes phonological, morphological, syntactic and semantic issues.

Students will produce a grammatical sketch of a chosen language.

Prerequisites: LING F318; LING F320; LING F601; or relevant course work.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F660 Internship**

3 Credits

Offered As Demand Warrants

Student works as an apprentice to a language teacher or a linguist doing fieldwork. Maintain a log and a portfolio of work. If teaching, goal would be to develop appropriate lesson plans and do mentored teaching. If doing fieldwork, goal would be to develop appropriate materials for teaching.

Prerequisites: LING F603; LING F604; ANTH F632 or LING F610.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F685 Discourse in Society: Analyzing Language in Social Context (s)**

3 Credits

Offered Fall Odd-numbered Years

Hands-on experience in collection, transcription and analysis of naturally-occurring written and spoken texts. Offers a critical introduction to contemporary usage-based theories of language structure, including cognitive, cultural and interactional explanations for the distribution of linguistic resources in discourse.

Prerequisites: ANTH F631, ANTH F670, LING F602, LING F631 or LING F640.**Cross-listed with** ANTH F685.**Stacked with** LING F485, ANTH F485.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

LING F686 Language and Power (s)

3 Credits

Offered Fall Even-numbered Years

Questions and frameworks that drive the study of the language and power nexus. Topics may include: the nature of power, the political economy of language, speech levels and registers, strategies of exclusion and inclusion, markedness, hegemony, linguistic ideology, racialized language varieties, political language, language and colonialism and neoliberal discourse.

Cross-listed with ANTH F686.**Stacked with** ANTH F486; LING F486.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**LING F692 Seminar**

1-3 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 3 credits**LING F692P Seminar**

1-3 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 3 credits**LING F698 Non-thesis Research/Project**

1-9 Credits

Lecture + Lab + Other: 1-9 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**LING F699 Thesis**

1-9 Credits

Lecture + Lab + Other: 1-9 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Marine Biology (MBI)

College of Fisheries and Ocean Sciences

Department of Marine Biology (<https://uaf.edu/cfos/academics/departments/marine-biology/>)

907-474-7210

MBI F102 Fact or Fishin': Case Studies in Fisheries and Marine Sciences

1 Credit

Offered Fall

This seminar will promote active learning, critical thinking and problem-solving through a series of case studies involving current issues in fisheries and marine sciences conservation and management. Students enrolled in this course will also receive instruction on fundamental skills required to successfully complete a four-year degree at UAF.

Cross-listed with FISH F102; OCN F102.**Lecture + Lab + Other:** 1.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBI F103 The Harvest of the Sea**

2 Credits

Offered Spring

This course will explore the scientific and popular literature related to the exploitation of global marine resources. Specific topics of the course will be based on three core themes: (1) early exploitation of marine resources; (2) overexploitation of marine stocks; and (3) the status and sustainability of marine resources.

Prerequisites: FISH F102; FISH F110; placement in WRTG F111X.**Cross-listed with** FISH F103; OCN F103.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBI F111L The Oceans Laboratory**

0 Credit

Offered Fall, Spring and Summer

Provides laboratory experience emphasizing insights from biology, physics, chemistry and geology. Topics include the evolution of the ocean basins, seawater composition, generation of ocean currents and waves, and the combined processes that sustain life in the ocean. Societal topics related to climate change.

Co-requisites: MBI F111X or OCN F111X.**Cross-listed with** OCN F111L.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**MBI F111X The Oceans (n)**

4 Credits

Offered Fall, Spring and Summer

Broad study of our ocean through combining insights from biology, physics, chemistry and geology. Topics include evolution of the ocean basins, seawater composition, generation of ocean currents and waves, and the combined processes that sustain life in the ocean. Societal topics related to climate change, fisheries and pollution are discussed.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.**Co-requisites:** MBI F111L or OCN F111L.**Cross-listed with** OCN F111X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBI F212 Introduction to Marine Science II**

3 Credits

Offered Spring

This course explores the diversity of marine life, from microbes to mammals, and the interactions of marine organisms with each other and with their environment. Topics include primary productivity, marine food webs, physiological adaptations, and ecology of marine habitats from coastal to deep-sea systems.

Prerequisites: OCN F211.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

MBI F219 Marine Mammals of the World

2 Credits

Offered Spring

We will go on a tour of the 129 currently recognized extant marine mammal species in the world. We will explore taxonomy, species description and identifying characteristics, distribution, ecology, including feeding strategies, reproduction etc., status, threats and conservation.

Prerequisites: OCN F111X, FISH F102, FISH F103, BIOL F115X or BIOL F116X.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F220 Scientific Diving

2 Credits

Offered Spring

Introduction to cold water diving and SCUBA techniques used in the research community. Includes familiarization with Alaska subtidal flora and fauna. Opportunity to work underwater and assist with diving projects conducted by MBI F423 students at the Kasitsna Bay Marine Lab during spring break. Through this course, students also can be certified with a Research Diver Specialty (PADI) and a Dry Suit Specialty (PADI). CPR, First Aid (Red Cross), and Emergency Oxygen Administration (DAN) are available through this course. Special Conditions: Must have current SCUBA physical approved.

Prerequisites: Basic biology/ecology courses, SCUBA (open water) certification.

Special Notes: Completion of this course will allow students to be eligible to join the UAF (AAUS) dive program and to dive on the UAF-sanctioned diving projects and have reciprocity to dive with other universities and other government agencies.

Lecture + Lab + Other: 1 + 1 + 8

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 15 times for up to 30 credits

MBI F306 Aquatic Invertebrate Zoology

4 Credits

Offered Fall Even-numbered Years

We will explore the phylogenetics, life history, reproduction, physiology, morphology and sexual systems of aquatic invertebrates. Hands-on approaches, including a survey and comparison of taxonomic groups using microscopy and visual observations, recorded in a lab notebook, are central to the laboratory component of this course.

Prerequisites: (OCN F211 and MBI F212) or (BIOL F115X and BIOL F116X).

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F317 Introduction to Marine Mammal Biology

3 Credits

Offered Spring

The course will introduce students to the biology and diversity of cetaceans, pinnipeds, sirenians, and other marine mammals. Topics will include evolution, ecology, reproduction, and behavior of marine mammals, their special adaptations, such as diving, osmo- and thermoregulation, and will explore some current conservation and management issues.

Prerequisites: BIOL F116X or MBI F212.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F320 Aquatic Ecology

3 Credits

Offered Fall

An introduction to the relationship between aquatic species and their environment, with an emphasis on biological interactions and environmental factors that structure these communities.

Prerequisites: (OCN F211 and MBI F212) or (BIOL F115X and BIOL F116X).

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F410 Marine Bird Ecology and Conservation

3 Credits

Offered Fall Even-numbered Years

This course will introduce students to the biology, ecology and conservation of marine birds, with emphasis on seabirds, sea ducks and shorebirds, especially species found in Alaska and the Northern Hemisphere. Through ecological and evolutionary perspectives, topics will include biodiversity, adaptations, life histories, population ecology, demography, community ecology and conservation.

Prerequisites: BIOL F371 or MBI F320.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F412 Early Life Histories of Marine Invertebrates

3 Credits

Offered Fall Odd-numbered Years

This course will explore the diversity of reproductive strategies and larval forms in marine invertebrates, and consider selective pressures governing the evolution of these forms. Topics include larval ecology and evolution, environmental constraints on early life histories, reproductive biology, population dynamics, sources of larval mortality, dispersal, and recruitment.

Prerequisites: MBI F212 and upper-division standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F415 Physiology of Marine Organisms

3 Credits

Offered Fall

We will study the problems and challenges vertebrates and invertebrates are facing in the marine environment, and their responses and solutions. Characteristic issues for marine animals include oxygen supply, salinity, temperature and pressure, and adaptations can vary widely or be remarkably similar.

Prerequisites: BIOL F310, MBI F212 or (BIOL F111X & BIOL F112X).

Stacked with MBI F615.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F421 Polar Marine Science

3 Credits

Offered Fall Odd-numbered Years

Physical, biological, chemical and geological oceanography of the polar oceans with emphasis on comparing and contrasting the Arctic and Antarctic.

Prerequisites: OCN F211; MBI F212.

Stacked with MBI F621.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F423 Nearshore Ecology Field Course

2 Credits

Offered Spring

Students will propose a hypothesis that they will develop in the first two months of the semester and then experimentally test during a spring break field trip to the Kasitsna Bay Marine Lab. Projects may be subtidal (if the student is a current AAUS diver) or intertidal.

Prerequisites: MBI F220, successful completion of a 200-level marine biology, ecology, or equivalent courses; If the student wants to dive as part of their project, they must be AAUS divers with current CPR, First Aid, O2 Administration certifications, and have a current AAUS medical physical.

Stacked with MBI F623.

Lecture + Lab + Other: 1 + 1 + 8

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 15 times for up to 30 credits

MBI F450 Marine Biology and Ecology Field Course

4 Credits

Offered Summer Odd-numbered Years

Advanced understanding of marine organisms in an ecological and evolutionary context through field and laboratory work at the Kasitsna Bay Marine Lab (Kachemak Bay, Alaska). Includes the study of marine macroalgae, invertebrates and plankton and relating their anatomical organization to habitat, lifestyle and ecology.

Prerequisites: One year of biology.

Recommended: Basic courses in ecology and invertebrate zoology.

Stacked with MBI F650.

Lecture + Lab + Other: 3 + 6 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F456 Kelp Forest Ecology

2 Credits

Offered Summer Even-numbered Years

Introduction to knowledge, hypotheses and disputes regarding kelp forest ecology, including the environmental and ecological interactions that influence their distribution, structure and function. Course includes lectures, discussions, labs and scuba diving field trips. We take a global perspective but focus on local Alaska subtidal flora and fauna.

Prerequisites: UAF Science Diver certification.

Stacked with MBI F656.

Lecture + Lab + Other: 5 + 35 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F457 Field Techniques in Ocean Acidification Research

3 Credits

Offered Summer Even-numbered Years

An introduction to the design and fabrication of experimental ocean acidification systems and oceanographic pH sensors for the study of ocean acidification. This course will require extra fees to cover laboratory activities, room and board. Students are responsible for the travel to and from Kasitsna Bay Laboratory, near Seldovia, Alaska.

Prerequisites: OCN F211 and MBI F212.

Lecture + Lab + Other: 2 + 4 + 3

Grading System: Letter Grades with option of Plus/Minus

MBI F467 Ecology and Physiology of Marine Macroalgae (n)

3 Credits

Offered Spring Odd-numbered Years

This course will provide an overview of marine seaweed related to their diversity, structure, physiology, ecology, and basic grouping approaches, and marine seaweed's relation to human affairs. This course will allow students to increase their awareness of the ecological and economic relevance of marine seaweeds.

Prerequisites: BIOL F115X; MBI F212.

Stacked with MBI F667.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F476 Aquatic Food Web Ecology

3 Credits

Offered Fall Even-numbered Years

Examines theoretical and applied aspects of aquatic food web ecology, from the ecological processes that give rise to patterns in aquatic communities to the incorporation of trophic interactions into ecosystem-based management. Includes a lecture component focused on peer reviewed studies and a lab component focused on applying concepts with data.

Prerequisites: Upper-level undergraduate standing.

Cross-listed with BIOL F470; FISH F476.

Stacked with BIOL F670; FISH F676; MBI F676;.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F482 Human Impacts to the Marine Biosphere

3 Credits

Offered Spring

A review of the biological mechanisms that marine species utilize to respond to ocean change focusing on the links between physical, chemical and biological systems and human activities.

Prerequisites: (OCN F211 and MBI F212) or (BIOL F115X and BIOL F116X).

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F492 Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MBI F498 Research

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MBI F499 Senior Thesis

3 Credits

Under the supervision and mentorship of a fisheries and ocean sciences faculty member, students will complete a self-designed project that is the capstone of a student's exemplary academic performance. The student will complete a senior thesis based on field and/or laboratory data collected during a field course or work that was completed with the faculty mentor within the context of the existing literature relevant to the study topic. Students are required to present their study results as an oral or poster presentation at a UAF seminar or symposium, or at a state or national scientific conference. In addition, students are encouraged to work with their mentor to submit their thesis for publication in a peer-reviewed scientific journal.

Prerequisites: Permission of a fisheries and ocean sciences faculty mentor.

Lecture + Lab + Other: 0 + 0 + 9

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 6 credits

MBI F601 Professional Development

1 Credit

Offered Spring Odd-numbered Years

Improve ability to make oral and poster presentations and to write resumes and cover letters. Includes lectures, discussions, and four individual projects. Students are encouraged to use their thesis/dissertation material for the posters and oral presentations. Feedback on all projects will be given by both instructor and students. Special Notes:

Recommended: Graduate status.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F602 Proposal Writing

1 Credit

Offered Fall

Familiarize students with the proposal writing process. Writing proposals is a common requirement during graduate school and will be continuing during the career as a scientist and researcher. This class aims to cover some common rules about good proposal writing.

Prerequisites: Recommended: Graduate status.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 3 times for up to 3 credits

MBI F604 Modern Applied Statistics for Fisheries

4 Credits

Offered As Demand Warrants

Covers general statistical approaches to quantitative problems in marine science and fisheries with guidance on how to collect and organize data, how to select appropriate statistical methods and how to communicate results. A variety of advanced statistical methods for analyzing environmental data sets will be illustrated in theory and practice.

Prerequisites: STAT F200X; STAT F401; proficiency in computing with R.

Cross-listed with FISH F604.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F605 Controversies in Marine Science

1 Credit

Offered Fall

Introduction to the idea that science is fluid and controversies and disagreements do occur. These disagreements are often published in the primary literature. This course will be a discussion/debate of various controversial topics in marine science.

Recommended: Graduate status.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

MBI F610 Marine Biology

3 Credits

Offered Spring

This class covers all major marine ecosystems across the globe in a comparative manner. Each system is introduced by its physical setting, then covers important primary producer sources or foundation species, ultimately leading to how ecological concepts structure the communities and food webs in these ecosystems.

Prerequisites: Degree in biology.

Recommended: Courses in invertebrate zoology, ichthyology, and vertebrate zoology.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F612 Early Life Histories of Marine Invertebrates

3 Credits

Offered Fall Odd-numbered Years

This course will explore the diversity of reproductive strategies and larval forms in marine invertebrates, and consider selective pressures governing the evolution of these forms. Topics include: larval ecology and evolution, environmental constraints on early life histories, reproductive biology, population dynamics, sources of larval mortality, dispersal and recruitment.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F615 Physiology of Marine Organisms

3 Credits

Offered Fall

We will study the problems and challenges vertebrates and invertebrates are facing in the marine environment, and their responses and solutions. Characteristic issues for marine animals include oxygen supply, salinity, temperature and pressure, and adaptations can vary widely or be remarkably similar.

Prerequisites: Graduate standing.

Stacked with MBI F415.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F619 Biology of Marine Mammals

3 Credits

Offered As Demand Warrants

Introduction to a broad range of research and conservation topics associated with marine mammals. Topics include physiological adaptations, phylogeny and evolution, behavior, ecology, population dynamics and conservation.

Prerequisites: Graduate standing; or upper-division ecology and biology courses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F621 Polar Marine Science

3 Credits

Offered Fall Odd-numbered Years

Physical, biological, chemical and geological oceanography of the polar oceans with emphasis on comparing and contrasting the Arctic and Antarctic.

Prerequisites: graduate standing.**Stacked with** MBI F421.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBI F623 Nearshore Ecology Field Course**

2 Credits

Offered Spring

Students will propose a hypothesis that they will develop in the first two months of the semester and then experimentally test during a spring break field trip to the Kasitsna Bay Marine Lab. Projects may be subtidal (if the student is a current AAUS diver) or intertidal.

Prerequisites: Graduate standing; MBI F220, successful completion of a 200-level marine biology, ecology, or equivalent courses; If the student wants to dive as part of their project, they must be AAUS divers with current CPR, First Aid, O2 Administration certifications, and have a current AAUS medical physical.

Stacked with MBI F423.**Lecture + Lab + Other:** 1 + 1 + 8**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 15 times for up to 30 credits**MBI F627 Statistical Computing with R**

2 Credits

Offered Fall

Using the free, open-source software R to teach computing, programming, and modeling concepts for the statistical computing of fisheries and biological data. Prepares students for other graduate-level, quantitative fisheries courses and covers exploratory statistical and graphical analyses, as well as computer-intensive methods such as bootstrapping and randomization tests.

Prerequisites: STAT F200X; STAT F401; proficiency with Excel.**Cross-listed with** FISH F627; OCN F627.**Lecture + Lab + Other:** 1 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBI F631 Data Analysis in Community Ecology**

3 Credits

Offered Spring Odd-numbered Years

This course will provide an overview of statistical methods that have been specifically developed to aid our understanding and interpretation of the structure, abundance, and distribution of species and communities in relation to resources and the environment.

Prerequisites: STAT F200X; STAT F401; FISH F627 (Statistical Computing with R) or familiarity with R, general ecology, graduate standing in fisheries.

Cross-listed with FISH F631; OCN F631.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBI F650 Marine Biology and Ecology Field Course**

4 Credits

Offered Summer Odd-numbered Years

Advanced understanding of marine organisms in an ecological and evolutionary context through field and laboratory work at the Kasitsna Bay Marine Lab (Kachemak Bay, Alaska). Includes the study of marine macroalgae, invertebrates and plankton and relating their anatomical organization to habitat, lifestyle and ecology.

Prerequisites: One year of biology; graduate standing.**Recommended:** Basic courses in ecology and invertebrate zoology.**Stacked with** MBI F450.**Lecture + Lab + Other:** 3 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBI F652 Marine Ecosystems**

3 Credits

Offered Fall Even-numbered Years

Understanding ecosystems of the sea in the context of evaluating the impact of human activities. Focus on current concepts, trends and perspectives.

Prerequisites: BIOL F472; OCN F620; OCN F650.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBI F654 Benthic Ecology**

3 Credits

Offered Fall Even-numbered Years

Ecology of marine benthos, from subtidal to hadal zone. Methods of collecting, sorting, narcotizing, preserving and analyzing benthic assemblages, including video analytical techniques from submersibles and ROVs. Hydrothermal vent and cold seep assemblages. Physiology/energetics of benthic organisms, including animal-sediment relationships, feeding, reproduction and growth. Depth, spatial and latitudinal distribution patterns.

Prerequisites: Invertebrate zoology course, marine biology course.**Cross-listed with** FISH F654.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBI F656 Kelp Forest Ecology**

2 Credits

Offered Summer Even-numbered Years

Introduction to knowledge, hypotheses and disputes regarding kelp forest ecology, including the environmental and ecological interactions that influence their distribution, structure and function. Course includes lectures, discussions, labs and scuba diving field trips. We take a global perspective but focus on local Alaska subtidal flora and fauna.

Prerequisites: UAF Science Diver certification.**Stacked with** MBI F456.**Lecture + Lab + Other:** 5 + 35 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBI F661 Stable Isotope Techniques in Environmental Research**

3 Credits

Offered Spring

An examination of the use of added or naturally occurring isotope tracers in ecological studies. Demonstration of equipment and modern techniques.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

MBI F667 Ecology and Physiology of Marine Macroalgae

3 Credits

Offered Spring Odd-numbered Years

This course will provide an overview of marine seaweed related to their diversity, structure, physiology, ecology, and basic grouping approaches, and marine seaweed's relation to human affairs. This course will allow students to increase their awareness of the ecological and economic relevance of marine seaweeds.

Prerequisites: Upper-division standing in a natural science for undergraduates or graduate standing.

Stacked with MBI F467.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F676 Aquatic Food Web Ecology

3 Credits

Offered Fall Even-numbered Years

Examines theoretical and applied aspects of aquatic food web ecology, from the ecological processes that give rise to patterns in aquatic communities to the incorporation of trophic interactions into ecosystem-based management. Includes a lecture component focused on peer reviewed studies and a lab component focused on applying concepts with data.

Cross-listed with BIOL F670; FISH F676.

Stacked with BIOL F470; FISH F476; MBI F476.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MBI F692 Seminar

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MBI F692P Seminar

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MBI F698 Non-thesis Research/Project

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MBI F699 Thesis

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Master of Business Administration (MBA)

College of Business and Security Management

Business Administration Program (<https://www.uaf.edu/cbsm/programs/business-administration/>)

907-474-7461

MBA F602 Accounting for Managers

3 Credits

Offered As Demand Warrants

Complete and balanced treatment of concepts, procedures and uses of financial accounting. Coverage includes: accounting cycle, accounting principles, mass processing of transactions, internal control, inventories and merchandising operations, long-lived assets and liabilities, corporate accounting/reporting, partnership accounting, financial statements, funds flow analysis, cost systems for manufacturing operations and managerial accounting.

Prerequisites: Graduate standing; or approval of the MBA director.

Special Notes: This course is NOT an approved elective for MBA students.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F605 Contemporary Topics in Accounting

3 Credits

Offered As Demand Warrants

An advanced seminar designed to meet the accounting needs of managers. These topics can range from taxes to management control systems. May be taken twice for credit when topic changes.

Prerequisites: MBA F602; graduate standing; or permission of the MBA director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 6 credits

MBA F607 Human Resources Management

3 Credits

Offered Spring

The study of the effective management of human resources in organizations to include employee planning and recruiting, selection and orientation, training and career development, performance evaluation, compensation, EEO, occupational safety and health, and labor relations.

Prerequisites: Admission to the MBA program; or permission of the MBA director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F617 Organizational Theory for Managers

3 Credits

Offered Fall and Spring

Overview of the history, concepts, literature and applications in organizational theory. Emphasis on applications and cases applying organizational theory concepts to management.

Prerequisites: Admission to the MBA program; or permission of the MBA director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F620 Portfolio Theory and Asset Pricing

3 Credits

Offered As Demand Warrants

Examination of modern normative portfolio theory and asset pricing. Includes mathematics of portfolio analysis, single-period risk and return measures, and the process of optimal portfolio selection.

Prerequisites: Admission to the MBA program; MBA F680; or permission of the MBA Director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F622 Managing in a Scientific or Technical Field

3 Credits

Offered As Demand Warrants

An overview of managerial skills needed to succeed in a technical field (such as an engineering team or research lab), including leadership best practices for knowledge-workers with diverse technical capabilities & evidence-based and data-driven management techniques. Explores unique aspects of the technical workplace, from intellectual property protection to capital-raising.

Prerequisites: Admission to the MBA program, permission of the MBA director; Undergraduate degree or work experience in a STEM discipline.

Lecture + Lab + Other: 6 + 0 + 9

Grading System: Letter Grades with option of Plus/Minus

MBA F623 Business Analytics

3 Credits

Offered As Demand Warrants

This class provides an introduction and application of data analytics in accounting and business contexts. Students will develop an understanding of analytic concepts and how they apply to the investigation of business data relationships and trends.

Prerequisites: Admission to the MBA program.

Stacked with BA F421.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F624 Controllership

3 Credits

Offered As Demand Warrants

An advanced course designed to meet the accounting needs of managers. Topics of study include evaluating the design and implementation of management control systems and making recommendations for efficiency and effectiveness, recognizing the ethical, environmental, legal/regulatory, political and social issues embedded within the design, evaluation and effective implementation of management control systems.

Prerequisites: MBA F602; Must be admitted to MBA program; or permission of MBA Director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F627 Business Law and Ethics

3 Credits

Offered Fall

Gain an understanding of the legal, ethical and practical aspects of business law. This course is intended to prepare graduate students for their roles as leaders in the business world by enhancing their ethical decision making and understanding of relevant law.

Prerequisites: Admission to the MBA program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F630 Derivative Securities

3 Credits

Offered As Demand Warrants

Derivative securities including options strategies, binomial and Black-Scholes pricing models, commodity and interest-rate futures, hedging strategies using options and futures, and risk management.

Prerequisites: Admission to the MBA program; MBA F620; or permission of the MBA director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F632 Project Management

3 Credits

Offered Fall and Spring

This course is designed to cover key components of project management fundamentals with emphasis on the project life cycle, project definition, project schedule and cost management, human resource allocation and the challenges facing project managers in every industry.

Prerequisites: Must be admitted to the MSDM or MBA program; or permission of MSDM or MBA program director.

Cross-listed with HSEM F632.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F633 Human Resources Analytics

3 Credits

Offered As Demand Warrants

An introduction to the theory of people analytics. This course will explore how data and models are used for decision-making in employee selection, compensation, and performance evaluations. Students will learn how and when data is used to make soft-skill decisions about hiring and talent development.

Prerequisites: Admission to the MBA program.

Lecture + Lab + Other: 6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F634 Marketing Analytics

3 Credits

Offered As Demand Warrants

This course will explore introductory principles and strategies of data-driven marketing. Students will gain familiarity with common analytical methods, data management, and digital tools for applying marketing analytics.

Prerequisites: Admission to the MBA program.

Lecture + Lab + Other: 6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F635 Storytelling with Data

3 Credits

Offered As Demand Warrants

This course introduces students to the visual representation and interpretation of data. Students learn to develop meaningful data visualizations for the appropriate audiences through the use of Tableau, Excel, and other data visualization tools.

Prerequisites: Admission to the MBA program.

Lecture + Lab + Other: 7 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F636 Survey of Healthcare Administration

3 Credits

Offered Fall

Students will study the specialized area of business and healthcare administration, which involves everything from entrepreneurship (one provider in a private practice) to risk management (malpractice insurance, quality measures, etc.). Students will explore the dynamic field of healthcare and how it is changing rapidly with advancements in technology.

Cross-listed with HML F636.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F637 Information Systems and Decision Making in Health Services

3 Credits

Offered Spring

Overview of clinical and administrative health care data, their uses and impact on quality, cost and operations on a health care organization.

The aim of the course is to gain skills to develop, manage and integrate clinical and administrative information, to support timely and informed decision making by all stakeholders.

Cross-listed with HML F637.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBA F638 Healthcare Law & Ethics**

3 Credits

Offered Fall

Students will be introduced to major health care laws, regulations, professional and ethical principles, and industry standards governing health care structure and delivery. This includes health care fraud, professional licensing and credentialing, malpractice, compliance, quality, risk management and privacy and security of health information.

Cross-listed with HML F638.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBA F639 Healthcare Finance and Economics**

3 Credits

Offered Spring

The first half of the course will focus on financial principles to individuals without a finance background as applicable to the healthcare sector.

The second half of the course will delve into the economic drivers that influence the demand and supply of the health care industry.

Cross-listed with HML F639.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBA F641 Information Assurance and Risk Assessment**

3 Credits

Offered As Demand Warrants

Overview of enterprise security, privacy and information security assessment and management, and cybersecurity. Concentration on tangible and intangible costs of risks and examination of information assurance and security risk assessment concepts. Students will understand how to assess information security risks and use that information to develop potential solutions.

Prerequisites: Graduate standing in the MSDM or MBA program or certificates, or as approved by program director.

Cross-listed with HSEM F641.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBA F642 Economics of Environmental and Business Sustainability**

3 Credits

Offered As Demand Warrants

Examines the emerging role of business in responding to the economic challenges of achieving social and ecological sustainability. Investigates alternative measurements for evaluating the performance of the economy and the business and consumer sectors, including the triple bottom line model.

Prerequisites: Must be admitted to the MBA program.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBA F643 Marketing Management**

3 Credits

Offered Fall and Spring

Provides managerial approach to examining processes for identifying prospective opportunities, and reviews marketing mix elements relating to planning, developing and implementing marketing plans. Topics include market segmentation, buyer behavior, product policy and strategy, pricing, promotion and sales force management, distribution channel policy, competitive behavior, market research and marketing ethics.

Prerequisites: Admission to the MBA program; or permission of the MBA director.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBA F645 Crisis Management**

3 Credits

Offered As Demand Warrants

An in-depth review of crisis management to include the different crises an organization may face. The importance of an ethical and strategic response, developing a solid crisis management plan, strong crisis communication, and developing a crisis management team will be discussed.

Prerequisites: Graduate standing in the MSDM, MBA or certificate program.

Crosslisted with HSEM F645.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBA F646 Business Continuity and Risk Assessment**

3 Credits

Offered As Demand Warrants

In-depth analysis of business continuity to include risk analysis and plan assessment. Overview of potential risks from more than a natural disaster standpoint. The correct way to use risk analyzes while developing a continuity plan will be discussed. The importance of exercising and maintaining a plan will also be reviewed.

Prerequisites: Graduate standing in the MSDM, MBA or certificate program.

Cross-listed with HSEM F646.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MBA F647 Business Continuity Audit**

3 Credits

Offered As Demand Warrants

As part of the business continuity cycle, audits of the business continuity system must be conducted. Topics for this class include: What an audit is, the framework for conducting, how to conduct an audit, the importance of auditing, and what and how the final product should be used.

Prerequisites: Graduate standing in the MSDM, MBA or certificate program.

Cross-listed with HSEM F647.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

MBA F648 Perspectives in Addressing Cybersecurity & Critical Infrastructure

3 Credits

Offered As Demand Warrants

The course explores the nature of the critical infrastructure, the possible threats that exist or might exist and how they can be countered. Through case studies, we will examine the varied serious potential threats out there to the numerous critical infrastructures we have identified.

Prerequisites: Graduate standing in the MSDM or MBA program or certificates, or as approved by program director.

Crosslisted with HSEM F648.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F649 Cyber Threats and Vulnerabilities

3 Credits

Offered As Demand Warrants

This course is focused on threats, vulnerabilities, patch management, incident response, and security operations to identify and protect against internal and external threats. Various security threats will be covered including hacker attacks, e-mail borne viruses, backdoor problems, and internal sabotage. Cybercrime, cybersecurity, and global information security will be discussed.

Prerequisites: Graduate standing in the MSDM or MBA programs, certificates, or as approved by program director.

Cross-listed with HSEM F649.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F653 Internship in Business Administration

3 Credits

Offered As Demand Warrants

A supervised practical work experience that engages students in structured exploration of the business environment and an opportunity to demonstrate and apply previous coursework and prior learning to their current internship. Focus on applying previous learning, developing business acumen, and preparing for future employment. Admission requires approved job arrangements.

Prerequisites: Admission to the MBA program.

Stacked with BA F453.

Lecture + Lab + Other: 0 + 3 + 20

Grading System: Letter Grades with option of Plus/Minus

MBA F656 Strategic Leadership

3 Credits

Offered As Demand Warrants

Focus on the understanding and application of strategic leadership. We will discuss the process by which leaders make decisions at the strategic level. We will use historical examples of strategic leaders and assess the success– and failure– of strategic leadership under the challenging and catastrophic scenarios.

Prerequisites: Graduate standing within the MSDM or MBA programs.

Cross-listed with HSEM F656.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F665 Strategic Collaboration

3 Credits

Offered As Demand Warrants

This course is designed to explore the techniques of collaboration and communication and their strategic use in managing contemporary organizations. Students will identify their own communication style and how to deploy it in various managerial situations. Topics will include exploring individual personality type and the effect of type on collaboration.

Prerequisites: Must be admitted to the MSDM or MBA program; or permission of MSDM or MBA program manager.

Cross-listed with HSEM F665.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F673 Innovation Management

3 Credits

Offered Fall

Overview of the skills a manager needs to administer an innovation systems and toolkit for dealing with various innovation issues in a broad business setting. Topics include creation innovation diversity; innovation dynamics, intellectual properties, technology/innovation commercialization, and innovation strategies.

Prerequisites: Graduate standing or approval of the MBA director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F674 New Venture Development

3 Credits

Offered Spring

Students will take a hands-on approach to commercializing their own or selected innovative ideas through focused study in several key areas of entrepreneurship, as well as learn how to assess and understand the industry, customers and competitors for a new venture.

Prerequisites: Must be admitted to the MBA program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F675 Quantitative Methods for Managers

3 Credits

Offered Fall and Spring

An in-depth treatment of quantitative research methods in an applied context. The usefulness of those techniques to the managerial decision-making process. Research skills are presented as a set of tools that enable managers to make better decisions.

Prerequisites: STAT F200X; admission to the MBA program; or permission of MBA director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F680 Financial Markets and Strategy

3 Credits

Offered Fall and Spring

Overview of capital markets, major financial theories, and the valuation of financial instruments. Focus on how corporate financial decisions impact risk, operations and strategy of the firm.

Prerequisites: Admission to the MBA program; MBA F675; or permission of MBA director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F681 Fixed Income Securities and Markets

3 Credits

Offered As Demand Warrants

Fixed income securities and markets including treasury, agency, mortgage-backed and corporate securities, municipal bonds and derivatives. Introduces technical issues relating to duration, convexity and bond-portfolio management.

Prerequisites: Admission to the MBA program; MBA F630; or permission of MBA director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F682 Financial Statement Analysis

3 Credits

Offered As Demand Warrants

How to comprehend and critically evaluate financial statements. Building on topics introduced in a first-year course in financial accounting, analyze additional disclosures typically included in financial statements. These activities will be useful in tasks related to valuation, credit decisions, competitor assessment and bankruptcy predictions.

Prerequisites: Admission to the MBA program; or permission of MBA director.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F683 Advanced Topics in Marketing

3 Credits

Offered As Demand Warrants

Current topics and issues in marketing management, such as political and services marketing, marketing communications, marketing in Alaska or other relevant subjects.

Prerequisites: Admission to the MBA program; MBA F643; or permission of MBA director.

Special Notes: May be taken twice for credit when topic changes.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 6 credits

MBA F690 Corporate Strategy

3 Credits

Offered Fall and Spring

An integrative approach to strategy formation and implementation (decision-making) to achieve organization goals. Students will be introduced to theoretical perspectives and associated methodologies directed toward resolving the unstructured problems and opportunities which confront general managers at the highest levels of an organization.

Prerequisites: Admission to the MBA program; MBA F617; MBA F675; MBA F680; or permission of MBA director.

Special Notes: MBA F690 is an advanced seminar taken during the student's last spring semester.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MBA F691 Advanced Topics in Business

3 Credits

Offered As Demand Warrants

Developing managers' ability to excel in specialized areas of business such as entrepreneurship and risk management.

Prerequisites: Admission to the MBA program; or permission of MBA director.

Special Notes: May be taken twice for credit when topic changes.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 6 credits

Mathematics (MATH)

College of Natural Science and Mathematics

Department of Mathematics and Statistics (<https://www.uaf.edu/dms/>)
907-474-7332

Community and Technical College

Department of Developmental Education (<https://www.uaf.edu/deved/>)
907-455-2869

MATHEMATICS DEPARTMENT COURSES

MATH F113X Numbers and Society (m)

3 Credits

Offered Fall, Spring and Summer

Numbers and patterns are present in every aspect of daily life. We use mathematical concepts and tools to understand what numbers and patterns can tell us. Topics may include the mathematics of voting; dividing things fairly; determining efficient routes and schedules; modeling population growth; understanding financial mathematics; and introductory cryptography.

Prerequisites: An appropriate score on the math placement test, or a grade of B or better in MATH F055, MATH F062, MATH F068.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F122X Essential Precalculus with Applications (m)

3 Credits

Offered Fall and Spring

A study of various classes of functions, exploring their numeric, algebraic and graphical aspects. Function classes include linear, quadratic, rational, exponential and logarithmic. This course is appropriate for students in programs relating to business and economics or life sciences or students intending to take MATH F230X.

Prerequisites: Appropriate placement score, MATH F105, MATH F105N or MATH F105J.

Special Notes: Credit may be earned for MATH F151X or MATH F122X, but not for both.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F151X College Algebra for Calculus (m)

4 Credits

Offered Fall and Spring

Study of algebraic, logarithmic and exponential functions; systems of equations; applications.

Prerequisites: Appropriate score on the math placement test, B or better in MATH F105, B or better in MATH F105J or C or better in MATH F105N.

Special Notes: Credit may be earned for MATH F151X or MATH F122X, but not for both; Only eight credits total may be earned from MATH F151X, MATH F152X and MATH F156X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 4.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F152X Trigonometry (m)

3 Credits

Offered Fall and Spring

A study of trigonometric functions including graphing, identities, inverse trigonometric functions, solving equations and polar coordinates; applications.

Prerequisites: MATH F151X (may be taken concurrently) or placement.

Special Notes: Only eight credits total may be earned from MATH F151X, MATH F152X and MATH F156X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F156X Precalculus (m)

4 Credits

Offered Fall and Spring

Various classes of functions and their graphs are explored numerically, algebraically and graphically. Function classes include polynomial, rational, exponential, logarithmic and trigonometric. Skills and concepts needed for calculus are emphasized. This class is intended for students intending to take MATH F251X.

Prerequisites: Placement into MATH F156X.

Special Notes: Only eight credits total may be earned from MATH F151X, MATH F152X and MATH F156X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 4 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F211 Mathematics for Elementary School Teachers (m)

3 Credits

Offered Fall

Elementary set theory, numeration systems, and algorithms of arithmetic, divisors, multiples, integers and introduction to rational numbers. Emphasis on classroom methods. Restricted to Elementary Education majors; others by permission of instructor.

Prerequisites: MATH F122X; or MATH F151X; or MATH F156X; or placement.

Lecture + Lab + Other: 3 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F212 Mathematics for Elementary School Teachers II (m)

3 Credits

Offered Spring

A continuation of MATH F211. Real number systems and subsystems, logic, informal geometry, metric system, probability and statistics. Emphasis on classroom methods.

Prerequisites: MATH F211.

Lecture + Lab + Other: 3 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F230X Essential Calculus with Applications

3 Credits

Offered Fall and Spring

An introduction to the key ideas of differential and integral calculus, emphasizing applications in the life sciences. This course emphasizes a solid conceptual understanding, along with calculation techniques for basic applications. MATH F230X cannot serve as a prerequisite for MATH F252X.

Prerequisites: MATH F122X; or MATH F151X; or MATH F156X; or placement.

Special Notes: Credit cannot be earned for both MATH F230X and MATH F251X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F251L Calculus I Recitation

0 Credit

Offered Fall and Spring

Recitation section for Calculus I. Activities may include worksheets, quizzes and problem sessions associated with corresponding lecture material from MATH F251X, with an emphasis on prerequisite support.

Corequisites: MATH F251X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 0 + 2 + 0

Grading System: Non-Graded

MATH F251X Calculus I (m)

4 Credits

Offered Fall and Spring

A first course in single-variable calculus. Topics include limits; continuity and differentiation of functions; applications of the derivative to graphing, optimization, and rates of change; definite and indefinite integration; and the Fundamental Theorem of Calculus.

Prerequisites: Appropriate score on the math placement test; or MATH F151X and MATH F152X; or MATH F156X.

Corequisites: MATH F251L.

Special Notes: Credit may not be earned for both MATH F251X and MATH F230X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F252L MATH F252X Recitation

0 Credit

Offered Fall and Spring

Co-requisites: MATH F252X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

MATH F252X Calculus II (m)

4 Credits

Offered Fall and Spring

Further topics in single-variable calculus, including techniques of integration; applications of integration; convergence of sequences and series; parameterized curves; and polar coordinates.

Prerequisites: MATH F251X.

Co-requisites: MATH F252L.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 4 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F253X Calculus III (m)

4 Credits

Offered Fall and Spring

Multivariable calculus. Topics include vectors in 2- and 3-dimensions; differential calculus of functions of several variables; multiple integration; vector calculus, including Green's and Stokes' Theorem; and applications.

Prerequisites: MATH F252X.**Attributes:** UAF GER Mathematics Req**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F265 Introduction to Mathematical Proofs (m)**

3 Credits

Offered Spring

Emphasis on proof techniques with topics including logic, sets, cardinality, relations, functions, equivalence, induction, number theory, congruence classes and elementary counting. In addition, a rigorous treatment of topics from calculus or a selection of additional topics from discrete mathematics may be included.

Prerequisites: MATH F252X (may be taken concurrently).**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F302 Differential Equations**

3 Credits

Offered Fall and Spring

Nature and origin of differential equations, first order equations and solutions, linear differential equations with constant coefficients, systems of equations, power series solutions, operational methods, and applications.

Prerequisites: MATH F253X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F305 Geometry**

3 Credits

Offered Spring Even-numbered Years

Topics selected from such fields as Euclidean and non-Euclidean plane geometry, affine geometry, projective geometry, and topology.

Prerequisites: MATH F265; MATH F314.**Recommended:** MATH F253X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F307 Discrete Mathematics**

3 Credits

Offered Spring

Logic, counting, sets and functions, recurrence relations, graphs and trees. Additional topics chosen from probability theory.

Prerequisites: MATH F252X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F314 Linear Algebra**

3 Credits

Offered Fall and Spring

Linear equations, finite dimensional vector spaces, matrices, determinants, linear transformations and characteristic values. Inner product spaces.

Prerequisites: MATH F252X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F316 Introduction to the History of Mathematics**

3 Credits

Offered Spring Odd-numbered Years

Important periods in the history of mathematics, including mathematics of Ancient Babylon, Mesopotamia, Greece, China and India, medieval Europe, the Middle East and the Renaissance; the development of geometry, algebra and calculus. Other areas in the development of mathematics will be studied as time permits.

Prerequisites: MATH F253X; MATH F265 (may be taken concurrently).**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F320 Topics in Combinatorics**

3 Credits

Offered Fall Odd-numbered Years

Introduction to some fundamental ideas of combinatorics. Topics selected from such fields as enumerative combinatorics, generating functions, set systems, recurrence relations, directed graphs, matchings, Hamiltonian and Eulerian graphs, trees and graph colorings.

Prerequisites: MATH F265.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F321 Number Theory**

3 Credits

Offered Fall Even-numbered Years

Number theory investigates the properties of the integers, one of the most basic of mathematical sets. Seemingly naive number-theoretic questions stimulated much of the development of modern mathematics! Topics may include classical areas such as primality, congruences, quadratic reciprocity and Diophantine equations, and more recent applications, such as cryptography.

Prerequisites: MATH F265.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F371 Probability**

3 Credits

Offered Fall Odd-numbered Years

Probability spaces, conditional probability, random variables, continuous and discrete distributions, expectation, moments, moment generating functions and characteristic functions.

Prerequisites: MATH F253X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F401 Introduction to Real Analysis**

3 Credits

Offered Fall

Completeness of the real numbers and its consequence, convergence of sequences and series, limits and continuity, differentiation, the Riemann integral.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F253X; MATH F265.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

MATH F404 Introduction to Topology

3 Credits

Offered Fall Even-numbered Years

Introduction to topological spaces, set theory, open sets, compactness, connectedness, product spaces, metric spaces and continua.

Prerequisites: MATH F253X; MATH F265.**Recommended:** MATH F314 and/or MATH F405.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F405 Abstract Algebra**

3 Credits

Offered Spring

Theory of groups, rings and fields.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F265.**Recommended:** MATH F307 and/or MATH F314.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F408 Mathematical Statistics**

3 Credits

Offered Spring Even-numbered Years

Distribution of random variables and functions of random variables, interval estimation, point estimation, sufficient statistics, order statistics, and test of hypotheses including various criteria for tests.

Prerequisites: MATH F371; STAT F200X or STAT F300.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F410 Introduction to Complex Analysis**

3 Credits

Offered Fall Odd-numbered Years

Complex functions including series, integrals, residues, conformal mapping and applications.

Prerequisites: MATH F253X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F412 Differential Geometry**

3 Credits

Offered Spring Odd-numbered Years

Introduction to the differential geometry of curves, surfaces, and Riemannian manifolds. Basic concepts covered include the Frenet-Serret apparatus, surfaces, first and second fundamental forms, geodesics, Gauss curvature and the Gauss-Bonnet Theorem. Time permitting, topics such as minimal surfaces, theory of hypersurfaces and/or tensor analysis may be included.

Prerequisites: MATH F314; MATH F401.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F426 Numerical Analysis**

3 Credits

Offered Fall

Direct and iterative solutions of systems of equations, interpolation, numerical differentiation and integration, numerical solutions of ordinary differential equations, and error analysis.

Prerequisites: MATH F302 or MATH F314.**Recommended:** Knowledge of programming.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F430 Topics in Mathematics**

3 Credits

Offered Fall Even-numbered Years

An elective course in mathematics for majors. Topics will vary from year to year and may be drawn from mathematical biology, numerical linear algebra, graph theory, logic, or other areas of mathematics. May be repeated with permission of instructor for a total of nine credits.

Prerequisites: MATH F265.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits**MATH F432 Introduction to Partial Differential Equations**

3 Credits

Offered Spring Odd-numbered Years

Analysis and solution of partial differential equations. Initial and boundary value problems for parabolic, hyperbolic and elliptic types. Solution methods include separation of variables and Fourier transform.

Prerequisites: MATH F302.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F460 Mathematical Modeling**

3 Credits

Offered Spring Even-numbered Years

Introduction to mathematical modeling using differential or difference equations. Emphasis is on formulating models and interpreting qualitative behavior such models predict. Examples will be taken from a variety of fields, depending on the interest of the instructor. Students develop a modeling project.

Prerequisites: COM F131X or COM F141X; MATH F252X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Recommended:** one or more of MATH F302, MATH F314, MATH F401, MATH F426, STAT F300 or some programming experience.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F490 Senior Seminar**

3 Credits

Offered Spring

Advanced topics selected from areas outside the usual undergraduate offerings. A substantial level of mathematical maturity is assumed.

Prerequisites: COM F131X or COM F141X; at least one of MATH F401 or MATH F405; senior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F600 Teaching Seminar**

1 Credit

Offered Fall

Fundamentals of teaching mathematics in a university setting. Topics may include any aspect of teaching: university regulations, class and lecture organization, testing, book selection, teaching evaluations, etc. Specific topics will vary on the basis of student and instructor interest. Individual classroom visits will also be used for class discussion.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 2 times for up to 2 credits

MATH F614 Numerical Linear Algebra

3 Credits

Offered Fall Odd-numbered Years

Algorithms and theory for stable and accurate computation using matrices and vectors on computers. Matrix factorizations, direct and iterative methods for solving linear systems, least squares, eigenvalue and singular value decompositions. Practical implementation and application of algorithms.

Prerequisites: MATH F314.**Recommended:** MATH F401 or MATH F432.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F615 Numerical Analysis of Differential Equations**

3 Credits

Offered Spring Odd-numbered Years

Review of numerical differentiation and integration, and the numerical solution of ordinary differential equations. Main topics to include the numerical solution of partial differential equations, curve fitting, splines, and the approximation of functions. Supplementary topics such as the numerical method of lines, the fast Fourier transform, and finite elements may be included as time permits and interest warrants.

Prerequisites: CS F201; MATH F314; MATH F410; MATH F426; MATH F432.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F617 Functional Analysis**

3 Credits

Offered Spring Even-numbered Years

Study of Banach and Hilbert spaces, and continuous linear maps between them. Linear functionals and the Hahn-Banach theorem. Applications of the Baire Category theorem. Compact operators, self adjoint operators, and their spectral properties. Weak topology and its applications.

Prerequisites: MATH F314; MATH F401.**Recommended:** MATH F410; MATH F641.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F631 Algebra I**

4 Credits

Offered Fall Even-numbered Years

Rigorous development of groups, rings and fields.

Prerequisites: MATH F405.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F632 Algebra II**

3 Credits

Offered Spring Odd-numbered Years

Advanced topics which may be chosen from group theory, Galois theory, commutative or non-commutative algebra, algebraic geometry, homological algebra or other areas.

Prerequisites: MATH F631.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F641 Real Analysis**

4 Credits

Offered Fall Odd-numbered Years

General theory of Lebesgue measure and Lebesgue integration on the real line. Convergence properties of the integral. Introduction to the general theory of measures and integration. Differentiation, the product measures and an introduction to LP spaces.

Prerequisites: MATH F401.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F645 Complex Analysis**

4 Credits

Offered Spring Even-numbered Years

Analytic functions, power series, Cauchy integral theory, residue theorem. Basic topology of the complex plane and the structure theory of analytic functions. The Riemann mapping theorem. Infinite products.

Prerequisites: MATH F641.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F651 Topology**

4 Credits

Offered Spring Odd-numbered Years

Treatment of the fundamental topics of point-set topology. Separation axioms, product and quotient spaces, convergence via nets and filters, compactness and compactifications, paracompactness, metrization theorems, countability properties, and connectedness. Set theory as needed for examples and proof techniques.

Prerequisites: MATH F401 or MATH F404.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F658 Topics in Geometry**

3 Credits

Offered Fall Even-numbered Years

Elective topics in geometry. Recent offerings include configurations of points and lines; topology and differential geometry of surfaces; polyhedra and polytopes.

Prerequisites: Linear algebra; geometry; undergraduate real analysis; undergraduate abstract algebra.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**MATH F660 Advanced Mathematical Modeling**

3 Credits

Offered Spring Even-numbered Years

The mathematical formulation and analysis of problems arising in the physical, biological, or social sciences. The focus area of the course may vary, but emphasis will be given to modeling assumptions, derivation of model equations, methods of analysis, and interpretation of results for the particular applications. Examples include heat conduction problems, random walk processes, molecular evolution, perturbation theory. Students will develop a modeling project as part of the course requirements.

Prerequisites: Permission of instructor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

MATH F661 Optimization

3 Credits

Offered Fall Even-numbered Years

Linear and nonlinear programming, simplex method, duality and dual simplex method, post-optimal analysis, constrained and unconstrained nonlinear programming, Kuhn-Tucker conditions. Applications to management, physical and life sciences. Computational work with the computer.

Prerequisites: Knowledge of calculus, linear algebra and computer programming.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F663 Graph Theory

3 Credits

Offered Fall Odd-numbered Years

A survey of modern techniques in graph theory; topics may include graphs and digraphs, trees, spanning trees, matchings, graph connectivity, graph coloring, planarity, cycles, and extremal problems.

Prerequisites: MATH F314; MATH F320.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F665 Topics in Graduate Mathematics

3 Credits

Offered As Demand Warrants

Elective courses in graduate mathematics offered by faculty on a rotating basis. Topics may include, but are not limited to, graph theory, glaciology modeling, general relativity, mathematical biology, Galois theory and numerical linear algebra. May be repeated for credit with permission of instructor.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 9 credits

MATH F692 Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MATH F698 Non-thesis Research/Project

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MATH F699 Thesis

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

DEVELOPMENTAL EDUCATION DEPARTMENT COURSES**MATH F051 Math Skills Review**

1 Credit

Offered As Demand Warrants

Develops and reviews basic mathematical terminology, theory and operations as outlined by the Alaska State Mathematics Standards. Mathematics topics focus on reviewing the six basic "strands" of mathematical content: numeration, measurement, estimation/computation, function/relationship, geometry, and statistics/probability. Approaches to problem solving will emphasize the process of mathematical thinking, communication and reasoning. May be repeated for a total of three credits.

Special Notes: It is an appropriate course for those preparing for the High School Qualifying Exam in Alaska or those needing a review of basic math skills in preparation for a math placement test at UAF.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 3 credits

MATH F053 SAT/ACT Math Prep and Review

1 Credit

Offered As Demand Warrants

This course will review basic concepts and practice math test taking skills to help prepare for the ACT and SAT tests.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

MATH F054 Prealgebra

3 Credits

Offered As Demand Warrants

Basic concepts of prealgebra mathematics. Topics include operations and applications of whole numbers, integers, fractions, decimals, ratios and proportions, percents, geometry and measures, evaluation of algebraic expressions and applications.

Prerequisites: DEVS F111 (may be taken concurrently); and appropriate placement scores.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F054A Modularized Mastery Math: Prealgebra Module A

1 Credit

Offered As Demand Warrants

This course covers one credit of MATH F054 Prealgebra and includes the following topics: identifying and solving basic linear equations involving whole numbers, integers, decimals and fractions, solving ratio and proportion problems, solving percent problems, and solving applied problems. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Appropriate placement test score within one calendar year; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F054B Modularized Mastery Math: Prealgebra Module B

1 Credit

Offered As Demand Warrants

This course covers one credit of MATH F054 Prealgebra and includes the following topics: identifying and solving basic linear equations involving whole numbers, integers, decimals and fractions, solving ratio and proportion problems, solving percent problems, and solving applied problems. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting,

Prerequisites: Grade of B or better in MATH F054A; or appropriate placement test scores taken within one calendar year; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F054C Modularized Mastery Math: Prealgebra Module C

1 Credit

Offered As Demand Warrants

This course covers one credit of MATH F054 Prealgebra and includes the following topics: identifying and solving basic linear equations involving whole numbers, integers, decimals and fractions, solving ratio and proportion problems, solving percent problems, and solving applied problems. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting, Prerequisite courses and/or placement exams must be taken within one calendar year.

Prerequisites: Grade of B or better in MATH F054B; or appropriate placement test scores; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F055 Elementary Algebra

3 Credits

Offered As Demand Warrants

Topics include evaluation and simplifying algebraic expressions, polynomials, factoring, integer exponents, rational expressions, solutions of linear equations and inequalities, graphing lines, solving systems of linear equations, solving quadratic equations by factoring, and some rational equations. Prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.

Prerequisites: DEVS F111 (may be taken concurrently); and grade of C or better in MATH F054 or ABUS F155, or appropriate placement scores.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F055D Modularized Mastery Math: Elementary Algebra Module D

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH F055 Elementary Algebra course and includes the following topics: simplifying algebraic expressions, solving linear equations in one variable, solving linear and compound inequalities in one variable, applications of linear equations and solving formulas. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in MATH F054, or ABUS F155; or appropriate placement test scores; permission of instructor required; prerequisite courses and/or placement exams must be taken within one calendar year.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F055E Modularized Mastery Math: Elementary Algebra Module E

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH F055 Elementary Algebra course and includes the following topics: linear equations in two variables, graphing linear equations, find the slope of linear equations, writing equations of lines, exponent rules and operations on polynomials. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in MATH F055D taken within one calendar year; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F055F Modularized Mastery Math: Elementary Algebra Module F

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH F055 Elementary Algebra course and includes the following topics: factoring polynomials, solving quadratic equations by factoring, simplifying rational expressions, operations with rational expressions, complex fractions, solving rational equations and applications of quadratic and rational equations. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in MATH F055E taken within one calendar year; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F056 Math Fast Track: Prealgebra/Elementary Algebra Review

1 Credit

Offered As Demand Warrants

A 20-hour intensive review of math concepts available prior to each semester. Covers prealgebra and elementary algebra topics to prepare qualified students to potentially improve their math course placement. Students who are successful in this class have the possibility of advancing through one or two semesters of development math.

Prerequisites: Placement into MATH F054 or MATH F055.

Special Notes: Students should have a history of being successful in equivalent levels of math, although they may not recall enough information to place well on the placement test.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MATH F061 Review of Elementary Algebra

1 Credit

Offered As Demand Warrants

Designed to assist students in reviewing material covered by MATH F055. Individuals who have not previously taken an elementary algebra course are recommended to enroll in MATH F055. Available via UAF eCampus only.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F062 Alternative Approaches to Math: Elementary Algebra

3 Credits

Offered As Demand Warrants

Algebraic topics. Includes operations with polynomial expressions, first- and second-degree equations, graphing, integral and relational exponents, and radicals using alternative teaching styles.

Prerequisites: Grade of C- or better in MATH F054; or ABUS F155; or appropriate placement test scores; prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F065 Mathematics Skills

1-3 Credits

Offered As Demand Warrants

Designed to assist students in reviewing and reinforcing course concepts covered by MATH F054, MATH F055, MATH F062, MATH F105 and MATH F105N. Consists of instruction which may include lab instruction, individual student work or group work. May be repeated.

Special Notes: Recommended for students who need more time and help to master the material in developmental math courses.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 99 times for up to 99 credits

MATH F066 Advanced Math Fast Track: Elementary/Intermediate Algebra Review

1 Credit

Offered As Demand Warrants

A 20-hour intensive review of math concepts available prior to each semester. Covers elementary and intermediate algebra topics to prepare qualified students to potentially improve their math course placement. Students should have a history of being successful in equivalent levels of math, although they may not recall enough information to place well on the placement test. Students who are successful in this class have the possibility of advancing through one or two semesters of development math.

Prerequisites: Placement into MATH F055 or MATH F105 or MATH F105N.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MATH F068 Math Essentials

4 Credits

Offered As Demand Warrants

Arithmetic and introductory algebra. Solve problems related to operations and properties of real numbers; proportion; percent; evaluation of algebraic expressions; solution and graphs of linear equations and inequalities; solving systems of linear equations; exponent rules; operations on polynomials; factoring; fundamental operations with rational expressions; solutions and applications of quadratic equations. Prerequisite course and/or placement exams must be taken within one calendar year prior to commencement of the course.

Prerequisites: DEVS F111 (may be taken concurrently); and appropriate placement score.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F071 Review of Intermediate Algebra

1 Credit

Offered As Demand Warrants

Course reviews material covered by MATH F105. Individuals who have not taken an intermediate algebra course on the high-school level are recommended to enroll in MATH F105. Available via UAF eCampus only.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F105 Intermediate Algebra

3 Credits

Offered As Demand Warrants

Topics include expressions, equations and applications involving linear, absolute value, radical, quadratic, rational and radical functions; graphs of absolute value, radical, quadratic, exponential and logarithmic functions; functions and their inverses; and introduction to exponential and logarithmic functions.

Prerequisites: Grade of C or better in MATH F055, MATH F062, MATH F068, or appropriate placement test scores; prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.

Special Notes: To matriculate to MATH F151X from MATH F105, students must earn a grade of B or higher.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F105G Modularized Mastery Math: Intermediate Algebra**Module G**

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH F105 Intermediate Algebra course and includes the following topics: solving systems of equations and applications, simplifying radicals and expressions with rational exponents, performing operations on radical expressions, solving radical equations and performing operations on complex numbers. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting. Prerequisite courses and/or placement exams must be taken.

Prerequisites: Grade of B or better in MATH F055 or MATH F069 or appropriate placement test scores; permission of instructor required.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F105H Modularized Mastery Math: Intermediate Algebra**Module H**

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH F105 Intermediate Algebra course and includes the following topics: review of solving quadratic equations by factoring, solving quadratic equations that are not factorable, relations and functions, graphs and transformations of functions, quadratic functions and their graphs, performing operations on functions, compositions of functions and applications of quadratic equations and functions. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in MATH F105G taken within one calendar year; permission of instructor is required.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F105J Modularized Mastery Math: Intermediate Algebra Module**J**

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH Intermediate Algebra course and includes the following topics: solving absolute value equations and inequalities, solving linear and compound linear inequalities, solving quadratic and rational inequalities, inverse functions, exponential and logarithmic functions, properties of logarithms and solving exponential and logarithmic equations. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in MATH F105H taken within one calendar year; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F105N Intensive Intermediate Algebra

4 Credits

Offered As Demand Warrants

Includes exponents, radicals, graphing, quadratic equations and inequalities, logarithms, exponentials and complex numbers using alternative teaching styles.

Prerequisites: MATH F055, MATH F055F, MATH F062, MATH F068, MATH F105, MATH F105J, or appropriate placement scores; prerequisite courses and placement scores must be taken within one calendar year.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Mathematics

MATH F051 Math Skills Review

1 Credit

Offered As Demand Warrants

Develops and reviews basic mathematical terminology, theory and operations as outlined by the Alaska State Mathematics Standards.

Mathematics topics focus on reviewing the six basic "strands" of mathematical content: numeration, measurement, estimation/computation, function/relationship, geometry, and statistics/probability.

Approaches to problem solving will emphasize the process of mathematical thinking, communication and reasoning. May be repeated for a total of three credits.

Special Notes: It is an appropriate course for those preparing for the High School Qualifying Exam in Alaska or those needing a review of basic math skills in preparation for a math placement test at UAF.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 3 credits

MATH F053 SAT/ACT Math Prep and Review

1 Credit

Offered As Demand Warrants

This course will review basic concepts and practice math test taking skills to help prepare for the ACT and SAT tests.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

MATH F054 Prealgebra

3 Credits

Offered As Demand Warrants

Basic concepts of prealgebra mathematics. Topics include operations and applications of whole numbers, integers, fractions, decimals, ratios and proportions, percents, geometry and measures, evaluation of algebraic expressions and applications.

Prerequisites: DEVS F111 (may be taken concurrently); and appropriate placement scores.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F054A Modularized Mastery Math: Prealgebra Module A

1 Credit

Offered As Demand Warrants

This course covers one credit of MATH F054 Prealgebra and includes the following topics: identifying and solving basic linear equations involving whole numbers, integers, decimals and fractions, solving ratio and proportion problems, solving percent problems, and solving applied problems. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting,

Prerequisites: Appropriate placement test score within one calendar year; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F054B Modularized Mastery Math: Prealgebra Module B

1 Credit

Offered As Demand Warrants

This course covers one credit of MATH F054 Prealgebra and includes the following topics: identifying and solving basic linear equations involving whole numbers, integers, decimals and fractions, solving ratio and proportion problems, solving percent problems, and solving applied problems. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting,

Prerequisites: Grade of B or better in MATH F054A; or appropriate placement test scores taken within one calendar year; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F054C Modularized Mastery Math: Prealgebra Module C

1 Credit

Offered As Demand Warrants

This course covers one credit of MATH F054 Prealgebra and includes the following topics: identifying and solving basic linear equations involving whole numbers, integers, decimals and fractions, solving ratio and proportion problems, solving percent problems, and solving applied problems. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting, Prerequisite courses and/or placement exams must be taken within one calendar year.

Prerequisites: Grade of B or better in MATH F054B; or appropriate placement test scores; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F055 Elementary Algebra

3 Credits

Offered As Demand Warrants

Topics include evaluation and simplifying algebraic expressions, polynomials, factoring, integer exponents, rational expressions, solutions of linear equations and inequalities, graphing lines, solving systems of linear equations, solving quadratic equations by factoring, and some rational equations. Prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.

Prerequisites: DEVS F111 (may be taken concurrently); and grade of C or better in MATH F054 or ABUS F155, or appropriate placement scores.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F055D Modularized Mastery Math: Elementary Algebra Module D

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH F055 Elementary Algebra course and includes the following topics: simplifying algebraic expressions, solving linear equations in one variable, solving linear and compound inequalities in one variable, applications of linear equations and solving formulas. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in MATH F054, or ABUS F155; or appropriate placement test scores; permission of instructor required; prerequisite courses and/or placement exams must be taken within one calendar year.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F055E Modularized Mastery Math: Elementary Algebra Module E

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH F055 Elementary Algebra course and includes the following topics: linear equations in two variables, graphing linear equations, find the slope of linear equations, writing equations of lines, exponent rules and operations on polynomials. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in MATH F055D taken within one calendar year; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F055F Modularized Mastery Math: Elementary Algebra Module F

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH F055 Elementary Algebra course and includes the following topics: factoring polynomials, solving quadratic equations by factoring, simplifying rational expressions, operations with rational expressions, complex fractions, solving rational equations and applications of quadratic and rational equations. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in MATH F055E taken within one calendar year; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F056 Math Fast Track: Prealgebra/Elementary Algebra Review

1 Credit

Offered As Demand Warrants

A 20-hour intensive review of math concepts available prior to each semester. Covers prealgebra and elementary algebra topics to prepare qualified students to potentially improve their math course placement. Students who are successful in this class have the possibility of advancing through one or two semesters of development math.

Prerequisites: Placement into MATH F054 or MATH F055.

Special Notes: Students should have a history of being successful in equivalent levels of math, although they may not recall enough information to place well on the placement test.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MATH F061 Review of Elementary Algebra

1 Credit

Offered As Demand Warrants

Designed to assist students in reviewing material covered by MATH F055. Individuals who have not previously taken an elementary algebra course are recommended to enroll in MATH F055. Available via UAF eCampus only.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F062 Alternative Approaches to Math: Elementary Algebra

3 Credits

Offered As Demand Warrants

Algebraic topics. Includes operations with polynomial expressions, first- and second-degree equations, graphing, integral and relational exponents, and radicals using alternative teaching styles.

Prerequisites: Grade of C- or better in MATH F054; or ABUS F155; or appropriate placement test scores; prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F065 Mathematics Skills

1-3 Credits

Offered As Demand Warrants

Designed to assist students in reviewing and reinforcing course concepts covered by MATH F054, MATH F055, MATH F062, MATH F105 and MATH F105N. Consists of instruction which may include lab instruction, individual student work or group work. May be repeated.

Special Notes: Recommended for students who need more time and help to master the material in developmental math courses.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 99 times for up to 99 credits

MATH F066 Advanced Math Fast Track: Elementary/Intermediate Algebra Review

1 Credit

Offered As Demand Warrants

A 20-hour intensive review of math concepts available prior to each semester. Covers elementary and intermediate algebra topics to prepare qualified students to potentially improve their math course placement. Students should have a history of being successful in equivalent levels of math, although they may not recall enough information to place well on the placement test. Students who are successful in this class have the possibility of advancing through one or two semesters of development math.

Prerequisites: Placement into MATH F055 or MATH F105 or MATH F105N.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MATH F068 Math Essentials

4 Credits

Offered As Demand Warrants

Arithmetic and introductory algebra. Solve problems related to operations and properties of real numbers; proportion; percent; evaluation of algebraic expressions; solution and graphs of linear equations and inequalities; solving systems of linear equations; exponent rules; operations on polynomials; factoring; fundamental operations with rational expressions; solutions and applications of quadratic equations. Prerequisite course and/or placement exams must be taken within one calendar year prior to commencement of the course.

Prerequisites: DEVS F111 (may be taken concurrently); and appropriate placement score.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F071 Review of Intermediate Algebra

1 Credit

Offered As Demand Warrants

Course reviews material covered by MATH F105. Individuals who have not taken an intermediate algebra course on the high-school level are recommended to enroll in MATH F105. Available via UAF eCampus only.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F105 Intermediate Algebra

3 Credits

Offered As Demand Warrants

Topics include expressions, equations and applications involving linear, absolute value, radical, quadratic, rational and radical functions; graphs of absolute value, radical, quadratic, exponential and logarithmic functions; functions and their inverses; and introduction to exponential and logarithmic functions.

Prerequisites: Grade of C or better in MATH F055, MATH F062, MATH F068, or appropriate placement test scores; prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.

Special Notes: To matriculate to MATH F151X from MATH F105, students must earn a grade of B or higher.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F105G Modularized Mastery Math: Intermediate Algebra Module G

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH F105 Intermediate Algebra course and includes the following topics: solving systems of equations and applications, simplifying radicals and expressions with rational exponents, performing operations on radical expressions, solving radical equations and performing operations on complex numbers. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting. Prerequisite courses and/or placement exams must be taken.

Prerequisites: Grade of B or better in MATH F055 or MATH F069 or appropriate placement test scores; permission of instructor required.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F105H Modularized Mastery Math: Intermediate Algebra Module H

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH F105 Intermediate Algebra course and includes the following topics: review of solving quadratic equations by factoring, solving quadratic equations that are not factorable, relations and functions, graphs and transformations of functions, quadratic functions and their graphs, performing operations on functions, compositions of functions and applications of quadratic equations and functions. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in MATH F105G taken within one calendar year; permission of instructor is required.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F105J Modularized Mastery Math: Intermediate Algebra Module J

1 Credit

Offered As Demand Warrants

This course covers one credit of the MATH Intermediate Algebra course and includes the following topics: solving absolute value equations and inequalities, solving linear and compound linear inequalities, solving quadratic and rational inequalities, inverse functions, exponential and logarithmic functions, properties of logarithms and solving exponential and logarithmic equations. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in MATH F105H taken within one calendar year; permission of instructor required.

Special Notes: Topics are split into mini-modules and worked until mastery is achieved.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F105N Intensive Intermediate Algebra

4 Credits

Offered As Demand Warrants

Includes exponents, radicals, graphing, quadratic equations and inequalities, logarithms, exponentials and complex numbers using alternative teaching styles.

Prerequisites: MATH F055, MATH F055F, MATH F062, MATH F068, MATH F105, MATH F105J, or appropriate placement scores; prerequisite courses and placement scores must be taken within one calendar year.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F113X Numbers and Society (m)

3 Credits

Offered Fall, Spring and Summer

Numbers and patterns are present in every aspect of daily life. We use mathematical concepts and tools to understand what numbers and patterns can tell us. Topics may include the mathematics of voting; dividing things fairly; determining efficient routes and schedules; modeling population growth; understanding financial mathematics; and introductory cryptography.

Prerequisites: An appropriate score on the math placement test, or a grade of B or better in MATH F055, MATH F062, MATH F068.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F122X Essential Precalculus with Applications (m)

3 Credits

Offered Fall and Spring

A study of various classes of functions, exploring their numeric, algebraic and graphical aspects. Function classes include linear, quadratic, rational, exponential and logarithmic. This course is appropriate for students in programs relating to business and economics or life sciences or students intending to take MATH F230X.

Prerequisites: Appropriate placement score, MATH F105, MATH F105N or MATH F105J.

Special Notes: Credit may be earned for MATH F151X or MATH F122X, but not for both.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F151X College Algebra for Calculus (m)

4 Credits

Offered Fall and Spring

Study of algebraic, logarithmic and exponential functions; systems of equations; applications.

Prerequisites: Appropriate score on the math placement test, B or better in MATH F105, B or better in MATH F105J or C or better in MATH F105N.

Special Notes: Credit may be earned for MATH F151X or MATH F122X, but not for both; Only eight credits total may be earned from MATH F151X, MATH F152X and MATH F156X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 4.5 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F152X Trigonometry (m)

3 Credits

Offered Fall and Spring

A study of trigonometric functions including graphing, identities, inverse trigonometric functions, solving equations and polar coordinates; applications.

Prerequisites: MATH F151X (may be taken concurrently) or placement.

Special Notes: Only eight credits total may be earned from MATH F151X, MATH F152X and MATH F156X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F156X Precalculus (m)

4 Credits

Offered Fall and Spring

Various classes of functions and their graphs are explored numerically, algebraically and graphically. Function classes include polynomial, rational, exponential, logarithmic and trigonometric. Skills and concepts needed for calculus are emphasized. This class is intended for students intending to take MATH F251X.

Prerequisites: Placement into MATH F156X.

Special Notes: Only eight credits total may be earned from MATH F151X, MATH F152X and MATH F156X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 4 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F211 Mathematics for Elementary School Teachers (m)

3 Credits

Offered Fall

Elementary set theory, numeration systems, and algorithms of arithmetic, divisors, multiples, integers and introduction to rational numbers. Emphasis on classroom methods. Restricted to Elementary Education majors; others by permission of instructor.

Prerequisites: MATH F122X; or MATH F151X; or MATH F156X; or placement.

Lecture + Lab + Other: 3 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F212 Mathematics for Elementary School Teachers II (m)

3 Credits

Offered Spring

A continuation of MATH F211. Real number systems and subsystems, logic, informal geometry, metric system, probability and statistics.

Emphasis on classroom methods.

Prerequisites: MATH F211.

Lecture + Lab + Other: 3 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F230X Essential Calculus with Applications

3 Credits

Offered Fall and Spring

An introduction to the key ideas of differential and integral calculus, emphasizing applications in the life sciences. This course emphasizes a solid conceptual understanding, along with calculation techniques for basic applications. MATH F230X cannot serve as a prerequisite for MATH F252X.

Prerequisites: MATH F122X; or MATH F151X; or MATH F156X; or placement.

Special Notes: Credit cannot be earned for both MATH F230X and MATH F251X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F251L Calculus I Recitation

0 Credit

Offered Fall and Spring

Recitation section for Calculus I. Activities may include worksheets, quizzes and problem sessions associated with corresponding lecture material from MATH F251X, with an emphasis on prerequisite support.

Corequisites: MATH F251X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 0 + 2 + 0

Grading System: Non-Graded

MATH F251X Calculus I (m)

4 Credits

Offered Fall and Spring

A first course in single-variable calculus. Topics include limits; continuity and differentiation of functions; applications of the derivative to graphing, optimization, and rates of change; definite and indefinite integration; and the Fundamental Theorem of Calculus.

Prerequisites: Appropriate score on the math placement test; or MATH F151X and MATH F152X; or MATH F156X.

Corequisites: MATH F251L.

Special Notes: Credit may not be earned for both MATH F251X and MATH F230X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F252L MATH F252X Recitation

0 Credit

Offered Fall and Spring

Co-requisites: MATH F252X.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Non-Graded

MATH F252X Calculus II (m)

4 Credits

Offered Fall and Spring

Further topics in single-variable calculus, including techniques of integration; applications of integration; convergence of sequences and series; parameterized curves; and polar coordinates.

Prerequisites: MATH F251X.

Co-requisites: MATH F252L.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 4 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F253X Calculus III (m)

4 Credits

Offered Fall and Spring

Multivariable calculus. Topics include vectors in 2- and 3-dimensions; differential calculus of functions of several variables; multiple integration; vector calculus, including Green's and Stokes' Theorem; and applications.

Prerequisites: MATH F252X.**Attributes:** UAF GER Mathematics Req**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F265 Introduction to Mathematical Proofs (m)**

3 Credits

Offered Spring

Emphasis on proof techniques with topics including logic, sets, cardinality, relations, functions, equivalence, induction, number theory, congruence classes and elementary counting. In addition, a rigorous treatment of topics from calculus or a selection of additional topics from discrete mathematics may be included.

Prerequisites: MATH F252X (may be taken concurrently).**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F302 Differential Equations**

3 Credits

Offered Fall and Spring

Nature and origin of differential equations, first order equations and solutions, linear differential equations with constant coefficients, systems of equations, power series solutions, operational methods, and applications.

Prerequisites: MATH F253X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F305 Geometry**

3 Credits

Offered Spring Even-numbered Years

Topics selected from such fields as Euclidean and non-Euclidean plane geometry, affine geometry, projective geometry, and topology.

Prerequisites: MATH F265; MATH F314.**Recommended:** MATH F253X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F307 Discrete Mathematics**

3 Credits

Offered Spring

Logic, counting, sets and functions, recurrence relations, graphs and trees. Additional topics chosen from probability theory.

Prerequisites: MATH F252X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F314 Linear Algebra**

3 Credits

Offered Fall and Spring

Linear equations, finite dimensional vector spaces, matrices, determinants, linear transformations and characteristic values. Inner product spaces.

Prerequisites: MATH F252X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F316 Introduction to the History of Mathematics**

3 Credits

Offered Spring Odd-numbered Years

Important periods in the history of mathematics, including mathematics of Ancient Babylon, Mesopotamia, Greece, China and India, medieval Europe, the Middle East and the Renaissance; the development of geometry, algebra and calculus. Other areas in the development of mathematics will be studied as time permits.

Prerequisites: MATH F253X; MATH F265 (may be taken concurrently).**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F320 Topics in Combinatorics**

3 Credits

Offered Fall Odd-numbered Years

Introduction to some fundamental ideas of combinatorics. Topics selected from such fields as enumerative combinatorics, generating functions, set systems, recurrence relations, directed graphs, matchings, Hamiltonian and Eulerian graphs, trees and graph colorings.

Prerequisites: MATH F265.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F321 Number Theory**

3 Credits

Offered Fall Even-numbered Years

Number theory investigates the properties of the integers, one of the most basic of mathematical sets. Seemingly naive number-theoretic questions stimulated much of the development of modern mathematics! Topics may include classical areas such as primality, congruences, quadratic reciprocity and Diophantine equations, and more recent applications, such as cryptography.

Prerequisites: MATH F265.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F371 Probability**

3 Credits

Offered Fall Odd-numbered Years

Probability spaces, conditional probability, random variables, continuous and discrete distributions, expectation, moments, moment generating functions and characteristic functions.

Prerequisites: MATH F253X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F401 Introduction to Real Analysis**

3 Credits

Offered Fall

Completeness of the real numbers and its consequence, convergence of sequences and series, limits and continuity, differentiation, the Riemann integral.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F253X; MATH F265.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

MATH F404 Introduction to Topology

3 Credits

Offered Fall Even-numbered Years

Introduction to topological spaces, set theory, open sets, compactness, connectedness, product spaces, metric spaces and continua.

Prerequisites: MATH F253X; MATH F265.**Recommended:** MATH F314 and/or MATH F405.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F405 Abstract Algebra**

3 Credits

Offered Spring

Theory of groups, rings and fields.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F265.**Recommended:** MATH F307 and/or MATH F314.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F408 Mathematical Statistics**

3 Credits

Offered Spring Even-numbered Years

Distribution of random variables and functions of random variables, interval estimation, point estimation, sufficient statistics, order statistics, and test of hypotheses including various criteria for tests.

Prerequisites: MATH F371; STAT F200X or STAT F300.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F410 Introduction to Complex Analysis**

3 Credits

Offered Fall Odd-numbered Years

Complex functions including series, integrals, residues, conformal mapping and applications.

Prerequisites: MATH F253X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F412 Differential Geometry**

3 Credits

Offered Spring Odd-numbered Years

Introduction to the differential geometry of curves, surfaces, and Riemannian manifolds. Basic concepts covered include the Frenet-Serret apparatus, surfaces, first and second fundamental forms, geodesics, Gauss curvature and the Gauss-Bonnet Theorem. Time permitting, topics such as minimal surfaces, theory of hypersurfaces and/or tensor analysis may be included.

Prerequisites: MATH F314; MATH F401.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F426 Numerical Analysis**

3 Credits

Offered Fall

Direct and iterative solutions of systems of equations, interpolation, numerical differentiation and integration, numerical solutions of ordinary differential equations, and error analysis.

Prerequisites: MATH F302 or MATH F314.**Recommended:** Knowledge of programming.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F430 Topics in Mathematics**

3 Credits

Offered Fall Even-numbered Years

An elective course in mathematics for majors. Topics will vary from year to year and may be drawn from mathematical biology, numerical linear algebra, graph theory, logic, or other areas of mathematics. May be repeated with permission of instructor for a total of nine credits.

Prerequisites: MATH F265.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits**MATH F432 Introduction to Partial Differential Equations**

3 Credits

Offered Spring Odd-numbered Years

Analysis and solution of partial differential equations. Initial and boundary value problems for parabolic, hyperbolic and elliptic types.

Solution methods include separation of variables and Fourier transform.

Prerequisites: MATH F302.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F460 Mathematical Modeling**

3 Credits

Offered Spring Even-numbered Years

Introduction to mathematical modeling using differential or difference equations. Emphasis is on formulating models and interpreting qualitative behavior such models predict. Examples will be taken from a variety of fields, depending on the interest of the instructor. Students develop a modeling project.

Prerequisites: COM F131X or COM F141X; MATH F252X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Recommended:** one or more of MATH F302, MATH F314, MATH F401, MATH F426, STAT F300 or some programming experience.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F490 Senior Seminar**

3 Credits

Offered Spring

Advanced topics selected from areas outside the usual undergraduate offerings. A substantial level of mathematical maturity is assumed.

Prerequisites: COM F131X or COM F141X; at least one of MATH F401 or MATH F405; senior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F600 Teaching Seminar**

1 Credit

Offered Fall

Fundamentals of teaching mathematics in a university setting. Topics may include any aspect of teaching: university regulations, class and lecture organization, testing, book selection, teaching evaluations, etc. Specific topics will vary on the basis of student and instructor interest. Individual classroom visits will also be used for class discussion.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 2 times for up to 2 credits

MATH F614 Numerical Linear Algebra

3 Credits

Offered Fall Odd-numbered Years

Algorithms and theory for stable and accurate computation using matrices and vectors on computers. Matrix factorizations, direct and iterative methods for solving linear systems, least squares, eigenvalue and singular value decompositions. Practical implementation and application of algorithms.

Prerequisites: MATH F314.**Recommended:** MATH F401 or MATH F432.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F615 Numerical Analysis of Differential Equations**

3 Credits

Offered Spring Odd-numbered Years

Review of numerical differentiation and integration, and the numerical solution of ordinary differential equations. Main topics to include the numerical solution of partial differential equations, curve fitting, splines, and the approximation of functions. Supplementary topics such as the numerical method of lines, the fast Fourier transform, and finite elements may be included as time permits and interest warrants.

Prerequisites: CS F201; MATH F314; MATH F410; MATH F426; MATH F432.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F617 Functional Analysis**

3 Credits

Offered Spring Even-numbered Years

Study of Banach and Hilbert spaces, and continuous linear maps between them. Linear functionals and the Hahn-Banach theorem. Applications of the Baire Category theorem. Compact operators, self adjoint operators, and their spectral properties. Weak topology and its applications.

Prerequisites: MATH F314; MATH F401.**Recommended:** MATH F410; MATH F641.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F631 Algebra I**

4 Credits

Offered Fall Even-numbered Years

Rigorous development of groups, rings and fields.

Prerequisites: MATH F405.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F632 Algebra II**

3 Credits

Offered Spring Odd-numbered Years

Advanced topics which may be chosen from group theory, Galois theory, commutative or non-commutative algebra, algebraic geometry, homological algebra or other areas.

Prerequisites: MATH F631.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F641 Real Analysis**

4 Credits

Offered Fall Odd-numbered Years

General theory of Lebesgue measure and Lebesgue integration on the real line. Convergence properties of the integral. Introduction to the general theory of measures and integration. Differentiation, the product measures and an introduction to LP spaces.

Prerequisites: MATH F401.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F645 Complex Analysis**

4 Credits

Offered Spring Even-numbered Years

Analytic functions, power series, Cauchy integral theory, residue theorem. Basic topology of the complex plane and the structure theory of analytic functions. The Riemann mapping theorem. Infinite products.

Prerequisites: MATH F641.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F651 Topology**

4 Credits

Offered Spring Odd-numbered Years

Treatment of the fundamental topics of point-set topology. Separation axioms, product and quotient spaces, convergence via nets and filters, compactness and compactifications, paracompactness, metrization theorems, countability properties, and connectedness. Set theory as needed for examples and proof techniques.

Prerequisites: MATH F401 or MATH F404.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MATH F658 Topics in Geometry**

3 Credits

Offered Fall Even-numbered Years

Elective topics in geometry. Recent offerings include configurations of points and lines; topology and differential geometry of surfaces; polyhedra and polytopes.

Prerequisites: Linear algebra; geometry; undergraduate real analysis; undergraduate abstract algebra.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**MATH F660 Advanced Mathematical Modeling**

3 Credits

Offered Spring Even-numbered Years

The mathematical formulation and analysis of problems arising in the physical, biological, or social sciences. The focus area of the course may vary, but emphasis will be given to modeling assumptions, derivation of model equations, methods of analysis, and interpretation of results for the particular applications. Examples include heat conduction problems, random walk processes, molecular evolution, perturbation theory. Students will develop a modeling project as part of the course requirements.

Prerequisites: Permission of instructor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

MATH F661 Optimization

3 Credits

Offered Fall Even-numbered Years

Linear and nonlinear programming, simplex method, duality and dual simplex method, post-optimal analysis, constrained and unconstrained nonlinear programming, Kuhn-Tucker conditions. Applications to management, physical and life sciences. Computational work with the computer.

Prerequisites: Knowledge of calculus, linear algebra and computer programming.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F663 Graph Theory

3 Credits

Offered Fall Odd-numbered Years

A survey of modern techniques in graph theory; topics may include graphs and digraphs, trees, spanning trees, matchings, graph connectivity, graph coloring, planarity, cycles, and extremal problems.

Prerequisites: MATH F314; MATH F320.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MATH F665 Topics in Graduate Mathematics

3 Credits

Offered As Demand Warrants

Elective courses in graduate mathematics offered by faculty on a rotating basis. Topics may include, but are not limited to, graph theory, glaciology modeling, general relativity, mathematical biology, Galois theory and numerical linear algebra. May be repeated for credit with permission of instructor.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 9 credits

MATH F692 Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MATH F698 Non-thesis Research/Project

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MATH F699 Thesis

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Mechanical Engineering (ME)

College of Engineering and Mines

Department of Mechanical Engineering (<https://www.uaf.edu/cem/programs/mechanical-engineering/>)

907-474-7136

ME F254 Unmanned Aircraft Systems (UAS) Investigation

3 Credits

Offered As Demand Warrants

An introductory analysis of unmanned air systems (UAS), including typical missions and performance expectations for various classes of UAS. Students investigate subsystem choices for a UAS and how these affect mission performance. Includes discussion of external factors impacting UAS design choices, including support infrastructure, flight operations and data requirements.

Cross-listed with AERO F254.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F256 Unmanned Aircraft Systems (UAS) Design

3 Credits

Offered As Demand Warrants

A multidisciplinary team of students will design, build, test and deliver an unmanned aircraft system (UAS) in support of university research mission requirements. Students will learn basic concepts related to the systems engineering design process. Graded events include team briefings, written reports, multimedia products and a finished UAS product.

Prerequisites: AERO F254; ME F254.

Crosslisted with CS F254, AERO F256.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F258 Unmanned Aircraft Systems (UAS) Operations

3 Credits

Offered As Demand Warrants

Covers the use of unmanned aircraft systems (UAS), sensors, and support infrastructure required to conduct a selected mission set. Emphasis is on mission analysis, planning, and conduct, including definition of requirements/constraints, identification of appropriate assets, flight planning considerations, and data analysis requirements. Teams coordinate resources for mission and report results.

Cross-listed with CS F258; GEOS F258; and AERO F258.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F302 Dynamics of Machinery

4 Credits

Offered Fall

Kinematics and dynamics of mechanisms. Analysis of displacements, velocities, accelerations, and forces in linkages, cams and gear systems by analytical, experimental and computer methods. Design applications.

Prerequisites: ES F301 (may be taken concurrently); ES F210.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F308 Instrumentation and Measurement

3 Credits

Offered Spring

Principles of measurement, instrumentation, Laplace transform, Fourier series, transfer function, steady-state response, calibration, and errors. Signal filtering and amplification, data acquisition, recording, and processing. Methods and devices for measuring strain, force, torque, displacement, velocity, acceleration, pressure, fluid flow properties, and temperature. Mechatronics, sensors, actuators, and controls.

Prerequisites: ES F331.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F313 Mechanical Engineering Thermodynamics

3 Credits

Offered Spring

Investigation and design of power and refrigeration cycles (Rankine, Brayton, Otto, and Diesel), compressible flow (isentropic, shock waves, and flow in ducts with friction), and combustion and gas vapor mixtures.

Prerequisites: ES F346.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F321 Industrial Processes**

3 Credits

Offered Fall

Manufacturing processes used in modern industry. Primary and secondary manufacturing processes, casting, hot and cold forming, machining, welding and mass production tools and techniques as related to economic and efficient product design.

Prerequisites: Mechanical Engineering major.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F334 Elements of Material Science/Engineering**

3 Credits

Offered Spring

Properties of engineering materials. Crystal structure, defect structure, structure and properties, aspects of metal processing, heat treatment, joining, testing and failure analysis for engineering applications and design.

Prerequisites: CHEM F105X.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F402 Advanced Mechanical System Design**

3 Credits

Offered As Demand Warrants

Advanced analysis of two- and three-dimensional multi-body mechanical systems. Rigid body system formulation and deformable body system formulation. Application of CAE software for rigid body and large deformable body systems.

Prerequisites: ME F302; ME F408.**Stacked with** ME F602.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F403 Machine Design**

3 Credits

Offered Spring

Design and analysis of machines by analytical, experimental and computer methods. Identification of requirements and conceptual design of mechanical systems, detailed design of components, strength, life, reliability, and cost analysis.

Prerequisites: ES F331.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F405 Computer Aided Design**

3 Credits

Offered As Demand Warrants

Introduction to principles of computer aided design and engineering. Applications of software and hardware in solid modeling, design analysis, motion analysis, rapid prototyping, and interface between computer aided design and computer aided manufacturing.

Prerequisites: Senior standing.**Lecture + Lab + Other:** 1.5 + 4.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F406 Computer Aided Manufacturing**

3 Credits

Offered As Demand Warrants

Introduction to computer aided manufacturing (CAM). This includes the principles of computer aided process planning (CAPP) and an introduction to computer numerical control (CNC) tools used in manufacturing. Emphasis will be on methodology with hands-on applications of computer software and specific machine tools.

Prerequisites: ME F321; senior standing.**Lecture + Lab + Other:** 1.5 + 4.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F408 Mechanical Vibrations**

3 Credits

Offered Fall

Modeling of vibratory mechanical systems with single and multiple degrees of freedom. Study of free and forced vibrations with or without damping by lumped-parameter methods and finite element analysis. Vibrations of rotor systems and vibration stability.

Prerequisites: ES F210, ES F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F409 Controls**

3 Credits

Offered As Demand Warrants

Analysis and design of control systems. Block diagrams, transfer functions and frequency analysis. Closed loop systems and system stability. Industrial controllers and system compensation.

Prerequisites: ME F408.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F414 HVAC Systems Optimization**

3 Credits

Offered As Demand Warrants

Design of thermal and heating, ventilation, and air-conditioning (HVAC) systems with emphasis on economic considerations and optimization. Concepts of thermodynamics, fluid mechanics and heat transfer will be integrated under a design framework, and include economic and technical considerations.

Prerequisites: ES F341; ES F346.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F415 Thermal Systems Laboratory**

3 Credits

Offered Spring

Testing and evaluation of components and energy systems such as pumps, fans, engines, heat exchangers, refrigerators and heating/power plants.

Prerequisites: ME F308 (may be taken concurrently); WRTG F111X; ES F341; ME F313; ME F441.**Lecture + Lab + Other:** 1.5 + 4.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F416 Design of Mechanical Equipment for the Petroleum Industry**

3 Credits

Offered As Demand Warrants

Design, selection and operation of equipment used in production and processing of crude oil and gas. Instrumentation and control systems used with mechanical equipment.

Prerequisites: ES F341; ES F346.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ME F418 Shape and Structure of Mechanical Systems

3 Credits

Offered As Demand Warrants

Optimization of flow configuration by minimizing the flow resistance in mechanical and energy systems. Introduction to the concepts of entropy minimization and structural law. Applications to engineering problems in solid mechanics, fluid mechanics, and heat transfer.

Prerequisites: ES F331; ES F341; ES F346.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F431 Intermediate Mechanics of Materials**

3 Credits

Offered As Demand Warrants

Applications of Hooke's law and energy method to thin-walled beams and shafts, and analysis of stress and strain under combined loading. Introduction to fatigue and fracture of elastic materials. Applications to engineering problems.

Prerequisites: ES F331.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F436 Introduction to Nanomaterials**

3 Credits

Offered As Demand Warrants

This course aims to providing a comprehensive study of the synthesis, characterization, properties, and applications of nanomaterials. It will cover the fundamental scientific principles for the different synthesis techniques, assembly of nanostructured materials, and new physical and chemical properties at the nanoscale. Existing and emerging applications will also be discussed.

Prerequisites: ME F334 (may be taken concurrently).**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F440 Introduction to Microfluidics**

3 Credits

Offered As Demand Warrants

Overview of basic concepts and principles of fluids at the micron scale; introduction to the design and fabrication of microfluidic devices.

Prerequisites: ES F341 (may be taken concurrently); PHYS F123X (for Math and non-Physics science major); PHYS F211X (for Engineering, Math and Physics major); junior standing.**Stacked with** ME F640.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F441 Heat and Mass Transfer**

3 Credits

Offered Fall

Application of heat and mass transfer concepts to engineering problems including steady state and transient conduction, numerical analysis of heat transfer problems, laminar and turbulent free and forced convection, and black body and real surface radiation.

Prerequisites: ES F301; ES F341; ES F346.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F443 Fluid Mechanics and Heat Transfer Characteristics of Nanofluids**

3 Credits

Offered As Demand Warrants

Description of nanofluids, nanostructured materials and dispersion in base fluids. Thermophysical properties: density, viscosity, thermal conductivity and specific heat. Theoretical equations and empirical correlations for properties. Principles of measurements of properties. Fluid dynamic losses and pumping power required for nanofluid flow in heat transfer systems. Experimental methods of determining the convective heat transfer coefficient of nanofluids. Practical application to heat exchangers in industries. Nanofluids flows in mini- and microchannels.

Prerequisites: ES F341; ME F441; senior standing.**Stacked with** ME F643.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F450 Theory of Flight**

3 Credits

Offered Fall

Airfoil theory in subsonic flow. Performance, stability and control of aircraft. Aircraft design.

Prerequisites: ES F341 (may be taken concurrently); ES F346.**Cross-listed with** AERO F450.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F451 Aerodynamics**

3 Credits

Offered Spring

Aerodynamics of non-lifting and lifting airfoils in incompressible irrotational flow, wings of finite span, the Navier-Stokes equations, boundary layers, numerical methods, supersonic and transonic flow past airfoils, rocket aerodynamics, rocket drag.

Prerequisites: ES F341 (may be taken concurrently); ES F301; ES F346.**Cross-listed with** AERO F451.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F452 Introduction to Astrodynamics**

3 Credits

Offered Fall

Geometry of the solar system, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories. Elements of orbit determination.

Prerequisites: ES F208 or ES F210; ES F301 (may be taken concurrently).**Cross-listed with** AERO F452.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**ME F453 Propulsion Systems**

3 Credits

Offered Spring

Basic principles of propulsion: turbojet, turboprop and rocket engines. Fluid mechanics and thermodynamics of flow in nozzles, compressors, combustors and turbines. Liquid and solid propellant rockets. Heat transfer in rocket motors and nozzles. Design and testing methods for components of propulsion systems.

Prerequisites: ME F313 (may be taken concurrently); ES F341.**Cross-listed with** AERO F453.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

ME F458 Energy and the Environment

3 Credits

Offered As Demand Warrants

Overview of basic concepts of energy supply, demand, production of heat and power impacts of energy use on the environment. Extensive discussion of mitigation technologies and strategies for meeting energy needs while preserving environmental quality.

Prerequisites: CHEM F106X; ES F346 or equivalent; MATH F252X; PHYS F211X.

Stacked with ME F658.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F464 Corrosion Engineering

3 Credits

Offered As Demand Warrants

Principles and forms of corrosion and factors that affect it. Methods of testing and measurement, control and prevention are examined.

Prerequisites: ME F334.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F486 Senior Design

1 Credit

Offered Fall

Focused on pursuing the design of a project selected jointly by students, project advisors, and/or the instructor. Emphasis will be on the design of practical engineering systems and components which integrate engineering knowledge and skills. Principles of the design process will be introduced.

Prerequisites: COM F131X or COM F141X; ME F441 (may be taken concurrently); WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; senior standing.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F487 Design Project

3 Credits

Offered Spring

A real or simulated engineering design project selected jointly by student and instructor. Emphasis on design of practical mechanical engineering systems and/or components which integrate students' engineering knowledge and skills.

Prerequisites: ME F486.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F601 Finite Element Analysis in Engineering

3 Credits

Offered As Demand Warrants

Formulation of the finite element method. Applications to problems of engineering in solid mechanics, fluid mechanics and heat transfer. Use and development of codes for computer solution of problems.

Prerequisites: Graduate standing in engineering; ES F201; MATH F302.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F602 Advanced Mechanical System Design

3 Credits

Offered As Demand Warrants

Advanced analysis of two- and three-dimensional multi-body mechanical systems. Rigid body system formulation and deformable body system formulation. Application of CAE software for rigid body and large deformable body systems.

Prerequisites: ME F302; ME F408.

Stacked with ME F402.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F608 Advanced Dynamics

3 Credits

Offered As Demand Warrants

Kinematics and kinetics of rigid bodies, introduction to analytical mechanics, Lagrange's equations and Hamiltonian mechanics.

Applications to engineering problems.

Prerequisites: ES F210; MATH F302; graduate standing in engineering.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F609 Advanced Vibrations

3 Credits

Offered As Demand Warrants

Analysis of discrete and continuous vibrations via energy methods, free and forced response of linear systems, stability criteria, and introduction to random and nonlinear vibration. Applications to engineering problems.

Prerequisites: MATH F302; ME F408; graduate standing in engineering.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F617 Power Analysis

3 Credits

Offered As Demand Warrants

Fundamentals of power generation including piping, pumps, fuels and combustion, steam generators, condensers, deaerators, evaporators, feedwater treatment and heating, regeneration, fuel handling, heat balance, equipment, economics, and plant layout.

Prerequisites: ME F313.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F631 Advanced Mechanics of Materials

3 Credits

Offered As Demand Warrants

Theories of elasticity and plasticity for small and large deformations.

Applications to engineering problems.

Prerequisites: ES F331; graduate standing in engineering.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F634 Advanced Materials Engineering

3 Credits

Offered As Demand Warrants

Atomic bonding, crystal structure, crystal imperfections, phases and interfaces, microstructures, phase diagrams, phase transformation, transport and diffusion, metal deformation, fracture of materials, deterioration of materials, electronic and physical properties of materials.

Prerequisites: ME F334; MATH F302; graduate standing in engineering.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F640 Introduction to Microfluidics

3 Credits

Offered As Demand Warrants

Overview of basic concepts and principles of fluids at the micron scale; introduction to the design and fabrication of microfluidic devices.

Prerequisites: ES F341 (may be taken concurrently); PHYS F123X (for Math and non-Physics science major); PHYS F211X (for Engineering, Math and Physics major); junior standing.

Stacked with ME F440.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F641 Advanced Fluid Mechanics

3 Credits

Offered As Demand Warrants

Introduction to viscous flows, laminar boundary layers, turbulent boundary layers, turbulent jets and wakes, applications to heat transfer and drag.

Prerequisites: ES F341; graduate standing in engineering.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F642 Advanced Heat Transfer

3 Credits

Offered As Demand Warrants

Heat conduction in two and three dimensions under steady and transient conditions. Free and forced convection in internal and external flows. Radiation from black and gray surfaces and gas-filled enclosures. Both analytical and numerical methods are covered.

Prerequisites: ME F441; graduate standing in engineering.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F643 Fluid Mechanics and Heat Transfer Characteristics of Nanofluids

3 Credits

Offered As Demand Warrants

Description of nanofluids, nanostructured materials and dispersion in base fluids. Thermophysical properties: density, viscosity, thermal conductivity and specific heat. Theoretical equations and empirical correlations for properties. Principles of measurements of properties. Fluid dynamic losses and pumping power required for nanofluid flow in heat transfer systems. Experimental methods of determining the convective heat transfer coefficient of nanofluids. Practical application to heat exchangers in industries. Nanofluids flows in mini- and microchannels.

Prerequisites: ES F341; ME F441; graduate standing.

Stacked with ME F443.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F656 Aerospace Systems Engineering

3 Credits

Offered Fall Odd-numbered Years

A multidisciplinary team of students will perform a preliminary design study of a major aerospace system. Design considerations will include requirements for project management, aerospace vehicle design, power, attitude control, thermal control, communications, computer control and data handling.

Prerequisites: Graduate standing.

Cross-listed with AERO F656; EE F656.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F658 Energy and the Environment

3 Credits

Offered As Demand Warrants

Overview of basic concepts of energy supply, demand, production of heat and power impacts of energy use on the environment. Extensive discussion of mitigation technologies and strategies for meeting energy needs while preserving environmental quality.

Prerequisites: Recommended: CHEM F106X; ES F346; MATH F252X; PHYS F211X; graduate standing.

Stacked with ME F458.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F685 Arctic Heat and Mass Transfer

3 Credits

Offered As Demand Warrants

An introduction to the principles of heat and mass transfer with special emphasis on application to problems encountered in the Arctic such as ice and frost formation, permafrost, condensation and heat loss in structures.

Prerequisites: graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F687 Arctic Materials Engineering

3 Credits

Offered As Demand Warrants

A study of engineering material performance at low temperatures.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

ME F698 Non-thesis Research/Project

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

ME F699 Thesis

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Mechanics-Diesel/Heavy Equipment (MECN)

Community and Technical College

Diesel & Heavy Equipment Program

907-455-2800

MECN F103 Advanced Electrical Systems

3 Credits

Offered Fall

Theory, operation, and repair of starting and charging systems, diagnostic methods and specifications that are standard in the industry. Diagnosis and repair of common sensors, actuators, electronic fuel injectors and systems will be covered, as well as electronic scan tools, multiplexing, and CAN Bus network diagnosis and repair.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

MECN F104 Mobile Equipment Maintenance

1 Credit

Offered As Demand Warrants

Technical, financial and legal aspects of mobile equipment maintenance. Students will work in groups to perform a maintenance operation and create maintenance records on a variety of vehicle types.

Lecture + Lab + Other: 0.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F112 Basic Auto Maintenance**

1 Credit

Offered As Demand Warrants

Covers basic automobile system functions, owner maintenance of electrical, cooling and fuel systems, auto lubricants and fluids, tires and wheels, tune-ups, and cold weather maintenance and operation. For the person without mechanical experience.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F154 Diesel Fuel Injection**

2 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F159 Manual Transmissions and Clutches**

2 Credits

Offered As Demand Warrants

Two major areas of automotive maintenance and repair: inspection and replacement of common clutch types; and maintenance, inspection and overhaul of automotive manual transmissions.

Lecture + Lab + Other: 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F201 Advanced Automobile Equipment Electronics**

2 Credits

Offered As Demand Warrants

Troubleshooting and repairing a wide range of electronic systems found in both light and heavy equipment including, but not limited to, load moment limiting, motor speed control, electronic control of hydraulic systems and electronic governors for power generation.

Lecture + Lab + Other: 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F202 Principles of Electric Drive Vehicles**

2 Credits

Offered As Demand Warrants

In-depth study of batteries: design, construction, testing and charging, currents and maintenance. Knowledge applied to DC motors, electronic controls and electronic traction motor controls. The in-shop training discusses environmental impacts of electric drive vehicles.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F203 Basic Power Generations**

3 Credits

Offered As Demand Warrants

Portable and stationary electric power generators and the relationship of magnetism, AC/DC currents, motors, generators, transformers and electrical distribution.

Recommended: AUTO F110.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F204 Basic Alternating Current Electrician Skills**

2 Credits

Offered As Demand Warrants

Basic residential and commercial electrician skills; current theory and applications; electrical measurement and circuitry.

Lecture + Lab + Other: 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F205 Uninterruptible Power Supplies**

1 Credit

Offered As Demand Warrants

Residential and commercial power supplies; troubleshooting batteries; electronic components; reading UPS schematics.

Lecture + Lab + Other: 0.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F206 Emergency Backup Power Generation**

1 Credit

Offered As Demand Warrants

Language and fundamentals of electricity; circuitry; conductor types and sizes; writing methods; system requirements of power generation.

Lecture + Lab + Other: 0.5 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F207 Power Generation Governors**

2 Credits

Offered As Demand Warrants

Mechanically and electrically controlled engines with emphasis on what is a governor and what is its function in power generation will be covered in the hands-on diagnostic training.

Lecture + Lab + Other: 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F208 Alternative Fuels**

2 Credits

Offered As Demand Warrants

History of fuels with emphasis on the known alternative fuels: natural gas, methanol, ethanol and propane. A research project is required.

Lecture + Lab + Other: 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**MECN F210 Hydraulics**

3 Credits

Offered Spring

Theory of fluid power and the components that make up a hydraulic system found on heavy equipment. Identification and description of hydraulic cylinders, motors, directional valves commonly found on heavy equipment. Includes testing of equipment and performing hydraulic pressure and flow tests.

Prerequisites: DSLT F101; DSLT F103; DSLT F105.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus

Medical Assisting (MA)

Community and Technical College

Allied Health Program (<https://www.ctc.uaf.edu/academics/allied-health/>)

907-455-2800

MA F100 Medical Terminology

3 Credits

Offered Fall, Spring and Summer

Study of medical terminology, including analysis and origin of word roots, prefixes and suffixes. Understanding the word components, students will be able to build, spell and define medical words. Content will be presented by body systems focusing on terms for anatomy, diagnostic, laboratory and medical specialties. Designed for health care professionals.

Cross-listed with HLTH F100.**Special Notes:** Includes use of medical dictionary, word pronunciation and abbreviations.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MA F114 Fundamentals of Anatomy and Physiology**

4 Credits

Offered Fall, Spring and Summer

Provides a basic understanding of human anatomy and physiology. Recommended for individuals interested in health careers or students desiring an introduction to anatomy and physiology prior to taking in-depth course work in this field.

Prerequisites: Recommended: HLTH F100 or MA F100; high school biology and chemistry.**Cross-listed with** HLTH F114.**Special Notes:** Students should take HLTH F114 if they took HLTH F100, and MA F114 if they took MA F100.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MA F142 Clinical Procedures I**

4 Credits

Offered Fall and Spring

Introduction to the theoretical basis and performance competencies for the clinical duties performed by medical assistants in outpatient facilities. Includes care of patients in the examining room, use and care of medical instruments and supplies, assisting physicians with clinical procedures, administering medications, and introduction to clinical laboratory procedures. Documentation of positive antibody titer or immunizations for Hepatitis B, two MMRs, two varicella and negative 2-step PPD within the past year. Other specific immunizations as required by externship sites. Departmental approval required.

Prerequisites: MA F100; MA F114; HLTH F116; HLTH F122 or current AHA BLS for Health Care Provider CPR and First Aid card.**Lecture + Lab + Other:** 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**MA F144 Administrative Procedures for the Medical Assistant**

5 Credits

Offered Fall and Spring

This is an in-depth examination of office duties, including: reception, telephone procedures, public relations, professionalism, medical practice and financial management in the health care setting. Also includes written communications, EHR, HIPAA, and billing and coding procedures. The importance of accuracy and attention to detail is emphasized.

Prerequisites: MA F100, MA F114, HLTH F116, WRTG F111X.**Lecture + Lab + Other:** 5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MA F244 Clinical Procedures II**

4 Credits

Offered Fall and Spring

Theoretical basis and performance competencies for the clinical duties performed by medical assistants in outpatient facilities. Includes urinalysis, electrocardiograph, subcutaneous and intramuscular injections, routine laboratory procedures, venipuncture, emergencies, and assisting with specialty examinations. Documentation of current immunizations or titers for hepatitis B, measles, mumps, rubella and varicella. Flu shot and two 2-step PPDs within the past year. Other specific immunizations as required by externship sites. Departmental approval.

Prerequisites: MA F100; MA F114 (preferred) or BIOL F100X; HLTH F116; MA F142; HLTH F122 or current AHA BLS for healthcare provider CPR and First Aid card.**Lecture + Lab + Other:** 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**MA F247 Introduction to Pharmacology**

3 Credits

Offered Fall, Spring and Summer

Introduction to the use of therapeutic medications in medical settings. Includes classifications of drugs, clinical use and adverse effects of the 50 most commonly prescribed medications.

Prerequisites: MA F100; MA F114 or BIOL F100X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MA F261 Medical/Dental Office Reception Practicum**

2 Credits

Offered As Demand Warrants

Provides students with 80 practicum hours in a medical or dental front office. With additional time required for meeting with the campus practicum coordinator. Students will be expected to perform any and all duties of a receptionist in a medical/dental care setting.

Prerequisites: HLTH F122; enrollment by special permission only.**Recommended:** Students taking HLTH F261 should have passed MA F144, and students taking HLTH F261 should have passed HLTH F132 and HLTH F234.**Cross-listed with** HLTH F261.**Special Notes:** Students part of the Medical Assisting program should take the HLTH F261 section of this course.**Lecture + Lab + Other:** 0 + 0 + 6**Grading System:** Pass/Fail Grades**MA F267 Medical Assisting Practicum Completion**

2-4 Credits

Offered As Demand Warrants

Provides 100 hours hands on experience in back office of outpatient healthcare facility for Medical assisting students. Additional contact time required for meeting with instructor. MA F267 combined with MA F261 provides experience equivalent to that in MA F268 and satisfies the practicum requirement for the medical assistant programs.

Prerequisites: HLTH F122; MA F100; MA F114; MA F142; MA F144; MA F244; MA F247; enrollment by special permission only; completion of all Medical Assisting program courses with a C or better in each class; departmental approval.**Lecture + Lab + Other:** 0 + 0 + 8**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 1 time for up to 4 credits

MA F268 Medical Assisting Practicum

4 Credits

Offered Fall, Spring and Summer

Provides 180 hours of hands-on experience in an outpatient healthcare facility. Students will gain both front office and back office experience. Additional time required for meeting with the instructor. Students will not receive compensation for practicum. Students will be expected to perform procedures learned throughout the medical assisting curriculum. All courses required for the certificate program must be completed the following courses prior to enrolling. Documentation of positive antibody titer or immunizations for Hepatitis B, two MMRs, two varicella and negative 2-step PPD within the past year. Other specific immunizations as required by externship sites. Departmental approval required.

Prerequisites: HLTH F116; HLTH F122; MA F100; MA F114; MA F142; MA F144; MA F244; MA F247; WRTG F111X.

Special Notes: This is the last course in the Medical Assisting Certificate degree program.

Lecture + Lab + Other: 0 + 0 + 12

Grading System: Pass/Fail Grades

Military Science (MILS)

College of Business and Security Management

Department of Homeland Security and Emergency Management (<https://www.uaf.edu/cbsm/programs/hsem/>)

907-474-7501

MILS F101 Introduction to the Army

1-2 Credits

Offered Fall

The MSL I Course produces a Cadet who accepts the Army as a Values - based organization and embraces the scholar-athlete-warrior ethos; familiar with individual roles and responsibilities in support of team efforts and problem solving; demonstrates oral and written communications skills, understands resilience and develops a commitment to learning.

Lecture + Lab + Other: 1 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

MILS F102 Foundations of Agile and Adaptive Leadership

1-2 Credits

Offered Spring

The MSL I Course produces a Cadet who accepts the Army as a Values - based organization and embraces the scholar-athlete-warrior ethos; familiar with individual roles and responsibilities in support of team efforts and problem solving; demonstrates oral and written communications skills, understands resilience and develops a commitment to learning.

Lecture + Lab + Other: 1 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

MILS F201 Leadership and Decision Making (s)

2-3 Credits

Offered Fall

The MSL II Course produces a Cadet grounded in foundational leadership doctrine and skills by following and leading small units; comprehends critical thinking and problem solving using TLPs; comprehends the value of diversity and understands the officer's role in leading change; understands the fundamentals of the Army as a profession.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

MILS F202 Army Doctrine and Team Development

2-3 Credits

Offered Spring

This course produces a Cadet grounded-in foundational leadership doctrine and skills by following and leading small units to achieve assigned missions; comprehends critical thinking and problem solving using TLPs; comprehends the value of diversity and the officer's role in leading change; understands the fundamentals of the Army as a profession.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

MILS F250 Leaders Training Course

3 Credits

Offered As Demand Warrants

A four-week camp in basic military skills and leadership experience in preparation for entrance into the advanced course. For students who did not take the basic course.

Prerequisites: At least two years of schooling remaining upon completion of camp; admission by arrangement with professor of military science.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MILS F301 Training Management and the Warfighting Functions

4 Credits

Offered Fall

The MSL III Course produces a Cadet who possesses enhanced individual and collective skills including leader competencies; effectively leads formations at squad and platoon levels in a variety of military and non-military mission context scenarios; effective at receiving and giving peer evaluations; committed and disciplined ethically, academically, physically and socially.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing in MILS; permission of instructor.

Lecture + Lab + Other: 3 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

MILS F302 Applied Leadership in Small Unit Operations

4 Credits

Offered Spring

The MSL III Course produces a Cadet who possesses enhanced individual and collective skills including leader competencies; effectively leads formations at squad and platoon levels in a variety of military and non-military mission context scenarios; effective at receiving and giving peer evaluations; committed and disciplined ethically, academically, physically and socially.

Prerequisites: COM F131X or COM F141X; junior standing in MILS; permission of instructor.

Lecture + Lab + Other: 3 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

MILS F350 Leadership Development Assessment Course

3 Credits

Offered As Demand Warrants

Five-week course structured to assess and develop the leadership capabilities of the cadet by using a variety of situations in a military environment.

Prerequisites: MILS F301; MILS F302; must be enrolled as an advanced course cadet; and have the recommendation of the Department Head.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MILS F351 Cadet Troop Leadership Training

2 Credits

Offered As Demand Warrants

Three- to five-week full-time leadership training and development, serving in leadership positions with the active Army. Application of leadership and management principles in real life junior officer situations/positions.

Prerequisites: MILS F101; MILS F350; must be enrolled as an advanced course cadet.

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MILS F401 The Army Officer (s)

4 Credits

Offered Fall

Focuses on development of the Army Officer. It is an academically challenging course where you will develop knowledge, skills, and abilities to plan, resource, and assess training at the small unit level. Understand Army programs that support counseling subordinates and evaluating performance, values and ethics, career planning, and legal responsibilities.

Prerequisites: Senior standing in MILS and permission of instructor.

Lecture + Lab + Other: 3 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

MILS F402 Company Grade Leadership

4 Credits

Offered Spring

Focuses on development of the Army Officer. It is an academically challenging course where you will develop knowledge, skills, and abilities to plan, resource, and assess training at the small unit level. Understand Army programs that support counseling subordinates and evaluating performance, values and ethics, career planning, and legal responsibilities.

Prerequisites: Senior standing in MILS and permission of instructor.

Lecture + Lab + Other: 3 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

MILS F442 History of the American Military (s)

3 Credits

Offered As Demand Warrants

The military's place in American life and society from the Colonial era to the present. Role of the military institution in shaping the nature of American society while reflecting the character of the society it serves.

Prerequisites: HIST F275.

Cross-listed with HIST F442.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Mineral Preparation Engineering (MPR)

College of Engineering and Mines

Department of Mining and Mineral Engineering (<https://www.uaf.edu/cem/programs/mining-engineering/>)

907-474-7388

MPR F606 Plant Design

3 Credits

Offered As Demand Warrants

Selection and design of equipment for the operation of mineral and coal beneficiation plants for specific custom and milling problems.

Prerequisites: Admission by arrangement.

Lecture + Lab + Other: 1 + 6 + 0

Grading System: Letter Grades with option of Plus/Minus

MPR F611 Hydrometallurgy

3 Credits

Offered As Demand Warrants

Study of the theoretical and engineering aspects of the processes to recover metals from different types of ores and/or scraps, in which aqueous solutions play the predominate role.

Prerequisites: MATH F253X; CHEM F331.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MPR F688 Graduate Seminar I

1 Credit

Offered As Demand Warrants

Preparation and presentation of research outlines by graduate students and participation in regularly organized mineral engineering department seminars.

Prerequisites: Admission to graduate program.

Cross-listed with MIN F688.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MPR F698 Non-thesis Research/Project

1-9 Credits

Lecture + Lab + Other: 1-9 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MPR F699 Thesis

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Mining Applications and Technologies (AMIT)

Community and Technical College

Process Technology Program

907-455-2800

AMIT F101 Introduction to Mining

3 Credits

Offered As Demand Warrants

Fundamentals of surface and underground mining, economic planning, proper exploration designs, environmental concerns and safety factors.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

AMIT F129 Surface Mine Safety

1 Credit

Offered As Demand Warrants

Rights of miners, introduction to the work environment, ground control, hazard recognition, first aid and explosive safety. Course fulfills the Mine Safety Health Administration requirements for surface miner training. Students are awarded MSHA certificate upon completion of the class.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AMIT F130 Surface Mining Operations**

3 Credits

Offered As Demand Warrants

Safe operations of a surface mine. Placer gold, sand and gravel, coal, and open pit metal mines.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**AMIT F135 Introduction to Mining Systems and Equipment**

4 Credits

Offered As Demand Warrants

An overview to the field of mining beneficiation and comminution, systems and equipment used for the mining and mineral processing industry. Fundamentals of basic separation and mineral beneficiation of surface and underground mining, economic planning, environmental concerns, safety and terminology will be explored.

Lecture + Lab + Other: 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**AMIT F145 Introduction to Mineral Beneficiation**

3 Credits

Offered As Demand Warrants

Provides an overview or introduction into the field of mineral beneficiation and comminution, systems and equipment used for the mineral processing industry. Fundamentals of basic separation and mineral beneficiation, environmental concerns, safety and terminology will be explored.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Mining Engineering (MIN)

College of Engineering and Mines

Department of Mining and Mineral Engineering (<https://www.uaf.edu/cem/programs/mining-engineering/>)
907-474-7388

MIN F101 Minerals, Man and the Environment

3 Credits

Offered As Demand Warrants

A general survey of the impact of the mineral industries on man's economic, political and environmental systems.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F103 Introduction to Mining Engineering**

1 Credit

Offered Fall

Concepts and methods utilized in mining engineering and mining unit operations.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F104 Mining Safety and Operations Laboratory**

1 Credit

Offered Fall

Practical training at the Silver Fox Mine in mining operations and safety. Course complies with Mine Safety and Health Administration (MSHA) 40 hour new miner training.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F110 Elements of Mine Safety, Operations and Development**

2 Credits

Offered Fall and Spring

Introduction to pre-mining activities, mine unit operations and mine safety. Basics of mine development; access to mining property, haul roads, ore body, shaft, slope and ramp locations; frozen ground environments and run-off water. Underground and surface mining hazards, safe practices, and engineered controls.

Recommended: MATH F151X, MATH F152X.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F202 Surveying and CAD for Engineers**

2 Credits

Offered Fall

Surveying principles for surface and underground properties. Field and office procedures for preparation of maps and engineering data. Introduction to engineering CAD software.

Prerequisites: MATH F151X, MATH F152X.**Lecture + Lab + Other:** 1 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F225 Quantitative Methods in Mining Engineering**

2 Credits

Offered Fall

Introduction to ore reserve estimation, classical estimation methods and techniques, error in estimations and pitfalls, introduction to classical statistics, introduction to geostatistics, ordinary kriging, block kriging, modeling the sample variogram, co-kriging and global estimation.

Prerequisites: MATH F251X.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F226 Mine Development**

2 Credits

Offered Spring

Review of pre-mining activities. Access to mining property, haul road location and design. Access to ore body; shaft, slope and ramp locations; shape, sizing and development. Development of access in frozen ground environments. Layout of development mains, cross-cuts, raises and winzes for ventilation, transport and optimum extraction of ore body.

Prerequisites: MIN F103; MIN F225.**Recommended:** MATH F251X.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

MIN F301 Mine Plant Design

3 Credits

Offered Spring

Quantitative study and design of various systems and equipment used in haulage, hoisting, drainage, pumping and power (compressed air and electricity). Importance of the natural conditions and production level in the equipment selection procedure emphasized.

Prerequisites: ES F208 and ES F307.**Recommended:** ES F341.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F302 Underground Mine Environmental Engineering**

3 Credits

Offered Spring

Analysis of underground mine ventilation systems, ventilation requirements and system structure, ventilation planning, design and engineering control, mine ventilation network, gas and dust explosion, rescue and recovery.

Prerequisites: MIN F110; ES F341.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F303 Ore Handling and Industrial Explosives**

3 Credits

Offered Spring

Quantitative study and design of various systems and equipment used in haulage, hoisting, drainage, pumping and power (compressed air and electricity). Types and properties of industrial explosives; systems of initiation; theories of blasting; designs of open pit bench blasting; designs of underground blasting/rounds; and applications in mining.

Prerequisites: ES F208; ES F307; MIN F370 (may be taken concurrently).**Recommended:** ES F341.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F313 Introduction to Mineral Preparation**

3 Credits

Offered Fall Odd-numbered Years

Elementary theory and principles of unit processes of liberation, concentration and solid-fluid separation as applied to mineral beneficiations.

Prerequisites: Junior standing.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F370 Rock Mechanics**

3 Credits

Offered Spring

Physical and mechanical properties of rock; rock mass classification systems; stress distribution in the vicinity of mining openings, design criteria and support for structures in rock mass, instrumentation and monitoring of opening's stability as well as strata control and surface subsidence.

Prerequisites: ES F331; may be taken concurrently.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F380 Computer Aided Orebody Modeling**

1 Credit

Offered As Demand Warrants

Develops an orebody model from drill hole data in a computer-aided design environment. The data is converted into a drill hole database, following which, a 3D visual model is developed. Basic tools covered include concepts of computer-aided design, database error checking and triangulation.

Prerequisites: GEOS F332.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F390 Geostatistics and Mineral Economics**

3 Credits

Offered Fall

Introduction to ore reserve estimation, classical estimation methods and techniques, error in estimations and pitfalls, introduction to classical statistics, introduction to geostatistics, ordinary kriging, block kriging, modeling the sample variogram, co-kriging and global estimation. Introduction to engineering economics, ore sampling and reserve calculations, and mine feasibility studies.

Prerequisites: COM F131X or COM F141X; GE F261; MATH F251X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F401 Mine Site Field Trips**

1 Credit

Offered As Demand Warrants

Field trips to active surface and underground mines to gain perceptual knowledge of modern mining systems by observation. Includes a systematic summarization and analysis of the mine after each visit to gain an in-depth understanding of mining engineering principles.

Prerequisites: MIN F202; MIN F301; MIN F302; MIN F370.**Lecture + Lab + Other:** 0.5 + 3 + 0**Grading System:** Pass/Fail Grades**MIN F407 Mine Reclamation and Environmental Management**

2 Credits

Offered Fall Even-numbered Years

Principles and practices of mine reclamation and waste disposal. Pre-mining assessments and plans. Design of settling and tailings ponds and waste impoundments. Stream bed restoration and revegetation.

Prerequisites: CHEM F106X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Recommended:** ES F341.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F408 Mineral Valuation and Economics**

3 Credits

Offered Spring

Introduction to engineering economics, ore sampling and reserve calculations, and mine feasibility studies.

Prerequisites: COM F131X or COM F141X; GE F375 or MIN F301.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

MIN F409 Operations Research and Computer Applications in Mineral Industry

2 Credits

Offered Spring

Fundamental concepts of probability and statistics and the use of operations research and computer techniques for understanding, analysis, forecasting and optimization of mining operations and systems.

Prerequisites: MIN F390; MIN F454.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F415 Coal Preparation**

3 Credits

Offered As Demand Warrants

Unit operations, flowsheets, washability characteristics and control by sink-float methods for coal preparation plants. Market requirements and economics of preparation.

Prerequisites: MIN F313 or graduate standing.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F443 Principles and Applications of Industrial Explosives**

3 Credits

Offered Fall

Types and properties of industrial explosives; systems of initiation; theories of blasting; designs of open pit bench blasting; designs of underground blasting/rounds; applications in mining, civil construction and other fields; blasting vibration, structural damage and their control; overbreak control; safe practices; safety regulations; blast hole drilling and drilling equipment.

Prerequisites: MIN F370.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F444 Accidents, Emergency and Safety Management in Mines**

2 Credits

Offered Spring

Accident statistics, accident investigation and prevention, major provisions of current laws, rule-making procedures, mine fires and explosions, causes and prevention, loss control principles and methods, emergency evacuation, emergency response and emergency preparedness, safety management systems and behavioral science applications.

Prerequisites: MIN F302; MIN F482.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F454 Underground Mining Methods**

2 Credits

Offered Fall

Underground mining methods for coal and non-coal deposits. Includes design parameters, selection of mining methods, mine planning process, auxiliary operations and various underground mining methods.

Prerequisites: MIN F302; MIN F370; MIN F482.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F482 Computer-aided Mine Design:VULCAN**

3 Credits

Offered Fall

Familiarization with VULCAN mine design software to store, manage, model and display exploration data. Estimate volume, tonnage and quality of reserve, design declines and development drives in underground and surface coal and hardrock mines, design underground and surface coal mine plans and design of underground stopes, perform underground and surface grade control.

Prerequisites: Junior, senior or graduate standing in Mining Engineering, Geological Engineering.**Stacked with** MIN F682.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F484 Surface Mining Methods**

1 Credit

Offered Spring

Modern methods of surface mine design. Strip and open pit optimization techniques. Production planning and scheduling. Use of mine design software.

Prerequisites: MIN F110; MIN F390; MIN F482; Junior or senior standing in mining engineering.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F485 Mining Engineering Exit Interview**

0 Credit

Offered Spring

An Exit interview will be conducted to obtain feedback on the program.

Prerequisites: Senior standing in mining engineering.**Corequisites:** MIN F490.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Pass/Fail Grades**MIN F489 Mining Design Project I**

1 Credit

Offered Fall

This course is a precursor to MIN F490. The student is expected to meet with the instructor to finalize the senior design project topic, lay out a project plan, gather data and prepare (such as formatting electronic data) as necessary for the successful execution of the project in MIN F490.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X; MIN F303; MIN F370.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MIN F490 Mining Design Project II**

2 Credits

Offered Spring

Design of mine layout including extraction and beneficiation, and economic evaluation of a mining project. A comprehensive written report of the design and analysis is required.

Prerequisites: MIN F454; MIN F489.**Lecture + Lab + Other:** 1 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus

MIN F491 Automation and Control

2 Credits

Offered Spring

Automation practices for controlling equipment and operations. Use of various control devices, such as sensors, transducers, motor starters, variable-frequency motor drives, and proportional hydraulic valves. Ladder logic programming of programmable automation controllers (PACs) and human-machine interface (HMI) touch-screen panels.

Prerequisites: ES F307; Junior standing or senior standing in Mining, Geological, Civil, Mechanical, Petroleum, Electrical Engineering.

Lecture + Lab + Other: 1 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MIN F601 Application of Artificial Neural Networks

3 Credits

Offered As Demand Warrants

Basic neural network architectures, including rules, training methods and practical applications. Training and application issues typical of earth sciences problems. Some topics require mathematical analysis. Genetic algorithms and use of network ensembles will be briefly presented.

Prerequisites: Graduate standing in engineering; programming ability; knowledge of MATLAB, a plus.

Recommended: MATH F253X, MATH F314; MIN F408; MIN F635.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MIN F621 Advanced Mineral Economics

3 Credits

Offered As Demand Warrants

Introduction to options valuation of mineral projects; uncertainty and risk in mineral valuations; stochastic price models; dynamic programming and investment analysis; real options techniques.

Prerequisites: Admission by arrangement.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MIN F631 Research Methods in Mineral Engineering

4 Credits

Offered As Demand Warrants

Research methods including problem definition and statement, designing experiments, collecting and interpreting data. Methods of theoretical and experimental analysis will be reviewed and examples given.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MIN F635 Advanced Geostatistical Applications

3 Credits

Offered As Demand Warrants

Introduction to the theory and application of geostatistics. Review of classical statistics, continuous and discrete distributions, hypothesis testing and global estimation. Presentation of fundamental geostatistical concepts including: variogram, estimation variance, block variance, kriging, geostatistical simulation. Emphasis on the practical application of geostatistical techniques.

Prerequisites: MIN F408; graduate standing.

Cross-listed with GE F635.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MIN F637 Mine Systems Simulation

3 Credits

Offered As Demand Warrants

Application of computer simulation to the analysis of static and dynamic mine systems and the development of useful programs for mine operators. Design of simulation experiments in mining engineering.

Prerequisites: MIN F409; graduate standing.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MIN F652 Numerical Methods in Mine Ventilation

3 Credits

Offered As Demand Warrants

Differencing schemes for the partial differential equations of flow in mine networks, typical boundary conditions for mine ventilation systems, computer-aided solution techniques. Application to flow of fluids through porous media is covered.

Prerequisites: MIN F302; graduate standing.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MIN F673 Advanced Rock Mechanics

3 Credits

Offered As Demand Warrants

The study of theoretical and experimental methods in rock mechanics.

State of stress and potential failure zone around two- and three-dimensional structures in rock based on theoretical, numerical and experimental techniques and failure criteria are presented.

Prerequisites: MIN F370; graduate standing.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MIN F674 Advanced Ground Control

3 Credits

Offered As Demand Warrants

A study of current rock mechanic problems related to advances in mining and construction technologies. Particular emphasis on the importance of rock and frozen ground properties and stress evaluation in designing and monitoring stability of structures for gas, oil and radioactive materials storage, geothermal energy recovery, solution mining, and those

Prerequisites: MIN F370.

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MIN F682 Computer-aided Mine Design:VULCAN

3 Credits

Offered Fall

Familiarization with VULCAN mine design software to store, manage, model and display exploration data. Estimate volume, tonnage and quality of reserve, design declines and development drives in underground and surface coal and hardrock mines, design underground and surface coal mine plans and design of underground stopes, perform underground and surface grade control.

Prerequisites: Graduate standing in Mining Engineering or Geological Engineering.

Stacked with MIN F482.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MIN F688 Graduate Seminar I

1 Credit

Offered As Demand Warrants

Preparation and presentation of research outlines by graduate students and participation in regularly organized mineral engineering department seminars.

Prerequisites: Admission to graduate program.

Cross-listed with MPR F688.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MIN F698 Non-thesis Research/Project

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MIN F699 Thesis

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Museum Research Apprenticeship Program (MRAP)

Museum of the North

Museum Research Apprenticeship Program (<https://www.uaf.edu/museum/education/uaf-professors-students/university-instruction/museum-research-apprentic/>)
907-474-7505

MRAP F288 Museum Research Apprentice I

1-2 Credits

Offered Fall and Spring

Provides opportunities for undergraduate student research or scholarship in museum-based subjects not available in typical undergraduate courses. Students are required to perform research tasks associated with specimens or objects and their associated data and to turn in a final report. Opportunities range across several museum-based disciplines (archaeology, botany, earth science, entomology, ethnology and history, film, fine art, ichthyology, mammalogy, informal science education, and ornithology). Course may be repeated. Student must contact a potential mentor before enrolling to determine whether matching opportunities exist.

Prerequisite: Instructor permission.

Lecture + Lab + Other: 1 + 0 + 3-6

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 4 times for up to 4 credits

MRAP F488 Museum Research Apprentice II

1-2 Credits

Offered Fall and Spring

Provides opportunities for advanced undergraduate student research or scholarship in museum-based subjects not available in typical undergraduate courses, building upon prior experience. Students are required to perform tasks associated with specimens, objects, and associated data and to turn in a final report. Opportunities range across several museum-based disciplines (archaeology, botany, earth science, entomology, ethnology and history, film, fine art, ichthyology, mammalogy, informal science education, and ornithology). Course repeatable to a maximum of 12 credits. Student must contact potential mentor before enrolling to determine whether experience is sufficient and matching opportunities exist.

Prerequisite: Permission of instructor.

Lecture + Lab + Other: 1 + 0 + 3-6

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 6 times for up to 12 credits

Museum Studies (MSM)

Museum of the North

Museum Research Apprenticeship Program
907-474-7505

MSM F211 Fundamentals of Museum Studies I

3 Credits

Offered Fall and Spring

Origin, structure and development of museums, types of museums and their functions, professional directions and ethics. Collection management systems and techniques, role and ethics of museum conservation.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MSM F212 Fundamentals of Museum Studies II

3 Credits

Museum education, including educational goals and objectives, the museum visitor, program development and publicity. A comprehensive survey of exhibits theory and practices, museum management, administrative frameworks, legal considerations and financial management.

Prerequisites: MSM F211.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MSM F311 Museum Administration

3 Credits

Administrative philosophy and procedures in public and private, large and small museums; the types and sources of support and interactions with local and national supportive groups.

Prerequisites: MSM F211 and MSM F212.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MSM F312 Museum Collection Management

3 Credits

Basic curatorial techniques and problems. Field collecting and other forms of acquisition through accessioning, cataloging, preparation, exhibit, teaching and research.

Prerequisites: MSM F211 and MSM F212.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MSM F487 Museum Practicum

3 Credits

Supervised participation in one or more phases of museum operations or disciplines.

Prerequisites: MSM F211 and MSM F212.

Lecture + Lab + Other: 0 + 0 + 9

Grading System: Letter Grades with option of Plus/Minus

MSM F488 Individual Research: Field Collecting Museum Specimens

3 Credits

Philosophies, purposes and goals of field collection, procedures for collecting museum specimens, and methods of handling before they reach the museum. Field trips may be required. By arrangement with the appropriate curator(s). May be repeated for credit with permission of instructor.

Prerequisites: MSM F211 and MSM F212 and prior disciplinary preparation.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Music (MUS)

College of Liberal Arts

Department of Music (<https://www.uaf.edu/music/>)

907-474-7555

MUS F103X Music Fundamentals (h)

3 Credits

Offered Fall and Spring

An introductory study of the language of music. Includes basic notation, melodic and rhythmic writing, scales, bass and treble clefs, and basic harmony.

Attributes: UAF GER Arts Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F117 Northern Lights String Orchestra (h)

1 Credit

Offered Fall and Spring

Explore literature written primarily for string orchestra. Periodically, winds and percussion will join for performances of literature requiring additional instruments. Works studied vary from semester to semester depending on the instrumentation of those enrolled in the course. May be repeated for credit.

Prerequisites: Previous instruction on a bowed string instrument.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MUS F125X Enjoying Jazz (h)

3 Credits

Offered Fall and Summer

An introduction to jazz music, including its history, performance and various styles. This is a listening intensive course that offers a deeper appreciation and greater awareness of the many artists, collaborations and trends contributing to the development of this musical art.

Attributes: UAF GER Arts Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F131 Basic Music Theory I (h)

3 Credits

Offered Fall

Intensive training in aspects of tonal harmony. Emphasis on acquiring skills in identification and notation of pitch, rhythm, scale, key, with introduction to principles of chord functions and techniques of harmonization.

Prerequisites: MUS F133 (may be taken concurrently).

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F132 Basic Music Theory II (h)

3 Credits

Offered Spring

Emphasis on developing skills in voice leading, part writing and acquiring techniques for analysis of tonal harmony and musical form.

Prerequisites: MUS F131; MUS F134 (may be taken concurrently).

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F133 Basic Ear Training I (h)

2 Credits

Offered Fall

This course is an intensive training in aural skills acquisition, including an introduction to solfege, sight-reading, rhythmic and melodic dictation. Includes computer-assisted instruction.

Prerequisites: MUS F131 (may be taken concurrently).

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F134 Basic Ear Training II (h)

2 Credits

Offered Spring

This course has an emphasis on aural skills acquisition, with further development of skills in sight-reading rhythmic, melodic and harmonic dictation. Includes computer-assisted instruction.

Prerequisites: MUS F133; MUS F132 (may be taken concurrently).

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F151 Class Lesson (h)

1 Credit

Offered Fall and Spring

Class instruction in piano, voice, orchestral instrument or guitar. May be repeated for credit. Course may not be audited.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 98 times for up to unlimited credits

MUS F152 Functional Piano I (h)

1 Credit

Offered Fall

Emphasis on beginning keyboard performance skills, sight-reading, harmonization and transposition. Course may not be audited. For music majors only with permission of instructor required.

Prerequisites: MUS F131 (may be taken concurrently).

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F153 Functional Piano II (h)

1 Credit

Offered Spring

Emphasis on intermediate keyboard performance skills, sight-reading, harmonization and transposition. Course may not be audited.

Prerequisites: MUS F152; for music majors only; permission of instructor required.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F154 Functional Piano III (h)**

1 Credit

Offered Fall

Emphasis on upper-intermediate keyboard performance skills, sight-reading, harmonization and transposition. Course may not be audited.

Prerequisites: MUS F153; for music majors only; permission of instructor required.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F155 Functional Piano IV**

1 Credit

Offered Spring

Emphasis on upper-intermediate keyboard performance skills, sight-reading, harmonization and transposition. Course may not be audited.

Prerequisites: MUS F154.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F161 Private Lessons (h)**

2 Credits

Offered Fall and Spring

Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Special permission required.

Prerequisites: Admission by audition.

Special Notes: Course may not be audited; Credit-No Credit grading not permitted.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 99 times for up to 99 credits**MUS F162 Private Lessons (h)**

2 Credits

Offered Fall and Spring

Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Special permission required.

Prerequisites: Admission by audition.

Special Notes: Course may not be audited; Credit-No Credit grading not permitted.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 99 times for up to 99 credits**MUS F190 Recital Attendance**

0 Credit

Offered Fall and Spring

Recital and concert attendance.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**MUS F200X Explorations in Music (h)**

3 Credits

Offered Fall, Spring and Summer

Understanding and appreciation of music through explorations of its diverse styles, influences and developments. Topics include the creative process, musical forms and expression, historical and cultural contexts and popular movements and trends.

Attributes: UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F203 Fairbanks Symphony Orchestra (h)**

1 Credit

Offered Fall and Spring

Course may be repeated for credit.

Prerequisites: Admission by audition.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**MUS F205 Wind Ensemble (h)**

1 Credit

Offered Fall and Spring

The wind symphony is a large ensemble comprised of wind and percussion instruments. It serves as a large ensemble in the department of music. The ensemble performs several concerts per semester of literature chosen from a variety of contemporary and traditional pieces written for or transcribed for band.

Prerequisites: Admission by audition; permission of instructor.**Special Notes:** This course may not be audited.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to 98 credits**MUS F211 Choir of the North (h)**

1 Credit

Offered Fall and Spring

A mixed choir serving more advanced singers presenting concerts of more advanced choral music literature. May be repeated for credit.

Prerequisites: Admission by audition.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**MUS F221 History of Western Music I (h)**

3 Credits

Offered Fall

A survey of musical eras, styles, genres, historical figures and social and cultural contexts that have significantly contributed to the development of art music in Western Europe from antiquity through the eighteenth century. The lecture-based course also emphasizes music listening skills and an introduction to resources and methods in music history research.

Prerequisites: MUS F132.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

MUS F222 History of Western Music II (h)

3 Credits

Offered Spring

A survey of musical eras, styles, genres, historical figures and social and cultural contexts that have significantly contributed to the development of art music in Western Europe from the mid-eighteenth century to the present day. Further emphasizes music listening skills and an introduction to resources in music history research.

Prerequisites: MUS F221.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F223X Alaska Native Music (an, h)**

3 Credits

Offered Spring

Introductory course devoted to the study of Indigenous musical cultures throughout Alaska and neighboring regions. Emphasis on musical systems in terms of their respective sounds and their relationship to culture and society, cross-cultural comparisons and a focus on both past and present musical styles.

Cross-listed with ANS F223X; ACNS F223X.**Attributes:** UAF GER Arts Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F231 Advanced Music Theory I (h)**

2 Credits

Offered Fall

This course is an intensive study of chromatic harmony and its functions in tonal music, with an introduction to musical form. The course emphasizes analytical techniques and score study.

Prerequisites: MUS F132; music majors must be concurrently enrolled in or have completed MUS F233.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F232 Advanced Music Theory II (h)**

2 Credits

Offered Spring

This course has an emphasis on chromatic harmony and its functions in music of the late 19th and early 20th centuries. Includes an introduction to techniques and concepts in post-tonal music.

Prerequisites: MUS F231; music majors must be concurrently enrolled in or have completed MUS F234.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F233 Advanced Ear Training I**

1 Credit

Offered Fall

This course emphasizes aural skills acquisition with advanced techniques in aural perception, sight-reading, dictation and chromatic materials. Includes computer-assisted instruction.

Prerequisites: MUS F134; MUS F231 (may be taken concurrently).**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F234 Advanced Ear Training II**

1 Credit

Offered Spring

This course emphasizes aural skills acquisition, with further development of advanced techniques involving chromaticism, rhythms, modality, sight-reading and dictation. Includes computer-assisted instruction.

Prerequisites: MUS F233; MUS F232 (may be taken concurrently).**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F245 Singer's Diction I: English and Italian (h)**

2 Credits

Offered Fall Odd-numbered Years

A systematic approach for singers through use of the International Phonetic Alphabet for the transcription and pronunciation of song texts in English and Italian. A singer's diction course would be valuable to radio announcers or anyone needing rules of pronunciation for names, titles, phrases, etc. in foreign languages.

Prerequisites: Recommended: One year of private voice lessons.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F246 Singer's Diction II: French and German (h)**

2 Credits

Offered Spring Odd-numbered Years

A systematic approach for singers through use of the International Phonetic Alphabet for the transcription and pronunciation of song texts in French and German. A singer's diction course would be valuable to radio announcers or anyone needing rules of pronunciation for names, titles, phrases, etc. in foreign languages.

Prerequisites: Recommended: One year of private voice lessons.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F253 Piano Proficiency**

0 Credit

Offered Fall and Spring

Final phase of piano proficiency requirement.

Prerequisites: MUS F155 or exam by instructor.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Pass/Fail Grades**MUS F261 Private Lessons (h)**

2 Credits

Offered Fall and Spring

Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Special permission required.

Prerequisites: Admission by audition.**Special Notes:** Course may not be audited; Credit-No Credit grading not permitted.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 99 times for up to 99 credits

MUS F262 Private Lessons (h)

2 Credits

Offered Fall and Spring

Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Special permission required.

Prerequisites: Admission by audition.**Special Notes:** Course may not be audited; Credit-No Credit grading not permitted.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 99 times for up to 99 credits**MUS F301 Music Pedagogy (h)**

1 Credit

Offered As Demand Warrants

A class on how to be a better music teacher. How to diagnose your music student's struggles with learning an instrument or reading music.

Prerequisites: MUS F261.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 4 times for up to 4 credits**MUS F307 Chamber Music (h)**

1 Credit

Offered Fall and Spring

String, brass or woodwind chamber music; piano chamber music and accompanying; stage band; and Alaska Camerata.

Prerequisites: Permission of instructor.**Special Notes:** Course may not be audited.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to 99 credits**MUS F313 Opera Workshop (h)**

1-3 Credits

Offered Fall and Spring

Lecture + Lab + Other: 0 + 3-9 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**MUS F317 Arctic Chamber Orchestra (h)**

1 Credit

Offered Fall

The touring group of the Fairbanks Symphony Orchestra. Must be a member of the Fairbanks Symphony Orchestra. (MUS F203-EV1).

Prerequisites: By audition only.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**MUS F331 Form and Analysis (h)**

3 Credits

Offered Spring Odd-numbered Years

This course emphasizes score study, analytical techniques and critical listening skills as applied to small and large forms in works from various musical genres and style periods.

Prerequisites: MUS F232.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F332 Introduction to Computer-based Music Technology (h)**

3 Credits

Offered Spring

An introduction to music notation software and audio equipment to enable students to create, arrange and edit music in digital formats. May be repeated for credit.

Prerequisites: MUS F232.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F341 Introduction to Film Music Analysis**

3 Credits

Offered As Demand Warrants

In this course students will survey the history of film music and observe the function of music in film; they will learn how to discuss and write about the music from a musical and cinematic perspective.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F351 Conducting (h)**

3 Credits

Offered As Demand Warrants

Principles of conducting; interpretation of vocal and instrumental ensemble music.

Prerequisites: COM F131X or COM F141X; MUS F232.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F361 Private Lessons (h)**

2,4 Credits

Offered Fall and Spring

Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Special permission required.

Prerequisites: Admission by audition.**Special Notes:** Course may not be audited; Credit-No Credit grading not permitted.**Lecture + Lab + Other:** 2,4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 99 times for up to 99 credits**MUS F362 Private Lessons (h)**

2,4 Credits

Offered Fall and Spring

Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Special permission required.

Prerequisites: Admission by audition.**Special Notes:** Course may not be audited; Credit-No Credit grading not permitted.**Lecture + Lab + Other:** 2,4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 99 times for up to 99 credits**MUS F390 Junior Recital**

0 Credit

Offered Fall and Spring

Half-length solo music performance recital.

Prerequisites: MUS F222; MUS F232; MUS F262; permission of instructor.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Pass/Fail Grades

MUS F410 Women in Music History (h)

3 Credits

Offered As Demand Warrants

Lives and works of female musicians, composers and performers will be traced from the earliest days of the ancient and mythological periods through the medieval, Baroque, Classical and Romantic periods with special emphasis on composers of the 20th-century.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.

Cross-listed with WGS F410.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F421 Music Before 1620 (h)

3 Credits

Offered Spring Even-numbered Years

A study of music in the Western European tradition from its origins in Greek antiquity through the Renaissance and the emergence of opera in early seventeenth century. The study includes prominent composers, early musical forms and genres, original sources in translation and developments in music notation and early musical instruments.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MUS F222.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F422 Music in the 17th and 18th Centuries (h)

3 Credits

Offered Fall Even-numbered Years

A study of style, form and performance practices in a variety of vocal and instrumental genres throughout the Baroque and Classical eras, emphasizing musical developments in Italy, England, France, Germany, Austria and cross-cultural influences.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MUS F222.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F423 Music of the 19th Century (h)

3 Credits

Offered Fall Odd-numbered Years

A study of musical and cultural trends in Western European art music of the nineteenth century emphasizing a variety of representative works by significant Romantic-era composers.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MUS F222.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F424 Music Since 1900 (h)

3 Credits

Offered Spring Odd-numbered Years

A study of works by significant composers representative of modern and post-modern styles and perspectives.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MUS F222.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F426 Music Literature (h)

2 Credits

Music literature of brass, strings, keyboard, voice or winds, on a rotating basis as announced for the semester of offering. Course may be repeated four times for a total of 10 credits.

Prerequisites: MUS F261.

Recommended: MUS F221; MUS F222, and one course from the MUS F421-F424 Period Music History course sequence.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 5 times for up to unlimited credits

MUS F431 Counterpoint (h)

3 Credits

Offered As Demand Warrants

This course emphasizes score study, composition exercises and techniques for the analysis of contrapuntal practices prevalent in music of the late Baroque era.

Prerequisite: MUS F232.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F432 Orchestration and Arranging (h)

3 Credits

Offered As Demand Warrants

This course has an emphasis on acquisition of techniques used in arranging and orchestrating music for a variety of instrumental and vocal ensembles. Includes score study, listening exercises and composition exercises.

Prerequisite: MUS F232.

Recommended: MUS F332.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F433 Seminar in Musical Composition (h)

2-3 Credits

Offered As Demand Warrants

Development of compositional skills based upon the works of predominately 20th-century composers. May be repeated for credit.

Prerequisites: MUS F232.

Lecture + Lab + Other: 2-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 3 credits

MUS F434 Advanced Harmonic Analysis (h)

3 Credits

Offered As Demand Warrants

This course emphasizes advanced score study analytical techniques in the study of tonal music from the Baroque, Classical, Romantic and early 20th century periods.

Prerequisites: MUS F232.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUS F435 Private Lessons in Music Composition (h)

2-4 Credits

Offered As Demand Warrants

Private instruction in advanced music composition consisting of one private lesson per week. Repeatable for credit. Course may not be audited.

Prerequisites: MUS F433; audition.

Lecture + Lab + Other: 1-2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

MUS F436 Introduction to the Pedagogy of Music Theory

3 Credits

Offered As Demand Warrants

This course is offered to music majors who want a brief introduction and overview of how to teach music theory. Relevant for those who want to teach music in public school, university or private lessons.

Prerequisites: MUS F232; MUS F234.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F461 Private Lessons (h)**

2,4 Credits

Offered Fall and Spring

Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Course may not be audited; credit-no credit grading not permitted; recital attendance required.

Prerequisites: Admission by audition; special permission.**Corequisites:** MUS F190.**Special Notes:** See accompanying box for private lesson fees.**Lecture + Lab + Other:** 2,4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**MUS F462 Private Lessons (h)**

2,4 Credits

Offered Fall and Spring

Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Recital attendance required.

Prerequisites: Admission by audition; special permission.**Corequisites:** MUS F190.**Special Notes:** Course may not be audited; credit-no credit grading not permitted.**Lecture + Lab + Other:** 2,4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**MUS F476 Senior Project**

3 Credits

Offered Fall and Spring

Preparation and presentation of senior project based on a topic of the student's choosing in consultation with the instructor. Project may take the form of a research paper, original music composition, music performance as a lecture-recital, or some combination of these as appropriate to the topic.

Prerequisites: Senior standing and permission of instructor.**Lecture + Lab + Other:** 1 + 0 + 4**Grading System:** Letter Grades with option of Plus/Minus**MUS F490 Senior Recital**

0 Credit

Offered Fall and Spring

Full length music solo recital.

Prerequisites: MUS F362; MUS F390; music major; senior standing in music study; permission of instructor.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Pass/Fail Grades**MUS F492 Seminar**

1-4 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 1-4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**MUS F492P Seminar**

1-4 Credits

Offered As Demand Warrants

Lecture + Lab + Other: 1-4 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits**MUS F601 Introduction to Graduate Study**

2 Credits

Offered Spring

Students will gain experience with materials, techniques bibliographic sources and procedures for conducting scholarly research and writing music.

Prerequisites: Graduate standing and permission of the instructor.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F625 Topics in Music History**

3 Credits

Offered As Demand Warrants

Detailed study of selected topics in music history and/or literature.

Specific topic to be announced in advance of course offering.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F632 Topics in Music Theory**

3 Credits

Offered Spring

A detailed study of selected topics in music theory, including aspects of common-practice harmony, musical form, techniques for analysis, and historical perspectives on the evolution of theory concepts and constructs.

Prerequisites: Graduate standing and permission of the instructor.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**MUS F698 Non-thesis Research/Project**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Music Education (MUED)

College of Liberal ArtsDepartment of Music (<https://www.uaf.edu/music/>)

907-474-7555

MUED F110 Becoming a Music Teacher in the 21st Century

2 Credits

Offered Spring

Introduction and exploration of the profession of music education. Focus on national educational policies and practices in education and music education. Opportunities for interaction with Alaska teachers, student teachers and students in the music education program.

Prerequisites: WRTG F111X.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

MUED F201 Introduction to Music Education

2 Credits

Offered Fall

Introduction to professional education with special emphasis on music education as practiced at the elementary, middle school and high school levels. Review of cultural, social, and current legal requirements that influence education and music education in the U.S. and Alaska.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MUED F110.

Lecture + Lab + Other: 2 + 0 + 1

Grading System: Letter Grades with option of Plus/Minus

MUED F309 Elementary School Music Methods

3 Credits

Offered Spring

Principles, procedures and materials for teaching music to children at the elementary level.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

MUED F310 Practicum in Elementary Music Methods

1 Credit

Offered Spring

Students will observe and reflect upon weekly fieldwork in elementary public school classrooms, grades K-5. Additionally, students will assist with and lead live classroom activities. For preservice music educators.

Prerequisites: Recommended: ED F201.

Corequisites: MUED F309.

Lecture + Lab + Other: 0.5 + 1.5 + 0

Grading System: Letter Grades with option of Plus/Minus

MUED F315 Music Methods and Techniques

2 Credits

Offered Fall and Spring

Instruction in voice and the basic instruments of band and orchestra. Emphasis on teaching methods. Course may be repeated for credit. See music department handbook.

Prerequisites: Permission of instructor.

Lecture + Lab + Other: 1 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 98 times for up to unlimited credits

MUED F316 Practicum in Middle-level Music Methods

1 Credit

Offered Fall and Spring

Students will observe and reflect upon weekly fieldwork in grades 4-6 beginning instrumental music classes. Additionally, students will assist with and lead live classroom activities. For preservice music educators.

Prerequisites: MUED F315; any music techniques/methods course plus concurrent enrollment in a second MUED F315 course.

Recommended: ED F201.

Lecture + Lab + Other: 0.5 + 1.5 + 0

Grading System: Letter Grades with option of Plus/Minus

MUED F405 Secondary School Music Methods

3 Credits

Offered Fall

Principles and methods of teaching music in junior and senior high school with emphasis on philosophies, management, objectives, teaching techniques, choral and general music programs. Includes use of teaching plans in classroom and rehearsal settings.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Special Notes: Should be taken prior to ED F453.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

MUED F406 Practicum in Secondary Music Methods

1 Credit

Offered Fall

Students will observe and reflect upon weekly fieldwork in a local middle or high school. Additionally, students will assist with and lead live classroom activities. For preservice music educators. Taken concurrently with MUED F405, Secondary School Music Methods.

Lecture + Lab + Other: 0.5 + 1.5 + 0

Grading System: Letter Grades with option of Plus/Minus

Natural Resources Management (NRM)

College of Natural Science and Mathematics

Department of Natural Resources and Environment (<https://www.uaf.edu/nre/>)

907-474-7188

NRM F101 Natural Resources Conservation and Policy

3 Credits

Offered Fall

History of natural resources conservation and policy in the United States, including the evolution of federal land and water management agencies and policies. Case studies of current natural resource conservation issues, both in the United States and internationally, that examine the interaction of society and the environment and explore solutions.

Prerequisites: Placement in WRTG F111X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F102 Practicum in Natural Resources Management

1-2 Credits

Practical experience in natural resources management. Supervised individual study on a farm, in a greenhouse, managed forest, agency or business, or another approved location.

Prerequisites: Natural Resource Management majors only and permission of instructor.

Lecture + Lab + Other: 1-2 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 2 times for up to 2 credits

NRM F111X Introduction to Sustainability Science

3 Credits

Offered Spring

The field of sustainability science provides a useful framework for understanding and responding to complex environmental problems. This course introduces the theory and principles that form the basis of sustainability science, focusing on feedbacks between society and the environment with an emphasis on environmental and related change in Alaska.

Prerequisite: placement in WRTG F111X.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F125 Our Changing Climate: Past, Present, Future (s)**

3 Credits

Offered Fall and Spring

Examines how the biophysical impacts of climate change define and intersect with social, ecological, economic, political and cultural dimensions of our lives. Provides a foundation in both Indigenous and Western science perspectives of the causes, impacts and feedbacks of a changing climate. Includes theoretical and project-based experience in climate change.

Prerequisites: Placement in WRTG F111X.**Cross-listed with** ACNS F125, HONR F125, RD F125.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F161 Wilderness Leadership Education**

3 Credits

Offered As Demand Warrants

Introduction to outdoor education. Includes both theoretical and practical exposure to quality judgment and decision-making, environmental education techniques and leadership development in the wilderness setting. Provides detailed exposure to the Wilderness Education Association's 18 essential components of wilderness leadership and backcountry safety. Successful completion earns certification in the Wilderness Stewardship Program. Field program requires travel through rough un-trailed terrain with heavy packs and average strength and stamina. No use of alcohol, tobacco, illegal drugs or firearms.

Prerequisites: Permission of instructor.**Recommended:** BIOL F104X, NRM F101 and physical geography.**Special Notes:** the field portion of the course includes detailed instruction in and mentored experience with modern backcountry travel techniques.**Lecture + Lab + Other:** 0.5 + 0 + 6**Grading System:** Letter Grades with option of Plus/Minus**NRM F204 Public Lands Law and Policy**

3 Credits

Offered Spring

Background on selected federal lands management legislation and agency policies affecting resources conservation, development and preservation.

Prerequisites: Sophomore class standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F210 Principles of Sustainable Agriculture**

3 Credits

Offered Spring

Basic principles of sustainable agriculture including economic, social, and environmental concepts. Agroecology is introduced as the basis for sustainable soil, plant, and animal agriculture techniques. Sustainable agriculture concepts will be related to current issues such as population growth, resource availability, and developing social structures and preferences.

Prerequisites: NRM F101, BIOL F116X, CHEM F106X, FISH F110.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F211 Introduction to Applied Plant Science**

3 Credits

Offered Fall

Basic principles and requirements for plant growth and development with special attention to the production and management of field and greenhouse grown crops.

Lecture + Lab + Other: 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F212 Greenhouse Management**

3 Credits

Offered Spring

The greenhouse as a controlled environment for research, education and commercial production of plants; the physical environment; environmental controls and monitors; plant cultivation techniques and crop scheduling useful in plant science and commercial production.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F240 Natural Resources Measurement and Inventory**

3 Credits

Offered Fall Even-numbered Years

Techniques and instrumentations used to measure and inventory natural resources, including land, timber, range, wildlife, water and recreation resources.

Prerequisites: MATH F151X.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F277 Introduction to Conservation Biology**

3 Credits

Offered Spring Even-numbered Years

Introduction to the basic ecological, genetic, management, legal and historical developments in conservation biology and focused efforts to manage biological diversity resources, with a status review of important habitats and endangered species.

Prerequisites: BIOL F115X; BIOL F116X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F290 Field Course of Natural Resource Management Complexity in Alaska**

2 Credits

Offered Spring

A 10-day field course examining ecological and societal factors that create challenges to sustainable management of Alaska's natural resources. Topics include agriculture, forestry, fisheries, wildlife management, wildland fire response and management, energy development, recreation and tourism.

Prerequisite: Permission of instructor.**Lecture + Lab + Other:** 1 + 0 + 3**Grading System:** Letter Grades with option of Plus/Minus

NRM F300 Internship in Natural Resources Management

1-3 Credits

Offered As Demand Warrants

Supervised pre-professional experience in a business or agency (public or private). Open to students majoring or minoring in natural resources management only. Course may be repeated for credit up to a maximum of 6 credits.

Prerequisites: NRM F101; junior standing with 3.0 GPA; permission of instructor; an approved internship plan.

Lecture + Lab + Other: 0 + 0 + 3-10

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 6 times for up to 6 credits

NRM F303X Environmental Ethics and Actions (h)

3 Credits

Offered Spring

Exploration of the history of modern Western views of the relationship between people and nature, alternative foundations for an environmental ethic (utilitarianism, spiritual activity, rights-based and respect-based ethics) and practices of such ethics in business, profession and general lifestyle today.

Prerequisites: Junior standing; placement in WRTG F111X.

Attributes: UAF GER Ethics Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F313 Introduction to Plant Pathology

4 Credits

Offered As Demand Warrants

Plant pathology; non-parasitic and parasitic causes of plant diseases; methods of plant infestation and mechanism of plant defenses; epidemiology and disease control.

Prerequisites: BIOL F115X; BIOL F116X.

Recommended: BIOL F239.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F338 Introduction to Geographic Information Systems

3 Credits

Offered Fall

Geographic data concepts including mapping systems, data sources, editing data, GIS analysis and computer mapping. Introduction to global positioning systems. GIS applications in natural resources management.

Prerequisites: Knowledge of PCs or Unix workstations desirable.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F361 Advanced Wilderness Leadership Education

3 Credits

Offered Spring

Natural environment, concentrating on outdoor leadership, environmental ethics, minimum impact camping, forest and Arctic natural history, and adaptable judgment and decision-making. Includes boreal forest and along tundra-ridge hiking, river crossing, glacier ascent, and skills to do these activities safely. Other possible travel mediums include sea kayaks, canoes or rock climbing. No use of alcohol, tobacco, illegal drugs or firearms.

Prerequisites: NRM F101; NRM F161.

Special Notes: Three lecture sessions will preview a demanding educational field program of 5-15 days requires travel through rough un-trailed terrain with heavy packs or boats and average strength and stamina.

Lecture + Lab + Other: 0.5 + 0 + 6

Grading System: Letter Grades with option of Plus/Minus

NRM F365 Principles of Outdoor Recreation Management

3 Credits

Offered Fall Even-numbered Years

Theories, practices, economics and problems fundamental to the use of land and related natural resources for recreation. The course focuses on human dimension related issues faced by recreation managers and research to address those issues.

Prerequisites: NRM F101; STAT F200X; junior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F370 Introduction to Watershed Management

3 Credits

Offered Fall Odd-numbered Years

The hydrologic cycle and the influence of land management techniques on water quantity, quality and timing. Water yield, soil erosion and non-point pollution, snowpack management, and land use alternatives.

Prerequisites: NRM F101 or NRM F111X.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F375 Natural Resource Ecology

3 Credits

Offered Spring

Basic ecology concepts, including physical (wind, temperature, water, etc.), biotic (population and community dynamics), genetic successional and landscape dynamics will be covered. Basic physiological characteristics of trees, succession, vegetation classification, and related concepts. Stand structure, diversity, competition, growth, forest-soil interactions, biomass, nutrient distribution and dynamics, energy relations, ecology of disturbances.

Prerequisites: NRM F240.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F380 Soils and the Environment

3 Credits

Offered Fall

Soil development and classification; physical and chemical properties; biological activity; water movement and nutrient cycling in natural and manipulated ecosystems.

Prerequisites: CHEM F105X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F407 Environmental Law

3 Credits

Offered Spring Odd-numbered Years

The role of common law theory in regulatory, statutory and constitutional interpretation in the field of environmental protection, including air and water pollution, toxic/hazardous substances and land-use regulation.

Prerequisites: Junior or senior class standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F430 Resource Management Planning

3 Credits

Offered Spring

Application of planning and conflict resolution principles to natural resources management. Examines plans prepared in response to current Alaska resource disputes, including wolf, brown bear, boreal forest and recreation river plans. Includes public involvement, consensus building, the basic steps in the planning process and resource dispute simulations. Review resource management plans and develop plans for a local resource management issue.

Prerequisites: Senior standing.**Stacked with** NRM F630.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F435 GIS Analysis**

4 Credits

Offered Spring

GIS analysis of natural resources including spatial query, attribute query, vector, grid, image, topographic and network analysis techniques.

Lecture + Lab + Other: 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F453 Harvesting and Utilization of Forest Products**

3 Credits

Offered Fall Odd-numbered Years

Manual and mechanized timber harvesting systems including timber cutting, yarding and transport processes. Technology of processing wood into various products. Introduction to supply and demand of forest products from a world, state and local perspective. Labs include visits to local forest products companies, chainsaw safety and wood identification.

Prerequisites: NRM F101.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F461 Interpretive Services**

3 Credits

Offered As Demand Warrants

Naturalist and other visitor programs in outdoor recreation areas: philosophy, planning and development of interpretive programs; resources, agencies, users, interpretive media and program evaluation.

Prerequisites: Junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F466 Environmental Soil Chemistry**

3 Credits

Offered Spring Odd-numbered Years

Covers basic principles of soil chemical processes, including soil solution chemistry; precipitation/dissolution and soil colloids; soil solid phase; soil acidity/alkalinity; adsorption and ion exchange; reduction/oxidation reactions; and kinetics of soil chemical processes. Labs include soil chemical analyses, computer simulation models for soil chemistry, and experience writing technical reports.

Prerequisites: CHEM F105X; CHEM F106X; NRM F380.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F469 Survey Research in Human Dimensions of Natural Resources**

3 Credits

Offered Spring

Social science concepts applied to survey-based human dimensions research. Survey research methods including operationalizing research questions into measurable variables, designing survey instruments, assessing reliability and validity, developing a sampling plan, data management, data analysis, and reporting results.

Prerequisites: NRM F101; STAT F200X.**Stacked with** NRM F669.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F480 Soil Management for Quality and Conservation**

3 Credits

Offered Fall Odd-numbered Years

Managing soil in disturbed and natural ecosystems to reduce soil losses and maintain or improve soil quality. Methods for maintaining soil quality, preserving soil against loss from erosion, remediating contaminated soil and reclaiming degraded soils.

Prerequisites: NRM F380.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F484 Senior Thesis in Natural Resources Management**

2 Credits

Problem-solving with emphasis on writing and analysis. Individual project under the guidance of faculty sponsor involving formulation of a question in natural resources management and preparation of a formal, comprehensive written report. Final thesis and presentation.

Prerequisites: GEOG F483 and permission of instructor.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F485 Soil Biology (n)**

3 Credits

Offered Fall Even-numbered Years

Major groups of organisms in the soil and their interrelationships; the major biological processes which take place in the soil and their significance to soil productivity, plant growth and environmental quality; and methodology for studying soil organisms and soil biological processes.

Prerequisites: A course in biology or microbiology and a course in soils.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F489 Alaska Soil Geography Field Trip**

1 Credit

Offered Summer; As Demand Warrants

Soil geography transect from Pacific (Anchorage) to Arctic (Deadhorse) coast. Hands-on experience describing and sampling soils, with emphasis on how a variety of ecological factors and climate affect soil formation and classification.

Prerequisites: NRM F380, or a course in soils.**Stacked with** NRM F689.**Special Notes:** Students must provide their own camp gear, be able to walk on uneven or rocky ground and be physically fit for fieldwork.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades

NRM F601 Research Methods in Natural Resources Management

2 Credits

Offered Fall

Introduction for graduate students to the research methods employed in the various fields of resource management, including agriculture, forestry, ecology and social sciences. Designed to acquaint students with the relationship between theory and research, the nature of scientific inquiry, approaches to research, the sequence of steps involved in scientific investigation and the presentation of research results.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F613 Resilience Internship**

2 Credits

Offered As Demand Warrants

Students of the Resilience and Adaptation Program participate in internships to broaden their interdisciplinary training, develop new research tools and build expertise outside their home disciplines. Internships are for eight to ten weeks of full time commitment and take place during the student's first summer in the program. In autumn students meet to discuss their internship experiences and make public presentations.

Prerequisites: ANTH F667, BIOL F667, ECON F667 or NRM F667; ANTH F668, BIOL F668, ECON F668 or NRM F668.**Cross-listed with** ANTH F617; BIOL F613; ECON F613.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F616 Ecological Background for Resilience and Adaptation**

1 Credit

Offered Fall

Provides the ecological background that is necessary for understanding the role of ecology in complex systems involving interactions among biological, economic, and social processes. Designed for incoming students of the Resilience and Adaptation Program (RAP), who have not received training in ecology.

Prerequisites: Graduate standing.**Cross-listed with** BIOL F616.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F630 Resource Management Planning**

3 Credits

Offered Spring

Application of planning and conflict resolution principles to natural resources management. Examines plans prepared in response to current Alaska resource disputes, including wolf, brown bear, boreal forest and recreation river plans. Includes public involvement, consensus building, the basic steps in the planning process and resource dispute simulations. Review resource management plans and develop plans for a local resource management issue.

Prerequisites: Graduate standing.**Stacked with** NRM F430.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F637 Evolution of Conservation Concepts and Policy**

3 Credits

Offered As Demand Warrants

Resource policy issues development and implementation including forestry, mining, fisheries, oil, wildlife and other topics as demand warrants. Focus on policy issues involved in management of Alaska's resources.

Prerequisites: Graduate standing.**Cross-listed with** ECON F637.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F638 GIS Programming**

3 Credits

Offered Spring Odd-numbered Years

GIS programming for ArcView, Arc/Info and ArcGIS. Programming techniques for customizing GIS, efficient batch processing, and development of custom tools for GIS display and analysis.

Prerequisites: NRM F338.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**NRM F641 Natural Resource Applications of Remote Sensing**

3 Credits

Offered Spring Even-numbered Years

Application of remote sensing for inventory and analysis of natural resources. Topics include aerial photography applications and digital remote sensing, including image display, rectification, classification and accuracy assessment.

Prerequisites: NRM F338.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 6 times for up to 6 credits**NRM F647 Sustainability in the Changing North**

3 Credits

Offered Fall

Explores the basic principles of sustainability of environmental and social systems. Principles are applied across a range of scales from local communities to the globe, with an emphasis on examples in Alaska and the Arctic. Specific attention to the theory and practice of boundary spanning and knowledge coproduction.

Prerequisites: Graduate standing.**Cross-listed with** ANTH F647; BIOL F647; ECON F647.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

NRM F649 Integrated Assessment and Adaptive Management

3 Credits

Offered As Demand Warrants

An interdisciplinary exploration of the theoretical and practical considerations of integrated assessment and adaptive management. Students survey concepts important in understanding societal and professional-level decision-making. Students work as individuals and as a team to undertake case studies with relevance to integrated assessment and adaptive management.

Prerequisites: Graduate student standing in a natural science, social science or interdisciplinary program at UAF or another university.

Recommended: ANTH F647, BIOL F647, ECON F647, NRM F647; ANTH F667, BIOL F667, ECON F667, NRM F667.

Cross-listed with ANTH F649; BIOL F649; ECON F649.

Special Notes: In case of enrollment limit, priority will be given to graduate students in the Resilience and Adaptation Program in order for them to be able to meet their core requirements.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F656 Sustainable Livelihoods and Community Well-being

3 Credits

Offered Fall

Review principles governing the sustainability of systems, cultural practices and behaviors that enhance or degrade sustainable livelihoods and community wellbeing. Emphasis is on historical context of sustainability, nature and magnitude of the social, economic and ecological dimensions of contemporary change, and "best practices" for communities to respond effectively to change.

Prerequisites: Graduate standing.

Cross-listed with CCS F656.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F665 Advanced Outdoor Recreation

3 Credits

Offered Fall Even-numbered Years

Evaluation of contemporary outdoor recreation management models and the linkage between management programming and visitor response. Development of a synthesized model and testing with contemporary problems.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F667 Resilience Seminar I

1 Credit

Offered As Demand Warrants

Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research that are relevant to sustainability. A considerable portion of the seminar is student-directed, with students assuming leadership in planning seminar activities with the instructor.

Prerequisites: Enrolled in Resilience and Adaptation Graduate Program.

Recommended: ANTH F647, BIOL F647, ECON F647 or NRM F647 (taken concurrently).

Cross-listed with ANTH F667; BIOL F667; ECON F667.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Pass/Fail Grades

NRM F668 Interdisciplinary Research Methods-Resilience Seminar II

1 Credit

Offered As Demand Warrants

Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research relevant to sustainability. The seminar provides support to each student planning his/her summer internship and preparing and presenting a thesis research prospectus.

Prerequisites: ANTH F647, BIOL F647, ECON F647 or NRM F647; ANTH F667, BIOL F667, ECON F667 or NRM F667.

Cross-listed with ANTH F668; BIOL F668; ECON F668.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Pass/Fail Grades

NRM F669 Survey Research in Human Dimensions of Natural Resources

3 Credits

Offered Spring

Social science concepts applied to survey-based human dimensions research. Survey research methods including operationalizing research questions into measurable variables, designing survey instruments, assessing reliability and validity, developing a sampling plan, data management, data analysis, and reporting results.

Prerequisites: Graduate standing.

Stacked with NRM F469.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F670 Biometeorology

3 Credits

Offered Fall Odd-numbered Years

Radiation and energy balance relationships for natural and modified surfaces; physical environment in relation to biology and ecology of plants and animals; implications for resource and environmental management.

Prerequisites: Biological or physical science background; graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F672 Nutrient Cycling

3 Credits

Offered Spring Odd-numbered Years

Examination of physical, chemical and biological processes controlling nutrient element recycling, availability and retention in natural and managed ecosystems.

Prerequisites: CHEM F106X; NRM F375 or BIOL F371; NRM F380.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F685 Soil Microbiology and Biochemistry

3 Credits

Offered As Demand Warrants

Current topics in soil microbiology and biochemistry. Based on readings from the primary literature and discussions in class. Each student will be expected to lead at least one discussion, write a research proposal and present the proposal to class.

Prerequisites: At least one course in soil science; one course in microbiology.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

NRM F689 Alaska Soil Geography Field Trip

1 Credit

Offered Summer As Demand Warrants

Soil geography transect from Pacific (Anchorage) to Arctic (Deadhorse) coast. Hands-on experience describing and sampling soils, with emphasis on how a variety of ecological factors and climate affect soil formation and classification.

Prerequisites: NRM F380, or a course in soils.**Stacked with** NRM F489.**Special Notes:** Students must provide their own camp gear, be able to walk on uneven or rocky ground and be physically fit for fieldwork.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**NRM F692 Graduate Seminar**

1-3 Credits

Topics in natural resources management and geography explored through readings, student presentations, group discussions and guest speakers.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**NRM F698 Non-thesis Research/Project**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**NRM F699 Thesis**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 120 credits**NRM F699A Thesis**

1-12 Credits

Lecture + Lab + Other: 1-12 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Oceanography (OCN)

College of Fisheries and Ocean Sciences

Department of Oceanography (<https://uaf.edu/cfos/academics/departments/oceanography/>)

907-474-7210

OCN F102 Fact or Fishin': Case Studies in Fisheries and Marine Sciences

1 Credit

Offered Fall

This seminar will promote active learning, critical thinking and problem-solving through a series of case studies involving current issues in fisheries and marine sciences conservation and management. Students enrolled in this course will also receive instruction on fundamental skills required to successfully complete a four-year degree at UAF.

Cross-listed with FISH F102; MBI F102.**Lecture + Lab + Other:** 1.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F103 The Harvest of the Sea**

2 Credits

Offered Spring

This course will explore the scientific and popular literature related to the exploitation of global marine resources. Specific topics of the course will be based on three core themes: (1) early exploitation of marine resources; (2) overexploitation of marine stocks; and (3) the status and sustainability of marine resources.

Prerequisites: FISH F102; FISH F110; placement in WRTG F111X.**Cross-listed with** FISH F103; MBI F103.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F111L The Oceans Laboratory**

0 Credit

Offered Fall, Spring and Summer

Provides laboratory experience emphasizing insights from biology, physics, chemistry and geology. Topics include the evolution of the ocean basins, seawater composition, generation of ocean currents and waves, and the combined processes that sustain life in the ocean. Societal topics related to climate change.

Co-requisites: MBI F111X or OCN F111X.**Cross-listed with** MBI F111L.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**OCN F111X The Oceans (n)**

4 Credits

Offered Fall, Spring and Summer

Broad study of our ocean through combining insights from biology, physics, chemistry and geology. Topics include evolution of the ocean basins, seawater composition, generation of ocean currents and waves, and the combined processes that sustain life in the ocean. Societal topics related to climate change, fisheries and pollution are discussed.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.**Co-requisites:** MBI F111L or OCN F111L.**Cross-listed with** MBI F111X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F211 Introduction to Marine Science I**

3 Credits

Offered Fall

This course introduces students to the geology, chemistry and physics of the ocean and the roles of the hydrosphere, cryosphere and atmosphere in the climate system.

Prerequisites: MATH F151X (may be taken concurrently).**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F303 Data Analysis and Writing for Aquatic Sciences**

3 Credits

Offered Fall

In this course, students will develop skills in basic data analysis, scientific writing and interpretation of published research. This course will utilize public data sets and peer-reviewed scientific writing samples drawn from the fields of fisheries, marine sciences and limnology that address an important question in aquatic science.

Prerequisites: STAT F200X, OCN F211, MBI F212.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

OCN F315 Marine Geological Drama and Undersea Catastrophes

3 Credits

Offered Fall

Case studies of geological events that disrupt the ocean environment as an introduction to geological oceanography. Geological concepts are covered as part of the background and context for each one. The case studies include everyday geological drama, sudden catastrophes, and slow-motion catastrophes on a geologic time scale.

Prerequisites: OCN F111X or OCN F211.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F419 Concepts in Physical Oceanography**

3 Credits

Offered Fall Even-numbered Years

This course establishes the physical concepts that drive ocean motion on our rotating earth including the roles of the Coriolis force, ocean stratification, wind driven and thermohaline circulation, tides and why the major ocean gyres exist.

Prerequisites: MATH F251X or PHYS F211X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F425 Subarctic Oceanography Field Course**

3 Credits

Offered Fall

This two-week intensive course provides students with skills and techniques for modern oceanographic investigation. Students develop, carry out and present their own field program conducted within fjords surrounding Seward, Alaska. An additional course fee covers ship time, lodging and meals in Seward. Fairbanks-to-Seward return travel costs are covered by students.

Prerequisites: OCN F211; MBI F212.**Stacked with** OCN F625.**Lecture + Lab + Other:** 11 + 20 + 17**Grading System:** Letter Grades with option of Plus/Minus**OCN F443 Fisheries Oceanography**

4 Credits

Offered Fall Odd-numbered Years

Oceanography of marine processes affecting vertebrates and invertebrates. Interactions between fisheries resources and physical and biological oceanography, and climatological and meteorological conditions that support sustainable management. Topics include recruitment, transport, mortality, feeding, distribution, abundance, El Nino/La Nina, regime shifts, and climate change. Global to local scales. Worldwide ecosystems and examples.

Prerequisites: FISH F110 or FISH F288; STAT F200X, OCN F111X, or CHEM F105X; PHYS F123X.**Cross-listed with** FISH F443.**Stacked with** OCN F643, FISH F643.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F450 Biological Oceanography**

3 Credits

Offered Fall

Survey of biological processes emphasizing organic matter synthesis and transfer including topics essential to a basic understanding of contemporary biological oceanography.

Prerequisites: MBI F212 for undergraduate students; upper division standing in a science major.**Stacked with** OCN F650.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F453 Zooplankton Ecology**

3 Credits

Offered Fall Even-numbered Years

Survey of marine zooplankton and processes that influence their production and dynamics. Emphasis is placed upon zooplankton communities of northeast Pacific and Arctic oceans. Field and lab methodology reviewed include fixing, preserving, subsampling, identifying and quantifying zooplankton collections. Reviewed laboratory techniques cover culture of zooplankton, including physiological measurements of parameters.

Prerequisites: MBI F212; OCN F211; OCN F450.**Stacked with** OCN F653.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F455 Phytoplankton and Marine Microbes**

3 Credits

Offered Spring Even-numbered Years

An in-depth exploration of microbial life in the marine environment focusing on phytoplankton, microzooplankton, bacteria and archaea. Students will learn the importance of marine microbes, including their impacts on fisheries and biogeochemical cycles. Topics include harmful algal blooms and the impacts of climate change on marine microbial communities.

Prerequisites: MBI F212.**Stacked with** OCN F655.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F459 Computer Programming for Scientific Applications**

3 Credits

Offered Spring Odd-numbered Years

Introduction to scientific programming techniques and applications. This MATLAB-based course will cover programming fundamentals, input/output operations, and mapping and other data visualization techniques. Students will work with NetCDF and OpenDAP protocols and remote large-volume data repositories. No prior programming experience required.

Prerequisites: Senior or graduate level standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

OCN F460 Chemical Oceanography

3 Credits

Offered Spring

An integrated study of the chemical, biological, geological and physical processes that control the chemical composition of seawater. Boundary interactions with the atmosphere and lithosphere, biogeochemical cycles and tracers of these complex cycles are examined. The marine chemistry of inorganic carbon is considered in detail.

Prerequisites: BIOL F116X; CHEM F106X; upper-division standing.

Stacked with CHEM F660; OCN F660.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

OCN F463 Chemical Coastal Processes

3 Credits

Offered Spring Even-numbered Years

A study of chemical processes in the coastal ocean, including interactions at boundaries, and physical and biological controls on the chemistry of coastal environments. Key topics include riverine input, coastal acidification, photochemistry, coastal productivity and challenges in coastal management. Intended for students with general chemistry and marine science backgrounds.

Prerequisites: CHEM F105X; CHEM F106X; OCN F111X or (OCN F211; MBI F212); upper-division standing.

Stacked with OCN F663.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

OCN F481 The Ocean and Global Change

3 Credits

Offered Fall

Explores how human activities are affecting Earth's oceans. Topics include climate change, sea-level rise, coastal erosion, declining sea ice, shifting ecosystems, ocean acidification, pollution and various mitigation proposals. The course will investigate the causes and effects of these changes and consider the challenges and opportunities that arise from them.

Prerequisites: Upper-division standing.

Stacked with OCN F681.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

OCN F492 Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

OCN F498 Research

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

OCN F499 Senior Thesis

3 Credits

Under the supervision and mentorship of a fisheries and ocean sciences faculty member, students will complete a self-designed project that is the capstone of a student's exemplary academic performance. The student will complete a senior thesis based on field and/or laboratory data collected during a field course or work that was completed with the faculty mentor within the context of the existing literature relevant to the study topic. Students are required to present their study results as an oral or poster presentation at a UAF seminar or symposium, or at a state or national scientific conference. In addition, students are encouraged to work with their mentor to submit their thesis for publication in a peer-reviewed scientific journal.

Prerequisites: Permission of a fisheries and ocean sciences faculty mentor.

Lecture + Lab + Other: 0 + 0 + 9

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 6 credits

OCN F620 Physical Oceanography

4 Credits

Offered Fall

Physical description of the sea, physical properties of seawater, methods and measurements, boundary processes, currents, tides and waves, and regional oceanography.

Prerequisites: MATH F253X; PHYS F123X or PHYS F211X; science or engineering degree.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

OCN F625 Subarctic Oceanography Field Course

3 Credits

Offered Fall

This two-week intensive course provides students with skills and techniques for modern oceanographic investigation. Students develop, carry out and present their own field program conducted within fjords surrounding Seward, Alaska. An additional course fee covers ship time, lodging and meals in Seward. Fairbanks-to-Seward return travel costs are covered by students.

Stacked with OCN F425.

Lecture + Lab + Other: 11 + 20 + 17

Grading System: Letter Grades with option of Plus/Minus

OCN F627 Statistical Computing with R

2 Credits

Offered Fall

Using the free, open-source software R to teach computing, programming, and modeling concepts for the statistical computing of fisheries and biological data. Prepares students for other graduate-level, quantitative fisheries courses and covers exploratory statistical and graphical analyses, as well as computer-intensive methods such as bootstrapping and randomization tests.

Prerequisites: STAT F200X; STAT F401; proficiency with Excel.

Cross-listed with FISH F627; MBI F627.

Lecture + Lab + Other: 1 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

OCN F630 Geological Oceanography

3 Credits

Offered Spring

Topography and structure of the ocean floor. Theory of plate tectonics. Geology of ocean basins, continental slope, shelf and coastal environments. Major sediment types and distributions. Sediment transport and deposition. Interaction between seawater, rock, and sediment. Paleoceanography. Upper-division standing are invited to contact the instructor.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F631 Data Analysis in Community Ecology**

3 Credits

Offered Spring Odd-numbered Years

This course will provide an overview of statistical methods that have been specifically developed to aid our understanding and interpretation of the structure, abundance, and distribution of species and communities in relation to resources and the environment.

Prerequisites: STAT F200X; STAT F401; FISH F627 (Statistical Computing with R) or familiarity with R, general ecology, graduate standing in fisheries.**Cross-listed with** FISH F631; MBI F631.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F643 Fisheries Oceanography**

4 Credits

Offered Fall Odd-numbered Years

Oceanography of marine processes affecting vertebrates and invertebrates. Interactions between fisheries resources and physical and biological oceanography, and climatological and meteorological conditions that support sustainable management. Topics include recruitment, transport, mortality, feeding, distribution, abundance, El Nino/La Nina, regime shifts, and climate change. Global to local scales. Worldwide ecosystems and examples.

Prerequisites: Graduate standing.**Cross-listed with** FISH F643.**Stacked with** OCN F443, FISH F443.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F650 Biological Oceanography**

3 Credits

Offered Fall

Survey of biological processes emphasizing organic matter synthesis and transfer including topics essential to a basic understanding of contemporary biological oceanography.

Prerequisites: Upper-division standing in a science major.**Stacked with** MBI F450.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F653 Zooplankton Ecology**

3 Credits

Offered Fall Even-numbered Years

Survey of marine zooplankton and processes that influence their production and dynamics. Emphasis is placed upon zooplankton communities of northeast Pacific and Arctic oceans. Field and lab methodology reviewed include fixing, preserving, subsampling, identifying and quantifying zooplankton collections. Reviewed laboratory techniques cover culture of zooplankton, including physiological measurements of parameters.

Stacked with OCN F453.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F655 Phytoplankton and Marine Microbes**

3 Credits

Offered Spring Even-numbered Years

An in-depth exploration of microbial life in the marine environment focusing on phytoplankton, microzooplankton, bacteria and archaea. Students will learn the importance of marine microbes, including their impacts on fisheries and biogeochemical cycles. Topics include harmful algal blooms and the impacts of climate change on marine microbial communities.

Stacked with OCN F455.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F660 Chemical Oceanography**

3 Credits

Offered Spring

An integrated study of the chemical, biological, geological and physical processes that control the chemical composition of seawater. Boundary interactions with the atmosphere and lithosphere, biogeochemical cycles and tracers of these complex cycles are examined. The marine chemistry of inorganic carbon is considered in detail.

Prerequisites: Graduate standing.**Cross-listed with** CHEM F660.**Stacked with** OCN F460.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F663 Chemical Coastal Processes**

3 Credits

Offered Spring Even-numbered Years

A study of chemical processes in the coastal ocean, including interactions at boundaries, and physical and biological controls on the chemistry of coastal environments. Key topics include riverine input, coastal acidification, photochemistry, coastal productivity and challenges in coastal management. Intended for students with general chemistry and marine science backgrounds.

Prerequisites: Graduate standing.**Stacked with** OCN F463.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

OCN F677 Scientific Writing Techniques

3 Credits

Offered As Demand Warrants

Students learn to write scientifically with skill and clarity by practicing using easy-to-follow writing techniques to write and rewrite a draft manuscript. Topics include writing approaches, storytelling, outlines, style, grammar, punctuation, and editorial review. Most beneficial for graduate students writing theses, but provides excellent writing experience for new students.

Prerequisites: Graduate Standing.**Cross-listed with** FISH F677.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Pass/Fail Grades**OCN F681 The Ocean and Global Change**

3 Credits

Offered Fall

Explores how human activities are affecting Earth's oceans. Topics include climate change, sea-level rise, coastal erosion, declining sea ice, shifting ecosystems, ocean acidification, pollution and various mitigation proposals. The course will investigate the causes and effects of these changes and consider the challenges and opportunities that arise from them.

Stacked with OCN F481.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**OCN F692 Seminar**

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**OCN F692P Seminar**

1-6 Credits

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**OCN F698 Non-thesis Research/Project**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**OCN F699 Thesis**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Paralegal Studies (PLS)

Community and Technical College

Paralegal Studies Program (<https://www.ctc.uaf.edu/programs/paralegal-studies/>)
907-455-2800

PLS F102 Introduction to Paralegal Studies

3 Credits

Offered Fall and Spring

Sources of law in the American tripartite system of government, with emphasis on state and federal court systems. Substantive law is studied, including business organization, civil procedure, contract, criminal, family, probate, real estate and tort law. Introductory instruction in legal writing and legal research using online legal research databases.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F105 Ethics for Paralegals**

3 Credits

Offered Spring

Examination of the ethical obligations owed by both lawyers and paralegals to their clients, other lawyers, the court systems where they work and the general public through the study of the ABA Model Rules of Professional Conduct and the canons of ethics promulgated by the two nationwide paralegal associations.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F201 Practical Paralegal Skills**

3 Credits

Offered Spring

The practical skills required of a paralegal in the job market, including drafting legal documents, pleadings and office correspondence, fact gathering through interviewing and investigating, use of the Internet for legal research, pretrial procedures, focusing primarily on civil rules 30, 33, 34, 35 and 36, and assisting at trial.

Prerequisites: PLS F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F203 Torts**

3 Credits

Offered Spring

Study of the essentials needed to effectively assist an attorney in the filing or defense of claims based on personal injury and property damage. A basic vocabulary of legal terminology associated with tort law is studied together with important statutes and case law. Emphasis on Alaska law.

Prerequisites: PLS F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F210 Civil Procedure**

3 Credits

Offered Fall

Basic vocabulary and concepts essential to effectively assist an attorney with the procedural aspects of civil litigation. Covers the rules of pleading and process, discovery and motion practice. Applies practical skills from initial investigation through trial and post-trial proceedings.

Prerequisites: PLS F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PLS F213 Criminal Law for Paralegals

3 Credits

Offered Spring Odd-numbered Years

Study of both the substantive criminal law and the rudiments of criminal procedure, focusing on both Alaska law and procedure and important constitutional considerations associated with due process, search and seizure and Fifth Amendment rights. Learn and work with a basic vocabulary unique to criminal law and procedure.

Prerequisites: PLS F102.**Special Notes:** Does not substitute for JUST F352.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F215 Contracts/Real Property**

3 Credits

Offered Spring Even-numbered Years

Basic vocabulary and concepts essential to effectively assist an attorney with the preparation of contracts and real property transactions.

Prerequisites: PLS F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F240 Family Law**

3 Credits

Offered Fall

Basic vocabulary and concepts essential to understanding family law and assisting a practicing attorney in matters involving marriage issues, premarital contracts, annulment, divorce, dissolution, property division, child custody, support and visitation.

Prerequisites: PLS F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F241 Applied Business Law I**

3 Credits

Offered Fall and Spring

Legal aspects of business problems. Principles, institutions and administration of law in contracts, agency, employment, personal sales and property ownership.

Crosslisted with ABUS F241.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F242 Employment and Administrative Law**

3 Credits

Offered Fall

Legal principles which define the relationship between employers and employees. Includes obligations imposed by Federal and Alaska state statutes and administrative regulations. Includes how administrative agencies are created and how they provide administrative law through promulgation of rules and regulations and through quasi-judicial decisions.

Prerequisites: PLS F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F250 Probate Law**

3 Credits

Offered Spring

Basics of probate law and the uniform probate code. Includes the preparation and interpretation of wills, administration of decedent's estates, intestate succession laws, guardianships and other related probate matters. Focus on Alaska statutes and probate rules.

Prerequisites: PLS F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F260 Legal Technology**

3 Credits

Offered Fall

Examination of technology used in the law office. Includes computer hardware and software. This course focuses on producing word-processed documents and spreadsheets, creating databases, and using computer-assisted legal research, the Internet, electronic mail, litigation support, case management, electronic discovery and bookkeeping/billing software in the legal field.

Prerequisites: PLS F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F270 Constitutional Law for Paralegals**

3 Credits

Offered Fall

Exploration of constitutional law as it applies to the day-to-day work of a paralegal. Examination of the separation of powers among the branches of the federal government; federalism and states' rights; economic and property rights; and individual freedoms and protections under the Constitution, with an emphasis on due process.

Prerequisites: PLS F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F280 Legal Research and Writing for Paralegals**

3 Credits

Offered Fall

Legal research skills using law library methods, computer-assisted legal research and the Internet. Read and understand authorities from three branches of government: executive, legislative and judicial. Emphasis on precedent from Alaska and federal court systems. Includes writing skills from drafting of law office correspondence to preparation of court pleadings and briefs.

Prerequisites: PLS F102.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PLS F285 Advanced Legal Writing**

3 Credits

Offered Spring

Expand on writing skills previously learned by drafting documents regularly assigned to practicing paralegals, such as pleadings to be filed in court, motion practice, office correspondence, and interoffice legal memorandums. Focus on issue identification, legal analysis and critical thinking skills.

Prerequisites: PLS F102; PLS F280.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PLS F299 Paralegal Studies Internship

3 Credits

An internship involving a minimum of 150 hours of work under the supervision of an attorney, and, when available, a practicing paralegal for that attorney in a local law office or law-related situation. Must seek approval of faculty advisor for admittance.

Prerequisites: Must have completed at least 75% of paralegal studies degree requirements with a minimum 2.8 cumulative GPA or approval of UAF faculty advisor.

Special Notes: Students meet as a class only once; All subsequent classes or meetings with UAF faculty advisor are arranged by individual student(s) and advisor.

Lecture + Lab + Other: 0 + 0 + 10

Grading System: Letter Grades with option of Plus/Minus

Petroleum Engineering (PETE)

College of Engineering and Mines

Department of Petroleum Engineering (<https://www.uaf.edu/cem/programs/petroleum-engineering/>)

907-474-7734

PETE F101 Fundamentals of Petroleum, Drilling and Production

2 Credits

Offered Fall

Fundamental principles of origin, migration, accumulation and exploration of petroleum. Principles of drilling, drilling practices, and drilling fluids. Overview of production practices, surface production equipment. Influence of rock and fluid properties on the principles of petroleum recovery, petroleum transportation.

Prerequisites: Freshman standing in Petroleum Engineering program.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F201 Future Trends in the Oil and Gas Industry

1 Credit

Offered Fall

Overview of the rapidly changing landscape of the oil and gas industry. Introduction to technically challenged resources with special emphasis on Alaska North Slope heavy oil and methane hydrates. Coexistence with renewables and alternative energy. Diversification of the petroleum industry, and emergence of data sciences, HSE, climate issues and sustainability.

Prerequisites: Sophomore Standing.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F301 Reservoir Rock and Fluid Properties

4 Credits

Offered Fall

Fundamental concepts of reservoir rock and fluid properties including porosity, permeability, fluid saturations, capillary pressure, relative permeabilities, classification of petroleum reservoirs by fluid phase contents, oil, gas and water properties, fluid sampling, and PVT analysis.

Prerequisites: ES F346 (may be taken concurrently); MATH F252X; GEOS F101X or GE F261.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F302 Well Logging

3 Credits

Offered Spring

Comprehensive treatment of modern well logging methods including formation and production logging tools, and techniques and basic concepts of open hole log interpretation.

Prerequisites: PETE F301; PETE F101.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F303 Reservoir Rock and Fluid Properties Laboratory

1 Credit

Offered Spring

Measurement of properties of reservoir rock and reservoir fluids.

Determination of porosity, permeability, fluid saturations, capillary pressures, specific gravity density, viscosity, surface tension, PVT properties and interpretation of PVT reports for reservoir fluid samples.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PETE F301.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F370 Sedimentology and Structural Geology for Petroleum Engineers (n)

4 Credits

Offered Fall

Origin and distribution of sedimentary rocks including depositional environments, stratigraphic relationships and structures. Emphasis on the relationship to petroleum occurrences and petroleum exploration.

Laboratory exercises on mapping, structural problems and facies relationships in petroleum exploration.

Prerequisites: GEOS F101X or GE F261.

Cross-listed with GEOS F370.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F407 Petroleum Production Engineering

3 Credits

Offered Fall

Production system analysis, inflow performance analysis, gas lift design, sucker rod pumping and production decline analysis.

Prerequisites: PETE F476; ES F341 and ES F346.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F411 Drilling Fluids Laboratory

1 Credit

Offered Spring

Design, composition and measurement of drilling fluid properties, evaluation of mud activities and chemical treatment of contaminated drilling fluid.

Prerequisites: PETE F426 (may be taken concurrently); WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F421 Reservoir Characterization

3 Credits

Offered Spring

Review of reservoir rock properties and their spatial variations; estimation of reserves; introduction to theory and application of geostatistics to reservoir characterization; presentation of fundamental geostatistical concepts including: variogram analysis, estimation variance, kriging and stochastic simulations and some data analytics concepts. Impact of geologic structure on oil recovery. Use of computer software for reservoir characterization and class project.

Prerequisites: PETE F301; PETE F302; GEOS F370.**Stacked with** PETE F621.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PETE F426 Drilling Engineering**

3 Credits

Offered Spring

Principles of drilling, drilling fluids and rheology, drilling problems, drilling hydraulics, well control techniques and casing seat selection.

Prerequisites: ES F331; ES F341.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PETE F431 Natural Gas Engineering**

2 Credits

Offered Spring

Natural gas production and condensate reservoirs. Design of processing, transportation, distribution and flow measurement systems.

Prerequisites: PETE F301.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PETE F456 Petroleum Evaluation and Economic Decisions**

3 Credits

Offered Spring

Economic appraisal methods for oil field developmental project evaluations including risk analysis, probability and statistics in decision making and evaluations. Case studies.

Prerequisites: MATH F253X; PETE F476; STAT F300 (may be taken concurrently).**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PETE F458 Petroleum Engineering Internship**

1 Credit

Offered As Demand Warrants

Practical experience in a supervised petroleum engineering environment. Participation in professional petroleum operations including drilling, production, formation evaluation, reservoir engineering, petroleum property evaluation, management and economics. Written and oral presentation of technical report describing experience is required. Course may be repeated for up to 4 credits.

Prerequisites: Junior standing.**Lecture + Lab + Other:** 0 + 0 + 1**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**PETE F466 Petroleum Recovery Methods**

3 Credits

Offered Fall

Flow and physicochemical principles of oil recovery by water, chemical, thermal and miscible floods. Prediction of recovery for each of these methods.

Prerequisites: PETE F301 and PETE F476.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PETE F469 Enhanced Oil Recovery and Reservoir Simulation**

3 Credits

Offered Fall

This course will discuss the principles of enhanced oil recovery (EOR) methods. Enhanced recovery calculations for water flood using analytical and empirical methods will be covered. The principles and practice of reservoir simulation using numerical models will be discussed. Reservoir simulation will be used for EOR calculations.

Prerequisites: ES F301, MATH F426; PETE F476.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PETE F476 Petroleum Reservoir Engineering**

3 Credits

Offered Spring

Quantitative study and prediction of the behavior of oil and gas reservoirs under primary, secondary and tertiary recovery mechanisms.

Prerequisites: PETE F301; MATH F253X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PETE F478 Well Test Analysis**

2 Credits

Offered Spring

Transient flow of fluids through porous media, application of solutions of the diffusivity equation to pressure buildup, drawdown, interference testing and log-log type curve analysis and effect of reservoir heterogeneities on pressure behavior.

Prerequisites: PETE F407; PETE F476; MATH F302.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PETE F481 Well Completions and Stimulation Design**

3 Credits

Offered Fall

Design of casing programs, cementing, open-hole and set-through completions, well stimulation; completion and workover fluids; and evaluation of sand control and workover operations.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ES F341; PETE F426.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PETE F487A Petroleum Project Design**

1 Credit

Offered Fall

Two-semester course with emphasis on design and analysis of petroleum exploration, production and reservoir engineering systems by analytical, experimental and computer methods. Identification of requirements, conceptual and detailed project design and cost analysis. Completion of an engineering project.

Prerequisites: Senior standing; PETE F407 or PETE F426; PETE F476.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PETE F487B Petroleum Project Design

1 Credit

Offered Spring

Two-semester course with emphasis on design and analysis of petroleum exploration, production and reservoir engineering systems by analytical, experimental and computer methods. Identification of requirements, conceptual and detailed project design and cost analysis. Completion of an engineering project.

Prerequisites: COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; senior standing.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F489 Reservoir Simulation

2 Credits

Offered Fall

The theory and application of computer reservoir simulation in petroleum reservoir and production engineering.

Prerequisites: PETE F476; MATH F426 or ES F301.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F607 Advanced Production Engineering

3 Credits

Offered As Demand Warrants

Production system analysis, production optimization, downhole equipment design, surface facilities design, oil and gas processing, gas and oil treating systems, disposal well systems, project organization and field development.

Prerequisites: Graduate standing; PETE F407.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F608 Flow Assurance in the Petroleum Industry

3 Credits

Offered As Demand Warrants

Study of the thermodynamics of gas hydrates; paraffin waxes; asphaltenes; scale and chemistry of corrosion and erosion processes. Study of chemical and physical methods used for mitigation of solid phase formation. Experimental analysis and modeling of solid phase formation envelopes. Analysis of flow regimes resulting from the presence of solid phases in oil and gas flow lines.

Prerequisites: Permission of the instructor.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F610 Advanced Reservoir Engineering

3 Credits

Offered As Demand Warrants

Concepts and tools for solving petroleum reservoir engineering problems; advances in petroleum reservoir engineering. Emphasis on material balance methods and their application to estimate reserves and calculate water influx; diversity equations and solutions; gas and water coning; streamline tracking; and decline curve analysis, productivity index and well performance models for vertical, horizontal and multilateral wells.

Prerequisites: PETE F476.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F621 Applied Reservoir Characterization

3 Credits

Offered Spring

Review of reservoir rock properties and their spatial variations; estimation of reserves; introduction to theory and application of geostatistics to reservoir characterization; presentation of fundamental geostatistical concepts including: variogram analysis, estimation variance, kriging and stochastic simulations and some data analytics concepts. Impact of geologic structure on oil recovery. Use of computer software for reservoir characterization and class project.

Prerequisites: Graduate standing in Petroleum Engineering.

Stacked with PETE F421.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F630 Waterflooding

3 Credits

Offered As Demand Warrants

A study of the fundamental concepts and procedures for the design of waterflooding processes in petroleum reservoirs.

Prerequisites: PETE F301; PETE F476.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F656 Advanced Petroleum Economic Analysis

3 Credits

Offered As Demand Warrants

Economic analysis of petroleum production leading towards increasing cost efficiency in the petroleum and related industries. Qualitative and quantitative description of production forecasts and reserve estimation; oil and gas pricing; cash flow analysis; risk and uncertainty of operation of oil and gas production (financing, debt/equity ratio, depreciation and taxation).

Prerequisites: PETE F407, PETE F456.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F661 Applied Well Testing

3 Credits

Offered As Demand Warrants

Equations for transient flow of single phase fluids through porous media, extension to sample multiphase flow, isolated and developed multi-well flow, conventional drawdown and buildup analysis, log-log type curve analysis, interference testing, fractured wells, pulse tests, and drill stem tests.

Prerequisites: PETE F476; PETE F610.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F662 Enhanced Oil Recovery

3 Credits

Offered As Demand Warrants

Secondary and tertiary oil recovery processes, including waterflooding and chemical and thermal recovery methods.

Prerequisites: PETE F476 or PETE F610.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F663 Applied Reservoir Simulation

3 Credits

Offered As Demand Warrants

Mathematical description of the reservoir, organization of reservoir simulation study, history matching and prediction for several published case studies of reservoir simulations.

Prerequisites: Reservoir Engineering course, such as PETE F476 or PETE F610.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F665 Advanced Phase Behavior

3 Credits

Offered As Demand Warrants

The development and application of phase equilibrium simulators to predict fluid properties for reservoir fluids.

Prerequisites: PETE F301.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F666 Drilling Optimization

3 Credits

Offered As Demand Warrants

Principles of drilling optimization: drilling cost analysis and control; rheological properties of drilling fluid for optimum hole cleaning; planning an optimum mud program for vertical, directional and horizontal wellbores; optimizing bit hydraulics. Use of software packages in optimized hydraulics.

Prerequisites: Graduate standing in engineering discipline.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F670 Fluid Flow Through Porous Media

3 Credits

Offered As Demand Warrants

The study of transport phenomena in porous media and application to petroleum engineering.

Prerequisites: PETE F301; PETE F476.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F680 Horizontal Well Technology

3 Credits

Offered As Demand Warrants

Review of the state of the art of horizontal well technology covering recent advances in drilling and completion of horizontal wells. Emphasis on field practices, reservoir engineering aspects including well testing and well performance estimation, application of horizontal wells to gas and water coning problems and enhanced oil recovery.

Prerequisites: PETE F426; PETE F476.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F683 Natural Gas Processing and Engineering

3 Credits

Offered As Demand Warrants

Natural gas reservoir engineering and gas production practices. Transient flow of real gases, gas field development, gas well testing, transportation and gas storage reservoirs.

Prerequisites: PETE F431; PETE F476.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F685 Non-Newtonian Fluid Mechanics

3 Credits

Offered As Demand Warrants

Characteristics of stress in fluids, flow models of non-Newtonian fluids (Bingham plastic fluids, fluids without yield stress), couette flow analysis of non-Newtonian fluids, surge and swab pressure models for plugged and open-end pipes.

Prerequisites: ES F341; PETE F426.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F687 Experimental and Data Analytics Methods in Petroleum Engineering

3 Credits

Offered As Demand Warrants

Application of statistical methods to develop empirical models in petroleum engineering. Topics covered include dimensional analysis, fundamental statistical concepts, regression analysis, neural networks, time series analysis and analysis of factorial and fractional factorial designed experiments.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F689 Multiphase Fluid Flow in Pipes

3 Credits

Offered As Demand Warrants

Multiphase flow in pipes, modeling of fluid flow of complex mixtures in pipes, empirical correlations developed in the literature, and calculation of pressure gradients and flow rates during the flow of multiphase fluids through vertical, inclined and horizontal pipes.

Prerequisites: ES F341; MATH F426 or ES F301; PETE F407.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PETE F692 Seminar

1-3 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

PETE F692P Seminar

1-3 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

PETE F698 Non-thesis Research/Project

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

PETE F699 Thesis

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Philosophy (PHIL)

College of Liberal Arts

Department of Philosophy and Humanities (<https://www.uaf.edu/philo/>)
907-474-7007

PHIL F102X Introduction to Philosophy (h)

3 Credits

Offered Fall, Spring and Summer

Survey of philosophers and problems in the Western tradition beginning with the ancient Greeks (Plato, Aristotle) and continuing with medieval (Anselm, Augustine, Aquinas) and modern European thinkers (Descartes, Hume, Kant, Nietzsche). Themes and topics may vary.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F104X Logic and Reasoning (h)**

3 Credits

Offered Fall

Principles of deductive and inductive logic and application of the principles to critical thinking in logic and its application.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F108 Symbolic Logic (h)**

3 Credits

Offered Spring

This course provides a thorough and in-depth introduction into the structures that underlie critical, quantitative thinking. Students will learn the language, concepts, and system of formal first-order logic and natural deduction.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F110 Introduction to Political Philosophy (h)**

3 Credits

Offered Fall Odd-numbered Years

Introduction to historical and contemporary issues in political thought.

Topics and themes vary, but include questions such as: Should we consent to be governed? What is civil society? What does it mean to be a citizen? What are the basic forms of government?

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F202 Introduction to Eastern Philosophy (h)**

3 Credits

Offered Spring Even-numbered Years

Basic assumptions, problems and systems of the major philosophical traditions of the Far East.

Prerequisites: PHIL F102X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F322X Ethics (h)**

3 Credits

Offered Fall, Spring and Summer

"Ethic,"--from the Greek "ethos" meaning character, custom, usage--is the study of value distinctions. Examination of the nature of value judgments--their historical origins and philosophical assumptions--and exploration of the application of value distinctions to contemporary social, religious and scientific/technical.

Prerequisites: Placement in WRTG F111X; junior standing.**Recommended:** Two courses in the Perspectives on the Human Condition baccalaureate core.**Attributes:** UAF GER Ethics Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F341 Theories of Knowledge (h)**

3 Credits

Offered Fall Even-numbered Years

The nature of knowledge, truth and certainty.

Prerequisites: COM F131X or COM F141X; PHIL F102X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F342 Theories of Reality (h)**

3 Credits

Offered Spring Even-numbered Years

Theories of reality and their relationship to science, philosophy and religion.

Prerequisites: PHIL F102X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F351 History of Ancient Greek Philosophy (h)**

3 Credits

Offered Fall

Review of the philosophy of Plato and Aristotle; minor attention to Presocratics.

Prerequisites: PHIL F102X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F352 History of Modern Philosophy: Descartes to Kant (h)**

3 Credits

Offered Spring

Review of continental rationalist and British empiricist thought, 17th-19th centuries.

Prerequisites: PHIL F102X.**Recommended:** PHIL F351.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F361 Philosophy in Literature (h)**

3 Credits

Offered As Demand Warrants

Examination of philosophical issues in literary works. Topics include the nature of free will, the effects of choice in building a character, the desirable (and undesirable) ways of confronting morality, and the nature of evil. Topics and readings vary.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F362 Feminist Philosophy (h)**

3 Credits

Offered As Demand Warrants

Examination of contemporary feminist philosophical positions. Emphasis on feminist ethics, social and political philosophy, and epistemology.

Cross-listed with WGS F362.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PHIL F363 Philosophy of Religion (h)

3 Credits

Offered As Demand Warrants

Introduction to topics such as arguments for the existence and nature of God, the problem of evil, the relation of faith and reason, religious language and the connection of religion to the meaning of life.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Recommended: PHIL F102X; upper-division status.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHIL F402 Biomedical and Research Ethics (h)

3 Credits

Offered As Demand Warrants

Issues in biomedical ethics. Topics will vary but include discussion of moral principles and problems of research ethics and medical ethics, such as: animal and human experimentation; data management; informed consent; therapeutic and non-therapeutic research; physician/patient relationship; autonomy; assisted reproductive technologies; euthanasia; organ transplantation; and allocation of scarce medical resources.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior or senior standing; a course in philosophy, science, or nursing.

Cross-listed with BIOL F402.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHIL F411 Classical Political Theory (h)

3 Credits

Offered As Demand Warrants

Political ideas from ancient Greece, Rome and the Judaeo-Christian tradition. Theories of Plato, Aristotle, Cicero, Augustine and Aquinas.

Prerequisites: COM F131X or COM F141X; PHIL F102X; PS F101X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Cross-listed with PS F411.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHIL F412 Modern Political Theory (s)

3 Credits

Offered As Demand Warrants

Political ideas from the Renaissance to the modern world. Theories of Machiavelli, Hobbes, Locke, Rousseau, Burke, Marx and Lenin.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PHIL F102X; PS F101X.

Cross-listed with PS F412.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHIL F414 Contemporary Political Philosophy

3 Credits

Offered As Demand Warrants

This course takes stock of recent currents in contemporary political thought, including readings from Carl Schmitt, Hannah Arendt, Frantz Fanon, John Rawls, Leo Strauss, Michel Foucault, and Theodor Adorno. We ask how these canonical thinkers influence feminist, environmental, postcolonial, anti-essentialist, democratic and post-human political theory today.

Prerequisites: PS F101X, upper division standing.

Cross-listed with PS F414.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHIL F421 Aesthetics (h)

3 Credits

Offered As Demand Warrants

The nature of aesthetic experience in poetry, music, painting, sculpture, architecture and other arts; studies in relation to artistic production and the role of art in society.

Prerequisites: Junior/senior standing.

Recommended: PHIL F102X or HUM F201X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHIL F436 Ethical Theory (h)

3 Credits

Offered As Demand Warrants

Major ethical theories. Includes virtue theory, social contract theory, deontology and utilitarianism with major arguments for and against.

Prerequisites: Junior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHIL F471 Contemporary Philosophical Problems (h)

3 Credits

Offered Fall Even-numbered Years

Ideological issues facing the modern world.

Prerequisites: PHIL F351; PHIL F352.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHIL F472 Ethics in International Affairs (h)

3 Credits

Offered Spring Odd-numbered Years

Examination of questions including: What is in the interest of the nation-state according to the logic of statecraft? How does the national interest relate to broader human interest? How does morality relate to the international legal order? Examination is through theory and case studies.

Prerequisites: PHIL F322X or PS F221X.

Cross-listed with PS F472.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHIL F481 Philosophy of Science (h)

3 Credits

Offered Spring Even-numbered Years

Comparison and discussion of various contemporary methodological positions.

Prerequisites: Junior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHIL F487 Conceptual Issues in Evolutionary Biology

3 Credits

Offered Spring Odd-numbered Years

Analysis of some of the main models which explain evolutionary change, followed by consideration of the practical implications these models have on the study of biological phenomena in general.

Cross-listed with BIOL F487.

Stacked with BIOL F687; PHIL F687.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHIL F499 B.A. Thesis in Philosophy (h)

3 Credits

Offered As Demand Warrants

Writing the senior thesis in philosophy.

Prerequisites: WRTG F111X; WRTG F211X or WRTG F213X.**Lecture + Lab + Other:** 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHIL F687 Conceptual Issues in Evolutionary Biology**

3 Credits

Offered As Demand Warrants

Analysis of some of the main models which explain evolutionary change followed by consideration of the practical implications these models have on the study of biological phenomena in general.

Cross-listed with BIOL F687.**Stacked with** BIOL F487; PHIL F487.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Physics (PHYS)

College of Natural Science and MathematicsPhysics Department (<https://www.uaf.edu/physics/>)

907-474-7339

PHYS F102X Energy and Society (n)

4 Credits

Offered Spring

Exploring the concept of energy. Investigation of the sources, conversion, distribution and ultimate dispersion of energy, as well as the consequences of its use in the development and maintenance of modern society. May be used to fulfill part of the natural science requirement. Designed for non-science majors.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F115L PHYS F115X Laboratory**

0 Credit

Co-requisites: PHYS F115X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**PHYS F115X Physical Sciences (n)**

4 Credits

Offered Spring

Basic concepts and general overview in physics. Presents interrelatedness and interdependence within this scientific field.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.**Co-requisites:** PHYS F115L.**Recommended:** MATH F105.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F123L PHYS F123X Laboratory**

0 Credit

Co-requisites: PHYS F123X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**PHYS F123X College Physics I (n)**

4 Credits

Offered Fall

Algebra-based introduction to classical physics, including: kinematics, Newton's laws, momentum, work, energy, gravity, rotational motion, fluids, heat, temperature, laws of thermodynamics. The laboratory part is integrated in the course.

Prerequisites: High school algebra, trigonometry and geometry; placement in WRTG F111X; placement in MATH F105.**Co-requisites:** PHYS F123L.**Special Notes:** Additional topics include oscillations and waves.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F124L PHYS F124X Laboratory**

0 Credit

Co-requisites: PHYS F124X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**PHYS F124X College Physics II (n)**

4 Credits

Offered Spring

Algebra-based introduction to classical physics, including: Coulomb's law, electrical potential, electric circuits, capacitance, Kirchhoff's laws, magnetic fields, Faraday's law, electromagnetic waves, physical and geometric optics, waves and particles. The laboratory part is integrated in the course.

Prerequisites: PHYS F123X; placement in WRTG F111X; placement in MATH F105.**Co-requisites:** PHYS F124L.**Special Notes:** Additional topics include atomic and nuclear physics.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F165L PHYS F165X Laboratory**

0 Credit

Co-requisites: PHYS F165X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**PHYS F165X Introduction to Astronomy (n)**

4 Credits

Offered Fall

Examination of the science of astronomy and its social consequences, with an emphasis on the interrelationships between astronomy and other sciences. Topics include astronomical concepts and tools, earth-based and satellite observation of light, the solar system, stellar astronomy and cosmology.

Prerequisites: Placement in WRTG F111X; placement MATH F105.**Co-requisites:** PHYS F165L.**Special Notes:** A laboratory part is integrated into the course.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

PHYS F211L PHYS F211X Laboratory

0 Credit

Co-requisites: PHYS F211X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**PHYS F211X General Physics I (n)**

4 Credits

Offered Fall and Spring

Calculus-based introduction to classical mechanics, including: kinematics, Newton's laws, momentum, work, energy, gravity, rotational motion, oscillations, and fluids. The laboratory part is integrated into the course.

Prerequisites: Concurrent enrollment in MATH F252X; placement in WRTG F111X.**Co-requisites:** PHYS F211L.**Recommended:** One year of high school physics.**Special Notes:** Additional topics include waves.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F212L PHYS F212X Laboratory**

0 Credit

Co-requisites: PHYS F212X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**PHYS F212X General Physics II (n)**

4 Credits

Offered Fall and Spring

Calculus-based introduction to classical physics, including: Coulomb's law, electrical potential, electric circuits, capacitance, Kirchhoff's laws, Biot-Savart law, Faraday's law, and electromagnetic waves. Additional topics include thermodynamics. The laboratory part is integrated into the course.

Prerequisites: Concurrent enrollment in MATH F253X; PHYS F211X or ES F208 or concurrent enrollment in ES F210; placement in WRTG F111X.**Co-requisites:** PHYS F212L.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F213L PHYS F213X Laboratory**

0 Credit

Co-requisites: PHYS F213X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Non-Graded**PHYS F213X Elementary Modern Physics (n)**

4 Credits

Offered Fall

Geometrical and physical optics, elementary-level modern physics including special relativity, atomic physics, nuclear physics, solid-state physics, elementary particles, simple transport theory, kinetic theory and concepts of wave mechanics.

Prerequisites: Placement in WRTG F111X; MATH F252X; MATH F253X; PHYS F211X; PHYS F212X.**Co-requisites:** PHYS F213L.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F220 Introduction to Computational Physics (n)**

4 Credits

Offered Spring

Introduction to computational techniques for solving physics problems. The computer is used as a tool to provide insight into physical systems and their behavior in all areas of physics.

Prerequisites: MATH F253X; PHYS F211X; PHYS F212X; PHYS F213X.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F301 Introduction to Mathematical Physics**

4 Credits

Offered Spring

Introduction to theoretical foundations of classical and modern physics.

Includes calculus of vector fields, linear algebra, elementary tensor theory, complex analysis, ordinary and partial differential equations, fourier analysis and probability. Physical applications include planetary motion, rotating bodies, damped and driven harmonic oscillator, wave equation, Schrodinger's equation and diffusive systems.

Prerequisites: PHYS F211X; PHYS F212X; PHYS F213X; MATH F253X.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F341 Classical Physics I: Particle Mechanics**

4 Credits

Offered Fall

Newtonian mechanics, conserved mechanical quantities, motion of systems of particles, rigid body statics and dynamics, moving and accelerated coordinate systems, rigid body rotations and Lagrangian mechanics.

Prerequisites: PHYS F211X; PHYS F212X; PHYS F220; PHYS F301.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F342 Classical Physics II: Electricity and Magnetism**

4 Credits

Offered Spring

Statics and dynamics of electric and magnetic fields in vacuum and in the presence of materials. Lorentz force law. Maxwell's equations.

Prerequisites: PHYS F341.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F343 Classical Physics III: Vibration and Waves**

4 Credits

Offered Fall

Normal modes and small vibrations, continuum systems, wave mechanics, electromagnetic waves and radiation. Relativistic mechanics and electromagnetism.

Prerequisites: PHYS F342.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F351 Thermal Physics**

2 Credits

Offered Spring

Classical macroscopic thermodynamics; systems and states, equations of state, the first and second laws of thermodynamics and their consequences, entropy, enthalpy, Helmholtz and Gibbs functions, equilibrium, Maxwell's relations.

Prerequisites: PHYS F212X, PHYS F220, PHYS F301, PHYS F341.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PHYS F381 Physics Laboratory (n)

3 Credits

Offered Fall

Laboratory experiments in classical and modern physics.

Prerequisites: COM F131X or COM F141X; PHYS F213X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F382 Physics Laboratory (n)**

3 Credits

Offered As Demand Warrants

Laboratory experiments in classical and modern physics.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PHYS F381.**Lecture + Lab + Other:** 1 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F400 Capstone Project**

0 Credit

Offered Fall and Spring

Course to be taken during semester of initiating a capstone project.

Project must include communication of study intent, methods, results, interpretation and conclusions. It may consist of undergraduate research, independent study with a faculty member, or participation in the international University Physics Competition. Course duration may exceed one semester.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Pass/Fail Grades**PHYS F413 Atmospheric Radiation**

3 Credits

Offered As Demand Warrants

Atmospheric radiation including the fundamentals of blackbody radiation theory and radiative properties of atmospheric constituents. Discussion of gaseous absorption including line absorption, broadening effects and radiative transfer. Includes scattering, radiative properties of clouds and radiation climatology.

Prerequisites: ATM F401 (may be taken concurrently).**Cross-listed with** ATM F413.**Stacked with** PHYS F613; ATM F613.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F421 Quantum Mechanics (n)**

4 Credits

Offered Fall

Schrodinger's equation, Born interpretation, operator formalism, measurement and projection, stationary states, one-dimensional systems, hydrogen atom, states of definite angular momentum, perturbation theory.

Prerequisites: PHYS F213X; PHYS F220; PHYS F301; PHYS F341.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F451 Statistical Physics**

2 Credits

Offered Spring

The canonical ensemble; maximizing entropy, the partition function and Helmholtz free energy, the harmonic oscillator, Einstein and Debye solids, classical systems and the ideal gas, diatomic molecules, equipartition theorem, the photon gas and the blackbody spectrum, the grand canonical ensemble, quantum statistics, Fermion and Boson systems.

Prerequisites: PHYS F342, F351, F421.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F462 Geometrical and Physical Optics (n)**

4 Credits

Offered Spring

Geometrical optics, interference and diffraction theory, nonlinear optics, Fourier optics, and coherent wave theory.

Prerequisites: PHYS F213X; PHYS F301.**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F471A Advanced Topics in Physics I: Condensed Matter Physics I (n)**

1 Credit

Offered As Demand Warrants

Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**PHYS F471B Advanced Topics in Physics I: Condensed Matter Physics II (n)**

1 Credit

Offered As Demand Warrants

Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**PHYS F471C Advanced Topics in Physics I: Space and Auroral Physics (n)**

1 Credit

Offered As Demand Warrants

Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits

PHYS F471D Advanced Topics in Physics I: Nonlinear Dynamics (n)

1 Credit

Offered As Demand Warrants

Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**PHYS F471E Advanced Topics in Physics I: Biophysics (n)**

1 Credit

Offered As Demand Warrants

Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**PHYS F471F Advanced Topics in Physics I: Nuclear and Particle Physics (n)**

1 Credit

Offered As Demand Warrants

Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**PHYS F471G Advanced Topics in Physics I: General Relativity (n)**

1 Credit

Offered As Demand Warrants

Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**PHYS F471H Advanced Topics in Physics I: Astrophysics (n)**

1 Credit

Offered As Demand Warrants

Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**PHYS F471I Advanced Topics in Physics I: Topics in Modern Mathematical Physics (n)**

1 Credit

Offered As Demand Warrants

Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to unlimited credits**PHYS F471J Advanced Topics in Physics I: Order of Magnitude Physics**

1 Credit

Offered As Demand Warrants

By avoiding mathematical complexity, order-of-magnitude techniques increase our physical understanding and allow us to study difficult or intractable problems. Students will learn how to do so and apply these techniques to problems in fluid mechanics, biophysics, astrophysics, and/or other applications.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F471M Advanced Topics in Physics I: Machine Learning and Applications**

1 Credit

Offered As Demand Warrants

Introduction to machine learning and applications. 14-lecture, one-credit courses. Python knowledge is required for taking this class.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472A Advanced Topics in Physics II: Planetary Atmospheres (n)**

1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472B Advanced Topics in Physics II: Fluid Dynamics (n)**

1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PHYS F472C Advanced Topics in Physics II: Plasma Physics (n)
1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472D Advanced Topics in Physics II: Hamiltonian Mechanics (n)**
1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472E Advanced Topics in Physics II: Physics of Glaciers (n)**
1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472F Advanced Topics in Physics II: Remote Sensing (n)**
1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472G Advanced Topics in Physics II: Solar Physics (n)**
1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472H Advanced Topics in Physics II: Advanced Laboratory (n)**
1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472I Advanced Topics in Physics II: Spectroscopy (n)**
1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472J Advanced Topics in Physics II: Cosmology (n)**
1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472K Advanced Topics in Physics II: Quantum Computation (n)**
1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472L Advanced Topics in Physics II: Covariant Kinematics/Dynamics (n)**
1 Credit

Offered As Demand Warrants

Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F472Z Advanced Topics in Physics II: Current Topics in Physics**
1 Credit

Offered As Demand Warrants

Advanced topics modules provide expanded exposure to modern subjects in physics. Three topics are offered each semester, providing breadth beyond the core subjects of the physics undergraduate curriculum. This course will present most current material from one particular topic in physics, to be determined at the time of the offering.

Prerequisites: PHYS F220; PHYS F301.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 2 credits**PHYS F488 Undergraduate Research**

1-3 Credits

Offered Fall, Spring and Summer

Advanced research topics from outside the usual undergraduate requirements.

Prerequisites: Permission of instructor.**Recommended:** A substantial level of technical/scientific background.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 98 times for up to 294 credits

PHYS F605 Physics Teaching Seminar/Practicum

1 Credit

Offered Fall and Spring

This course will give science graduate students both lectures and hands-on training in dealing with all aspects of teaching, focused on but not exclusive to the Teaching Assistant level. Course topics include teaching pedagogy, preparation strategies, student management, time management and learning assessment.

Prerequisites: Graduate standing in a science discipline.

Lecture + Lab + Other: 1 + 0 + 1

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 2 times for up to 2 credits

PHYS F611 Mathematical Physics I

3 Credits

Offered Fall

Mathematical tools and theory for classical and modern physics. Core topics: Linear algebra including eigenvalues, eigenvectors and inner products in finite dimensional spaces. Infinite series. Hilbert spaces and generalized functions. Complex analysis, including Laurent series and contour methods. Applications to problems arising in physics. Selected additional topics, which may include operator and spectral theory, groups, tensor fields, hypercomplex numbers.

Prerequisites: graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F612 Mathematical Physics II

3 Credits

Offered Spring

Continuation of Mathematical Physics I; mathematical tools and theory for classical and modern physics. Core topics: classical solutions to partial differential equations of electromagnetism, classical and quantum mechanics. Boundary value problems and Sturm-Liouville theory. Green's functions and eigenfunction expansions. Integral transforms. Orthogonal polynomials and special functions.

Prerequisites: PHYS F611.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F613 Atmospheric Radiation

3 Credits

Offered As Demand Warrants

Atmospheric radiation including the fundamentals of blackbody radiation theory and radiative properties of atmospheric constituents. Discussion of gaseous absorption including line absorption, broadening effects and radiative transfer. Includes scattering, radiative properties of clouds and radiation climatology.

Prerequisites: ATM F601 (may be taken concurrently); graduate standing.

Cross-listed with ATM F613.

Stacked with PHYS F413; ATM F413.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F614 Ice Physics

3 Credits

Offered Spring Even-numbered Years

A survey of the physics of ice. Topics will include the crystal structure and properties of ice, high pressure phases, hydrogen bonding, mechanical, thermal, electrical and acoustic properties, nucleation and growth, and optical and surface properties (adhesion, friction).

Prerequisites: Graduate standing.

Cross-listed with GEOS F614.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F621 Classical Mechanics

3 Credits

Offered Fall Odd-numbered Years

Lagrange's equations, two-body problem, rigid body motion, special relativity, canonical equations, transformation theory, and Hamilton-Jacobi method.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F622 Statistical Mechanics

3 Credits

Offered Spring Even-numbered Years

Classical and quantum statistics of independent particles, ensemble theory and applications.

Prerequisites: PHYS F621; graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F625 Inverse Problems and Parameter Estimation

3 Credits

Offered Spring Even-numbered Years

An inverse problem uses observations to infer properties of an unknown physical model. This course covers methods for solving inverse problems, including numerous examples arising in the natural sciences. Topics include linear regression, method of least squares, estimation of uncertainties, iterative optimization, and probabilistic (Bayesian) and sampling approaches.

Prerequisites: MATH F253X; MATH F314.

Cross-listed with GEOS F627.

Stacked with PHYS F625.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F626 Fundamentals of Plasma Physics

3 Credits

Offered Fall

Single charge particle motion in the electromagnetic fields, plasma kinetic theory, Vlasov equations for collisionless plasmas, magnetohydrodynamic equations, linear plasma waves and instabilities, nonlinear plasma waves and instabilities.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F627 Advanced Plasma Physics

3 Credits

Vlasov description of small amplitude waves in magnetized plasmas, advanced particle orbit theory, fluctuation and incoherent scattering theory, plasma discontinuities and collisionless shocks, weak turbulent theory, statistical theory of turbulence.

Prerequisites: PHYS F626; graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F628 Digital Time Series Analysis

3 Credits

Offered As Demand Warrants

Applied time series analysis, including correlation, convolution, filtering and spectral estimation of multivariate data. The statistical properties of estimators; signal detection; and array processing.

Prerequisites: experience in programming; graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F629 Methods of Numerical Simulation in Fluids and Plasma

3 Credits

Offered Spring Odd-numbered Years

The fundamentals of computer simulation for fluids and multi-particle systems. Topics include methods for the discretization of numerical solutions, and boundary and initial conditions. Methods will be applied to convection, diffusion, and steady states in fluids and plasmas.

Prerequisites: Experience in programming; graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F631 Electromagnetic Theory

3 Credits

Offered Fall Even-numbered Years

Electrostatics, magnetostatics, Maxwell's equations, and potentials. Lorentz equations, field energy, gauge conditions, retarded potentials, waves, radiation and tensor formulations.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F632 Electromagnetic Theory

3 Credits

Offered Spring Odd-numbered Years

Electrostatics, magnetostatics, Maxwell's equations and potentials. Lorentz equations, field energy, gauge conditions, retarded potentials, waves, radiation and tensor formulations.

Prerequisites: PHYS F631; graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F639 InSar and Its Applications

3 Credits

Offered As Demand Warrants

Introduction to the concepts of repeat-pass spaceborne SAR interferometry. Practical use of the technique to derive displacements of the solid earth, glaciers and ice sheets to a precision of a few centimeters and accurate digital elevation models of the Earth's surface.

Prerequisites: Basic remote sensing course.

Cross-listed with GEOS F639.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F640 Auroral Physics

3 Credits

Offered Spring Odd-numbered Years

Survey of aurora phenomena, the associated physical processes, and techniques used to investigate the aurora. Includes electron and proton impact spectra; physical processes that accelerate and precipitate electrons and protons; auroral currents; ionospheric effects of auroral activity; and principles for ground-based satellite spectroscopy and imaging and the measurements of magnetic and electric fields.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F647 Fundamentals of Geophysical Fluid Dynamics

3 Credits

Offered Fall Odd-numbered Years

Introduction to the mechanics of fluid systems, the fundamental processes, Navier-Stokes' equations in rotating and stratified fluids, kinematics, conservation laws, vortex motion, irrotational flow, laminar flow, boundary layer phenomena, waves, instabilities, turbulent flows and mixing.

Prerequisites: Graduate standing.

Cross-listed with ATM F647.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F648 Nonlinear Dynamics

3 Credits

Offered Spring Even-numbered Years

Introduction into the dynamics of nonlinear systems. Continuous and discrete dynamical systems, stability analysis, bifurcations, limit cycle, chaos and strange attractors, fractals and dimension algorithms, controlling chaos, synchronization processes, and stochastic dynamical systems.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F650 Aeronomy

3 Credits

Offered As Demand Warrants

The physical and chemical processes that govern the response of planetary atmospheres to solar radiation and energetic particles. Formation of and characteristic processes in the layers within the ionosphere and basic magneto-ionic theory. Includes principles of remote sensing by lidar and radar techniques.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F651 Quantum Mechanics

3 Credits

Offered Fall Even-numbered Years

Schrodinger's equations, operator formalism, correspondence principle, central force problems, perturbation theory, quantum statistical mechanics, and applications of quantum mechanics to collision problems, radiation and spectroscopy.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PHYS F652 Quantum Mechanics

3 Credits

Offered Spring Odd-numbered Years

Schrodinger's equations, operator formalism, correspondence principle, central force problems, perturbation theory, quantum statistical mechanics, and applications of quantum mechanics to collision problems, radiation and spectroscopy.

Prerequisites: PHYS F651; graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F672 Magnetospheric Physics**

3 Credits

Offered Spring Even-numbered Years

The physics and dynamics of Earth's magnetosphere. Discusses the magnetosphere as a test bed for microscopic plasma processes equilibrium configurations, plasma instabilities, highly nonlinear eruptive plasma processes, and global dynamics which involve the interaction of various regions of the magnetosphere. Introduction to various aspects of magnetospheric physics with a systematic discussion of the various elements of the magnetosphere, their structure and dynamics, and a discussion of the relevant plasma physics.

Prerequisites: PHYS F626; graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F673 Space Physics**

3 Credits

Offered Fall Odd-numbered Years

Plasma physics of the heliosphere from the solar core to the interstellar medium. Includes coronal structure, interplanetary magnetic field and solar wind, shocks, interactions with planets, planetary magnetospheres, cosmic rays, solar-terrestrial relations and instrumentation.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PHYS F692P Seminar**

1 Credit

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**PHYS F698 Non-thesis Research/Project**

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**PHYS F699 Thesis**

1-12 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Political Science (PS)

College of Liberal ArtsPolitical Science Department (<https://www.uaf.edu/polisci/>)

907-474-7609

PS F100X Political Economy (s)

3 Credits

Offered Fall

Evolution and operation of the American domestic political economy with consideration of market failures and government responses. Review of major issues in political economy such as inflation, poverty and budget deficits. Exploration of linkages between American and global systems.

Prerequisites: Placement in WRTG F111X.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F101X Introduction to American Government and Politics (s)**

3 Credits

Offered Fall, Spring and Summer

This is a broad survey course that exposes students to the key theories, methods and data used to describe and explain the U.S. political system. We examine the principles of governance, institutions and practices of American national government; the Constitution, federalism, interest groups, parties, public opinion and elections.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F201X Comparative Politics (s)**

3 Credits

Offered Fall

Introduction to the systematic study of government and politics in countries other than the U.S. Students will explore such questions as why some countries are democracies and other countries dictatorships; why some remain stable and peaceful, while others seem in constant turmoil.

Special Notes: This is a prerequisite for other courses in comparative politics.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F202 Democracy and Global Society (s)**

3 Credits

Offered Spring Even-numbered Years

Examination of the various definitions and types of democracy and the global contexts within which they develop. Cases used draw from a wide range of states, societies and world-historical contexts, and allow comparisons among developed and developing countries.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F205 Leadership, Citizenship and Choice**

3 Credits

Offered As Demand Warrants

History of democratic principles in America and how people can contribute to political and community life in the local, state and national arenas, as leaders and citizens. Examines ethical dilemmas of leadership, and political and social issues facing Alaska and American societies.

Course includes an experiential learning component.

Cross-listed with ACNS F205.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PS F212 Introduction to Public Administration (s)

3 Credits

Offered As Demand Warrants

Theories and practice of public administration, especially as applied to federal agencies. Study of organization, planning and decision making in implementing public policy.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F221X International Politics (s)**

3 Credits

Offered Fall

Introduction to international relations: problems, literature, theory and terminology. Provides basis for understanding current international events and introduces the three subfields of international relations: security, political economy, organization. Examines relations between nations, regions and groups, as well as ideas of conflict, security, trade, technology, negotiation, cooperation, revolution, modernization and community.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F222 Political Science Research Methods (s)**

3 Credits

Offered Fall

Familiarizes students with the research methods that have been used to produce political knowledge about significant political phenomena. Includes both qualitative and quantitative research methods.

Prerequisites: PS F101X; must be completed before a student advances to senior standing in the discipline.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F263 Alaska Native Politics (s)**

3 Credits

Offered As Demand Warrants

This course addresses the political development, organization, interests and activities of Alaska Natives; treatment of ethnic leadership issues, history of federal Indian policy, evolution of Native leadership, village and regional government, land claims, and community politics from the Alaska Native brotherhood to ANCSA to the Alaska Native Coalition.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F300X Ethics and Society (h)**

3 Credits

Offered Fall, Spring and Summer

What is the right thing to do? A presentation of important theories of values, morality and ethics. Application of theories to dilemmas of choice in the public world, such as euthanasia, abortion, animal rights, sexual morality and environmental ethics.

Prerequisites: Placement in WRTG F111X; junior standing.

Attributes: UAF GER Ethics Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F301 American Presidency (s)**

3 Credits

Offered Fall Even-numbered Years

The institution of the presidency in the American political system.

Prerequisites: PS F101X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F302 Congress and Public Policy (s)**

3 Credits

Offered As Demand Warrants

The American Congress in the political system.

Prerequisites: PS F101X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F303 Politics and the Judicial Process (s)**

3 Credits

Offered Fall Odd-numbered Years

The role of federal courts as political institutions. The politics of judicial selection, the nature of judicial decision-making and intracourt politics, litigations as a policy making device, changes in the nature and scope of judicial power, governmental attorneys, the legal bureaucracy, and judicial agenda setting.

Prerequisites: PS F101X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F304 International Security (s)**

3 Credits

Offered Fall Odd-numbered Years

Introduction to the major challenges of maintaining a peaceful and secure world. Considers the major threats to our security and how they are managed. Analyzes political, institutional, cultural, moral and legal norms surrounding war and other security concerns and different means of organizing for peace and security.

Prerequisites: PS F221X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F314 Political Ideologies (s)**

3 Credits

Offered As Demand Warrants

An examination of the purpose of ideology as an orienting set of political ideas with mass appeal. Analysis of 20th century ideologies, including anarchism, communism, liberalism, socialism, environmentalism and feminism.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PS F101X.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F315 American Political Thought (s)**

3 Credits

Offered As Demand Warrants

Political ideas in the U.S. from colonial times to the present: Puritanism, revolutionary ideas, Constitutionalism, nature of the Union, Progressive movement and pragmatism.

Prerequisites: PS F101X.**Recommended:** HIST F131; HIST F132X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F322 International Law and Organization (s)**

3 Credits

Offered As Demand Warrants

Case studies in international law (rights and duties of states, jurisdiction and sovereignty, treaties, use of force and adjudication processes); development of regional organizations and integration; the United Nations.

Prerequisites: COM F131X or COM F141X; PS F221X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PS F323 International Political Economy (s)

3 Credits

Offered Spring Odd-numbered Years

Exploration of the manner in which political and economic forces interact to affect international flows of goods, money, investments and technology. International political economic relations are examined in several contexts.

Prerequisites: PS F100X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F325 Alaska Native and Comparative Tribal Self-Government (an, s)**

3 Credits

Offered As Demand Warrants

Indigenous political systems, customary law and justice in Alaska emphasizing the organization of Alaska Native governance under federal Indian law and Alaska state-chartered local government. Comparisons between Alaska Native political development and those of tribes in the contiguous 48 states and northern hemisphere tribal people.

Prerequisites: ANS F111X, PS F263, TG F201.**Cross-listed with** ANS F325.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F340 Gender, Sex and Politics (s)**

3 Credits

Offered As Demand Warrants

In-depth examination of the relevance of gender in political thought and action. Topics vary and may include: historical perspective of political ideas on the nature and status of women; women's involvement in national and/or international political movements and organizations; feminist approaches to the social sciences; feminism as a political ideology.

Prerequisites: One political science course.**Recommended:** WGS F201X.**Cross-listed with** WGS F340.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F401 Political Behavior (s)**

3 Credits

Offered As Demand Warrants

Attitudes, opinions and beliefs of the American electorate and the impact of these factors on political behavior; role of political organizations (parties and interest groups) in modern American politics.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F403 Public Policy (s)**

3 Credits

Offered Spring Odd-numbered Years

The processes of policy development, implementation and change are analyzed with major policy frameworks and models used in contemporary political science. These frameworks and models will be applied to environmental sustainability and other social policy issues. Students develop expertise in specific policy area, completing oral presentations related their policy interests.

Prerequisites: PS F101X, upper division standing.**Stacked with** PS F603; ACNS F603.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F411 Classical Political Theory (h)**

3 Credits

Offered As Demand Warrants

Political ideas from ancient Greece, Rome and the Judaeo-Christian tradition. Theories of Plato, Aristotle, Cicero, Augustine and Aquinas.

Prerequisites: COM F131X or COM F141X; PHIL F102X; PS F101X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Cross-listed with** PHIL F411.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F412 Modern Political Theory (s)**

3 Credits

Offered As Demand Warrants

Political ideas from the Renaissance to the modern world. Theories of Machiavelli, Hobbes, Locke, Rousseau, Burke, Marx and Lenin.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PHIL F102X; PS F101X.**Cross-listed with** PHIL F412.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F414 Contemporary Political Philosophy**

3 Credits

Offered As Demand Warrants

This course takes stock of recent currents in contemporary political thought, including readings from Carl Schmitt, Hannah Arendt, Frantz Fanon, John Rawls, Leo Strauss, Michel Foucault, and Theodor Adorno. We ask how these canonical thinkers influence feminist, environmental, postcolonial, anti-essentialist, democratic and post-human political theory today.

Prerequisites: PS F101X, upper division standing.**Cross-listed with** PHIL F414.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F425 Federal Indian Law and Alaska Natives (an, s)**

3 Credits

Offered Fall Odd-numbered Years

The special relationship between the federal government and Native Americans based on land transactions and recognition of tribal sovereignty. Federal Indian law and policy evolving from this relationship. Legal rights and status of Alaska Natives.

Prerequisites: PS F101X, TG F112, TG F201 or HIST F110X.**Recommended:** PS F263.**Cross-listed with** ANS F425.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F435 Constitutional Law I: Federalism (s)**

3 Credits

Offered Spring Even-numbered Years

Constitutional doctrines and historical evolution of federalism and the separation of powers in the United States. Emphasis on the court's role in arbitering intergovernmental and interbranch disputes, the constitutional status of the administrative bureaucracy, and the control of war power and foreign policy.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PS F101X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PS F436 Constitutional Law II: Civil Rights and Liberties (s)

3 Credits

Offered Spring Odd-numbered Years

Origin and development of civil rights and civil liberties in the U.S. Emphasis on the social, political and philosophical justifications of rights as expressed in judicial decision and constitutional doctrine.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PS F101X.

Recommended: PS F303.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F437 United States Foreign Policy (s)

3 Credits

Offered Spring Even-numbered Years

This course addresses U.S. foreign policy in the post-World War II, post-Cold War, and post-9/11 periods; the U.S. presence and influence in the world; the development, administration, institutions, instruments, and evaluation of U.S. foreign policy; and key people in U.S. foreign policy.

Prerequisites: PS F221X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F447 U.S. Environmental Politics (s)

3 Credits

Offered Spring

U.S. political institutions as they relate to making policies for protecting the quality of the natural environment. The politics of nuclear waste, endangered species, air and water pollution, and wilderness preservation. Analysis of the National Environmental Policy Act, sustainable development, limits to growth and other topics.

Prerequisites: Upper-division standing.

Recommended: PS F101X.

Stacked with ACNS F647; PS F647.

Special Notes: Course is also available online.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F450 Comparative Indigenous Rights and Policies (s)

3 Credits

Offered Spring Odd-numbered Years

Comparative approach to analyzing Indigenous rights and policies in different nation-state systems. Multiple countries and specific policy developments examined for factors promoting or limiting self-determination.

Prerequisites: Upper division standing.

Cross-listed with ANS F450.

Stacked with PS F650; ACNS F657.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F452 International Relations of the North (s)

3 Credits

Offered Fall Odd-numbered Years

This course examines the international relations of Arctic states and topics related to the circumpolar north. It covers environmental changes and their effects on human security and Indigenous lives, energy exploration and development, northern security and emerging shipping routes. It also addresses national Arctic strategies and the Arctic Council.

Prerequisites: Upper-division standing.

Stacked with ACNS F652.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F454 International Law and the Environment (s)

3 Credits

Offered As Demand Warrants

This course addresses international case law regulating the sea, airspace, outer space and the polar regions; comprehensive international regulatory and legal instruments to protect the environment; and the doctrines, principles, and rules of international law that are basic to an understanding of international legal regimes and the environment.

Prerequisites: Upper-division standing.

Recommended: Undergraduate course in international law, organization, or politics.

Stacked with ACNS F654; PS F654.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F455 Political Economy of the Global Environment (s)

3 Credits

Offered Spring Odd-numbered Years

Interactions between basic aspects of the global economy (international trade, investment and development) and the natural environment. Topics include the economic impact of global environmental agreements and the environmental impact of global markets, transnational corporations and development assistance by organizations such as the World Bank.

Prerequisites: COM F131X or COM F141X; upper-division standing.

Stacked with ACNS F655; PS F655.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F456 Science, Technology and Politics (s)

3 Credits

Offered As Demand Warrants

Relationship of science, technology and politics. Connections among scientific knowledge, technology, technological innovations, politics and power. Gender roles and the influence of Western science. Both historical and comparative aspects are included. Course is also available online.

Prerequisites: COM F131X or COM F141X; upper-division standing.

Recommended: PS F101X.

Stacked with ACNS F656; PS F656.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F458 Comparative Environmental Politics (s)

3 Credits

Offered Spring Even-numbered Years

Enduring issues of the field of comparative politics and their relation to global environmental problems. Biodiversity, transboundary pollution capacity, political processes and organizations, and international commitments all potentially shape the nature and dynamics of global environmental politics and vice versa. Course is also available online.

Prerequisites: Upper-division standing.

Recommended: PS F201X.

Stacked with ACNS F658; PS F658.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F460 Government and Politics of Canada (s)

3 Credits

Offered As Demand Warrants

The Canadian political system, covering the Canadian constitution, federal structure, parliamentary government and public policy, as well as contemporary issues concerning Native rights and the Canadian North. Students will complete a major research paper on specific policy areas (language, education, health care, environment, natural resources, foreign relations).

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PS F201X; upper-division standing.

Stacked with ACNS F660; PS F660.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F462 Alaska Government and Politics (s)

3 Credits

Offered Spring Even-numbered Years

This course examines Alaska's government and politics, as a case of American state and local government, and governance in the circumpolar North. It covers topics such as the state's political history, constitution, political parties, interest groups, elections, governorship, legislature, judiciary, bureaucracy and local governments.

Prerequisites: Upper-division standing.

Stacked with ACNS F662; PS F662.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F464 East Asian Governments and Politics (s)

3 Credits

Offered As Demand Warrants

Modern East Asia (including China, Taiwan, Japan, North and South Korea) politics and society, including governmental institutions, political processes and regional and global foreign relations.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PS F201X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F466 African Politics (s)

3 Credits

Offered As Demand Warrants

This course provides students with an introduction to contemporary African politics. In doing so, this class addresses a number of core interrelated themes related to politics across the African continent including: state-building, political order and violence, democratization, economic development and African's evolving relationship with the international system.

Prerequisites: PS F100X, PS F201X, PS F202.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F467 Political Development in Latin America and the Caribbean (s)

3 Credits

Offered As Demand Warrants

Exploration of major issues and concepts in development and governances of modern Latin America and the Caribbean region, including legacies of colonialism, revolution, military rule, economic challenges and the quest for democratic stability. Includes a historical overview of region and cases drawn from the Caribbean, Mexico, Central and South America.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HIST F275.

Cross-listed with HIST F467.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F468 Government and Politics of Russia (s)

3 Credits

Offered As Demand Warrants

This course examines the history, politics, economics and geography of Russia, with focus on changes in Russian government, society, and domestic and foreign policy over time. Students will learn the nature of the evolving Russian regime, leadership, economic forces and the political struggles in governance and democracy.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PS F201X.

Stacked with ACNS F668; PS F668.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F469 Arctic Politics and Governance

3 Credits

Offered Fall

This course traces current developments in Arctic politics and governance from multiple perspectives, including exploring interests, processes, and behaviors of Arctic governments and non-state actors, individually and collectively. The course surveys the formal and informal institutions that govern resource development, pollution, shipping, state-indigenous relations and security.

Prerequisites: Junior-level standing.

Recommended: PS F221X; PS F450 or ANS F450.

Stacked with PS F669, ACNS F669.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F472 Ethics in International Affairs (h)

3 Credits

Offered Spring Odd-numbered Years

Examination of questions including: What is in the interest of the nation-state according to the logic of statecraft? How does the national interest relate to broader human interest? How does morality relate to the international legal order? Examination is through theory and case studies.

Prerequisites: PHIL F322X or PS F221X.

Cross-listed with PHIL F472.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PS F473 Politics and Film (s)

3 Credits

Offered As Demand Warrants

Engage film with a critical political perspective. Concepts related to political power, society, and nature are surveyed through political science literature and politics-themed films. Quests for political power, difficulties of governance, politics of campaigns and elections, privacy and government surveillance, and political violence are concepts explored in this course.

Prerequisites: PS F101X.**Cross-listed with** FLPA F473.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F475 Internship in Public Affairs (s)**

3 Credits

Offered Fall, Spring and Summer

Study of public agencies or organizations through actual experience.

Prerequisites: Upper-division standing; permission of instructor.**Lecture + Lab + Other:** 0 + 0 + 10**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 12 credits**PS F499 Senior Thesis**

3 Credits

Thesis will draw from the literature in at least two sub-fields of political science (U.S. government/politics, political theory, public law, comparative politics, international relations) in its analysis.

Prerequisites: WRTG F111X; WRTG F211X or WRTG F213X; PS F101X; PS F222; senior standing; permission of instructor.**Lecture + Lab + Other:** 1.5 + 0 + 7.5**Grading System:** Letter Grades with option of Plus/Minus**PS F603 Public Policy**

3 Credits

Offered Spring Odd-numbered Years

The processes of policy development, implementation and change are analyzed with major policy frameworks and models used in contemporary political science. These frameworks and models will be applied to environmental sustainability and other social policy issues. Students develop expertise in specific policy area, completing oral presentations related their policy interests.

Prerequisites: Graduate Standing.**Cross-listed with** ACNS F603.**Stacked with** PS F403.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F647 U.S. Environmental Politics**

3 Credits

Offered Spring

U.S. political institutions as they relate to making policies for protecting the quality of the natural environment. The politics of nuclear waste, endangered species, air and water pollution, and wilderness preservation. Analysis of the National Environmental Policy Act, sustainable development, limits to growth and other topics.

Prerequisites: Graduate Standing.**Cross-listed with** ACNS F647.**Stacked with:** PS F447.**Special Notes:** Course is also available online.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F650 Comparative Indigenous Rights and Policies**

3 Credits

Offered Spring Odd-numbered Years

Comparative approach to analyzing Indigenous rights and policies in different nation-state systems. Multiple countries and specific policy developments examined for factors promoting or limiting self-determination.

Prerequisites: Graduate Standing.**Cross-listed with** ACNS F657.**Stacked with** PS F450; ANS F450.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F652 International Relations of the North**

3 Credits

Offered Fall Odd-numbered Years

This course examines the international relations of Arctic states and topics related to the circumpolar north. It covers environmental changes and their effects on human security and Indigenous lives, energy exploration and development, northern security and emerging shipping routes. It also addresses national Arctic strategies and the Arctic Council.

Prerequisites: Graduate standing.**Cross-listed with** ACNS F652.**Stacked with** PS F452.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F654 International Law and the Environment**

3 Credits

Offered As Demand Warrants

This course addresses international case law regulating the sea, airspace, outer space and the polar regions; comprehensive international regulatory and legal instruments to protect the environment; and the doctrines, principles, and rules of international law that are basic to an understanding of international legal regimes and the environment.

Prerequisites: Graduate standing.**Recommended:** Undergraduate course in international law, organization or politics.**Cross-listed with** ACNS F654.**Stacked with** PS F454.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F655 Political Economy of the Global Environment**

3 Credits

Offered Spring Odd-numbered Years

Interactions between basic aspects of the global economy (international trade, investment and development) and the natural environment. Topics include the economic impact of global environmental agreements and the environmental impact of global markets, transnational corporations and development assistance by organizations such as the World Bank.

Prerequisites: Graduate standing.**Cross-listed with** ACNS F655.**Stacked with** PS F455.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PS F656 Science, Technology and Politics

3 Credits

Offered As Demand Warrants

Relationship of science, technology and politics. Connections among scientific knowledge, technology, technological innovations, politics and power. Gender roles and the influence of Western science. Both historical and comparative aspects are included. Course is also available online.

Prerequisites: Graduate standing.**Recommended:** PS F101X.**Cross-listed with** ACNS F656.**Stacked with** PS F456.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F658 Comparative Environmental Politics**

3 Credits

Offered Spring Even-numbered Years

Enduring issues of the field of comparative politics and their relation to global environmental problems. Biodiversity, transboundary pollution capacity, political processes and organizations, and international commitments all potentially shape the nature and dynamics of global environmental politics and vice versa. Course is also available online.

Prerequisites: Graduate standing.**Recommended:** PS F201X.**Cross-listed with** ACNS F658.**Stacked with** PS F458.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F660 Government and Politics of Canada**

3 Credits

Offered As Demand Warrants

The Canadian political system, covering the Canadian constitution, federal structure, parliamentary government and public policy, as well as contemporary issues concerning Native rights and the Canadian North. Students will complete a major research paper on specific policy areas (language, education, health care, environment, natural resources, foreign relations).

Prerequisites: PS F201X; graduate standing.**Cross-listed with** ACNS F660.**Stacked with** PS F460.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F662 Alaska Government and Politics**

3 Credits

Offered Spring Even-numbered Years

This course examines Alaska's government and politics, as a case of American state and local government, and governance in the circumpolar North. It covers topics such as the state's political history, constitution, political parties, interest groups, elections, governorship, legislature, judiciary, bureaucracy and local governments.

Prerequisites: Graduate standing.**Cross-listed with** ACNS F662.**Stacked with** PS F462.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F668 Government and Politics of Russia**

3 Credits

Offered As Demand Warrants

This course examines the history, politics, economics and geography of Russia, with focus on changes in Russian government, society, and domestic and foreign policy over time. Students will learn the nature of the evolving Russian regime, leadership, economic forces and the political struggles in governance and democracy.

Prerequisites: PS F201X; graduate standing.**Cross-listed with** ACNS F668.**Stacked with** PS F468.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F669 Arctic Politics and Governance**

3 Credits

Offered Fall

This course traces current developments in Arctic politics and governance from multiple perspectives, including exploring interests, processes, and behaviors of Arctic governments and non-state actors, individually and collectively. The course surveys the formal and informal institutions that govern resource development, pollution, shipping, state-indigenous relations and security. A background in comparative politics and/or international relations is also recommended.

Prerequisites: PS F450, PS F452 or PS F454; graduate standing.**Cross-listed with** ACNS F669.**Stacked with** PS F469.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PS F692 Graduate Seminar**

1-6 Credits

Offered As Demand Warrants

Intensive study of selected topics in the discipline.

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**PS F692P Graduate Seminar**

1-6 Credits

Offered As Demand Warrants

Intensive study of selected topics in the discipline.

Lecture + Lab + Other: 1-6 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**PS F699 MA Thesis**

1-9 Credits

Prerequisites: Permission of instructor.**Lecture + Lab + Other:** 0 + 0 + 0**Grading System:** Pass/Fail Grades

Process Technology (PRT)

Community and Technical College

Process Technology Program

907-455-2800

PRT F101 Introduction to Process Technology

3 Credits

Offered Fall, Spring and Summer

Introduction to process operations in industry. Non-mathematical overview of general information, processes, procedures and equipment a process operator would be expected to know and use.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F110 Introduction to Occupational Safety, Health and Environmental Awareness**

3 Credits

Offered Fall

Overview of the field of safety, health and environment within the process industry. Covers plant hazards, safety, and environmental systems and equipment, and applicable government regulations and industry standards.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F117 Drafting for Technicians**

3 Credits

Offered As Demand Warrants

Skills and techniques needed to produce process piping and instrumentation drawings.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F120 Water Quality Management for Process Industries**

4 Credits

Offered As Demand Warrants

Overview of the chemistry, biology, hydraulics and hydrology related to water management in industries. Water distribution systems, water processing, operation of water works, wastewater processing, advanced wastewater treatment and water reuse.

Lecture + Lab + Other: 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F130 Process Technology I: Equipment**

4 Credits

Offered Spring

Selected process equipment including rotating machinery and process units. Emphasis on equipment components, construction, preventative maintenance and safety. Includes hands-on experience.

Prerequisites: PRT F101.**Lecture + Lab + Other:** 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F135 Stationary Equipment**

4 Credits

Offered As Demand Warrants

A detailed hands-on lecture/lab course covering stationary equipment used in a variety of process industries. Piping, valves, vessels, tanks, exchangers, heaters, boilers, mineral processing, mill equipment and distillation equipment are covered.

Lecture + Lab + Other: 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F140 Industrial Process Instrumentation I**

3 Credits

Offered Spring

Physics of pressure, temperature, level and flow measurement; mechanical and electrical aspects of instruments used to control dynamics of processes. Dynamics of automatic control including proportional control, automatic reset, derivative action and integral timing.

Prerequisites: MATH F105.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F144 Industrial Process Instrumentation II**

3 Credits

Offered Fall

Continuation of PRT F140. Emphasis on repair, maintenance and calibration, including hands-on physical training on a wide variety of process instruments.

Prerequisites: PRT F140.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F160 Oil and Gas Exploration and Production I**

3 Credits

Offered As Demand Warrants

Surveys oil and gas exploration and production issues including marketing, geology, reservoir economics, legal aspects of resource ownership, drilling and production technologies, product separation, safety and environmental issues. Course may not be audited.

Prerequisites: Must be enrolled in the PRT program or permission of Program Chair.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F230 Process Technology II: Systems**

4 Credits

Offered Fall

Integration of equipment concepts to show how the individual components interact as part of a system and how each system works within an entire processing facility. Systems topics include upstream oil and gas production, petrochemicals and refinery processes, refrigeration, power generation, milling, boilers and heaters, coolers and heat exchangers.

Prerequisites: PRT F130.**Lecture + Lab + Other:** 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F231 Process Technology III: Operations**

4 Credits

Offered Spring

Duties and responsibilities of the process operator on the job. Includes the details of normal operation, upset conditions, emergency action plans, startups, shutdowns, operating modes, turnarounds and routing maintenance activity.

Prerequisites: PRT F230.**Lecture + Lab + Other:** 3 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus

PRT F240 Industrial Process Instrumentation III

3 Credits

Offered Spring

A study of digital and analog industrial measurement and control instrumentation, including continuous analog control loops, relay logic and programmable logic controllers. Emphasis is on commonly used process measurement devices, control methods and strategies, and the proper selection, identification, design, installation and operation of instrumentation.

Prerequisites: PRT F140; PRT F144.**Recommended:** MATH F113X or higher.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F248 Valve Maintenance and Instrumentation**

3 Credits

Offered Fall

Covers maintenance and operation of gate, globe, ball, plug, check and special-purpose valves. Details of actuators and various accessories related to valve maintenance and control will be explained and related to valve selection based on application. Industrial process control valve maintenance and basic calibrations.

Recommended: PRT F130.**Lecture + Lab + Other:** 3 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F250 Process Troubleshooting**

3 Credits

Offered Spring

Troubleshooting process operations and problems. Using indicators, variables and controllers along with a formalized process of troubleshooting. Troubleshooting examples will reflect current needs of industry.

Prerequisites: PRT F230.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F255 Quality Concepts for the Process Industry**

1 Credit

Offered Fall, Spring and Summer

Introduction to current quality concepts applied to role of process technician. Includes quality concepts with respect to the client and the role of statistical processes used by the operator in achieving quality.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PRT F275 Process Technology Internship**

1-9 Credits

Offered As Demand Warrants

Working experience in and exposure to various stages and settings within the process industry. Endorsed and promoted by Alaska Process Industry Careers Consortium, the internship is an intensive exposure to the various duties and responsibilities of the process operator in Alaska. A maximum of 9 credits may be earned.

Prerequisites: Permission of instructor.**Recommended:** PRT F101, PRT F110, PRT F140.**Lecture + Lab + Other:** 0 + 5-45 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 9 times for up to 9 credits

Psychology (PSY)

College of Liberal Arts

Department of Psychology (<https://www.uaf.edu/psych/>)

907-474-7007

PSY F101X Introduction to Psychology (s)

3 Credits

Offered Fall and Spring

Principles of general psychology emphasizing natural science and social science orientation. Cultural, environment, heredity and psychological basis for integrated behavior; visual, audition and the other senses; motivation and emotion; basic processes in learning, problem solving, and thinking; personality; psychological disorders – their prevention and treatment, and therapeutic strategies.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F123X Sleepless in Alaska: Sleep, Health and You**

3 Credits

Offered Spring Odd-numbered Years

Sleep is essential! Health and well-being are compromised greatly without adequate sleep. This broad survey course will explore factors that affect sleep quality, sleep disorders, sleep research, the biological mechanisms of sleep, the unique role of Arctic light conditions, how sleep influences daily life, and students' own sleep habits.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F240 Psychology of Development (s)**

3 Credits

Offered Fall and Spring

The psychology of human development from conception to death. Critical emphasis on theory and research within the field of developmental psychology with the role of culture as an influencing factor.

Prerequisites: PSY F101X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F245 Child Development (s)**

3 Credits

Offered Fall and Spring

A study of the physical, cultural, emotional, cognitive and social aspects of a child's development from prenatal period through early adolescence. Focus on developmental theories including Erickson, Gardner, Gilligan, Kagen, Sternberg, Vygotsky and other contemporary theories of child and adolescent development.

Prerequisites: WRTG F111X.**Cross-listed with** ED F245.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F250 Introductory Statistics for Social Sciences**

3 Credits

Offered Fall and Spring

Statistics applied to social scientific topics. Includes descriptive statistics, frequency distributions, sampling distributions, elementary probability, estimation of population parameters, hypothesis testing (one and two sample problems), correlation, simple linear regression and one-way analysis of variance.

Prerequisites: MATH F113X, MATH F122X, MATH F151X, ALEKS score of 30 or higher; PSY F101X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PSY F275 Introduction to Social Science Research Methods (s)

3 Credits

Offered Fall and Spring

Introduction to research methods in psychology. Includes the scientific process, developing research ideas, experimental and non-experimental designs, sampling, surveys and data analysis.

Prerequisites: PSY F101X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F298 Undergraduate Research**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 1-6**Grading System:** Letter Grades with option of Plus/Minus**PSY F304 Personality (s)**

3 Credits

Offered Spring Even-numbered Years

Personality Psychology explores the individual differences in how people think, feel and behave. This course examines the theories, both historical and modern, that explain these differences and the methods that produced them. Biological, developmental, cultural and psychopathological influences on individual differences are explored.

Prerequisites: PSY F101X; PSY F275 (course may be taken concurrently).**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F309 Psychology of Stress (s)**

3 Credits

Offered Spring

This course examines major theories and research describing how stress affects human health and well-being. Students will examine psychological and biological models detailing the interactive nature of stress effects, and explore biological, psychological, social, emotional, and environmental influences of the stress response. Stress management techniques and applications will be investigated.

Prerequisites: PSY F101X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F315 Positive Psychology**

3 Credits

Offered As Demand Warrants

Positive psychology includes theoretical and practical applications of the psychological concepts and issues that prevent and enable human flourishing. This course specifically explores the well-being domains of positivity, engagement, relationships, meaning, achievement and vitality.

Prerequisites: PSY F101X; PSY F275.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F318 Psychology of Play**

3 Credits

Offered As Demand Warrants

Examines the influence of play on human behavior throughout the lifespan. Students investigate why people play, play's relationship to mood and learning, effects of restricting play, and differences between adult and childhood play. This course supports understanding through critical inquiry of existing research, application and reflection.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F320 History and Systems of Psychology (s)**

3 Credits

Offered As Demand Warrants

The history of present psychology from associationism to humanism with attention to both the philosophical and physiological foundations of psychology, the most important theorists and movements, and paradigmatic shifts in the evolution of contemporary psychological systems.

Prerequisites: PSY F101X.**Recommended:** previous or current enrollment in PSY F275.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F330 Social Psychology (s)**

3 Credits

Offered Fall

Analysis of intergroup relationships in terms of process and value orientation, their influences on the personality, and aspects of collective behavior on group and person. Aspects of social interaction that have cultural and intercultural variation. Also available online via UAF eCampus.

Prerequisites: PSY F101X; PSY F275.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F333 Human Sexualities Across Cultures (s)**

3 Credits

Offered As Demand Warrants

Exploration of how people in a variety of cultures, both contemporary and historical, construct the meaning and experience of sexuality and express themselves as sexual beings. Interdisciplinary study includes psychology, sociology, anthropology, gender studies and related fields, with particular focus determined by which department is offering the course.

Prerequisites: PSY F101X or WGS F201X.**Cross-listed with** WGS F332.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F335 Brain and Behavior (n)**

3 Credits

Offered Spring Odd-numbered Years

Study of the biological bases of human behavior. Emphasis on functional anatomy of the nervous system to understand normal behavior and behavioral disorders in terms of their psychology, development, evolution and function. Meets one-half of core upper division oral communication intensive requirement.

Prerequisites: COM F131X or COM F141X; PSY F101X; PSY F275.**Recommended:** BIOL F112X or BIOL F116X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**PSY F337 Sport Psychology**

3 Credits

Offered As Demand Warrants

Theoretical and practical applications of psychological issues related to participation in physical activities, including exercise adherence, performance enhancement, group dynamics, leadership and coaching behaviors, arousal/anxiety, intervention strategies and lifespan participation.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PSY F101X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

PSY F345 Mental Health and Psychopathology (s)

3 Credits

Offered Fall

A study of atypical behavior, including causes, treatment and social impact. Theoretical, clinical, cultural and experimental perspectives of psychopathology research are examined, with an emphasis on terminology, classification, etiology and treatment of the major disorders. Special attention is placed on how culture affects the prevalence, experience and treatment of psychopathology.

Prerequisites: PSY F101X; PSY F275 (may be taken concurrently).

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F360 Psychology of Women Across Cultures (s)

3 Credits

Offered As Demand Warrants

Major theories, research and empirical data which describes the psychology of women as a discrete field, philosophical values of feminism and history of women's roles in society. The impact of culture on women interpersonally and intrapsychically examined across cultures.

Prerequisites: COM F131X or COM F141X; PSY F101X or WGS F201X.

Cross-listed with WGS F360.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F365 Forensic Psychology (s)

3 Credits

Offered As Demand Warrants

Forensic Psychology examines the relationship between psychology (application, theory, research) and the criminal justice system, through the role of the forensic psychologist.

Prerequisites: WRTG F111X; PSY F101X.

Recommended: PSY F275 or any undergraduate research methods course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F370 Drugs and Behavior (s)

3 Credits

Offered As Demand Warrants

Explores the effects of licit, illicit, therapeutic and non-therapeutic drugs on behaviors, physiology, emotions and thought processes. Introduction to factors impacting these effects, including cultural, environmental and societal influences. Topics include alcoholism, law enforcement and legal aspects of drug use/abuse, drug education alternatives and treatment and rehabilitation of drug users.

Prerequisites: PSY F101X.

Recommended: PSY F275.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F390 Psychology of Work (s)

3 Credits

Offered Fall

Application of psychological principles, theories and methods to issues related to work processes and work organizations. Includes employee selection, motivation, performance appraisal, decision-making, group dynamics, power and leadership, job design, and organizational change and development.

Prerequisites: PSY F101X; PSY F275.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F392 Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

PSY F401 Culture and Psychology (s)

3 Credits

Offered Fall and Spring

Examines cultural influences on human thought behavior; interactions of culture and self; multicultural experiences and intercultural relations. Presents a survey of historic and contemporary psychological research and theory on culture with a consideration of unique methodological challenges presented by cross-cultural psychological research.

Prerequisites: PSY F101X; PSY F275; senior standing and 9+ psychology credits with a grade of C- or higher.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F426 Environmental Psychology and Human Well-being (s)

3 Credits

Offered As Demand Warrants

This course explores the effects of the environment on human behavior, health, and well-being. Critical evaluation of human interactions with nature and consideration of arctic environments are emphasized.

Students will explore the unique relationships between humans and nature while examining the role of nature on health, mental health, and behavior.

Prerequisites: PSY F101X; WRTG F111X; WRTG F211X, WRTG F213X.

Crosslisted with ACNS F426.

Stacked with PSY F626; ACNS F626.

Special Notes: Research Methods such as PSY F275 is recommended prior to taking this course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F430 Rural and Alaska Native Psychology (an)

3 Credits

Offered Spring Odd-numbered Years

Introduces rural psychology, including diversity of rural communities, with emphasis on Alaska Native populations and the rural circumpolar North. Introduces rural research collaborations, health promotion, prevention and behavioral health, including cultural and contextual considerations affecting research and services, and the significance of Alaska Native values, knowledge and ways of life.

Prerequisites: PSY F101X, SOC F101X, ANTH F100X; PSY F275, (may be taken concurrently), PS F222, JUST F222, SWK F375 (may be taken concurrently).

Stacked with ACNS F630.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F440 Theories of Learning (s)

3 Credits

Offered Fall Odd-numbered Years

Theory and research on the fundamentals of learning. Topics include information processing, attention, learning processes, decision-making, memory and retrieval, and the biological and cultural considerations relevant to each.

Prerequisites: PSY F101X; PSY F275; nine credits of psychology courses with a grade of C- or higher.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F445 Community Psychology (s)

3 Credits

Offered Fall

Overview of principles and applications of community psychology, emphasizing person-environment interactions and societal and cultural impacts upon individual and community functioning. Attention given to interventions which facilitate psychological competence and empowerment, prevent disorder, and promote social change.

Prerequisites: PSY F101X; PSY F275; 9 credits of psychology courses with a grade of C- or higher.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F448 Understanding FASD: Diagnosis, Intervention and Strategies

3 Credits

Offered Spring and Summer

This is an overview course designed to educate candidates about Fetal Alcohol Spectrum Disorder: how they are acquired, current diagnostic strategies; intervention strategies within social services, therapeutic environments and school settings; and individual case management strategies. By the end of the course candidates should possess knowledge of working with children affected by fetal alcohol spectrum disorders, understand the psychosocial implications of this disorder, and be able to identify best possible strategies to accommodating and intervening with these individuals in a classroom setting.

Cross-listed with EDSE F448.

Stacked with PSY F648; EDSE F648.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F450 Comparative Psychology (n, s)

3 Credits

Offered As Demand Warrants

This course presents an integrated multidisciplinary exploration of animal behavior, cognition, and emotion presented from perspectives in psychology, ethology, and biology. It includes topics such as adaption, play, social behaviors, learning, intelligence, and emotions in a variety of species.

Prerequisites: PSY F101X and PSY F275.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F455 Clinical Psychology

3 Credits

Offered As Demand Warrants

Survey course in clinical psychology. Clinical psychologists specialize in mental and behavioral healthcare, as well as consulting, training, education, supervision, and research. This course explores several common therapy approaches. It addresses ethics in clinical practice, cross-cultural counseling, and issues in psychological assessment and treatment. Basic psychotherapy skills are explored experientially.

Prerequisites: Nine credit hours of PSY courses to include PSY F101X and PSY F345.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F469 Health Psychology

3 Credits

Offered Spring

Scientific study of behaviors relating to wellness, health, disease and injury prevention, safety and rehabilitation across cultures. While mental health is included, the emphasis is on physical health.

Prerequisites: PSY F101X; PSY F275; 9 credits of psychology courses with a grade of C- or higher; senior standing.

Stacked with PSY F669.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F470 Sensation and Perception (s)

3 Credits

Offered Spring Even-numbered Years

An integrated psychological and physiological approach to sensation, including the fundamental mechanisms of vision, hearing, taste, smell and movement. Emphasis will include theoretical models and systems of perception, and how they are influenced by cultural, developmental, hereditary, physiological, psychological and social factors. Meets core upper division writing/oral intensive requirements.

Prerequisites: COM F131X or COM F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; nine credit hours of PSY courses (which must include PSY F101X and PSY F275).

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F475 Research Design and Analysis in Psychology (s)

3 Credits

Offered Fall Even-numbered Years

This course provides an integrated approach to the study of research design and analysis in psychology with an emphasis on research methodologies and techniques. Includes design, execution and analysis of social science research.

Prerequisites: PSY F101X; PSY F250 or STAT F200X; PSY F275; senior standing and 9+ credits of psychology courses with a grade of C- or higher.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F480 Qualitative Social Science Research (s)

3 Credits

Offered Fall Odd-numbered Years

Introduction to the theory and methods of qualitative research. Students will learn to investigate the social world using a variety of qualitative data collection approaches (such as interviews, focus groups, and observation) as well as analyze and share qualitative results.

Prerequisites: PSY F275.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F485 Senior Seminar (s)

3 Credits

Offered Spring

Synthesis and integration of knowledge and skills developed by psychology majors. Includes a general knowledge of psychology, a basic knowledge of the research process and methods, insights into the way culture, gender, ethnicity, social class, and other diversity issues influence research and practice in psychology.

Prerequisites: PSY F275; Psychology major with senior standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F488 Practicum in Psychology

1-6 Credits

Individual practice and training to work in a setting or experience the work of a psychologist. Faculty supervision on campus or on site. Requires 50 clock hours per credit hour. Placement must be arranged during the prior semester before registering for this course.

Prerequisites: PSY F101X; psychology major with junior or senior standing; with minimum 12 credits of psychology.

Recommended: PSY F275.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 6 credits

PSY F492 Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

PSY F498 Research

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

PSY F499 Thesis

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

PSY F603 Alaska and Rural Psychology

3 Credits

Offered Spring

Introduces rural community psychology, including the diversity of rural communities, with emphasis on Alaska and the rural circumpolar North. Provides an introduction to rural health promotion, prevention and behavioral health care, and a basis for understanding many of the issues of services planning and delivery in rural areas.

Prerequisites: PSY F632; graduate standing in Psychology.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F605 History and Systems of Psychology

1 Credit

Offered Fall

A brief philosophically oriented overview of the history of psychology. Compares Western psychology in the 19th and 20th centuries and selected indigenous psychologies of Asia and North America. Special attention is given to systems of thought that have emerged since the founding of psychology as an empirical science. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: Graduate standing in Psychology.

Special Notes: Course will be video-conferenced between UAA and UAF campuses.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F606 Indigenous Ways of Healing

3 Credits

Offered As Demand Warrants

Explores healing from a variety of Indigenous perspectives, particularly from an Alaska Native perspective. Emphasizes the preparation and education of healers, their roles and work and integration within the community. Students will have the opportunity to examine the possible integration of clinical and community psychology with indigenous approaches to healing.

Prerequisites: Graduate standing in Psychology.

Crosslisted with CCS F606.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F607 Cognition, Affect and Culture

3 Credits

Offered Spring

Presents an overview of attention, memory, appraisal and emotion with applications to clinical psychology in a cultural context. Cultural influences on emotional experience and cognition are explored. The etiology and treatment of psychological disorders with significant cognitive and affective disturbance are explored. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: Graduate standing in Psychology.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F611 Ethics and Professional Practice

3 Credits

Offered Spring

Comprehensive overview of ethical principles and legal statutes involved in clinical and community practice and research. Designed as a forum for discussion of ethical issues and other concerns relevant to professionals in psychology, with particular emphasis given to ethical issues in cross-cultural and rural contexts in Alaska. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: Admittance to the Psychology Ph.D. program.

Special Notes: Course will be video-conferenced between UAA and UAF campuses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F612 Human Development in a Cultural Context

3 Credits

Offered Spring

Study of development theory, research and substantive applied issues across the life span. Particular emphasis on understanding how culture and sociocultural context impact the interplay of biology and environment in development of essential qualities and characteristics of individuals.

Prerequisites: Graduate standing in Psychology.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F616 Program Evaluation and Community Consultation I

3 Credits

Offered Fall

First in a two-course series, providing an overview of theories, methods and applications of program evaluation and community consultation as tools for facilitating systemic and programmatic changes in community and clinical settings. Seminar covers techniques of entry into various settings and designing program evaluations in collaboration with various community organizations. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: PSY F639; graduate standing in Psychology.

Special Notes: Course will be video-conferenced between UAA and UAF campuses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F617 Program Evaluation and Community Consultation II

3 Credits

Offered Spring

The second in a two-course series, introducing the principles and dynamics involved in various types of consultative relationships in community and clinical settings, with a focus on cross-cultural and ethical issues. Covers methods of program evaluation implementation and use of program evaluation findings for consulting with relevant stakeholders. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: PSY F616; graduate standing in Psychology.

Special Notes: Course will be video-conferenced between UAA and UAF campuses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F621 Indigenous Ways of Knowing

3 Credits

Offered Fall

Covers the appropriate and valid ways of describing and explaining human behavior by using the social context, culture and history of Indigenous groups. Includes Indigenous approaches to values, health, the interconnection of family and community; the nature of spirituality and Indigenous healing; and the importance of Elders and spiritual healers.

Prerequisites: Admittance to the Indigenous Studies or the Psychology Ph.D. program.

Cross-listed with CCS F621.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F622 Multicultural Psychopathology

3 Credits

Offered Fall

An overview of contemporary views on child and adult psychopathology from a multicultural perspective. The fundamentals of clinical interviewing and diagnostics. Includes training in the DSM-IV diagnostic system. The role of culture, ethnicity, gender and social class in symptom formation and the experience of psychological disorders will be examined. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: Graduate standing in Psychology.

Special Notes: Course will be video-conferenced between UAA and UAF campuses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F623 Intervention I

3 Credits

Offered Fall

Increases knowledge and skills related to traditional and nontraditional therapeutic interventions. Students are provided with a range of theoretical perspectives, a conceptual understanding of and an opportunity to practice a wide range of culturally relevant and appropriate techniques that are applicable in traditional and non-traditional community mental health settings. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: Graduate standing in Psychology.

Special Notes: Course will be video-conferenced between UAA and UAF campuses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F626 Environmental Psychology and Human Well-being

3 Credits

Offered As Demand Warrants

This course explores the effects of the environment on human behavior, health, and well-being. Critical evaluation of human interactions with nature and consideration of arctic environments are emphasized. Students will explore the unique relationships between humans and nature while examining the role of nature on health, mental health, and behavior.

Prerequisites: PSY F101X; WRTG F111X; WRTG F211X, WRTG F213X; graduate standing.

Crosslisted with ACNS F626.

Stacked with PSY F426; ACNS F426.

Special Notes: Research Methods such as PSY F275 is recommended prior to taking this course.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F629 Intervention II

3 Credits

Offered Spring

Deepens understanding of the variety and application of intervention techniques in diverse settings. Directs students to explore the efficacy of specific interventions in a range of settings and with a variety of populations. Shapes critical thinking and basic intervention evaluation skills. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: PSY F623; admittance to Psychology Ph.D. program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F632 Community Psychology Across Cultures

3 Credits

Offered Fall

An overview of theory, research and practice of community psychology with particular emphasis on cross-cultural themes, design and evaluation of interventions in remote and rural community settings, prevention and health promotion, and social change. Particular emphasis will be on issues relevant to Alaska Native communities. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: Graduate standing in Psychology.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F633 Tests and Measurement in Multi-cultural Context

3 Credits

Offered Fall

Principles of construction, analysis and evaluation of psychological tests in a multicultural context. Emphasizes culturally sensitive application of psychological tests and measurements. Focuses on the history, theory and methods of psychological testing by examining intelligence, personality and vocation. Discusses widely-used intelligence and personality tests and procedures. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: Graduate standing in Psychology.

Special Notes: Course will be video-conferenced between UAA and UAF campuses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F639 Research Methods

3 Credits

Offered Spring

Methods used for research in community, clinical and cross-cultural settings. Introduces epistemologies and ethics relevant to research with rural and indigenous people. Includes a variety of designs and data-gathering methods to improve understanding of behavior in social settings. Quantitative, qualitative and mixed method approaches will be presented. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: Admittance to Psychology Ph.D. program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F648 Understanding FASD: Diagnosis, Intervention and Strategies

3 Credits

Offered Spring and Summer

This is an overview course designed to educate candidates about Fetal Alcohol Spectrum Disorder: how they are acquired, current diagnostic strategies; intervention strategies within social services, therapeutic environments and school settings; and individual case management strategies. By the end of the course candidates should possess knowledge of working with children affected by fetal alcohol spectrum disorders, understand the psychosocial implications of this disorder, and be able to identify best possible strategies to accommodating and intervening with these individuals in a classroom setting. Research project required.

Prerequisites: Graduate standing.

Cross-listed with EDSE F648.

Stacked with PSY F448; EDSE F448.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F650 Multicultural Psychopathology

3 Credits

Offered Fall

Overview of child and adult psychological disorders from the perspective of cultural psychology. Fundamentals of therapeutic interviewing. Training in clinical application of the DSM-IV diagnostic system. Examination of the role of culture, ethnicity, gender and social class in symptom formation and the experience of illness.

Prerequisites: PSY F345; COUN F623; Admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Cross-listed with COUN F650.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F652 Practicum Placement: Clinical I

1-3 Credits

Offered Fall

Supervised clinical practicum experience in psychological interviewing, diagnosis and psychotherapy. Applied techniques focusing on delivery of clinical services in traditional or non-traditional clinical settings. Cultural factors are considered in each of these areas. May be repeated for a maximum of 9 credits.

Prerequisites: PSY F611; PSY F622; PSY F623; admittance to the Psychology Ph.D. program.

Lecture + Lab + Other: 1-3 + 0 + 7-20

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 9 credits

PSY F653 Practicum Placement: Clinical II

1-3 Credits

Offered Spring

Advanced clinical practicum experience designed to provide increased depth in applying theory to the practice and improving skills as a clinician. Covers application of psychological assessment principles. Impact of cultural factors continues as a major aspect of the practicum experience. May be repeated for a maximum of 9 credits.

Prerequisites: PSY F652; admittance to Psychology Ph.D. program.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 9 credits

PSY F657 Quantitative Analysis

3 Credits

Offered Fall

The underlying principles of statistics, including the logic of statistical inference, probability, power, effect size, and type one and two errors. Uses statistics for designs including the description of groups (data reduction), correlation, predictive models (regression), inferential statistics, analysis of mixed- method designs, and common nonparametric techniques. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: PSY F639; admittance to Psychology Ph.D. program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F658 Qualitative Analysis

3 Credits

Offered Fall

Introduction to the theory of qualitative inquiry, qualitative methodologies and basic techniques of qualitative research. Enables the student to use qualitative methods in research. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: PSY F639; graduate standing in Psychology.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F661 Multicultural Counseling

3 Credits

Offered Spring

An examination of cultural and ethnic variables in human nature and their effect on the counseling process. Focus on the nature and function of culture, universal- and culture-specific aspects of the counseling process, barriers to effective cross-cultural counseling, and methods of intellectual training with emphasis on Alaskan applications.

Prerequisites: Admittance to Master of Education Counseling or School Counselor Graduate Certification program.

Cross-listed with COUN F660.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F669 Health Psychology

3 Credits

Offered Spring

Scientific study of behaviors relating to wellness, health, disease and injury prevention, safety and rehabilitation across cultures. While mental health is included, the emphasis is on physical health.

Prerequisites: Graduate standing.

Stacked with PSY F469.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F672 Practicum Placement: Community I

3 Credits

Offered Fall

Community practicum experience designed to provide increased depth in applying theory to practice and improving skills as a community psychologist. Impact of cultural factors will be a major aspect of the practicum experience. The course will make use of Blackboard and E-res to support distance delivery. Students will also be under close supervision with a community organization. May be repeated for a maximum of 9 credits.

Prerequisites: Graduate standing in Psychology.

Special Notes: Course will be video-conferenced between UAA and UAF campuses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 9 credits

PSY F673 Practicum Placement: Community II

3 Credits

Offered Spring

An advanced community practicum experience designed to provide increased depth in applying theory to practice and improving skills as a community psychologist. Impact of cultural factors will be a major aspect of the practicum experience. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery. Students will also be under close supervision with a community organization. Second phase of PSY F672.

Prerequisites: PSY F672; graduate standing in Psychology.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F679 Multicultural Psychological Assessment I

3 Credits

Offered Spring

Introduces administration, scoring and interpretation of various intellectual and objective personality assessment instruments, as well as their psychometric properties, for children and adults. Emphasis on the meaningful integration of test results into a culturally sensitive assessment report. Highlights professional and ethical issues related to multicultural assessment practices emphasizing Alaska Natives. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: PSY F633; admittance to the Psychology Ph.D. program.

Special Notes: Course will be video-conferenced between UAA and UAF campuses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F681 Substances of Abuse in Alaska

1 Credit

Offered Fall

Overview of the most prevalent substances of abuse in Alaska including physical, psychological, social and medical consequences of use and abuse. First in the sequence PSY F681, PSY F682, and PSY F683. For doctoral students in the program. In exceptional cases to students not in the doctoral program, but with appropriate background and training will be given special permission to take the course.

Prerequisites: Admittance into the Psychology Ph.D. program.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F682 Substance Abuse Assessment and Treatment Planning

1 Credit

Offered Fall

Specialized tests, measurement and treatment planning for substance abuse. Emphasis on integrating results into culturally relevant treatment plans following the American Society for Addiction Medicine dimensional criteria. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery. PSY F682 is the second in a continuing series that includes PSY F681 and PSY F683. For doctoral students in the program, it is to be taken as a series. In exceptional cases, students not in the doctoral program but with the appropriate background and training will be given special permission to take the course.

Prerequisites: Admittance to Psychology Ph.D. program.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F683 Clinical Interventions in Substance Abuse

1 Credit

Offered Fall

Conceptualizing substance abuse as a continuum from intervention to after-care. Relevant evidence-based interventions and therapeutic communities are addressed within the context of rural Alaska Native communities. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: Admittance to the Psychology Ph.D. program.

Special Notes: PSY F683 is the third in a continuing series that includes PSY F681 and PSY F682; For doctoral students in the program, it is to be taken as a series; In exceptional cases, students not in the doctoral program but with the appropriate background and training will be given special permission to take the course.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F684 Clinical Supervision

3 Credits

The clinical, ethical and cultural issues involved in supervision. Contemporary, empirically supported information regarding various approaches to supervision will be examined. Covers both the relationship inherent in clinical supervision and training in leadership and supervision of employees in other work settings. The course will make use of Blackboard and E-res to support distance delivery.

Prerequisites: PSY F653; admittance to Psychology Ph.D. program.

Special Notes: Course will be video-conferenced between UAA and UAF campuses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F686 Predoctoral Internship

6 Credits

Understanding and application of assessment and intervention techniques in diverse settings. Students are placed in clinical or community settings for 40 hours per week to apply and sharpen skills. Students work under a local supervisor who manages student caseloads and assignments in collaboration with the course instructor. Approval contingent upon approval of Dissertation proposal and of DCTs (Directors of Clinical Training).

Lecture + Lab + Other: 6 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

PSY F687 Multicultural Psychological Assessment II

3 Credits

Advanced psychological assessment tools including interviews, projective techniques and neurocognitive assessment. Emphasis on the integration of cognitive personality and other test results derived from an assessment battery into a meaningful and culturally sensitive psychological assessment report. The course will make use of Blackboard and E-res to support distance delivery

Prerequisites: PSY F679; admittance to Psychology Ph.D. program.

Special Notes: Course will be video-conference between UAA and UAF campuses.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

PSY F692 Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 99 credits

PSY F692P Seminar

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken unlimited times for up to 99 credits

Recreation (RECR)

Community and Technical College

General Academic & Technical Programs (<https://www.ctc.uaf.edu/>)
907-455-2800

RECR F110A Beginning Swimming

1 Credit

Offered As Demand Warrants

Beginning level swimming skills, proper breathing techniques and beginning strokes. Emphasizes personal water safety.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Pass/Fail Grades

RECR F110B Intermediate Swimming

1 Credit

Offered As Demand Warrants

Intermediate-level swimming skills, proper breathing techniques and beginning strokes. Emphasizes personal water safety.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Pass/Fail Grades

RECR F110C Advanced Swimming

1 Credit

Offered As Demand Warrants

Advanced-level swimming skills, proper breathing techniques and beginning strokes. Emphasizes personal water safety.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Pass/Fail Grades

RECR F110D Conditioning Swimming

1 Credit

Offered As Demand Warrants

Covers proper warm-up and warm-down techniques, lap swim etiquette, and proper use of workout equipment.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Pass/Fail Grades

RECR F110E Beginning Scuba

1 Credit

Offered As Demand Warrants

Instruction and practice in beginning underwater aquatic activities.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Pass/Fail Grades

RECR F110J Fundamentals of Competitive Water Polo

1 Credit

Offered As Demand Warrants

Introduction to the game of water polo. Students will learn techniques used in water polo, as well as the basic rules and regulations of the sport.

Prerequisites: RECR F110D.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Pass/Fail Grades

RECR F120A Aerobics

1 Credit

Offered As Demand Warrants

Moderate to high impact dance routines set to music designed to increase cardiovascular strength, promote coordination, and increase overall body strength and flexibility.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F120C Beginning Yoga**

1 Credit

Offered As Demand Warrants

Beginning concepts and philosophy of yoga, breathing, postures, meditation, Sanskrit names of exercises, increased muscle tone and flexibility.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F120D Intermediate Yoga**

1 Credit

Offered As Demand Warrants

Intermediate concepts and philosophy of yoga, breathing, postures, meditation, Sanskrit names of exercises, increased muscle tone and flexibility.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F120F Exercise And Fitness**

1 Credit

Offered As Demand Warrants

Instruction and practice in activities at beginning through advanced levels including (but not limited to) multi-fitness conditioning, recreational fitness activities, running, cycling, walking, weight training, aerobics, power lifting, tai chi chuan and yoga.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F120G Military Fitness Training**

1 Credit

Offered As Demand Warrants

Instruction and practice in fitness activities concentrating on flexibility, strength, and muscular and cardiovascular endurance.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F120H Multi Fitness Conditioning**

1 Credit

Offered As Demand Warrants

An overview of medium to high intensity aerobic exercise and muscle strengthening, conditioning and toning.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F120J Weight Training**

1 Credit

Offered As Demand Warrants

Design and perform strength training routines using resistance to achieve overall fitness.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F120K Advanced Weight Training**

1 Credit

Offered As Demand Warrants

Design and perform strength training routines using resistance to achieve overall fitness.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F120L Zumba Fitness**

1 Credit

Offered As Demand Warrants

Introduction to basic Zumba Fitness/Latin dance steps from salsa, meringue, cumbia, reggaeton, and belly dance along with other international rhythms. Students will learn to identify the music, as well as a brief history of the dance.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130A Beginning Jazz Dance**

1 Credit

Offered As Demand Warrants

Develop a repertoire of jazz dance movement and terminology including plies, isolations, stretches, traveling steps, battements, pas de burres, jazz slides and turns. History of jazz dance.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130B Intermediate Jazz Dance**

1 Credit

Offered As Demand Warrants

Develop a repertoire of jazz dance movement and terminology including plies, isolations, stretches, traveling steps, battements, pas de burres, jazz slides and turns. History of jazz dance.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130C Advanced Jazz Dance**

1 Credit

Offered As Demand Warrants

Develop a repertoire of a jazz dance movement and terminology including plies, isolations, stretches, traveling steps, battements, pas de burres, jazz slides and turns. History of jazz dance.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130D Modern Dance**

1 Credit

Offered As Demand Warrants

Develop a repertoire of modern dance movement and terminology including contraction and release, swings, triplets, fall and recovery, rolls and improvisations.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130E Beginning Ballroom Dance**

1 Credit

Offered As Demand Warrants

Students with little or no background in social dance. Our aim is to have a good time and build a strong foundation for future learning. Dances covered include waltz, foxtrot, single-count swing, east coast swing, salsa, cha cha, merengue and, time permitting, polka.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades

RECR F130F Intermediate Ballroom Dance

1 Credit

Offered As Demand Warrants

Dances covered include waltz, foxtrot, single-count swing, east coast swing, salsa, cha cha, merengue and, time permitting, polka. Our aim is to have a good time and build a strong foundation for future learning. This course is for students with a beginning background in social dance.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130G Advanced Ballroom Dance**

1 Credit

Offered As Demand Warrants

Dances covered include waltz, foxtrot, single-count swing, east coast swing, salsa, cha cha, merengue and, time permitting, polka. Our aim is to have a good time and build an even stronger foundation for future learning. This course is for students with an intermediate background in social dance.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130H Beginning Ballet**

1 Credit

Offered As Demand Warrants

Instruction and practice in ballet at beginning levels.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130J Intermediate Ballet**

1 Credit

Offered As Demand Warrants

Instruction and practice in ballet at intermediate levels.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130K Advanced Ballet**

1 Credit

Offered As Demand Warrants

Instruction and practice in ballet at advanced levels.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130N Middle Eastern Dance**

1 Credit

Offered As Demand Warrants

Designed for students with some or no background in Middle Eastern dance or anyone who wants to refine their technique and gain a deeper understanding of the different styles, history and evolution of Middle Eastern dance from social dance to performance art. Majority of semester will focus on basic dance vocabulary and choreography as well as dancing with props such as veils and finger cymbals.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130Q Beginning Hip Hop**

1 Credit

Offered As Demand Warrants

Introduction to basic movements and terminology of hip hop dances and associated body movements. Students will gain these principles and ability to execute maneuvers presented in class.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130R Beginning Break Dance**

1 Credit

Offered As Demand Warrants

Introduction to basic movements and terminology of break dancing, and an understanding of associated body movements. Students will gain an understanding of these principles and an ability to execute maneuvers presented in class.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130S Beginning Contemporary Dance**

1 Credit

Offered As Demand Warrants

Contemporary dance is an opportunity for students to explore contemporary dance movement, and gain strength and flexibility to improve their ability to dance. Designed to introduce students to contemporary dance, the course will be a combination of stretching, conditioning, and dancing. Students will be expected to demonstrate an understanding of basic contemporary dance principles and interpretation upon completion.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130T Beginning Lyrical Dance**

1 Credit

Offered As Demand Warrants

Instruction and practice in lyrical dance at the beginning level. Students will gain an understanding of body movements and choreographic styles of lyrical dance, as well as an understanding of one's physical self as a dancer.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130U Hot Hula Fitness**

1 Credit

Offered As Demand Warrants

Hula Fitness incorporates traditional Polynesian drum beats as well as Hip Hop and Reggae music while performing dance movements from the South Pacific Islands. These movements give emphasis to core training and strengthening of the larger muscle groups. This unique and exciting exercise class encourages positive well-being and physical health.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130V Beginning Swing Dance**

1 Credit

Offered As Demand Warrants

Introduction to several forms of swing dance. Learn swing dance principles, techniques and steps to build a foundation for future learning and enjoyment. Dances will include Four Count (Country) Swing, East Coast Swing, West Coast Swing, and Hustle among others.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F130Y Beginning Tap Dance**

1 Credit

Offered As Demand Warrants

An opportunity for students to explore tap dance and develop an understanding and practice of movement skills basic to tap dance of America. Students will learn the basic steps while focusing on rhythm and coordination. A variety of tap styles will be introduced.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades

RECR F130Z Intermediate Swing Dance

1 Credit

Offered As Demand Warrants

Instruction at the intermediate level of swing dance. Learn intermediate level swing dance techniques and steps, and prepare for more advanced future dance learning and enjoyment. Dances will include Four Count (Country) Swing, East Coast Swing, Single Count Swing, West Coast Swing and Hustle.

Prerequisites: RECR F130V; or RECR F130E.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140A Beginning Fencing**

1 Credit

Offered As Demand Warrants

Beginning classical Italian style fencing, stresses form and bladework for both defense and offense. This style is difficult to learn, but when mastered is extremely effective.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140B Intermediate Fencing**

1 Credit

Offered As Demand Warrants

Intermediate classical Italian style fencing, stresses form and bladework for both defense and offense. This style is difficult to learn, but when mastered is extremely effective.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140C Advanced Fencing**

1 Credit

Offered As Demand Warrants

Advanced classical Italian style fencing, stresses form and bladework for both defense and offense. This style is difficult to learn, but when mastered is extremely effective.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140E Beginning Pistol Marksmanship**

1 Credit

Offered As Demand Warrants

Knowledge, skills and attitudes necessary for owning and using a pistol safely and to advance through the NRA marksmanship program. Pistol parts, operation, ammunition, gun safety, and shooting fundamentals. Safety will be the foremost concern.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140F Intermediate Pistol Marksmanship**

1 Credit

Offered As Demand Warrants

Intermediate knowledge, skills and attitudes necessary for owning and using a pistol safely and to advance through the NRA marksmanship program. Pistol parts and their operation, ammunition, gun safety, and shooting fundamentals. Safety will be the foremost concern.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140G Advanced Pistol Marksmanship**

1 Credit

Offered As Demand Warrants

Advanced knowledge, skills and attitudes necessary for owning and using a pistol safely and to advance through the NRA marksmanship program. Pistol parts and their operation, ammunition, gun safety, and shooting fundamentals. Safety will be the foremost concern.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140H Beginning Rock Climbing**

1 Credit

Offered As Demand Warrants

Introduction to rock climbing, knots, risk evaluation, gear, rope skills, belaying, rappelling, jumaring, prusiking and top rope techniques.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140J Intermediate Rock Climbing**

1 Credit

Offered As Demand Warrants

Intermediate rock climbing, multi-pitch techniques, belay in guide mode, rescue systems, advanced anchors, haul systems, lead belay with Grigri, basic crack climbing technique and trad protection.

Prerequisites: RECR F140H.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140K Advanced Rock Climbing**

1 Credit

Offered As Demand Warrants

An extension of beginning rock climbing. Hauling, aid climbing, advanced Jumar techniques, lead climbing, porta-ledge set up and taping.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140L Introduction to Ice Climbing**

1 Credit

Offered As Demand Warrants

Introduction to ice climbing, top-rope ice skills, movement and technique on ice, rope work, anchor systems, climbing gear, climbing ethics as well as risk assessment and management. No experience required.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140M Introduction to Fly Fishing and Fly Tying**

1 Credit

Offered As Demand Warrants

Fundamentals of fly casting, fishing and tying. Students will learn how to use a fly rod to place a fly with accuracy, tie fishing knots, construct their own leaders, learn where fish live and how best to catch (and release) them. Fish anatomy, behavior and habitat will be discussed.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140N Alaskan Fly Fishing and Tying**

1 Credit

Offered As Demand Warrants

The art and science of fly casting, fishing and tying.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades

RECR F140Q Tennis

1 Credit

Offered As Demand Warrants

Instruction and practice activities in tennis.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140R Billiards**

1 Credit

Offered As Demand Warrants

Basic billiards skill set, strokes and using "English" on the cue ball. Focus on cutthroat, eight ball and nine ball using BCA rules.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140T Beginning Golf**

1 Credit

Offered As Demand Warrants

Instruction and practice activities at beginning golf.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140U Intermediate Golf**

1 Credit

Offered As Demand Warrants

Instruction and practice activities in intermediate golf.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140V Bowling**

1 Credit

Offered As Demand Warrants

Instruction and practice activities in bowling.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140Y Kayaking**

1 Credit

Offered As Demand Warrants

Instruction and practice activities at beginning through advanced kayaking.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F140Z Canoeing**

1 Credit

Offered As Demand Warrants

Instruction and practice activities at beginning through advanced canoeing.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150A Beginning Aikido**

1 Credit

Offered As Demand Warrants

Aikido is a modern Japanese martial art that teaches coordination of mind and body to develop calmness in action and the strongest human condition. Includes KI extension exercises, basic rolling and falling, KI testing, and basic arts of self defense.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150B Intermediate Aikido**

1 Credit

Offered As Demand Warrants

Concentrates on learning to lead the KI development exercises. Breathing, movement, visualization techniques and moving meditation to teach how mind and body are interconnected. Advanced variations of the six basic self defense arts, advanced rolling and falling, Jo kata and individual and paired Bokken movements.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150C Advanced Aikido**

1 Credit

Offered As Demand Warrants

Instruction and practice in martial arts and combative activities at beginning through advanced levels including (but not limited to) boxing, aikido, karate and tae kwon do.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150D Beginning Karate**

1 Credit

Offered As Demand Warrants

Introduction to Shotokan karate, learning basic blocks, kicks and punches and defenses moves. Kata and kumite introduced. History and philosophy discussed.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150E Intermediate Karate**

1 Credit

Offered As Demand Warrants

Instruction and practice in intermediate karate.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150F Advanced Karate**

1 Credit

Offered As Demand Warrants

Instruction and practice in advanced karate.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150G Beginning Kung Fu/JiuJitsu/Tae Kwon Do**

1 Credit

Offered As Demand Warrants

Emphasis on technique and conditioning. Beginning stances and etiquette. The three basic katas. Partner work, training in stretching, conditioning, and breath control. Both self-defense and sporting applications. Course will cover the eight Kung Fu animal systems.

Activities will include but are not limited to: warm-ups, stretching, kicking, punching, kata, and partner work.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades

RECR F150H Intermediate Kung Fu/JiuJitsu/Tae Kwon Do

1 Credit

Offered As Demand Warrants

Emphasis on technique and conditioning. Intermediate stances and etiquette will be covered, along with an understanding of intermediate techniques and some of their applications. Partner work will be taught, along with training in stretching, conditioning, and breath control. Both self-defense and sporting applications. Will cover the eight Kung Fu animal systems. Activities will include but are not limited to: warm-ups, stretching, kicking, punching, kata, and partner work.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150J Advanced Kung Fu/JiuJitsu/Tae Kwon Do**

1 Credit

Offered As Demand Warrants

Instruction and practice in advanced movements, weapons and martial arts certificate promotions.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150K Beginning Tai Chi**

1 Credit

Offered As Demand Warrants

Instruction and practice in beginning tai chi.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150L Intermediate Tai Chi**

1 Credit

Offered As Demand Warrants

Instruction and practice in intermediate tai chi.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150M Advanced Tai Chi**

1 Credit

Offered As Demand Warrants

Instruction and practice in advanced tai chi.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150N Beginning Japanese Iaido and Swordsmanship**

1 Credit

Offered as Demand Warrants

The curriculum is based on the Muso Jikiden Eishin Ryu style of Iaido. This particular curriculum follows the techniques and teachings and Iwata Norikazu Sensei, as administered by the Roshukai organization of Japan, and promoted and taught by the British Eikoku Rosh branch in the UK.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150P Pickleball**

1 Credit

Offered As Demand Warrants

Pickleball combines elements of tennis, badminton and ping pong. This course will cover court etiquette, basic skills of forehand, backhand, serve, return and volley, game management and strategy, and scoring.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F150Q Intermediate Tennis**

1 Credit

Offered As Demand Warrants

Instruction and practice in tennis at the intermediate level, building improved consistency and increasing confidence with strokes.

Prerequisites: RECR F140Q.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F160B Varsity Athletics**

1 Credit

Offered As Demand Warrants

Instruction and practice in varsity athletics.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F160C Ultimate Frisbee**

1 Credit

Offered As Demand Warrants

Ultimate Frisbee, including catching and throwing the disc as well as both offensive and defensive strategies.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F160D Volleyball**

1 Credit

Offered As Demand Warrants

Skills of volleyball, game rules, plays and terminology.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F160E Beginning Archery**

1 Credit

Offered As Demand Warrants

Designed for the beginning through the intermediate archer. Use of recurve or compound bows. Current Olympic-style shooting methods along with different styles of target and field archery.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F160F Introduction to Mountaineering**

2 Credits

Offered As Demand Warrants

This course is designed to introduce the student to the sport of mountaineering.

Lecture + Lab + Other: 0 + 6 + 0**Grading System:** Pass/Fail Grades**RECR F160M Advanced Fly Fishing and Fly Tying**

1 Credit

Offered As Demand Warrants

Building on RECR F140M, students will learn how to more accurately use a fly rod, tie big-game fishing knots, construct furled leaders, and plan fly fishing trips, as well as how build and create fishing flies using advanced techniques. Information on Alaskan freshwater fish, habitat, entomology, and stream ecology will be covered as applicable.

Prerequisites: RECR F140M or RECR F140N.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Pass/Fail Grades

RECR F170A Beginning Ice Hockey

1 Credit

Offered As Demand Warrants

Beginning skating, passing, shooting, and team play. Power play and penalty kill. Practice game situation plays: odd man rushes, below the goal line play, and positional play. The sport of ice hockey in a group environment.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F170B Intermediate Ice Hockey**

1 Credit

Offered As Demand Warrants

Intermediate skating, passing, shooting, and team play. Power play and penalty kill. Practice game situation plays: odd man rushes, below the goal line play, and positional play. The sport of ice hockey in a group environment.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F170C Advanced Ice Hockey**

1 Credit

Offered As Demand Warrants

Advanced skating, passing, shooting, and team play. Power play and penalty kill. Practice game situation plays: odd man rushes, below the goal line play, and positional play. The sport of ice hockey in a group environment.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F170D Beginning Cross-country Skiing**

1 Credit

Offered As Demand Warrants

Instruction and practice in beginning cross-country skiing.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F170E Intermediate Cross-country Skiing**

1 Credit

Offered As Demand Warrants

Instruction and practice in intermediate cross-country skiing.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F170G Introduction to Ski Mountaineering**

1 Credit

Offered As Demand Warrants

Safe methods of winter travel in Alaska. Snowshoeing, skiing, gear and clothing, avalanche safety, climbing crevasse rescue skills, glaciers, winter camping skills, first aid.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F170M Curling**

1 Credit

Offered As Demand Warrants

Instruction and practice in curling.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F170N Introduction to Winter Camping**

1 Credit

Offered As Demand Warrants

Introducing students to outdoor adventure, travel and camping in Alaska while teaching fundamental outdoor survival skills. Equipping students with the necessary skills and knowledge to effectively and safely navigate with a map and compass, snowshoe, cross country ski, and camp in a wide variety of Alaskan conditions.

Prerequisites: Instructor permission required.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**RECR F170P Introduction to Arctic Backpacking**

1 Credit

Offered As Demand Warrants

Designed to introduce students to the art of backpacking the Arctic: route planning, food preparation, gear choices, and emergency preparedness leading to a week-long Arctic backpacking trip. Many of the Leave No Trace camping ethics that are important while backpacking in the Arctic will be addressed.

Lecture + Lab + Other: 0 + 0 + 3**Grading System:** Pass/Fail Grades**RECR F170Q Introduction to Dog Mushing**

1 Credit

Offered As Demand Warrants

This course is designed for students who have little to no experience in dog mushing and are interested in learning the basics of dog sledding in Alaska. Topics to be covered include: Techniques for operating a sled dog kennel; Introduction to sled dog management and maintenance; Hands-On Instruction on how to hook up and drive a team of 3 to 4 sled dogs; and offers an extended mushing experience. Must be enrolled with the Black Spruce Dog Sledding.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F180A Expedition Rock Climbing**

1 Credit

Offered As Demand Warrants

Course builds upon the basics of rock climbing by travel to a designated location to develop the ability to sport lead outside, apply fundamental concepts of placing removable rock protection (trad gear), and practice leads while placing trad gear in the rock. Students will also learn crack climbing movement techniques.

Prerequisites: RECR F140H or RECR F140J.**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Pass/Fail Grades**RECR F180B Introduction to Expedition Kayaking**

1 Credit

Offered As Demand Warrants

Designed to introduce students to the art of expedition tripping with inflatable kayaks with a float on primarily Class I and II water. The students will be involved with all aspects of planning and executing this awesome wilderness trip. Food and transportation is included in the field fee.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Pass/Fail Grades

RECR F180K Alaska Outdoor Adventures

1 Credit

Offered As Demand Warrants

Provides students with a survey of the wide variety of recreational experiences available in Interior Alaska. Course consists of outdoor field trip activities and field prep sessions focused on safety, planning, gear and logistics for each outdoor field trip. Acceptable risks include hiking, snowshoeing and skiing up steep hills with a backpack up to 40 pounds for 4-6 miles of rough terrain with natural and manmade obstacles.

Camping out in Alaska winter weather at 0 degrees or colder. Dealing with snowstorms, wind, ice and mud while out. Driving risks may include slick and snowy roads, poor visibility and wildlife. Students must be willing to travel in inclement weather, have wet feet, do creek crossings, deal with bugs and travel over steep and unstable terrain.

Prerequisites: Students must be 18 years of age to enroll and must be in adequate physical condition to carry a 40+ pound pack over rough terrain for a weekend backpack, paddle a canoe for 4-5 hours and participate in cold weather winter activities.

Special Notes: Due to the nature of outdoor travel, there are certain risks in this class.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Pass/Fail Grades

Religion (RELG)

Community and Technical College

General Academic & Technical Programs (<https://www.ctc.uaf.edu/>)
907-455-2800

RELG F110 Isaac v Ishmael: The Israeli-Palestinian Conflict (s)

1 Credit

Offered As Demand Warrants

This course investigates the strife in its interlocking historical, political, religious, ethnic and archaeological dimensions. Competing claims to the land are scrutinized through the prisms of Judaism and Islam, the history, and other ideological movements.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RELG F111 Rebellious Women of the Bible (h)

1 Credit

Offered As Demand Warrants

A literary and sociological exploration into negative portrayals of the feminine within the Old and New Testament texts, including their original Ancient Near Eastern and Mediterranean cultural contexts as well as key interpretive traditions throughout history.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RELG F112 Dealing with Demons and Death: Magic in Ancient Cultures (h)

1 Credit

Offered as Demand Warrants

An exploration into ancient traditions of magic as evidence by Mesopotamian, Egyptian, Biblical and Graeco-Roman texts and artifacts, focusing upon their rationales, methods, efficacy and legitimacy with respect to variously preventing, mitigating or invoking harmful and destructive forces.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RELG F113 The Biblical Environment: Human Ecology in Ancient Israel (s)

1 Credit

Offered As Demand Warrants

An integrative survey of Ancient Israel's geographic and ecological features with respect to how they influence and were impacted by human efforts and energies. This course will examine textual sources as well as archaeological materials on behalf of reconstructing and comprehending such cultural ecosystems.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RELG F114 The Bible in the Quran (h)

1 Credit

Offered As Demand Warrants

Inquiry into manners and motivations by which Islam appropriated and reconfigured biblical traditions to meet its theological, political, economic, and social needs/interests. Course also considers the ramifications (historical and contemporary) of scriptural traditions between Islam, Christianity, and Judaism.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RELG F115 End of Days: Apocalypse Across the Ages (h)

1 Credit

Offered As Demand Warrants

Origins and interpretive history of Abrahamic religious traditions dealing with the end-time. Topics include ancient sociocultural circumstances out of which apocalypticism developed, comparisons of non-scriptural end-time narratives and images with those in the Bible and the Quran, and how and why Biblical and Quranic apocalyptic traditions have been (mis)appropriated.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RELG F205 Introduction to the Bible (h)

3 Credits

Offered As Demand Warrants

A study of the Bible as literature of ancient Israel and the early Christian church.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RELG F221X Religions of the World (h)

3 Credits

Offered As Demand Warrants

A survey of the development of major religions of the Eastern and Western world including contemporary world religions.

Attributes: UAF GER Humanities Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RELG F231 Prophecy, Shamanism and Scripture (h)

3 Credits

Offered As Demand Warrants

An introductory exploration into the phenomena of prophecy and shamanism as they are conceived and manifested within the textual and cultural traditions of Judaism and Christianity. Comparative evidence is considered from ancient Near Eastern and Mediterranean sources, and modern insights from cultural anthropology and cognitive psychology are brought to bear upon the Biblical materials, in efforts to situate their prophetic and/or shamanistic features within social scientific models of culture and mind.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Rural Development (RD)

College of Rural and Community Development

Department of Alaska Native Studies and Rural Development (<https://www.uaf.edu/dansrd/>)

907-474-6528

RD F100 The University Experience

3 Credits

Offered Fall

Designed to serve as an academic, cultural, and social transition to the UAF campus. Through learner-centered education emphasizing positive self-concept theories, RD F100 will build on personal strengths and skills. Overview of resources and support programs that serve rural and Alaska Native students for a successful transition to college life.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F110 Alaska Native Claims Settlement Act: Land Claims in the 21st Century (an)**

1 Credit

Offered Fall

Familiarize students with the land claims process and important Alaska Native Claims Settlement Act content, with focus on contemporary situations and explanation of land claims processes ongoing or recently completed in locations outside Alaska.

Cross-listed with ANS F112.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F113 Alaska Natives, Indigenous Peoples and International Laws (an)**

1 Credit

Offered As Demand Warrants

Familiarize students with international law and its importance for Indigenous Peoples. Special emphasis on international legal instruments of importance for Alaska Natives.

Cross-listed with ANS F113.**Lecture + Lab + Other:** 1.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F114 Alaska Natives, Indigenous Peoples and North American Legal Systems (an)**

1 Credit

Offered As Demand Warrants

Familiarize students with domestic law and its effects on Indigenous Peoples' governance in the United States. Emphasis on Alaska Natives and the relationship between Tribal legal systems and state and federal governments. Examination of how law is made and why Tribal laws differ from those in neighboring jurisdictions.

Cross-listed with ANS F114.**Lecture + Lab + Other:** 1.5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F125 Our Changing Climate: Past, Present, Future (s)**

3 Credits

Offered Fall and Spring

Examines how the biophysical impacts of climate change define and intersect with social, ecological, economic, political and cultural dimensions of our lives. Provides a foundation in both Indigenous and Western science perspectives of the causes, impacts and feedbacks of a changing climate. Includes theoretical and project-based experience in climate change.

Prerequisites: Placement in WRTG F111X.**Cross-listed with** ACNS F125, HONR F125, NRM F125.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F200X Rural Development in the North (s)**

3 Credits

Offered Fall

Examines sustainable community development efforts in Alaska and the circumpolar North. Provides an overview of community development processes and case studies with an emphasis on indigenous communities and peoples.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F225 Applied Communication Skills**

3 Credits

Offered Fall

Oral and written communications for rural development practitioners. In this course, students will practice four types of oral and written communications: business presentations and business and technical writing; academic presentations and writing; policy presentations and legal and policy writing; and presenting and writing for community audiences.

Prerequisites: COM F131X or COM F141X; WRTG F111X.**Cross-listed with** ANS F225.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F245 Fisheries and Marine Wildlife Development in Rural Alaska (an, s)**

3 Credits

Offered As Demand Warrants

Introduction to fisheries development issues in rural Alaska communities, including basic concepts, strategies and contemporary cases. Topics include management of salmon and other fisheries, community development quotas, and sustainable development efforts.

Prerequisites: WRTG F111X.**Cross-listed with** ANS F245.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

RD F250 Grant Writing for Community Development

1-3 Credits

Offered As Demand Warrants

Basic elements of grant proposals and processes of preparing proposals for governmental and private funding sources. Emphasis on applied skills through preparation of actual grant proposals.

Prerequisite: WRTG F111X.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 3 credits**RD F250P Grant Writing for Community Development**

1-3 Credits

Basic elements of grant proposals and processes of preparing proposals for governmental and private funding sources. Emphasis on applied skills through preparation of actual grant proposals.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 3 credits**RD F255 Rural Alaska Land Issues (an, s)**

3 Credits

Offered Fall Odd-numbered Years

Provides a history of aboriginal use and occupancy of land and an overview of land provisions in the Alaska Native Claims Settlement Act (ANCSA) and the Alaska National Interest Lands Conservation Act (ANILCA). Topics include maps and land records, Native allotments, navigability, trespass and management of Native lands.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F265 Perspectives on Subsistence in Alaska (an)**

3 Credits

Offered Spring Even-numbered Years

The socioeconomic, cultural, legal and political dimensions of subsistence in Alaska.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F268 Rural Tourism: Planning and Principles**

1-3 Credits

Offered As Demand Warrants

Introduction to rural tourism planning and principles. Students examine rural tourism attractions and trends, tourism planning and policy formation, quality standards, and cultural and environmental impacts of tourism.

Cross-listed with ABUS F268.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**RD F280 Resource Management Research Techniques**

3 Credits

Offered As Demand Warrants

Overview of standard methods of field-based scientific research conducted by resource management agencies in rural Alaska including elementary statistical concepts, survey techniques and tools used in land and renewable resources research.

Prerequisites: NRM F101 and BIOL F104X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F291 Climate Change and Communities (s)**

3 Credits

Offered Fall

In this introductory course, students explore key issues relating to climate change in communities across the world and the United States, with special emphasis on Alaska and the Arctic and the unique challenges that climate change poses to Indigenous rural communities.

Prerequisites: WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F300 Rural Development in a Global Perspective (s)**

3 Credits

Offered Fall

In this introductory course, students explore topics tied to rural development worldwide. Students examine different perspectives and relationships that impact rural communities and the global economy by covering issues such as ethnicity and diversity, health, community development and the economy.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; RD F225; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F315 Tribal People and Development (an, s)**

3 Credits

Offered As Demand Warrants

Impact of socioeconomic development processes on tribal peoples in less developed world societies. Implications of these processes for Alaska Native people.

Prerequisites: Junior standing.**Cross-listed with** ANS F315.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F325 Rural Development Principles and Practices (s)**

3 Credits

Offered Fall

This course will expose students to key principles and practices in Rural Development and empower them to explore their own definition of rural development, including defining the purpose and objective of development and what role(s) they aspire to as part of the next generation of rural development leaders.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; RD F225.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F340 Community Research Toolbox**

3 Credits

Offered Spring

Community research approaches and techniques. Emphasis on the role and need for community-based research and associated ethical issues. Students use a hands-on approach to learn about research techniques, including interviewing, surveying and utilizing existing data in support of community-based research. Emphasizes academic writing and communicating with community audiences.

Prerequisites: RD F225.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

RD F351 Strategic Planning and Decision Making

3 Credits

Offered Spring

Rural leaders must be adept at making strategic decisions about how to achieve desirable outcomes with limited human and financial resources. This course takes a practitioner approach to equipping students with basic knowledge of strategic planning processes as well as opportunities to engage with proven tools from the field.

Prerequisites: RD F300; RD F325; and junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F352 Rural Business Planning and Proposal Development**

3 Credits

Offered Spring

Provides undergraduate students with an understanding of the principles and processes involved in strategic planning, business planning and proposal development with the focus on applications in rural Alaska. Focus is on meeting the unique planning needs of rural Alaska communities and organizations. This course emphasizes business and technical writing.

Prerequisites: WRTG F111X; RD F225.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F400 Rural Development Internship**

3 Credits

Offered Summer

Structured experience in an appropriate agency or corporate setting. Intended to provide students with on-the-job experience to enhance skills acquired via coursework. Approved internship position required and student must discuss internship position with their advisor one full semester in advance of when they intend to take the course.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F401 Cultural Knowledge of Native Elders (an, h)**

3 Credits

Offered Fall

Study with prominent Native tradition-bearers in Native philosophies, values and oral traditions. Traditional knowledge elicited through the cultural heritage documentation process. Analysis of existing interactions between cultural traditions and contemporary American life as experienced by Native Elders.

Prerequisites: ANS F111X; ANS F242X; upper-division standing.**Cross-listed with** ANS F401.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F425 Cultural Resource Issues (s)**

3 Credits

Offered Fall Even-numbered Years

An examination of the potential impacts of development projects on cultural systems. Explores data gathering, analytical techniques and use of impact data.

Prerequisites: Junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F427 Tribal Contracting and Compacting**

3 Credits

Offered Fall Even-numbered Years

Examines the history of federal Indian policy that led to self-determination tribal contracting and compacting. Public Law 93-638 will be studied and analyzed. Challenging issues that hampered tribal contracting will be identified. Case studies involving both tribal organizations and tribal governments will be studied.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F430 Indigenous Economic Development and Entrepreneurship (an)**

3 Credits

Offered Spring Odd-numbered Years

An understanding of the principles, strategies and practices of economic development and entrepreneurship with a focus on indigenous Alaska communities. Focus is on those sustainable economics, through culturally appropriate practices.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F435 Participatory Policy-making in Tribal, State and Federal Government**

3 Credits

Offered Spring Even-numbered Years

This course analyzes the policy-making and lobbying processes of the American political system, with a focus on the relationship between tribes, U.S. Congress, federal agencies and the U.S. Supreme Court. Uses comparative case studies of national, state of Alaska and tribal issues, policies and laws impacting rural Alaskans.

Prerequisites: RD F300; senior standing.**Cross-listed with** ANS F435.**Special Notes:** Recommended RD F110.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F450 Managing Rural Projects and Programs**

3 Credits

Offered Fall

Examines appropriate management and accountability approaches for community-based programs and projects, particularly those found in rural and/or cross-cultural contexts. This course emphasizes business and technical writing and oral and written communication with community audiences.

Prerequisites: RD F325; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F451 Human Resource Management for Indigenous Communities**

3 Credits

Offered As Demand Warrants

Provides an understanding of the principles and processes involved in human resource management especially as they apply within Indigenous communities. Focus is on the relevance of human resource management in every unit, project or team, and on the unique human resource management needs of rural Alaska communities and organizations.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

RD F460 Women and Development (s)

3 Credits

Offered As Demand Warrants

Explores interrelationships of gender roles and development in the global economy, emphasizing Alaska and the circumpolar north. Examines the historical marginalization of women, women in indigenous communities, and changing socio-economic and cultural gender roles in community development. Examines women's life histories that illustrate strategies for individual and community empowerment.

Cross-listed with WGS F460.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F462 Rural Health and Human Service Systems**

3 Credits

Offered As Demand Warrants

Examine U.S. federal and state rural health and human service systems with specific emphasis on the tribal system in Alaska. The history, organization, work force, service delivery and financing of the U.S. and Canadian and Alaska systems are examined. Circumpolar challenges and policy issues in rural health and human service systems are explored.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F465 Community Healing and Wellness (an)**

3 Credits

Offered Fall

The history of education and the impact of religion and assimilation policies on the emotional and physical health of Alaska Natives and their communities. Traditional wellness issues and systems will also be researched from a global perspective.

Prerequisite: Junior standing.**Crosslisted with** ANS F465.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F468 Human Development and Social Justice**

3 Credits

Offered Spring Even-numbered Years

For many communities in the circumpolar North, the ultimate aim of development is to improve the overall quality of life for present and future generations. This course explores how rural communities can, and are, creating positive change in the areas of governance, natural resource management, cultural revitalization, education and health.

Prerequisites: RD F300, RD F325, senior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F470 The Alaska Native Claims Settlement Act: Pre-1971 to Present (an)**

3 Credits

Offered Fall Even-numbered Years

Overview and analysis of the Alaska Native Claims Settlement Act. An in-depth examination of the land claims movement of the 1960s and resulting legislative process. Firsthand accounts from Native leaders will be featured. Case studies describing challenges of individual Native villages and regions. Contemporary issues facing ANCSA corporations will be examined.

Prerequisites: Junior standing.**Stacked with** RD F670.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F471 Corporate Social Responsibility and Accountability in Rural and Indigenous Contexts**

3 Credits

Offered Fall Odd-numbered Years

Examination of corporate social responsibility and how CSR plays out in rural Alaska and other Indigenous contexts. Uses comparative case studies of international, national and rural Alaska organizational, economic and societal issues with a special emphasis on transnational corporations, ANCSA corporations, tribal enterprises and other businesses.

Prerequisites: RD F300; senior standing.**Recommended:** RD F110.**Stacked with** RD F671.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F474 Applied Community Research**

3 Credits

Offered Fall

Development and preliminary groundwork for the rural development senior project. Students will develop a full prospectus and conduct preliminary research for their senior project to be completed in RD F475 Rural Development Senior Project.

Prerequisites: RD F340; RD F352; senior standing.**Crosslisted with** ANS F474.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F475 Rural Development Senior Project**

3 Credits

Offered Spring

Under faculty supervision, the student will complete a major theoretical, research and/or applied project which relates to the student's applied emphasis area. Students will utilize the appropriate writing and oral communication style for the type of research or project they choose.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; RD F474; senior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F492 Rural Development Seminar**

1-3 Credits

Various topics of current interest and importance to the rural development majors. Topics announced prior to each offering. Topics may include: indigenous peoples leadership, legislative process, cultural documentation, National Park Service policies, climate change, and/or co-management of natural resources. Students may take up to three Rural Development seminars on different topics for credit with prior approval. Enrollment priority given to rural development majors.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 99 credits**RD F492P Rural Development Seminar**

1-3 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

RD F600 Indigenous Leadership Symposium

3 Credits

Offered Fall

This course focuses on Indigenous models and perspectives on leadership. The seminar is delivered via a series of teleconferences as well as a weeklong face-to-face intensive. The location of the seminar changes each year. Rural development graduate students can repeat the course once as an elective.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits**RD F601 Political Economy of the Circumpolar North**

3 Credits

Offered Fall

Interrelationships among rural communities in the circumpolar North and global socioeconomic, political and ecological systems. Includes major theoretical advances in our understanding of development in the 20th century. Uses a comparative case study approach to understand rapid socioeconomically and cultural change in the north.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F608 Indigenous Knowledge Systems**

3 Credits

Offered Fall

A comparative survey and analysis of the epistemological properties, world views and modes of transmission associated with various Indigenous knowledge systems. Emphasis on knowledge systems practiced in Alaska.

Prerequisites: Graduate standing.**Cross-listed with** CCS F608; ED F608; ANL F608.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F612 Traditional Ecological Knowledge**

3 Credits

Offered Spring

Examines the acquisition and utilization of knowledge associated with long-term inhabitation of particular ecological systems and adaptations that arise from the accumulation of such knowledge. Attention will be given to the contemporary significance of traditional ecological knowledge as a complement to academic fields of study.

Prerequisites: Graduate standing.**Cross-listed with** CCS F612.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F625 Community Development Strategies: Principles and Practices**

3 Credits

Offered Fall

Provides graduate students with a detailed overview of principles and strategies of community development in rural Alaska and the circumpolar North. Explores how rural communities in diverse cultural, political and economic settings can build on local assets, skills and capacities to improve the lives of Indigenous and other Northern residents.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F630 Economic Development Policy and Entrepreneurship in Rural Alaska: Challenges and Opportunities**

3 Credits

Offered Spring Odd-numbered Years

This course explores the questions - what does/should economic development and entrepreneurship look like in rural and Native Alaska? What national, state and tribal policies and laws are desirable, given the history and experience of existing ANCSA corporations (and transnational corporations), tribal enterprises and ANCSA corporations?

Prerequisites: Graduate standing.**Recommended:** RD F625.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F650 Community-based Research Methods**

3 Credits

Offered Spring

This graduate course provides students with opportunities for advanced exploration of community-based research principles and practices. Emphasis is placed on developing a thorough understanding of the community research process from conceptualization to implementation and evaluation. It includes skill development of skills applicable to both quantitative and qualitative research.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F651 Management Strategies for Rural Development**

3 Credits

Offered Spring

Overview of management and development within Indigenous communities in the Circumpolar North and looks closely at recent strategies such as co-management of renewable resources, land management of Alaska Native corporations, cultural resource management, and the management of Alaska Native tribal governments, corporations and other organizations.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F652 Indigenous Organization Management**

3 Credits

Offered Fall Even-numbered Years

Purposes, structure, and methods of management in Northern Indigenous organizations. Management of Alaska Native organizations will be compared with organizations established by Indigenous peoples in other regions of the Circumpolar North. "Indigenous management" will be explored, alongside perceptions of differences between leadership and management in western and indigenous settings.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

RD F655 Circumpolar Health Issues

3 Credits

Offered Summer Even-numbered Years

Comprehensive overview of major circumpolar health issues affecting Northern residents. Analysis of health and traditional healing practices prior to contact. Examines the emergence of chronic diseases, alcohol abuse and violence, efforts to combine traditional healing practices and Western medicine. Includes environmental health issues, including water, sewer, and food contamination.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F667 Tribal Responses to Violence: Safety, Justice and Advocacy**

3 Credits

Offered Fall Odd-numbered Years

This course examines the crisis of violence against Native people and within Native communities. The role of sexual and other violence will be explored, impacts of trauma, legal and jurisdictional barriers and developments in victim-centered and restorative justice. Students will investigate response systems, relevant policies and issues, and develop solutions.

Prerequisites: Graduate standing.**Stacked with** ANS F467.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F670 The Alaska Native Claims Settlement Act: Pre-1971 to Present**

3 Credits

Offered Fall Even-numbered Years

Overview and analysis of the Alaska Native Claims Settlement Act. An in-depth examination of the land claims movement of the 1960s and resulting legislative process. Firsthand accounts from Native leaders will be featured. Case studies describing challenges of individual Native villages and regions. Contemporary issues facing ANCSA corporations will be examined.

Prerequisite: Graduate standing.**Stacked with** RD F470.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F671 Corporate Social Responsibility and Accountability in Rural and Indigenous Contexts**

3 Credits

Offered Fall Odd-numbered Years

Examination of corporate social responsibility and how CSR plays out in rural Alaska and other Indigenous contexts. Uses comparative case studies of international, national and rural Alaska organizational, economic and societal issues with a special emphasis on transnational corporations, ANCSA corporations, tribal enterprises and other businesses.

Prerequisites: Graduate standing.**Recommended:** RD F625.**Stacked with** RD F471.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F675 Federal Indian Law: Land, Water and Subsistence**

3 Credits

Offered As Demand Warrants

Federal Indian law and its implementation in Alaska; including the Indian Reorganization Act, Alaska Native Claims Settlement Act, and the Alaska National Interest Lands Conservation Act. Students will explore the political landscape of Alaska and consider the future of subsistence, water rights and how these laws affect natural resource access.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F676 Federal Indian Law in Alaska: Tribal Self-governance - Business, Public Safety Protection of Family,**

3 Credits

Offered As Demand Warrants

Examination of the history of federal Indian law and its implementation in Alaska. Key laws including the Indian Reorganization Act (IRA), Public Law 83-280, Indian Child Welfare Act (ICWA), Indian Self-Determination and Education Assistance Act (ISDEAA), Indian Civil Rights Act (ICRA) and the Tribal Law and Order Act (TLOA) are examined in terms of how they have altered the political landscape in Alaska. Indian legislation is explored to determine how Native communities exercise self-governance in Alaska. Students consider the development of tribal judicial capacity and pressing issues such as public safety for Native communities in Alaska as well as tribal participation in business and contractual agreements.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F690 Seminar in Cross-Cultural Studies**

3 Credits

Offered Fall

Investigation of current issues in cross-cultural contexts. Opportunity for students to synthesize prior graduate studies and research. Seminar is taken near the terminus of a graduate program.

Prerequisites: Advancement to candidacy; permission of student's graduate committee.**Cross-listed with** CCS F690; ED F690; ANL F690.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits**RD F691 Seminar in Rural, Community and Indigenous Development Issues**

3 Credits

Offered Spring

Over the semester, students will review key concepts from the core courses in the M.A. program and develop a graduate portfolio illustrating their application in rural development contexts.

Prerequisites: RD F600; RD F601; RD F625; RD F650; RD F651.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RD F698 Non-thesis Research/Project**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 3-9**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits

RD F699 Thesis

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 1-9**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 98 times for up to unlimited credits

Rural Human Services (RHS)

College of Rural and Community DevelopmentDepartment of Social and Human Development (<https://www.uaf.edu/rural/academics/departments/>)

907-474-7143

RHS F110 Cross-cultural Bridging Skills

1 Credit

Offered As Demand Warrants

Issues and impacts relevant to effective cross-cultural communication.

Understanding barriers to effective cross-cultural communication in rural settings and development of effective cross-cultural communication skills from an Indigenous perspective. Development of bridging and networking skills that integrate Indigenous values and principles. Course taught on site/ intensive. Enrollment in RHS program required.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RHS F115 Issues of Personal Development**

2 Credits

Dynamics and impacts of personal development issues relevant to the delivery of rural human services focusing on understanding types, application and processes of personal development. Facilitating personal development through processes that integrate or reflect Native values and principles. Student must spend one week in intensive study at selected delivery site.

Lecture + Lab + Other: 2 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**RHS F120 Family Systems I**

2 Credits

Survey of historical forces that exerted influence on Alaska Native families, the impacts of those forces and discussion of their contemporary effects from a Native perspective. Focus on developing options and strategies for developing healthy Native families as the foundation for healthy Native communities.

Special Notes: Students must spend one week in intensive study at the selected delivery site.**Lecture + Lab + Other:** 2 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**RHS F130 Processes of Community Change**

2 Credits

Rural social development contemporary foundations and relevant issues from a Native perspective. Developing understanding and skills necessary for facilitating positive individual, family and community development from an ecological systems approach. Emphasis on developing the skills necessary to identify, develop and mobilize individual, family and community resources in rural Native communities.

Special Notes: Students must spend one week in intensive study at the selected delivery site.**Lecture + Lab + Other:** 2 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**RHS F140 Alaska Native Values and Principles**

1 Credit

Traditional Native values and principles, their applicability to today's world and issues relevant to their integration into today's lifestyles.

Developing understanding and skills necessary for facilitating formulation of positive world views within Native individuals, families and communities. Explores the role of spirituality in a variety of Alaska Native cultures.

Special Notes: Student must spend three days in intensive study at selected delivery site.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RHS F150 Introduction to Rural Counseling**

2 Credits

Identification and examination of issues relevant to delivery of rural counseling services. Opportunities for development of basic rural counseling skills with emphasis on integration of Native values and principles, exploring strategies that facilitate positive individual, family and community growth and development through enhancement of healthy lifestyles in rural Native communities.

Special Notes: Students must spend one week in intensive study at the selected delivery site.**Lecture + Lab + Other:** 2 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**RHS F220 Family Systems II**

2 Credits

The dynamics and issues relevant to personal healing and recovery from a Native perspective focusing on developing the understanding and skills necessary to healing and recovery in Native individuals, families and communities. Emphasis on achieving healthy lifestyles through self-understanding based on truth, grieving and positive proactive repositioning.

Special Notes: Students must spend one week in intensive study at the selected delivery site.**Lecture + Lab + Other:** 2 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**RHS F250 Rural Counseling II**

2 Credits

Differences and similarities between Native and Western counseling skills. Issues relevant to the development and delivery of basic rural counseling skills and services. Focuses on identifying and building on individual, family and community strengths as the foundation for development of intervention strategies. Addresses the importance of integrating Native traditional values.

Special Notes: Students must spend one week in intensive study at the selected delivery site.**Lecture + Lab + Other:** 2 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus**RHS F260 Addictions: Intervention and Treatment**

2 Credits

Dynamics, issues, impacts, treatment options and intervention strategies relevant to behavioral and chemical addictions. Understanding addictive processes and developing treatment options and intervention strategies from a Native perspective. Emphasis on the development of treatment options and intervention strategies that integrate Native values and principles.

Special Notes: Students must spend one week in intensive study at the selected delivery site.**Lecture + Lab + Other:** 2 + 1 + 0**Grading System:** Letter Grades with option of Plus/Minus

RHS F265 Interpersonal Violence

2 Credits

Offered As Demand Warrants

Types, causes and impacts of interpersonal violence focusing on developing an understanding of interpersonal violence and development of treatment options and intervention strategies from a Native perspective. Emphasis on the development of treatment options and intervention strategies that integrate Native values and principles.

Special Notes: Students must spend one week in intensive study at the selected delivery site.

Lecture + Lab + Other: 2 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

RHS F275 Introduction to Recovery and Mental Illness

2 Credits

Offered As Demand Warrants

Overview of mental illness and recovery issues. Emphasis on issues for practitioners in small, rural communities in Alaska.

Prerequisites: RHS F150.

Recommended: RHS F250, RHS F115.

Lecture + Lab + Other: 2 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

RHS F285 Case Management

2 Credits

Identification and discussion of issues, components, procedures, responsibilities, skills and processes for case management in rural settings with diverse populations. Emphasis on case management processes unique to rural and village Alaska and to the fields of mental health, addictions and interpersonal violence. Explore essential case management oral/written communication skills.

Special Notes: Students must be willing and able to work independently outside the classroom and in the community.

Lecture + Lab + Other: 2 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

RHS F287 Rural Human Services Practicum

4 Credits

Offered Fall

Personal and professional development, self-analysis and growth. Emphasis on developing the understanding and skills necessary to integrate Native healing theory and problem-solving into the delivery of rural human services. Taken as part of the final sequence of courses in the Rural Human Services certificate program, practicum provides students with 100 hours of supervised learning experience in an approved rural human service organization/agency.

Special Notes: Students must be willing and able to work independently outside the classroom and in the community.

Lecture + Lab + Other: 1.5 + 0 + 7.5

Grading System: Letter Grades with option of Plus/Minus

RHS F290 Grief and Healing

2 Credits

Offered As Demand Warrants

Exploration of the dynamics of grief and healing from an Alaska Native perspective. Special emphasis on Native values and principles focused on developing culturally relevant, understandings, awarenesses and professional skills.

Lecture + Lab + Other: 2 + 1 + 0

Grading System: Letter Grades with option of Plus/Minus

Russian (RUSS)

College of Liberal Arts

Department of Foreign Languages and Literatures (<https://www.uaf.edu/language/languages/russian.php>)

907-474-7396

RUSS F100A Elementary Russian 1A (h)

3 Credits

Offered As Demand Warrants

An introductory course in the Russian language and culture with an emphasis on the spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RUSS F100B Elementary Russian 1B (h)

3 Credits

Offered As Demand Warrants

An introductory course in the Russian language and culture with an emphasis on the spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Prerequisites: RUSS F100A.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RUSS F101X Elementary Russian I (h)

4 Credits

Offered Fall

Introduction to language and culture: development of proficiency in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 750 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials.

Attributes: UAF GER Humanities Req

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RUSS F102X Elementary Russian II (h)

4 Credits

Offered Spring

Introduction to Russian language and culture: Development of proficiency in the language through understanding, recognition and use of linguistic structures; emphasis on listening comprehension and speaking; building up to a working vocabulary of approximately 1,500 words; exploration of culture, implicitly through language, and explicitly through texts and audiovisual materials.

Prerequisites: RUSS F101X.

Attributes: UAF GER Humanities Req

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

RUSS F103 Conversational Russian I (h)

3 Credits

Offered As Demand Warrants

Verbal skills improvement. Vocabulary is presented to improve speaking on specific topics.

Prerequisites: RUSS F101X; RUSS F102X.

Special Notes: Does not satisfy core curriculum or foreign language major requirements.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Pass/Fail Grades

RUSS F201 Intermediate Russian I (h)

4 Credits

Offered Fall

Continuation of RUSS F102X. Increasing emphasis on reading ability and cultural materials. Conducted in Russian.

Prerequisites: RUSS F102X.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RUSS F202 Intermediate Russian II (h)**

4 Credits

Offered Spring

Continuation of RUSS F102X. Increasing emphasis on reading ability and cultural materials. Conducted in Russian.

Prerequisites: RUSS F201.**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RUSS F203 Conversational Russian II (h)**

3 Credits

Offered As Demand Warrants

Oral skills improvement. Vocabulary is presented to improve speaking on specific topics. Does not satisfy core curriculum or foreign language major requirements.

Prerequisites: RUSS F102X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Pass/Fail Grades**RUSS F292 Russian Seminar**

1-8 Credits

Lecture + Lab + Other: 1-8 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 8 credits**RUSS F301 Advanced Russian I (h)**

3 Credits

Offered Fall

Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in Russian.

Prerequisites: RUSS F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RUSS F302 Advanced Russian II (h)**

3 Credits

Offered Spring

Continuation of RUSS F301 Advanced Russian I. Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in Russian.

Prerequisites: COM F131X or COM F141X; RUSS F301; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RUSS F392 Russian Seminar**

1-8 Credits

Lecture + Lab + Other: 1-8 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 8 credits**RUSS F431 Studies in Russian Culture (h)**

3 Credits

Offered As Demand Warrants

Study of the cultures of the Russian-speaking world. May be repeated for credit if topic varies.

Prerequisites: RUSS F301; junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**RUSS F432 Studies of Russian Literature (h)**

3 Credits

Offered As Demand Warrants

Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. May be repeated for credit when topics vary.

Prerequisites: RUSS F302 or equivalent, and at least junior standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**RUSS F476 Russian Culture and Society in the 21st Century (h)**

3 Credits

Offered As Demand Warrants

Study of contemporary Russian culture and society through selected literary texts and media representations; examination of the idea of the "Russian North" and its place in Russian culture; consideration of Russian politics and current events. Students will gain knowledge about present-day Russia and its peoples from perspectives, sources and media. Russian Studies majors must complete RUSS F202 and Arctic and Northern Studies majors must complete two ACNS courses.

Prerequisite: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COM F131X or COM F141X; junior standing.**Cross-listed with ACNS F476.****Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RUSS F484 Russian and Soviet Cinema (h)**

3 Credits

Offered As Demand Warrants

Study of Russian culture and society through the medium of film, focusing on the history of Russian cinema and genres. Designed to familiarize students with topics in film theory, and Russian history and culture from 1900s to the present. Readings and topics reflect issues of current interest.

Prerequisites: Junior standing.**Cross-listed with FLPA F484.****Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**RUSS F488 Individual Study: Senior Project (h)**

3 Credits

Offered As Demand Warrants

Analysis and presentation, in the language, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the sixth week of the semester preceding the semester of graduation. Conducted in Russian.

Prerequisites: At least 10 credits in upper division Russian.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Science Applications (SCIA)

College of Rural and Community Development

Community Based Science (<https://uaf.edu/rural/academics/departments/>)
907-474-5029

SCIA F101L Natural Science Lab Course

1 Credit

Offered As Demand Warrants

Laboratory course in natural science. Students will complete two labs on applying the scientific method and 10 labs in any of the following study areas in natural science, Physics, Chemistry, Biology or Geoscience. For non-science majors. Special lab fees apply.

Prerequisites: A university-level natural science course.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 6 + 0**Grading System:** Letter Grades with option of Plus/Minus**SCIA F105 Field Biology**

2 Credits

Offered As Demand Warrants

Students will learn some of the techniques that are employed by wildlife biologists to study plants, fish and animals in the field and establish use of the scientific method through a student research project.

Lecture + Lab + Other: 20 + 20 + 0**Grading System:** Letter Grades with option of Plus/Minus**SCIA F150 Subarctic Horticulture**

1 Credit

Offered As Demand Warrants

Soils, plant propagation, disease and insect control, variety selection, fertilization, greenhouse construction and care and gardening techniques. Emphasis on development and care of greenhouses and gardens in the Nome area.

Lecture + Lab + Other: 0 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**SCIA F150P Subarctic Horticulture**

1 Credit

Offered As Demand Warrants

Soils, plant propagation, disease and insect control, variety selection, fertilization, greenhouse construction and care and gardening techniques. Emphasis on development and care of greenhouses and gardens in the Nome area.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**SCIA F157 Alaska Plants (n)**

1 Credit

Offered As Demand Warrants

Introduction to the topics of plant taxonomy and identification with specific reference to common Alaskan plants and vegetation types.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SCIA F161 Birds of Alaska**

1 Credit

Offered As Demand Warrants

Biology of birds including behavior, anatomy, physiology, ecology, systematics and field identification.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SCIA F162 Mammals of Alaska (n)**

1 Credit

Offered As Demand Warrants

Introduction to the mammals of Alaska and their importance to the local ecology and economy from a scientific research standpoint. Emphasis on important and/or common species for study of classification, habitat, life cycle and economic importance.

Prerequisites: Background or interest in general science or natural history.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Science Teaching and Outreach (STO)

College of Natural Science and Mathematics

Department of Biology and Wildlife (<https://www.bw.uaf.edu/>)
907-474-7671

STO F401 Communicating Science

2 Credits

Offered Spring Even-numbered Years

This highly interactive course allows students to gain hands-on experience designing and practicing science communication for public audiences. Over the course of the semester, students will design three science communication efforts and present their own science to peers. Students will also explore relevant communication theories and current topics.

Prerequisites: Junior or Senior standing.**Stacked with** STO F601.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STO F601 Communicating Science**

2 Credits

Offered Spring Even-numbered Years

This highly interactive course allows students to gain hands-on experience designing and practicing science communication for public audiences. Over the course of the semester, students will design three science communication efforts and present their own science to peers. Students will also explore relevant communication theories and current topics.

Prerequisites: Graduate standing.**Stacked with** STO F401.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STO F602 Mentoring in the Sciences**

2 Credits

Offered Fall Even-numbered Years

Effective mentoring can be learned, but not taught. Good mentors are normally produced through years of practice, successes and failures, and no two mentoring situations are alike. This course provides a forum for graduate students to develop their mentoring philosophy and build effective mentoring skills.

Prerequisites: Graduate Standing.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Pass/Fail Grades

STO F603 Instructional Design

1 Credit

Offered Fall Odd-numbered Years

This graduate seminar course will address important components of course planning and instructional design that reflect best practices in science teaching. This course focuses on the overall design of courses, the integration of the various components of a course, the development and implementation of objectives, assessments and syllabus construction.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STO F604 Science Teaching and Outreach Internship**

4 Credits

Offered As Demand Warrants

Under the supervision of a faculty member, students gain professional experience in science teaching or outreach by choosing one of the following strands: 1) higher education, 2) formal K-12 education, or 3) informal education. An internship plan is developed prior to enrollment and agreed upon by the instructor of record, faculty mentor or K-12 teacher mentor, and student.

Prerequisites: STO F666 for higher education strand or STO F601 for formal K-12 education or informal education strand.**Lecture + Lab + Other:** 0 + 0 + 12**Grading System:** Pass/Fail Grades**STO F666 Scientific Teaching**

2 Credits

Offered Spring Odd-numbered Years

This course explores methods for teaching science at the university level. We emphasize methods of course design, instructional techniques, assessment and course management that have been shown by research to improve student learning. This course is intended for graduate students in the sciences who have an interest in teaching methods.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STO F692P Current Topics in Scientific Teaching**

1 Credit

Offered Alternate Fall

This graduate seminar course explores current trends in science education at the pre-college and college levels. Topics may include diversity, technology, active learning, and others. The course will rely on readings from primary literature and discussion.

Prerequisites: Graduate standing.**Recommended:** STO F666 or STO F601.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades

Social Work (SWK)

College of Liberal ArtsDepartment of Social Work (<https://www.uaf.edu/socwork/>)

907-474-7240

SWK F103X Introduction to Social Work (s)

3 Credits

Offered Fall and Spring

Introduction to the profession of social work and the human services delivery system. Examines historical development of social work focusing on the knowledge, values and skills that characterize the social worker. Orientation to the context for social work, including the diversity of human needs, human services, social policy and legislation.

Special Notes: Services, programs, and career opportunities within rural and urban Alaska, as well as nationally, are discussed.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F220 Ethics, Values and Social Work Practice (s)**

3 Credits

Offered Fall and Spring

The professional nature and meaning of generalist social work practice. Examines the NASW code of ethics. Introduces interpersonal communication and interviewing. Assists students in making decisions about a career in social work.

Prerequisites: SWK F103X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F305 Social Welfare History (s)**

3 Credits

Offered Fall

Analysis of social inequality and the U.S. social welfare system by tracing the historical development of government response to social inequality and exploring historical and persisting dilemmas in the provision of social welfare services.

Prerequisites: COM F131X or COM F141X; SWK F103X or HIST F100X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F306 Social Welfare: Policies and Issues**

3 Credits

Offered Spring

Social policies and how they affect the delivery of social services. Factors influencing development of the current social service system. Analysis of dilemmas that develop in a welfare system attempting to deal with rapid social change. Alternative approaches to the solution of social problems and possible future developments.

Prerequisites: ECON F120X; PS F100X; SWK F103X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F320 Rural Social Work**

3 Credits

Offered Fall and Spring

This course examines rural and small community life, its value systems, strengths and capacities, customs, political and economic structures and their implications for the lives of people in rural settings and for generalist social work practice. Special attention is given to differences in intervention and service provision in rural areas.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SWK F103X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

SWK F330 Seminar in International Social Work

3 Credits

Offered As Demand Warrants

International issues related to social work practice and social welfare policy. The focus of the seminar will be on global and international issues related to social and economic justice, distributive justice, and human and civil rights. Specific content is announced at registration.

Prerequisites: SWK F103X.**Special Notes:** Course may be repeated once for credit when content varies.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 6 credits**SWK F341 Human Behavior in the Social Environment I (s)**

3 Credits

Offered Fall

HBSE is a sequence of two courses that focus on human development in the context of the social environment. Throughout the sequence, a person-in-environment perspective is utilized to interpret the situations of individuals, families and groups. These situations are evaluated in the light of social work values and ethics.

Prerequisites: PSY F101X; SOC F101X or ANTH F100X; SWK F103X.**Special Notes:** The first course in the sequence focuses on the human life cycle viewed in the context of the social environment.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F342 Human Behavior in the Social Environment II**

3 Credits

Offered Spring

HBSE is a sequence of two courses that focus on human development in the context of the social environment. Throughout the sequence, a person-in-environment perspective is utilized to interpret the situations of individuals, families and groups. These situations are evaluated in the light of social work values and ethics.

Prerequisites: PSY F101X; SOC F101X or ANTH F100X; SWK F103X.**Special Notes:** The second course in the sequence pays attention to those features of culture, the political economy, families, groups, formal organizations and communities that encourage human development or constrain and thwart it.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F350 Women's Issues in Social Welfare and Social Work****Practices (s)**

3 Credits

Offered As Demand Warrants

Examination of theories and research concerning women's issues in the field of social work and in the social welfare system, with particular emphasis on women in poverty and women of color. Contemporary policy issues and strategies of empowerment will be covered.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SWK F103X or SOC F101X.**Cross-listed with** WGS F350.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F360 Child Abuse and Neglect**

3 Credits

Offered As Demand Warrants

Dynamics, implications and treatments of child abuse and neglect for individuals and families in rural and urban Alaska.

Prerequisites: Sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F370 Services and Support for an Aging Society (s)**

3 Credits

Offered As Demand Warrants

An examination of the aging process, theories, political processes, social work generalist intervention and strategies and agency support for the aging population. The rapidly changing social and health issues of older adults are addressed in a multi-disciplinary and multi-cultural approach.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F375 Research Methods in Social Work**

3 Credits

Offered Fall and Spring

Course has a two-fold objective: to help students become critical consumers of research in the social sciences and to allow students to carry out beginning research studies. Course sequentially covers phases of the research process, whether quantitative or qualitative.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SWK F103X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F390 Trauma and Wellness: Historical and Contemporary Perspectives**

3 Credits

Offered Summer Even-numbered Years

This course explores and critically examines diverse ways of knowing about experiences related to the concepts of trauma and wellness, both individually and collectively, and builds upon wellness strategies that focus on context, culture and lived experience across the lifespan.

Prerequisites: Sophomore standing or higher.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F405 Mental Health and Wellness: A Social Work Approach**

3 Credits

Offered As Demand Warrants

This course will explore the history and treatment of individuals with mental health disorders in the United States. Students will explore the unique opportunities and challenges faced by social workers, and prepare them to provide case management and assessment services to people with mental health disorders.

Prerequisites: SWK F103X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

SWK F440 Social Work Practice with Military Families

3 Credits

Offered Spring Even-numbered Years

Explores the history and roles of social work with military families. Ethical concerns that emerge from social work practice with military families are addressed. Military social workers' roles in mental health programs, family advocacy, program administration and policy-making are examined. Addresses issues that affect military families during deployment times.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F460 Social Work Practice I**

3 Credits

Offered Fall

Development of beginning skills in interviewing and helping processes with individuals and families. Application of intervention strategies, interviewing techniques, case management and advocacy.

Prerequisites: acceptance to practicum; social work major; senior standing.

Corequisites: SWK F461.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F461 Practicum in Social Work I**

6 Credits

Offered Fall

Individual training and practice in a social service agency. Students complete 200 hours of direct practice in an approved agency under the supervision of a field instructor.

Prerequisites: Social Work major; senior standing; approval from practicum coordinator.

Lecture + Lab + Other: 2 + 15 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F463 Social Work Practice II**

3 Credits

Offered Spring

Further development of student's knowledge of direct practice and beginning skills in groups and community practice. Emphasis on aspects of rural practice.

Prerequisites: SWK F460; social work major; senior standing.

Corequisites: SWK F464.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F464 Practicum in Social Work II**

6 Credits

Offered Spring

Continuation of SWK F461; further direct practice experience in an agency. Students complete 200 hours of practice in an approved agency under the supervision of a field instructor. Taken concurrently with SWK F463.

Prerequisites: SWK F460; SWK F461; Social Work major; senior standing.

Lecture + Lab + Other: 2 + 15 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F466 Practicum in Social Work III**

3,6 Credits

Offered As Demand Warrants

Further direct practice experience in an approved agency under the supervision of a field instructor. Students enrolled in 3 credits must complete 100 hours of practicum. Students enrolled in 6 credits must complete 200 hours of practicum.

Prerequisites: SWK F460; SWK F461; SWK F463; SWK F464; Social Work major; senior standing.

Lecture + Lab + Other: 0 + 7,15 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F470 Substance Abuse Theories and Treatment (s)**

3 Credits

Offered As Demand Warrants

Examination of research and theories of chemical dependency from a social work, systems/ecological framework. Critically examines current theory and practice in terms of effectiveness, cultural appropriateness and validity with vulnerable populations.

Prerequisites: SWK F103X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SWK F484 Seminar in Social Work Practice Areas**

3 Credits

Offered As Demand Warrants

Problem areas in social work. Topics vary in different semesters, content announced in class schedule prior to each semester. Course may be repeated for credit when topic varies.

Prerequisites: SWK F103X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to unlimited credits

Sociology (SOC)

College of Liberal Arts

Department of Psychology (<https://www.uaf.edu/psych/>)
907-474-7007

SOC F101X Introduction to Sociology (s)

3 Credits

Offered Fall, Spring and Summer

An introduction to the complex social arrangements guiding individual behavior and common human concerns in contrasting cultural contexts.

Prerequisites: Placement in WRTG F111X.**Attributes:** UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SOC F201X Social Problems and Solutions (s)**

3 Credits

Offered Fall

A study of major contemporary social problems, analysis of factors causing these problems, and discussion of potential solutions. Special emphasis is given to social problems and solutions in Alaska and the circumpolar North.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

SOC F280 Contemporary Topics in Sociology (s)

3 Credits

Offered As Demand Warrants

An in-depth seminar on new and emerging social issues. Course may be repeated for credit when content varies.

Prerequisites: Placement into WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 9 credits

Spanish (SPAN)

College of Liberal Arts

Department of Foreign Languages and Literatures (<https://www.uaf.edu/language/languages/spanish.php>)

907-474-7396

SPAN F100A Elementary Spanish 1A (h)

3 Credits

Offered As Demand Warrants

Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F100B Elementary Spanish 1B (h)**

3 Credits

Offered As Demand Warrants

Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.

Prerequisites: SPAN F100A.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F101X Elementary Spanish I (h)**

4 Credits

Offered Fall and Spring

Introduction to the language and culture: development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 1,000 words; exploration of the cultural dimension, implicitly through language and explicitly through texts and audiovisual materials.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F102X Elementary Spanish II (h)**

4 Credits

Offered Fall and Spring

Introduction to the language and culture: development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 1,000 words; exploration of the cultural dimension, implicitly through language and explicitly through texts and audiovisual materials.

Prerequisites: SPAN F101X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F103 Conversational Spanish I (h)**

3 Credits

Offered As Demand Warrants

Verbal skills improvement. Includes role-playing, problem-solving and situational conversation. Conducted entirely in Spanish.

Prerequisites: SPAN F102X.**Special Notes:** Does not satisfy core curriculum or foreign language major requirements.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Pass/Fail Grades**SPAN F201 Intermediate Spanish I (h)**

3 Credits

Offered Fall

Intermediate course designed for students with a basic knowledge of Spanish. SPAN F201 expands speaking, listening, reading, writing skills and broadens cultural understanding of the Spanish-speaking world for communicating at the intermediate level. Course conducted in Spanish.

Prerequisites: SPAN F102X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F202 Intermediate Spanish II (h)**

3 Credits

Offered Spring

Continuation of SPAN F201. Continues to develop speaking, listening, reading, writing skills and further broadens cultural understanding of the Spanish-speaking world in preparation for studies in advanced Spanish. Course conducted in Spanish.

Prerequisites: SPAN F201.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F203 SI SI! (Summer Intensive Spanish Immersion) (h)**

3 Credits

Offered Summer

Intensive two-week language immersion. Verbal skills improvement. Includes role-playing, problem-solving and situational conversation. Conducted entirely in Spanish.

Prerequisites: SPAN F201; SPAN F202.**Special Notes:** Does not satisfy core curriculum.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F204 Intermediate Spanish Reading (h)**

3 Credits

Offered Spring

Spanish reading for the intermediate level with an emphasis on comprehension, fluency and vocabulary building rather than analysis. This course will prepare students for critical analysis of Spanish literature in upper-division courses.

Prerequisites: SPAN F201.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

SPAN F205 Spanish for Medical Professionals (h)

3 Credits

Offered Spring Even-numbered Years

Spanish for professionals is a course designed for students with a low-intermediate level of Spanish with an extensive focus on medical vocabulary, grammar structures and Hispanic/LatinX cultures. This course will help prepare medical professionals to effectively interact with their patients and/or clientele.

Prerequisites: SPAN F101X.**Special Notes:** Current medical professionals may take the course without prerequisites with instructor permission.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F222 Cultures and Civilizations of Spain (h)**

3 Credits

Offered As Demand Warrants

Designed to provide students of Spanish language and others interested in Hispanic culture with background in the geography, history, religions, cultures, and politics of Spain. Explores the changes and challenges facing contemporary Spanish society. Conducted in English.

Recommended: SPAN F102X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F301 Advanced Spanish Conversation and Comprehension (h)**

3 Credits

Offered Fall

Focus on increasing speaking and listening comprehension. Discussions, presentations and exercises to enhance verbal competence. Conducted in Spanish.

Prerequisites: COM F131X or COM F141X; SPAN F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F302 Advanced Spanish Reading and Literary Comprehension (h)**

3 Credits

Offered Spring

An introduction to the understanding and analysis of Hispanic literature, with particular emphasis on the forms of written Spanish. Conducted in Spanish.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SPAN F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F311 Advanced Spanish Composition (h)**

3 Credits

Offered As Demand Warrants

Practice of formal and informal writing styles in Spanish. Focus on vocabulary and stylistic issues.

Prerequisites: SPAN F202.**Recommended:** WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F317 Advanced Spanish Grammar (h)**

3 Credits

Offered Fall

Grammatical concepts in Spanish. Focus on more difficult grammatical structures.

Prerequisites: SPAN F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F321 Cultures of Latin America**

3 Credits

Offered As Demand Warrants

Designed to provide students with background in the cultures, history and politics of Latin America, as well as continued practice in the target language. Conducted in Spanish.

Prerequisites: SPAN F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F322 Cultures of Spain (h)**

3 Credits

Offered Fall

Designed to provide students with background in the culture, history and politics of Spain, as well as continued practice in the target language. Explores the changes and challenges facing contemporary Spanish society. Conducted in Spanish.

Prerequisites: SPAN F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**SPAN F431 Senior Seminar (h)**

3 Credits

Offered As Demand Warrants

Topics may include literature, arts and cultures of the Spanish-speaking world. Conducted in Spanish.

Prerequisites: COM F131X or COM F141X; SPAN F302; senior standing.**Special Notes:** Students may repeat course for credit if topic varies.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 15 credits**SPAN F432 Studies of Hispanic Literature (h)**

3 Credits

Offered As Demand Warrants

Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SPAN F302; junior standing.**Special Notes:** Course may be repeated for credit if topic varies.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 15 credits**SPAN F482 Selected Topics in Spanish (h)**

3 Credits

Offered As Demand Warrants

Intensive course focusing on topics not covered in SPAN F431 or SPAN F432.

Prerequisites: SPAN F302; junior standing.**Special Notes:** Course may be repeated for credit if topic varies.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 15 credits

SPAN F488 Individual Study: Senior Project (h)

3 Credits

Offered As Demand Warrants

Analysis and presentation, in Spanish, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the sixth week of the semester preceding the semester of graduation. Conducted in Spanish.

Prerequisites: At least 10 credits in upper-division Spanish.

Special Notes: Taught normally in the semester preceding the student's graduation.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Sport Management (SPRT)

College of Business and Security Management

Business Administration Program (<https://www.uaf.edu/som/degrees/undergraduate/ba/>)
907-474-7461

SPRT F280 Sport Leadership

3 Credits

Offered Fall

Provides leadership theory and develop leadership skills for application internal and external to their sport. Focus on the identification and development of leadership skills/abilities and application within the classroom, a sport and for an on-campus project.

Cross-listed with LEAD F280; BA F280.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

SPRT F281X Introduction to Sport Management

3 Credits

Offered Fall, Spring and Summer

An introduction to the field of sport management, including different segments, components and career paths within the industry. Topics such as collective bargaining, leadership in sports, legal aspects of sports, sports agents, sports analytics, sports marketing, stadium financing and the sociology of sports will be examined.

Cross-listed with BA F281X.

Attributes: UAF GER Social Sciences Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

SPRT F375 Introduction to Esports Management

3 Credits

Offered Fall

This course is designed to introduce students to business concepts related to the esports industry. Students will be exposed to topics including: the definition of esports, content marketing, event management, management, governance and legal aspects of esports.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.

Cross-listed with BA F375.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

SPRT F480 Current Topics in Sport & Recreation Management

3 Credits

Offered As Demand Warrants

This course examines current trends in critical areas of sport & recreation business from a management perspective. Topics of interest include corporate social responsibility, climate change, diversity, media relations, and technology.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X; SPRT F281X.

Cross-listed with BA F480.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

SPRT F481 Event Management

3 Credits

Offered Fall, Spring and Summer

This course is designed to provide the student with knowledge pertaining to the various aspects of managing a public sport and/or entertainment event and their production. Topics discussed include economic impact, sponsorship, risk management, staff and volunteers, customer service, concessions, crowd management and technology.

Prerequisites: BA F343; BA F281X or SPRT F281X; COM F121X, COM F131X or COM F141X.

Cross-listed with BA F481.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

SPRT F482 Sport Marketing

3 Credits

Offered Spring

This course provides a decision-orientated overview of sport marketing management in sport organizations. This course is designed to acquaint students with comprehensive fundamental theories and issues in sport marketing, grounded within traditional marketing principles, and emphasizing unique application to the sport industry.

Prerequisites: BA F343; BA F281X or SPRT F281X; COM F121X, COM F131X or COM F141X.

Cross-listed with BA F482.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

SPRT F483 Sport and Recreation Sales

3 Credits

Offered Fall

This course is designed to provide the student with knowledge pertaining to the various aspects of sales and pricing techniques used within sport and recreation organizations. Some of the topics discussed include ticket distribution, customer service, software and real-life sales campaigns.

Prerequisites: BA F343, BA F281X/SPRT F281X; COM F121X, COM F131X or COM F141X.

Cross-listed with BA F483.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

SPRT F484 Legal Aspects of Sport and Recreation Management

3 Credits

Offered As Demand Warrants

This course will focus on the three major areas of law that have a direct impact on the management of sport and recreation: tort liability and risk management; contract law; and constitutional law.

Prerequisites: SPRT F281X.

Cross-listed with BA F484.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

SPRT F485 Sport and Recreation Facilities

3 Credits
Offered Fall

This course provides a foundation for the planning process, operations, and specific design features for various park, recreation, and sport facilities. This course is designed to provide students the opportunity to learn multiple aspects of sports facilities and the management of events held at these facilities.

Prerequisites: SPRT F281X, BA F281X, SPRT F280 or BA F280.

Cross-listed with BA F485.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

SPRT F486 Entrepreneurship in Outdoor Recreation Industries

3 Credits
Offered Spring

This course is an introduction in the development and management of outdoor recreation businesses. Topics covered include business plan development, financial structures, and risk management specific to remote recreation businesses commonly found in Alaska, such as big-game commercial services, sport fishing operations, remote expediting, and aviation-related services.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; BA/SPRT F281X.

Cross-listed with BA F486.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

SPRT F488 Sport Analytics

3 Credits
Offered Fall, Spring and Summer

This course is an introduction to the application of analytical tools and techniques used within the sports industry. It will discuss theory, development, and application of analytics in the sports industry.

Prerequisites: SPRT F280 or SPRT F281X.

Crosslisted with BA F488.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Statistics (STAT)

College of Natural Science and Mathematics

Department of Mathematics and Statistics (<https://www.uaf.edu/dms/>)
907-474-7332

STAT F200X Elementary Statistics (m)

3 Credits
Offered Fall and Spring

Introduction to concepts and applications of elementary statistical methods. Topics include sampling and data analysis, descriptive statistics, elementary probability, probability and sampling distributions, confidence intervals, hypothesis testing, correlation, and simple linear regression.

Prerequisites: Appropriate placement score; or a grade of B or better in MATH F105 or MATH F105N or in all three of MATH F105G and MATH F105H and MATH F105J; or grade of C- or better in a math course numbered F122 or above.

Attributes: UAF GER Mathematics Req

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

STAT F300 Statistics

3 Credits
Offered Fall and Spring

A calculus-based course emphasizing applications. Topics include probability, joint and conditional probability, expectation and variance, parameter estimation (method of moments and maximum likelihood), one and two sample hypothesis tests, simple linear regression and one-way analysis of variance.

Prerequisites: MATH F230X or MATH F251X or placement.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

STAT F401 Regression and Analysis of Variance

4 Credits
Offered Fall and Spring
Multiple regression including multiple and partial correlation, extra sum of squares principle, indicator variables, polynomial models, model selection, and assessment of underlying assumptions. Analysis of variance and covariance for multifactor studies in completely random and randomized complete block designs, multiple comparisons and orthogonal contrasts. Matrix concepts are taught as needed.

Prerequisites: STAT F200X or STAT F300.

Corequisites: STAT F401L.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

STAT F401L STAT F401 Laboratory

0 Credit
Offered Fall and Spring
Computer laboratory section for STAT F401 Regression and Analysis of Variance. Activities may include case studies involving the application of lecture topics and methods in R software.

Corequisites: STAT F401.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Non-Graded

STAT F402 Scientific Sampling

3 Credits
Offered Fall
Sampling methods, including simple random, stratified and systematic and one- and two-stage cluster sampling; estimation procedures, including ratio and regression methods; special area and point sampling procedures; optimum allocation. Adaptive and probability sampling; bootstrapping and basic mark-and-recapture.

Prerequisites: STAT F200X or STAT F300.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

STAT F454 Statistical Consulting Seminar

1 Credit
Offered Spring
Introduction to statistical consulting and data analysis. Emphasis on interaction with researchers and identification of scientific and statistical issues relevant to the research problem. Includes regular class meetings as well as supervised meetings with researchers. Designed to combine mathematical statistics with applications from a variety of fields.

Prerequisites: MATH F408; STAT F200X or STAT F300; STAT F401.

Stacked with STAT F654.

Special Notes: Students from any field of study with strong quantitative skills are encouraged to enroll.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 3 times for up to 3 credits

STAT F461 Applied Multivariate Statistics

3 Credits

Offered Spring Even-numbered Years

Estimation and hypothesis testing, multivariate normality and its assessment, multivariate one and two sample tests, confidence regions, multivariate analysis of variance, discrimination and classification, principal components, factor analysis, clustering techniques and graphical presentation. Statistical computing packages utilized in assignments.

Prerequisites: STAT F401.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STAT F602 Experimental Design**

3 Credits

Offered Fall Even-numbered Years

Constructing and analyzing designs for experimental investigations; completely randomized, randomized block and Latin-square designs, split-plot design, incomplete block design, confounded factorial designs, nested designs, treatment of missing data, comparison of designs.

Prerequisites: STAT F401.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STAT F605 Spatial Statistics**

3 Credits

Offered Spring Even-numbered Years

Stochastic processes and variograms. Geostatistics including kriging and spatial design of experiments. Point processes including model selection and K-functions. Lattice process models and image analysis. Computer-intensive statistical methods.

Prerequisites: STAT F401; MATH F251X; MATH F252X; MATH F253X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STAT F611 Time Series**

3 Credits

Offered Spring Odd-numbered Years

An applied course in time series and repeated measure analysis. Autoregression and moving average models. Estimation of parameters and tests. Prediction. Spectral analysis. Analysis of repeated measures data.

Prerequisites: STAT F401.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STAT F621 Nonparametric Statistics and Machine Learning**

3 Credits

Offered Fall Odd-numbered Years

A survey course in nonparametric statistical techniques. Distribution-free methods for small samples including sign, rank and randomization tests and bootstrapping. Modern techniques including kernel density estimation, survival analysis, spline regression and generalized additive models. Classification methods including regression trees, support vector machines and neural net models.

Prerequisites: STAT F401.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STAT F631 Categorical Data Analysis**

3 Credits

Offered Fall Odd-numbered Years

Statistical methods designed for count and categorical data. Contingency tables. Logistic and related models. Log-linear models. Repeated categorical responses. Survival data.

Prerequisites: STAT F401.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STAT F641 Bayesian Statistics**

3 Credits

Offered Fall Even-numbered Years

Bayes' Rule, Bayesian models for univariate data, prior selection (conjugate and non-conjugate, noninformative and objective priors). Single parameter and multiparameter models. Hierarchical, general linear and mixed models. Study of posterior simulation techniques including Markov chain Monte Carlo. Model validation and model selection.

Emphasis on applications, using modern statistical software packages.

Prerequisites: MATH F252X; (MATH F371 and MATH F408) or STAT F651.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STAT F651 Statistical Theory I**

3 Credits

Offered Fall

Probability and distribution of random variables. Conditional probability and stochastic independence. Distributions of functions of random variables. Expected values. Limiting distributions. Distributions derived from the normal distribution. Designed to combine mathematical statistics with applications from a variety of fields.

Prerequisites: MATH F253X; MATH F314; previous statistics course.**Special Notes:** Students from any field of study with strong quantitative skills are encouraged to enroll.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STAT F652 Statistical Theory II**

3 Credits

Offered Spring Odd-numbered Years

Data reduction concepts, including sufficiency, ancillarity, completeness. Point estimation and interval estimation of parameters. Bootstrapping. Hypothesis testing, including the Neyman-Pearson paradigm and likelihood ratio tests. Asymptotic properties of estimators. Bayesian inference. Designed to combine mathematical statistics with applications from a variety of fields.

Prerequisites: STAT F651.**Special Notes:** Students from any field of study with strong quantitative skills are encouraged to enroll.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

STAT F653 Statistical Theory III: Linear Models

3 Credits

Offered Spring Even-numbered Years

Best linear unbiased estimation in the general linear model, Gauss-Markov theory and applications, maximum likelihood estimation for linear models, multivariate normal distributions, linear regression and analysis of variance, weighted regression, robust and nonlinear regression and generalized linear models. Designed to combine mathematical statistics with applications from a variety of fields.

Prerequisites: STAT F651 or MATH F371; MATH F253X; MATH F314.**Special Notes:** STAT F401 or equivalent course in applied linear regression modeling is strongly recommended.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STAT F654 Statistical Consulting Seminar**

1 Credit

Offered Spring

Introduction to statistical consulting and data analysis. Emphasis on interaction with researchers and identification of scientific and statistical issues relevant to the research problem. Includes regular class meetings as well as supervised meetings with researchers. Designed to combine mathematical statistics with applications from a variety of fields.

Prerequisites: MATH F408; STAT F200X or STAT F300; STAT F401.**Stacked with** STAT F454.**Special Notes:** Students from any field of study with strong quantitative skills are encouraged to enroll.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 3 times for up to 3 credits**STAT F661 Sampling Theory**

3 Credits

Offered Fall

Statistical theory for sampling and sample surveys. Choice of method, power and sample size considerations, treatment of sampling and non-sampling biases. Sampling methods based on detectability. Adaptive sampling. Spatial sampling. Mark and recapture methods. The jackknife, the bootstrap and resampling plans.

Prerequisites: STAT F200X; STAT F401.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STAT F671 Statistical Computing**

3 Credits

Offered Spring Odd-numbered Years

Topics in statistical programming which may include Advanced R, program design, parallel processing, object oriented programming, functions, environments, debugging, loops and their replacements, C++ in R and code optimization. Optimizers, linear programming, random number generators including MCMC. Web applications. Writing R packages. Reproducible research. Text mining and relational databases.

Prerequisites: STAT F401; MATH F251X or MATH F230X; Knowledge of basic R highly recommended.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**STAT F692 Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**STAT F692P Seminar**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits**STAT F698 Non-thesis Research/Project**

1-6 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Trades And Technology (TTCH)

Community and Technical CollegeGeneral Academic & Technical Programs (<https://www.ctc.uaf.edu/>)

907-455-2800

TTCH F101 Machine Woodworking I

2 Credits

Offered As Demand Warrants

Introduction to woodworking power machines (circular saw, jointer, radial arm saw), joints, fasteners, and different stains and finishes used on wood.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F105 Basic Electrical Wiring**

1 Credit

Offered As Demand Warrants

Fundamental skills and career opportunities in electrical wiring.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F110 Basic Safety Training for Building Maintenance and Repair**

2 Credits

Offered As Demand Warrants

How to care for tools and use them safely, properly and efficiently using HILTI standards, follow OSHA standards to maintain a safe workplace and identify unsafe workplace situations. These standards ensure safety in construction operations. Upon passing the HILTI and OSHA testing standards, certification will be given.

Lecture + Lab + Other: 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F113 Basic Plumbing**

3 Credits

Offered As Demand Warrants

Introduction to methods and materials used in household plumbing.

Topics includes pipe fittings and valves, pipe hangers and brackets, copper and plastic pipe fitting and plumbing fixtures.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F117A Four-cycle Engine Repair**

1 Credit

Offered As Demand Warrants

Four-cycle engine theory and principles of operation. Classroom activities include step-by-step disassembly, inspection and assembly of a four-cycle engine.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades

TTCH F117B Two-cycle Engine Repair

1 Credit

Offered As Demand Warrants

Two-cycle engine theory and principles of operation. Classroom activities include step-by-step disassembly, inspection and assembly as well as familiarization with tools used in small engine repair.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**TTCH F120 Refrigeration and Air Conditioning**

4 Credits

Offered As Demand Warrants

Fundamentals of refrigeration and air conditioning theory in preparation for further study. Topics include compressors, condensers, evaporators, metering devices and related components. Assumes no previous knowledge.

Lecture + Lab + Other: 4 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F125 Introduction to Carpentry for Building Maintenance and Repair**

3 Credits

Offered As Demand Warrants

Uses of lumber, commonly used hardware fasteners, types of tools and their uses, how to care for tools and use them safely, properly and efficiently. Building projects are completed which apply what was learned in the classroom. These skills are needed in maintenance positions in private businesses, schools and hospitals and in residential construction and renovation.

Lecture + Lab + Other: 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F130 Blueprint and Schematic Reading**

3 Credits

Offered As Demand Warrants

Basic blueprint and schematic reading skills used by building maintenance personnel. Introduction to machine drawings, building drawings, hydraulic and pneumatic drawings, electrical schematics and symbols, air conditioning and refrigeration drawings, welding and joining symbols.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F131 Mathematics for the Trades**

3 Credits

Offered Spring

Practical application of mathematics for industry and preparation for union apprenticeship programs, including arithmetic review, ratios and proportion, powers and roots, algebra, geometry and trigonometry. Mathematical applications of basic physics with reference to units of measurement, use of precision measuring tools, measurement of forces, temperature, fluids and electricity.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F132 Building Maintenance Materials**

3 Credits

Offered As Demand Warrants

Basic properties, processes and uses of metals and non-metals in tools, machines and building materials. Practical application to building maintenance situations will be emphasized.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F133 Basic Hand and Power Tools**

3 Credits

Offered As Demand Warrants

Uses, care and maintenance of hand and power tools. Familiarity and skill development with these tools through construction of shop projects.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F134 Maintenance Safety**

1 Credit

Offered As Demand Warrants

Industrial safety including recognizing safety hazards, working safely, handling materials safely, using machinery safely, personal protective equipment, electrical safety, fire protection and government safety regulations.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F138 Introduction to Electricity for Building Maintenance and Repair**

2 Credits

Offered As Demand Warrants

Commonly used materials in the electrical trade. Provides basic understanding of the National Electrical Code, local codes and schematic drawings. Stresses safe installation and correct tool usage. Familiarity and skills are cultivated through projects.

Lecture + Lab + Other: 1.5 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F140 Introduction to Plumbing for Building Maintenance and Repair**

2 Credits

Offered As Demand Warrants

Basic plumbing materials that may be used in any plumbing system, how to use plumbing tools and completing selected projects. Includes using drawings to identify types of plumbing branches and bends, pipefittings, correct plumbing layout aids, and installation applications.

Lecture + Lab + Other: 1.5 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F147 Burner Maintenance and Repair**

1 Credit

Offered As Demand Warrants

Instruction in troubleshooting 10 common problems, reading manuals, changing parts, setting electrodes, changing nozzles, understanding controls and ordering replacement parts. Also offered as pass/fail as TTCH F147P.

Lecture + Lab + Other: 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F147P Burner Maintenance and Repair**

1 Credit

Instruction in troubleshooting 10 common problems, reading manuals, changing parts, setting electrodes, changing nozzles, understanding controls and ordering replacement parts.

Lecture + Lab + Other: 1 + 2 + 0**Grading System:** Pass/Fail Grades

TTCH F148 Heating Systems for Building Maintenance and Repair

2 Credits

Offered As Demand Warrants

Comprehensive instruction for people employed in installation and maintenance of heating systems. Installation and maintenance applications of fuel transfer, theories of combustion, nozzles, combustion chambers, heat exchangers, draft regulators, stacks, controls and sizing of systems.

Recommended: TTCH F138.**Lecture + Lab + Other:** 1 + 1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F150 Introduction to Painting for Building Maintenance and Repair**

2 Credits

Offered As Demand Warrants

Surfaces and surface protection, sealants and fillers, paint categories and application tools. Hands-on projects are completed which apply skills learned in the classroom. These skills are needed in facility maintenance positions in businesses such as schools and hospitals, and in residential construction and renovation.

Lecture + Lab + Other: 1 + 1.5 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F151 Hazardous Paint Certification**

1 Credit

Offered As Demand Warrants

Potential health hazards and information on safety practices will be addressed.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F199 Practicum**

1-3 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 3 credits**TTCH F214 Heating Systems Design**

3 Credits

Offered As Demand Warrants

Comprehensive instruction in installation and systems approach to design of heating systems including installation procedures of current systems, heat loss calculation, heat distribution through hydronic and air systems, and boiler and furnace sizing.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F225 Advanced Carpentry for Building Maintenance and Repair**

3 Credits

Offered As Demand Warrants

Expand carpentry skills in measuring, plan reading, site layout skills and working with elevations.

Prerequisites: TTCH F125.**Lecture + Lab + Other:** 2 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F250 Advanced Painting for Building Maintenance and Repair**

2 Credits

Offered As Demand Warrants

Proper methods for finishing, patching and spray painting drywall. Skills studied in the classroom will be developed in various projects.

Prerequisites: TTCH F150.**Lecture + Lab + Other:** 1 + 2 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F282 Selected Topics in Process Unit Design**

4 Credits

Offered As Demand Warrants

Hands-on execution and application of automated process designs as they evolve from ideas to implementation. Emphasis will be on the expanded study of the purpose, utilization and adaptation of tools, machines, materials and systems to the solutions of automated process unit design problems. Special Notes:

Prerequisites: PRT F101; PRT F110.**Recommended:** PRT F130; PRT F140, course may be repeated three times for credit.**Lecture + Lab + Other:** 2 + 4 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 12 credits**TTCH F299 Practicum**

1-3 Credits

Lecture + Lab + Other: 0 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 3 credits**TTCH F300 Internship in Technology**

1-3 Credits

Offered As Demand Warrants

Supervised practical experience working with private industry, government units or agencies in technologies. Opportunities to apply theories and practical application and to observe procedures and operations of the businesses or agencies. May be repeated for a maximum of 9 credits.

Prerequisites: Upper-division standing.**Lecture + Lab + Other:** 0 + 12 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 9 times for up to 9 credits**TTCH F301 Technology and Society**

3 Credits

Offered As Demand Warrants

Concepts of social change related to the effects of technology on society, and application of the concepts and processes of technology as they evolve from ideas to implementation. Emphasis on expanded study of the creation, use and adaptation of tools, machines, materials and systems to the solutions of problems and the extension of human potential.

Available via Independent Learning.

Prerequisites: Upper-division standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TTCH F485 Advanced Technical Experiences: Discipline Area**

1-6 Credits

Offered As Demand Warrants

Formal technical upgrade training provided by various agencies, manufacturers, businesses or industries which are evaluated on an individual basis and must support the student's professional objectives.

For Bachelor of Technology students only. The National Guide to Educational Credit for Training Programs will be used.

Prerequisites: Upper-division standing.**Lecture + Lab + Other:** 1-6 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 6 times for up to 6 credits

Tribal Governance (TG)

College of Rural and Community Development

Tribal Governance Program (<https://tribal.uaf.edu/>)

907-474-7143

TG F101 Introduction to Tribal Government in Alaska (an)

3 Credits

Offered Fall

An introduction to the study of tribal government and politics in Alaska, including tribal legislative and judicial and administrative responsibilities. Presents key concepts of federal Indian law, self-determination and self-governance for building and enhancing tribal governments.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TG F102 Essentials of Tribal Government (an)**

1 Credit

Offered As Demand Warrants

This course will provide an overview of tribal council executive, legislative and judicial responsibilities including tribal council role in writing laws, basics of tribal sovereignty, sovereign immunity and rights of tribal members.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 2 times for up to 2 credits**TG F103 Introduction to Tribal Administration**

1 Credit

Offered As Demand Warrants

This course will review the knowledge, skills and abilities required to successfully serve as a Tribal Administrator for Tribal Government within Alaska, including: introduction to Federal Indian Law, basics of Tribal Self-Governance/BIA 638 Contracts programs and funding, overview of tribal financial management, reporting fundamentals and role of the Tribal Administrator.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 2 times for up to 2 credits**TG F105 Introduction to Managing Tribal Governments (an)**

3 Credits

Offered Fall

Tools and methods for the management and oversight of tribal government programs and organizations. Student evaluation includes how well the student affects changes in tribal operations and tribal management.

Prerequisites: Must be familiar with computer and related word processing and spreadsheet programs.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TG F110 Tribal Court Development for Alaska Tribes**

1 Credit

Offered As Demand Warrants

An introduction to tribal court development in Alaska. Will focus on a practical understanding of key concepts for developing a tribal court process in rural Alaska. Will explore the differences and relationships between tribal, state, and federal justice systems, including concepts of jurisdiction and due process.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**TG F111 Children's Topics in Tribal Justice**

1 Credit

Offered As Demand Warrants

Overview of children's cases in tribal justice. Preparation for informed participation in the tribal justice system as it affects children and families. Topics such as the Indian Child Welfare Act, child protection, child custody and tribal adoptions will be addressed.

Recommended: TG F110.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**TG F112 Federal Indian Law for Alaska Tribes (an)**

1 Credit

Offered As Demand Warrants

Introduction to federal Indian law, focusing on the impacts to modern Alaskan tribal governments. Particular attention will be given to the relationship between federal Indian law and tribal justice systems in Alaska.

Recommended: TG F110.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**TG F113 Tribal Code Development**

1 Credit

Offered As Demand Warrants

Focuses on development of written tribal codes, including the importance of incorporating traditional unwritten laws and values into modern written codes. Particular attention will be given to the relationship between written tribal laws and tribal justice systems.

Recommended: TG F110.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**TG F114 Tribal Justice Responses to Community and Domestic Violence**

1 Credit

Offered As Demand Warrants

Focuses on role of the tribal justice system in responding to community and domestic violence, including the use of tribal protective orders under the federal Violence Against Women Act (VAWA).

Recommended: TG F110.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**TG F115 Tribal Court Administration**

1 Credit

Offered As Demand Warrants

Focuses on the administration of tribal courts in Alaska and the role of the tribal court clerk. Key concepts and strategies related to the effective administration and operation of tribal justice systems in Alaska will be discussed.

Recommended: TG F110.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**TG F116 Juvenile Justice in Tribal Court**

1 Credit

Offered As Demand Warrants

Focuses on concepts and strategies impacting juveniles in tribal justice systems. Special focus will be given to issues of juvenile delinquency, strategies in sentencing and community monitoring, as well as, youth courts and community justice theories.

Recommended: TG F110.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades

TG F117 Tribal Court Enforcement of Decisions

1 Credit

Offered As Demand Warrants

Focuses on role of the tribal government and justice system in enforcement of tribal court decisions in rural Alaska, including monitoring of offenders. Key concepts and strategies related to enforcement of tribal court decisions, including writing effective orders and monitoring of offenders, will be discussed.

Recommended: TG F110.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**TG F118 Tribal Community and Restorative Justice**

1 Credit

Offered As Demand Warrants

Focuses on concepts and strategies in community justice, restorative justice, tribal peacemaking and other prominent judicial theories impacting modern Alaskan tribal jurisprudence.

Recommended: TG F110.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Pass/Fail Grades**TG F120 Introduction to Tribal Natural Resources Stewardship** (an)

3 Credits

Offered Fall

Examination of foundations, principles and goals of tribal natural resources stewardship. Including the history of tribal stewardship in Alaska, covering state and federal natural resources laws and management systems. The course will also introduce concepts and tools in developing tribal natural resources stewardship programs, including successful contemporary models.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TG F140 Introduction to Geospatial Data**

1 Credit

Offered As Demand Warrants

An introductory survey of tools for the gathering and mapping of both qualitative and quantitative geospatial data for the natural and social sciences. Students will get direct experience with basic tools and techniques for gathering geospatial data, and will incorporate their data into an existing geospatial database.

Prerequisites: Basic computer literacy equivalent to CIOS F100.**Lecture + Lab + Other:** 1 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TG F141 Practical GIS for Rural Alaska**

2 Credits

Offered As Demand Warrants

Practical and place-based introduction to the development of maps using Geographic Information System (GIS) software. Covers basic tools and skills necessary for creating community maps using existing geospatial data as well as data gathered using Global Positioning System (GPS) technology. Class exercises emphasize applications pertinent to rural Alaska map development.

Prerequisites: TG F140.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TG F142 Practical GIS Project Design**

2 Credits

Offered As Demand Warrants

How to design and implement basic Geographic Information System (GIS) projects. Class exercises emphasize GIS project planning, data collection, and practical map development to meet common needs for communities in rural Alaska.

Prerequisites: TG F141.**Lecture + Lab + Other:** 2 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TG F160 Indigenous Culture and Science Camp**

1-3 Credits

Offered As Demand Warrants

Introduction to Indigenous culture and relationships to science, held in conjunction with a Tribally/Community sponsored Indigenous Culture and Science Camp (ICSC). ICSCs provide an opportunity to experience Alaska Native culture(s), Indigenous knowledge and Indigenous science through hands-on and traditional practices. ICSCs explore experiential Indigenous and science learning opportunities.

Lecture + Lab + Other: 13.3-39.9 + 0 + 13.3-39.9**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 9 times for up to 9 credits**TG F161 Tribal and Community Leadership Development**

1-3 Credits

Offered As Demand Warrants

This course explores effective tribal/community leadership development, examining place-based, culturally-relevant key leadership qualities and skills in tribal and Alaska Native communities. Students will explore how to put leadership into action for community wellbeing. Course is elder led, with a focus on tribal values and cultural practices, and including tribal/community leaders.

Lecture + Lab + Other: 13.3-39.9 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 9 times for up to 9 credits**TG F162 Tribal Youth Advocacy**

1-3 Credits

Offered As Demand Warrants

This course provides space for tribal youth leaders to: ground their advocacy in their culture and values; find and strengthen their voice; identify key youth advocacy priorities; grow advocacy fluency and develop advocacy plans. The course provides opportunity to practice and share Indigenous languages and cultural activities, guided by elders.

Lecture + Lab + Other: 13.3-39.9 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 9 times for up to 9 credits**TG F199 Tribal Management Practicum I**

3 Credits

Professional and personal development while working in a rural service organization. Emphasis on developing the understanding and skills necessary for delivery of rural services. Course is guided by an academic advisor. Student must be willing and able to work independently outside the classroom and in the community.

Prerequisites: Must be familiar with computer and related word processing and spreadsheet programs.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

TG F201 Tribal Government in Alaska II (an)

3 Credits

Offered Spring

A study of tribal government and politics in Alaska. Explores the historical relationships among tribal, state and federal government in Alaska.

Provides a focus on tribal sovereignty and self-determination for building and enhancing tribal governments.

Prerequisites: TG F101.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TG F205 Managing Tribal Governments II (an)**

3 Credits

Offered Spring

Advanced tools and methods for the management and oversight of tribal government programs and organizations. Student evaluation includes how well the student affects changes in tribal operations and tribal management

Prerequisites: TG F105.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TG F221 Tribal Participation in Federal Fish and Wildlife Management Systems**

1-3 Credits

Offered As Demand Warrants

Introduction to Tribal Government/Citizen participation in Federal Subsistence Management in Alaska as it pertains to promoting traditional ways of life. This course will review: ANILCA Title 8; Tribal Consultation; administration/structure/operations of Federal Subsistence Management. Experiential learning includes development of testimony and/or participation in Federal meetings.

Lecture + Lab + Other: 1-3 + 0 + 16**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 9 times for up to 9 credits**TG F222 Tribal Participation in State Fish and Game Management Systems**

1-3 Credits

Offered As Demand Warrants

Introduction to Tribal Government/Citizen participation in State of Alaska fish and game management as it pertains to promoting traditional ways of life. Review of administration/structure/operations of fish and game management, including Local Advisory Committees, and/or Board of Fish/Game. Experiential learning includes development of testimony and/or participation in state meetings.

Lecture + Lab + Other: 1-3 + 0 + 16**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 9 times for up to 9 credits**TG F225 Cross Connections: Adapting and Integrating Principles of Management and Conservation**

3 Credits

Offered As Demand Warrants

Skills, abilities and knowledge needed to adapt traditional Western science and management principles to indigenous resource concepts and values are crucial when dealing with contemporary rural Alaska natural resource, land and environmental management issues. Prepare students, provide tools/methods for considering cross-cultural concepts and values in resource management and conservation decisions.

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**TG F250 Current Topics in Tribal Government**

1-3 Credits

Offered As Demand Warrants

Various topics of current interest to Tribal Governments and Tribal Management students. Topics announced prior to each offering and course may be repeated for credit.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 9 times for up to 9 credits**TG F299 Tribal Management Practicum II**

3 Credits

Professional and personal development while working in a rural service organization. Emphasis on developing the understanding and skills necessary for delivery of rural services. Course is guided by an academic advisor. Student must be willing and able to work independently outside the classroom and in the community.

Prerequisites: Must be familiar with computer and related word processing and spreadsheet programs.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Undergraduate Research and Scholarly Activity (URSA)

Interdisciplinary Studies

Undergraduate Research & Scholarly Activity (<https://www.uaf.edu/ursa/>)

907-450-8772

URSA F192 Introduction to UAF Research and Creative Scholarship

1 Credit

Offered Fall and Spring

This course provides an overview of the diversity of research at UAF and the opportunities for undergraduate student participation in research and creative scholarship. Students will gain a broad understanding of the significance, process and impact of research as a creative scholarship as conducted across the wide range of disciplines represented on all the UAF campuses.

Lecture + Lab + Other: 1 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 1 time for up to 2 credits**URSA F388 Undergraduate Research and Creative Scholarship I**

2-6 Credits

Offered Fall and Spring

Provides undergraduate opportunities for student research or creative scholarship in advanced topics beyond typical undergraduate laboratory or studio course offerings across all disciplines. Students will write a project proposal that will serve as a basis for future research or creative scholarship by the end of the semester.

Prerequisites: Junior standing.**Lecture + Lab + Other:** 1 + 4-10 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 2 times for up to 6 credits

URSA F488 Undergraduate Research and Creative Scholarship II

2-6 Credits

Offered Fall and Spring

Provides undergraduate opportunities for student research or creative scholarship in advanced topics beyond typical undergraduate laboratory or studio course offerings. Students will work on a project in collaboration with their mentor. Students are required to publicly present their work and submit a final report suitable for submission to a discipline-specific journal. Research and creative scholarship areas range across all disciplines. A substantial level of background in the specific discipline, a level commensurate with having achieved junior or senior level, is assumed.

Prerequisites: URSA F388 and junior-senior standing.

Special Notes: Students must meet with the instructor in the previous semester to identify their mentor and expected project; ideally students will have completed URSA F388 with the same mentor and have a written project proposal.

Lecture + Lab + Other: 1 + 4-10 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 2 times for up to 6 credits

URSA F492 Undergraduate Research and Creative Scholarship Seminar

1 Credit

Offered Fall and Spring

Course provides students a venue for presenting their research and learning about peer research at UAF. Students will have the opportunity to gain and develop oral presentation skills and will gain a broad understanding of the significance, process and impact of research as conducted across the wide range of scholarly disciplines at UAF campuses.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 1 time for up to 2 credits

Veterinary Medicine (DVM)

College of Natural Science and Mathematics

Veterinary Medicine Program (<https://www.uaf.edu/vmed/>)

Center for One Health Research (<https://www.uaf.edu/onehealth/>)

907-474-6610

DVM F480 Skeleton Articulation

1 Credit

Offered Spring

Skeleton assembly of species, from birds to mammals, depending on availability. The majority of this course is hands-on articulation of skeletons that have been cleaned and prepared prior to class. The lab will be supplemented with lectures covering bones, joint types, and biologically accurate limb and joint angles.

Prerequisites: BIOL F111X, BIOL F112X or BIOL F310.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Pass/Fail Grades

DVM F603 Veterinary Science Research and Methods

1 Credit

Offered Fall

This course will illustrate the role of research in furthering the practice of veterinary medicine by presenting a series of lectures from clinical and basic science investigators, faculty and staff who will describe important elements of the research process. The course will also describe possible career opportunities to students in animal health research.

Prerequisites: Admittance to the professional veterinary program.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F606 Veterinary Immunology

3 Credits

Offered Fall

The aim of this course is to educate Veterinary Medicine students on fundamental aspects of immunology, including functional anatomy and mechanisms of the innate and adaptive immunity in animals, immunological mechanisms of animal disease, principles of vaccination, and how to apply immunology in diagnosis of diseases.

Prerequisites: Admittance to the professional veterinary program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F610 Foundations of Veterinary Medicine

1 Credit

Offered Fall

The first semester of a four-course series in foundations of veterinary medicine. The full course series will encompass topics in ethics, communication, physical exam skills, surgical skills, clinical reasoning and professional development. This course will help you develop the professional skills necessary for the successful practice of veterinary medicine.

Prerequisites: Admittance to the professional veterinary program.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F611 Foundations of Veterinary Medicine II

1 Credit

Offered Spring

The second semester of a four-course series in foundations of veterinary medicine. The full course series will encompass topics in ethics, communication, physical exam skills, surgical skills, clinical reasoning and professional development. This course will help you develop the professional skills necessary for the successful practice of veterinary medicine.

Prerequisites: DVM F610.

Lecture + Lab + Other: 5 + 5 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F615 One Health Concepts

2 Credits

Offered Fall

This course introduces students to the One Health paradigm with emphasis on its application in the circumpolar North. Students explore the relationships between human, animal and environmental health. This holistic approach incorporates knowledge from natural and social sciences, history and culture of communities, traditional knowledge, laws, and government regulations.

Prerequisites: Admission to the One Health Masters.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F616 Functional Anatomy

8 Credits

Offered Fall

Introduction to veterinary anatomy including basic orientation, nomenclature, locomotion apparatus, circulatory system, digestive, respiratory apparatus, lymphatic organs and nervous system of domestic animals. Anatomical knowledge will be placed in a clinical context. General explanation and hands-on experience in anatomical preparation techniques.

Prerequisites: Admittance to the professional veterinary program.

Lecture + Lab + Other: 5 + 6 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F618 Veterinary Physiology and Histology

7 Credits

Offered Fall

The course will discuss the histology and physiology of domestic animal organ systems, tissues, cartilage, bone, muscle, arthrology, nervous system, hematopoiesis, lymphatic, cardiovascular, respiratory and digestive systems; the renal system and physiology. The course will help to place the knowledge in histology and physiology in a clinical context.

Prerequisites: Admittance to the professional veterinary program.

Lecture + Lab + Other: 6 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F619 Veterinary Neurobiology

4 Credits

Offered Spring

Students will learn information on neurologic conditions in domesticated animals. A problem-oriented approach makes it easy to diagnose and treat neurologic problems in domesticated animals. The coverage of disorders by problem, not by established disease diagnosis, emulates how animals present to the veterinary hospital and simplifies the formulation of a correct diagnosis.

Prerequisites: Successful completion of first-semester veterinary courses.

Lecture + Lab + Other: 3 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F620 One Health Challenges in the Circumpolar North

3 Credits

Offered Fall

Students are introduced to various tools and techniques to use a constructionist approach through a One Health lens to address significant issues in the circumpolar North. Students will learn to identify One Health challenges, gather information, engage stakeholders, communicate across several disciplines, build consensus, and develop action plans.

Prerequisites: DVM F615; admission to the One Health master's degree program.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F621 One Health Colloquium

4 Credits

Offered Fall

Building on the concepts developed in DVM F615 and the tools utilized in DVM F620, this course provides students with the opportunity to work completely through a One Health challenge, including engagement of stakeholders, gathering of data, proposal of solutions, and presentation of management plans in a public forum.

Prerequisites: Admission to the Masters of One Health and completion of both DVM F615 and DVM F620.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F623 Veterinary Nutrition and Metabolism

2 Credits

Offered Spring

This course will examine the nutritional needs of major species of veterinary importance. The discussion will revolve around specific nutritional needs as they relate to life stages and the production status of monogastric and ruminant animals. Course topics deal with the classification and function of nutrients, digestive processes and evaluation.

Prerequisites: Successful completion of first-semester veterinary courses.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F625 Principles of Diagnostic Imaging

2 Credits

Offered Fall

This course will include an introduction to radiographic anatomy of small and large animals; introduction to X-ray, MRI and CT. The course will help to place the anatomical knowledge into clinical context.

Prerequisites: Admittance to the professional veterinary program.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F637 Veterinary Bacteriology and Mycology

2 Credits

Offered Spring

This course will discuss bacterial structure, differences between bacterial families, and fungi and their pathogenesis. The basic principles of bacterial and fungal pathogenesis will be presented. Host response to bacterial or fungal infection, immunity and the role of vaccines in disease prevention will be explained.

Prerequisites: Successful completion of first-semester veterinary courses.

Cross-listed with BIOL F632.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F639 Veterinary Virology

2 Credits

Offered Spring

This course will explore current concepts in the field of veterinary virology, with an emphasis on the viral structure, viral genetic material and viral replication strategies of various animal viruses. In addition, mechanisms of viral pathogenesis, prevention and treatment of viral infection will be presented.

Prerequisites: Successful completion of first-semester veterinary courses.

Cross-listed with BIOL F639.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F640 Veterinary Pathology/Biology of Disease I

5 Credits

Offered Spring

This course will discuss basic principles of disease with special emphasis on processes likely to be encountered veterinary practice. We will discuss these topics organized by underlying disease mechanism. The discussions will move from general cell-mediated processes to more specific disease mechanisms.

Prerequisites: Successful completion of first-semester veterinary courses.

Cross-listed with BIOL F640.

Lecture + Lab + Other: 4 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F641 Professional Explorations Externship

1 Credit

Offered Fall, Spring and Summer

This externship is designed for students to explore various aspects of veterinary medicine and gain hands-on experience and exposure to different areas of the profession. This course is an opportunity for students to apply their classroom learning in a practical or clinical setting.

Prerequisites: DVM F610 and permission of the instructor.

Special Notes: Available to DVM students after completion of the first semester.

Lecture + Lab + Other: 0 + 0 + 3

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 3 times for up to 3 credits

DVM F648 Food Animal Production and Food Safety

2 Credits

Offered Spring

This course is designed to provide an understanding of food animal agriculture and food quality assurance. Students will explore contemporary production management systems of traditional and non-traditional food animal species. Animal welfare issues related to the raising of animals for food will be investigated. Students will learn where veterinary medicine fits into the protection of the human food supply.

Prerequisites: Successful completion of first-semester veterinary courses.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F681 Performance Dog Medicine and Surgery

2 Credits

Offered As Demand Warrants

Designed to provide the student with a basic understanding of the different types of performance dog activities, to identify the unique demands, husbandry, management issues and basic physiological impacts of each category of performance exercise and to gain a basic understanding of commonly observed injuries and their prevention/treatment.

Prerequisites: Good standing in professional veterinary program.

Special Notes: This course is designed for veterinarians and veterinary students- the information provided is only partially covered during the regular DVM curriculum and hence no other prerequisites are required.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F690 One Health Internship

2-4 Credits

Offered Fall, Spring and Summer

This is an experiential learning opportunity for students to engage with non-profit, governmental and community-based organizations. The goal of this internship is to link classroom learning and student interests in an applied setting. Students will create a reflection on their experience demonstrating how they addressed specific learning goals.

Prerequisites: DVM F615; DVM F620; DVM F621 (may be taken concurrently).

Lecture + Lab + Other: 6 + 0 + 90-160

Grading System: Letter Grades with option of Plus/Minus

DVM F710 Foundations of Veterinary Medicine III

1 Credit

Offered Fall

The third semester of a four-course series in foundations of veterinary medicine. The full course series will encompass topics in ethics, communication, physical exam skills, surgical skills, clinical reasoning and professional development. Expanded physical examination of companion animals and livestock will be taught with special emphasis on advanced cardiopulmonary auscultation, mammary gland evaluation, otic exam and colic evaluation.

Prerequisites: DVM F611.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F711 Foundations of Veterinary Medicine IV

1 Credit

Offered Spring

The fourth semester of a four-course series. The full course series will encompass topics in ethics, communication, physical exam skills, surgical skills, clinical reasoning and professional development. Expanded physical examination of companion animals and livestock will be taught, with special emphasis on advanced techniques in reproduction, surgical skills, anesthesia and patient management.

Prerequisites: Successful completion of DVM F710.

Lecture + Lab + Other: 0 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F714 Preventative Veterinary Medicine

4 Credits

Offered Fall

The course will provide understanding of host/disease/agent interaction and the essential steps in disease outbreak investigation. Clinical and herd-based scenarios will be used for discussion of epidemiologic principles, features of zoonotic disease, and specific biosecurity and infectious-control issues as they relate to food safety and livestock production.

Prerequisites: Veterinary medicine student in good standing.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F722 Veterinary Pharmacology

4 Credits
Offered Fall

This course covers basic principles of pharmacology of common drugs and basic mechanisms of action. Individual agents will be introduced as examples. As a medicine course, the proper and effective use of drugs will be reviewed, including basics of veterinary therapeutics for selected classes of agents across selected species.

Prerequisites: Successful completion of all required first-year courses in DVM program, including advancement to year two.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F724 Veterinary Bioanalytical Pathology

6 Credits
Offered Fall

Professional veterinary program requirement studying pathology, hematology, biochemistry and cytopathology.

Prerequisites: Successful completion of first year professional veterinary medical program.

Lecture + Lab + Other: 5 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F726 Principles of Imaging Interpretation

2 Credits
Offered Spring

This is the first of a two-part series in imaging interpretation. This course covers gastrointestinal, thoracic and cardiac imaging. The second part of the course is held in the fall of the third year at Colorado State (VM728) and will cover equine and small-animal musculoskeletal, urinary tract and neurological imaging.

Prerequisites: Good standing in professional veterinary program.

Lecture + Lab + Other: 1 + 0 + 1

Grading System: Letter Grades with option of Plus/Minus

DVM F733 Principles of Surgery

2 Credits
Offered Spring

This course teaches principles and concepts of general and orthopedic surgery, including aseptic technique, surgical instrumentation, suture patterns, tissue healing and wound management. These topics comprise core material that prepares veterinary students for specific surgery.

Prerequisites: Successful completion of first-year veterinary medical program; good standing in professional veterinary medicine program.

Lecture + Lab + Other: 1 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F735 Animal Welfare

2 Credits
Offered Fall

This course will provide knowledge, skill development and tools necessary for professionals to assess and promote animal welfare and to analyze its associated challenges. It will stress the need for perpetual reassessment of animal welfare knowledge and reinforce the professional's role in staying up-to-date and proactive.

Prerequisites: Completion of first year of veterinary school, or graduate student with approval of instructor.

Cross-listed with BIOL F641.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F737 Principles of Veterinary Anesthesia

3 Credits
Offered Spring

This course is an introduction to the principles of clinical anesthesia. This course serve as a foundation that supports and reinforces your knowledge of the basic sciences, and provide you with the opportunity to begin to get a feel for integrating those disciplines into making medical judgments in veterinary anesthesia.

Prerequisites: Good standing in the professional veterinary program.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F741 Biology of Disease II- Pathology of Organ Systems

4 Credits
Offered Fall

The course will discuss basic principles of disease with special emphasis on organ system diseases most likely to be encountered in veterinary practice. The discussions will move from general cell-mediated processes to more specific disease mechanisms in a variety of domestic and exotic species.

Prerequisites: Successful completion of first year of courses in the professional veterinary curriculum.

Lecture + Lab + Other: 3 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F742 Biology of Disease III - Pathology of Organ Systems II

3 Credits
Offered Spring

The course will discuss principles of disease with emphasis on organ disease likely to be encountered in veterinary practice. The discussions will move from general cell-mediated processes to more specific disease mechanisms. The goals for this course are to enable students to apply this knowledge and become competent veterinary practitioners.

Prerequisites: Good standing in the professional veterinary program.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F744 Theriogenology

3 Credits
Offered Spring

Will familiarize students with reproductive organs of large and small animals: regulation of function, reproductive endocrinology, reproductive cycles, and the physiology and pathology of reproduction.

Prerequisites: Successful completion of first year veterinary medical program; good standing in professional veterinary medicine program.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Pass/Fail Grades

DVM F745 Clinical Sciences I

5 Credits
Offered Spring

This course is an introduction to clinical reasoning and problem solving as a diagnostician. Diagnostic approaches to common medical problems of cardiovascular, urinary and digestive-hepatic systems.

Prerequisites: Second year professional veterinary medicine program; student in good standing.

Lecture + Lab + Other: 10 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F747 Clinical Sciences II

5 Credits

Offered Spring

Continuation of clinical reasoning and problem-solving as a diagnostician. Diagnostic approaches to common medical problems of cardiac and pulmonary systems and fluid and electrolyte disorders of small and large animals.

Prerequisites: Second year professional veterinary medicine program; student in good standing.

Lecture + Lab + Other: 10 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F751 Veterinary Clinical Toxicology

2 Credits

Offered Fall

This course will provide an overview of clinical toxicology relevant to veterinarians.

Prerequisites: Successful completion of all required first-year courses in DVM program, including advancement to year two.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

DVM F776 Veterinary First Principles

2 Credits

Offered Spring Even-numbered Years

This course teaches students how to approach veterinary medicine from first principles of form and function. Building on anatomy and physiology knowledge, DVM students will develop a standard operating procedure for logical problem-solving in veterinary medicine. This course will teach critical thinking and clinical reasoning through facilitated discussion.

Prerequisites: Completion of first semester of veterinary school.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Pass/Fail Grades

DVM F777 Strategies for Establishing and Maintaining Well-being in the Veterinary Profession

1 Credit

Offered Fall

This course will investigate and demonstrate methods for maintaining well-being while managing the stress associated with membership in the veterinary profession. Strategies for time management, life balance, nutrition, exercise and recovery will be discussed as means of enhancing well-being and preventing professional burnout, which is widespread in the profession today.

Prerequisites: Good standing in the professional veterinary program.

Lecture + Lab + Other: 1 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Welding and Materials Technology (WMT)

Community and Technical College

Welding and Materials Technology (<https://www.ctc.uaf.edu/programs/weld/>)

907-455-2800

WMT F101 Introduction to Welding

4 Credits

Offered Fall, Spring and Summer

Introduction and orientation to the processes and procedures involved in the welding field including safe operational procedures for shielded metal arc welding (SMAW) (Stick), mixed inert gas (MIG), tungsten inert gas (TIG) and oxy-acetylene welding; in addition to the appropriate personal protective equipment (PPE), terminology related to the welding industry.

Lecture + Lab + Other: 2 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

WMT F102 Intermediate Welding

3 Credits

Offered As Demand Warrants

Continuation of WMT F101.

Prerequisites: WMT F101.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

WMT F103 Welding I

3 Credits

Offered Fall

Entry-level course that focuses on shop orientation, safety and thermal cutting processes. This class covers Module 2 and 8 of the AWS SENSE standards. Attendance on the first two days of class are mandatory.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

WMT F105 Welding II

3 Credits

Offered Fall

Welding II focuses on techniques and procedures related to shielded metal arc welding with cellulose type welding rod on mild carbon steel. Module 4 of the AWS SENSE standards are covered in this course.

Prerequisites: WMT F103.

Lecture + Lab + Other: 1 + 4 + 0

Grading System: Letter Grades with option of Plus/Minus

WMT F106 Heat Treating/Metal Finishing/Knife Making I

3 Credits

Offered As Demand Warrants

Heat treating, metal finishing. Build two knives, heat treat and finish. Attendance at the first class is mandatory.

Recommended: WMT F117; WMT F241.

Special Notes: Special Conditions: Must have excellent hand-eye coordination.

Lecture + Lab + Other: 2 + 3 + 0

Grading System: Letter Grades with option of Plus/Minus

WMT F117 Oxy-Acetylene Welding and Cutting

3 Credits

Offered As Demand Warrants

Safe oxyacetylene welding techniques and procedures of common metals. Welding of these metals in flat, horizontal, vertical and overhead positions. Attendance at first two class meetings is mandatory.

Lecture + Lab + Other: 2 + 5 + 0

Grading System: Letter Grades with option of Plus/Minus

WMT F130 Shielded Metal Arc Welding

1-3 Credits

Offered Fall

Advanced SMAW techniques using low hydrogen welding rod with a focus on structural type weld test procedures. Module 4 of the AWS SENSE standards are covered.

Prerequisites: WMT F103; WMT F105.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

WMT F140 Metal Fabrication

1-3 Credits

Offered Spring

Plan, layout, and fabricate metal projects using multiple welding processes and equipment. Module 3 and 9 of the AWS SENSE standard are covered in this course.

Prerequisites: WMT F103; WMT F105; WMT F160.

Special Notes: Attendance at first two classes is mandatory.

Lecture + Lab + Other: 1.5 + 5.5 + 0

Grading System: Letter Grades with option of Plus/Minus

WMT F150 Gas Tungsten Arc Welding

1-3 Credits

Offered Spring

GTAW(TIG) techniques and procedures on ferrous and non ferrous metals. Module 7 of the AWS SENSE standards are covered in this course.

Lecture + Lab + Other: 1.5 + 5.5 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

WMT F160 Gas Metal Arc Welding

1-3 Credits

Offered Fall

Solid and flux cored wire fed processes and techniques. Modules 5 and 6 of the AWS SENSE standards are covered in this course.

Lecture + Lab + Other: 1.5 + 5.5 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken 3 times for up to 3 credits

WMT F206 Heat Treating/Metal Finishing/Knife Making II

3 Credits

Offered As Demand Warrants

Second level of knife making and heat treating using more complex metals and additional equipment. Must have excellent hand-eye coordination. Attendance at first class is mandatory.

Recommended: WMT F106; WMT F117; WMT F241.

Lecture + Lab + Other: 2 + 2 + 0

Grading System: Letter Grades with option of Plus/Minus

WMT F210 Pipe Welding

3 Credits

Offered As Demand Warrants

Prepare and weld pipe in an uphill or downhill position.

Lecture + Lab + Other: 2 + 3.5 + 0

Grading System: Letter Grades with option of Plus/Minus

WMT F241 Gas Tungsten Arc and Gas Metal Arc Welding

3 Credits

Offered As Demand Warrants

Introductory techniques and procedures for welding on ferrous and non ferrous metals with GMAW and GTAW(TIG) processes. Attendance at first two classes are mandatory.

Lecture + Lab + Other: 1.5 + 5.5 + 0

Grading System: Letter Grades with option of Plus/Minus

WMT F290 Welding Proficiency Maintenance

3 Credits

Offered Spring

Maintenance of a high degree of welding proficiency through practice of previously-learned processes with an emphasis on AWS welding certification standards.

Prerequisites: WMT F130; WMT F140.

Lecture + Lab + Other: 2 + 4.5 + 0

Grading System: Letter Grades with option of Plus/Minus

Wildland Fire Science (WFS)

College of Rural and Community Development

Wildland Fire Science (<https://www.uaf.edu/iac/programs/fire-science/>)
907-474-7143

WFS F151 Wildland Firefighter I

3 Credits

Offered As Demand Warrants

Designed to provide entry-level wildland firefighters the skills and knowledge to safely function as a member of a firefighting crew. Includes fundamental knowledge of wildland fire organization, fire behavior, suppression methods, safety and the incident command system.

Crosslisted with FIRE F151.

Special Notes: Successful course completion combined with national age and physical fitness requirements will qualify the student for an interagency fire qualification card (red card) with a rating of Firefighter (FFT2).

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

WFS F152 Wildland Firefighter II

3 Credits

Offered As Demand Warrants

Provides wildland firefighters with knowledge and skills in the deployment, use, safe practices and field maintenance of engine-powered wildland firefighting tools: portable pumps and chainsaws. This course is based on National Wildlife Coordinating Group (NWCG) courses: S-211 Portable Pumps and Water Use; S-212 Wildland Fire Chainsaws.

Prerequisites: FIRE F151.

Special Notes: Must have the ability/strength to start a portable pump and chainsaw.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

WFS F153 Wildland Firefighter III

2 Credits

Offered As Demand Warrants

Designed to meet the training needs of the advanced wildland firefighter. Course content includes training in use of fireline reference materials, recognition and mitigation of safety issues, and provides a solid foundation of basic leadership skills. This course is based on a number of individual National Wildfire Coordinating Group courses.

Prerequisites: FIRE F151.

Special Notes: NWCG courses included: S-131 Wildland Firefighter Type I; S-133 Look Up, Look Down, Look Around; L-280 Followership to Leadership.

Lecture + Lab + Other: 2 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

WFS F157 Wildland Air Operations

3 Credits

Offered As Demand Warrants

Introduction to aircraft types and capabilities, policy and safety when working with agency aircraft, tactical and logistical uses, and requirements for helicopter take-off and landing areas. Course is designed to provide student proficiency in all areas of the tactical and logistical use of helicopters to achieve efficiency and standardization.

Prerequisites: FIRE F151.

Special Notes: This course is based on National Wildfire Coordinating Group (NWCC) courses: S-270 Basic Air Operations; S-271 Helicopter Crewmember (FIRE 157 will not include Module A-119 which is a required field exercise for S-271).

Lecture + Lab + Other: 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Wildlife (WLF)

College of Natural Science and MathematicsDepartment of Biology and Wildlife (<https://www.bw.uaf.edu/>)

907-474-7671

WLF F101 Survey of Wildlife Science

2 Credits

Offered Fall

An introduction to wildlife science for research, conservation and management. Lectures, presentations, labs and other outside class activities will familiarize students with the field of wildlife biology and the wildlife profession. Special fees apply.

Lecture + Lab + Other: 1 + 2 + 1**Grading System:** Letter Grades with option of Plus/Minus**WLF F104L BIOL F104X Laboratory (n)**

0 Credit

Offered Fall

Laboratory portion of BIOL F104X/WLF F104X.

Co-requisites: BIOL F104X or WLF F104X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 0 + 3 + 0**Grading System:** Non-Graded**WLF F104X Natural History of Alaska (n)**

4 Credits

Offered Fall

Survey of the physical and biological environment of Alaska, including terrestrial and aquatic systems. Topics include the past, present and future climate of Alaska, life histories of common plants and animals, adaptations of organisms to the northern environment, human influences on ecosystems and the management of wildlife and ecosystems.

Prerequisites: Placement in WRTG F111X; placement in MATH F105.**Co-requisites:** BIOL F104L or WLF F104L.**Cross-listed with** BIOL F104X.**Attributes:** UAF GER Natural Science Req**Lecture + Lab + Other:** 3 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F301 Design of Wildlife Studies**

3 Credits

Offered Spring

Study designs for wildlife populations and their habitats. Probability theory, finite population sampling, capture-mark-recapture sampling and research design will be examined through lectures, labs and a term project.

Prerequisites: WLF F101 (may be taken concurrently); MATH F151X (may be taken concurrently) or MATH F122X (may be taken concurrently).**Recommended:** STAT F200X or STAT F300.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F304 Wildlife Internships**

1-3 Credits

Offered Fall and Spring

Practical experience in wildlife management in public or private agencies. Projects are approved by faculty member and supervised by professional agency staff. May not be substituted for courses required for major.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 3 times for up to 3 credits**WLF F305 Wildlife Diseases**

3 Credits

Offered Fall Even-numbered Years

Basic concepts of parasitic, infectious, environmental and nutritional diseases. Specific study of Alaska wildlife diseases. Basic necropsy technique and chemical immobilization.

Prerequisites: BIOL F115X and BIOL F116X.**Recommended:** BIOL F310.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F322 Principles and Techniques of Wildlife Management**

3 Credits

Offered Fall

This course applies ecology to the study and management of animals and their habitats. We will discuss management for consumptive and non-consumptive uses of birds, mammals, reptiles and amphibians.

Prerequisites: BIOL F371; WLF F101; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F385 Global Change Biology (n)**

3 Credits

Offered Spring

Causes of climate change, the climate record, and the effects of past and forecast climate change on biophysical systems. Consideration of impacts on plants, animals, ice, and people with an emphasis on Alaska and the Arctic.

Prerequisites: BIOL F115X; BIOL F116X; Junior or Senior standing.**Cross-listed with** BIOL F385.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

WLF F421 Ecology and Management of Large Mammals

3 Credits

Offered Fall Even-numbered Years

Identification, distribution, life history, ecology and management of North American large mammals. Exploration of roles of reproduction, predation, nutrition, habitat alteration and competition in population dynamics of large mammals, and management and research practices designed for conservation of habitats and populations.

Prerequisites: BIOL F371; WLF F322.**Stacked with** WLF F623.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F425 Ecology and Management of Birds**

3 Credits

Offered Spring Odd-numbered Years

Ecology of avian populations with a focus on harvest and habitat management for North American birds. Distributions, life-history, population dynamics, and monitoring and research techniques will be considered.

Prerequisites: BIOL F371; COM F131X or COM F141X; WLF F322.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F433 Conservation Genetics**

3 Credits

Offered Fall Even-numbered Years

Concepts of population genetics, phylogenetics, pedigree analysis, systematics and taxonomy as they apply to conservation of species. Evaluating the impact of small population size, population fragmentation, inbreeding, hybridization, taxonomic uncertainties and other factors on viability and management of species.

Prerequisites: BIOL F260; BIOL F371.**Recommended:** NRM F277.**Cross-listed with** BIOL F433.**Stacked with** BIOL F633; WLF F633.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F469 Landscape Ecology and Wildlife Habitat**

3 Credits

Offered Spring

A problem-based learning and critical thinking approach to modern methods in landscape ecology, including geographic information systems, remote sensing, modeling, software and the Internet. Graduate students are expected to help undergraduates with problems and questions.

Prerequisites: BIOL F371; COM F121X, COM F131X or COM F141X.**Cross-listed with** BIOL F469.**Stacked with** BIOL F669; WLF F669.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F470 Human Dimensions of Wildlife Management**

3 Credits

Offered Spring

Study of the interactions and relationships between people and wildlife, and the thoughts and behaviors of people related to wildlife and their management. This course also considers the social psychology, economic and political components of wildlife management.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F213X; WLF F101; WLF F322; BIOL F371.**Stacked with** WLF F670.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F602 Research Design**

3 Credits

Offered Fall

An introduction to the philosophy, performance and evaluation of hypothetical/deductive research in the biological sciences, with emphasis on hypothesis formulation and testing. Each student will develop a research proposal.

Prerequisite: Graduate standing.**Cross-listed with** BIOL F602.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F604 Scientific Writing, Editing and Revising in the Biological Sciences**

3 Credits

Offered Spring

For students who are ready to produce a manuscript or thesis chapter. Topics include the publication process, selecting a journal, authorship, the components of the scientific paper, revising and editing manuscripts, and responding to reviews. Students will produce a complete manuscript.

Prerequisites: Graduate standing in Biology, Wildlife, or related discipline; permission of instructor.**Cross-listed with** BIOL F604.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F623 Ecology and Management of Large Mammals**

3 Credits

Offered Fall Even-numbered Years

Identification, distribution, life history, ecology and management of North American large mammals. Exploration of roles of reproduction, predation, nutrition, habitat alteration and competition in population dynamics of large mammals, and management and research practices designed for conservation of habitats and populations.

Stacked with WLF F421.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F625 Population Dynamics of Vertebrates**

3 Credits

Offered Spring Even-numbered Years

Sampling vertebrate populations, modeling their population dynamics and the implications for management. Focus will be on study design, model assumptions, estimation of population parameters and inference. State-of-the-art computer applications will be employed in laboratory exercises of actual and simulated data.

Prerequisites: BIOL F371; STAT F401.**Cross-listed with** FISH F625.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus

WLF F633 Conservation Genetics

3 Credits

Offered Fall Even-numbered Years

Concepts of population genetics, phylogenetics, pedigree analysis, systematics and taxonomy as they apply to conservation of species. Evaluating the impact of small population size, population fragmentation, inbreeding, hybridization, taxonomic uncertainties and other factors on viability and management of species.

Prerequisites: BIOL F260; BIOL F371.**Recommended:** NRM F277.**Cross-listed with** BIOL F633.**Stacked with** BIOL F433; WLF F433.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F669 Landscape Ecology and Wildlife Habitat**

3 Credits

Offered Spring

A problem-based learning and critical thinking approach to modern methods in landscape ecology, including geographic information systems, remote sensing, modeling, software and the Internet. Graduate students are expected to help undergraduates with problems and questions.

Prerequisites: Graduate standing.**Cross-listed with** BIOL F669.**Stacked with** BIOL F469; WLF F469.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F670 Human Dimensions of Wildlife Management**

3 Credits

Offered Spring

Study of the interactions and relationships between people and wildlife, and the thoughts and behaviors of people related to wildlife and their management. This course also considers the social psychology, economic and political components of wildlife management.

Stacked with WLF F470.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F680 Data Analysis in Biology**

3 Credits

Offered Spring

Course covers major statistical concepts and techniques using the statistical software R, with emphasis on applications in biology. Reviews probability theory, hypothesis testing, ANOVA, regression, least squares fitting, parametric and nonparametric approaches, and then focuses on random and mixed-effects models, likelihood based fitting, GAMs, GLMs, ordination, and model selection.

Prerequisites: STAT F200X; STAT F401; graduate standing in a biologically oriented field.**Cross-listed with** BIOL F680.**Lecture + Lab + Other:** 2 + 3 + 0**Grading System:** Letter Grades with option of Plus/Minus**WLF F692 Graduate Seminar**

1-6 Credits

Topics in fish and wildlife management explored through readings, talks, group discussions and guest speakers with a high level of student participation.

Prerequisites: Graduate standing.**Lecture + Lab + Other:** 0 + 0 + 1-6**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 99 credits

Women, Gender and Sexuality Studies (WGS)

College of Liberal ArtsDepartment of Women, Gender and Sexuality Studies (<https://www.uaf.edu/women/>)

907-474-6249

WGS F201X Introduction to Women, Gender and Sexuality Studies (s)

3 Credits

Offered Fall

An interdisciplinary introduction to the field of women, gender and sexuality studies that explores its development, subject matter and methodologies. Readings from studies that have become classic examples of the importance of gender in research in many disciplines are examined.

Attributes: UAF GER Social Sciences Req**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F202 History of Women in America (s)**

3 Credits

Offered As Demand Warrants

A chronological approach to the history of women in America. Introduction to major issues of concern to historians of women, as well as different approaches used in analysis of women's past. Consideration of multiracial backgrounds of American women.

Cross-listed with HIST F202.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F308 Language and Gender (s)**

3 Credits

Offered As Demand Warrants

Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; LING F101X, LING F216X, ANTH F100X, ANTH F101X or WGS F201X.**Cross-listed with** ANTH F308; LING F308.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F313 Science & Intersectionality: Race, Gender and Sexuality**

3 Credits

Offered Fall Even-numbered Years

This course introduces students to the complex factors that impact our experience in and connection to science and the environment. Using intersectionality as the framework to guide the discussion, students will consider critical aspects of self, including gender, race, sexuality and disability status.

Prerequisites: COM F121X, COM F131X or COM F141X; COM F211.**Crosslisted with** COM F313.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

WGS F325 The History of Sexuality (s)

3 Credits

Offered As Demand Warrants

The history of sexuality from a worldwide comparative perspective.

Theories and debates about the history of sexuality in selected times and places, with an emphasis on the modern period.

Prerequisites: HIST F100X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.**Cross-listed with** HIST F325.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F331 Women's Voices in Japanese Literature (h)**

3 Credits

Offered As Demand Warrants

Selected novels, short stories, poems and diaries by Japanese women from the tenth century to the present which reveal the personal, social, aesthetic and intellectual concerns of women in different periods of Japanese history. Focus on the changing role of women in Japanese society and the role of women writers.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F200X or FL F200X.**Recommended:** HIST F121, HIST F122X, HIST F331.**Cross-listed with** JPN F331.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F332 Human Sexualities Across Cultures (s)**

3 Credits

Offered As Demand Warrants

Exploration of how people in a variety of cultures, both contemporary and historical, construct the meaning and experience of sexuality and express themselves as sexual beings. Interdisciplinary study includes psychology, sociology, anthropology, gender studies and related fields, with particular focus determined by which department is offering the course.

Prerequisites: PSY F101X or WGS F201X.**Cross-listed with** PSY F333.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F333 Women's Literature (h)**

3 Credits

Offered Fall Odd-numbered Years

Reading, discussing and analyzing literary works dealing with the social, cultural and political implications of patriarchal structures and traditions from the perspective of feminist theory and criticism. Focus may be on a particular theme, period or genre, but readings will include both primary and secondary texts.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.**Cross-listed with** ENGL F333.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F335 Gender and Crime**

3 Credits

Offered Fall and Summer

An exploration of gender and crime including the extent of female crime, victimization, masculinity and violence, and women professionals in the justice system.

Prerequisites: JUST F110X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.**Cross-listed with** JUST F335.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F340 Gender, Sex and Politics (s)**

3 Credits

Offered As Demand Warrants

In-depth examination of the relevance of gender in political thought and action. Topics vary and may include: historical perspective of political ideas on the nature and status of women; women's involvement in national and/or international political movements and organizations; feminist approaches to the social sciences; feminism as a political ideology.

Prerequisites: One political science course.**Recommended:** WGS F201X.**Cross-listed with** PS F340.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F348 Native North American Women (s)**

3 Credits

Offered As Demand Warrants

Interdisciplinary examination of the relationship between Native American women and their social settings and cross-cultural experiences. Includes issues of political, economic and social solutions as employed by women in a large multi-ethnic nation-state.

Prerequisites: ANS F101; ANTH F100X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SOC F101X.**Cross-listed with** ANS F348.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F350 Women's Issues in Social Welfare and Social Work****Practices (s)**

3 Credits

Offered As Demand Warrants

Examination of theories and research concerning women's issues in the field of social work and in the social welfare system, with particular emphasis on women in poverty and women of color. Contemporary policy issues and strategies of empowerment will be covered.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SWK F103X or SOC F101X.**Cross-listed with** SWK F350.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

WGS F351 Gender and Communication (s)

3 Credits

Offered Fall

Basic socialization differences exist in the communication practices of women and men in every culture, resulting in differing cultural constructions of male and female gender. Those differences are addressed in interpersonal, organizational and cultural contexts. Explores cultural female/male dichotomy as well as individual similarities.

Cross-listed with COM F356.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F360 Psychology of Women Across Cultures (s)**

3 Credits

Offered As Demand Warrants

Major theories, research and empirical data which describes the psychology of women as a discrete field, philosophical values of feminism and history of women's roles in society. The impact of culture on women interpersonally and intrapsychically examined across cultures.

Prerequisites: COM F131X or COM F141X; PSY F101X or WGS F201X.**Cross-listed with** PSY F360.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F362 Feminist Philosophy (h)**

3 Credits

Offered As Demand Warrants

Examination of contemporary feminist philosophical positions. Emphasis on feminist ethics, social and political philosophy, and epistemology.

Cross-listed with PHIL F362.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F380 Women, Minorities and the Media (h)**

3 Credits

Offered As Demand Warrants

Basic socialization differences that exist in the communication practices of women and men in every culture are addressed in the interpersonal organizational and cultural contexts. Examination of how women and minorities are portrayed in the mass media, the employment of women and minorities in the media, as well as how.

Prerequisites: COM F131X or COM F141X; junior standing.**Cross-listed with** COM F380.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F403 Theories in Women's and Gender Studies (h, s)**

3 Credits

Offered Fall Odd-numbered Years

This class explores the intellectual history of women's and gender studies. We will start our exploration in the late 18th century, and follow feminist theoretical ideas about women and gender through to the present. The main focus is on Western theory, we will also explore non-Western ideas and critiques.

Prerequisites: WGS F201X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F410 Women in Music History (h)**

3 Credits

Offered As Demand Warrants

Lives and works of female musicians, composers and performers will be traced from the earliest days of the ancient and mythological periods through the medieval, Baroque, Classical and Romantic periods with special emphasis on composers of the 20th-century.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.**Cross-listed with** MUS F410.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F414 Women and Gender in East Asian History (s)**

3 Credits

Offered As Demand Warrants

An in-depth seminar on the history of East Asia, with a special emphasis on the experiences of women and on the issue of gender. This seminar will focus on the modern period, and on China and Japan especially, though other regions of East Asia may also be considered.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HIST F100X.**Recommended:** HIST F122X, HIST F275.**Cross-listed with** HIST F414.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F424 Topics in Women's History (s)**

3 Credits

Offered As Demand Warrants

An in-depth seminar on a specific topic of current interest. Topics may change and may cover the history of European or American women from the 18th century to the present.

Prerequisites: Junior standing.**Cross-listed with** HIST F424.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken unlimited times for up to 15 credits**WGS F433 Women, Gender, and Sexuality Studies in Language, Literature, and Culture (h)**

3 Credits

Offered Fall Even-numbered Years

Intensive study of variable topics in women, gender and/or sexuality studies with a focus on humanities fields such as literature, writing, rhetoric, theory, film and cultural studies. Topics will be placed in dialogue with current debates within women, gender and/or sexuality studies.

Course may be repeated for credit when content varies.

Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.**Cross-listed with** ENGL F433.**Special Notes:** Specific content to be announced at the time of registration.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 1 time for up to 6 credits

WGS F440 Gender and Education (s)

3 Credits

Offered As Demand Warrants

Educational practices and processes and their relation to the changing situation of women in society. Examination of schools as sites of pervasive gender socialization and discrimination as well as offering new possibilities for liberation. Topics include social construction of gender, patterns of access and achievements, gender as an organizing principle in schools and classrooms, and feminist agendas and strategies for change.

Prerequisites: Junior standing.**Cross-listed with** ED F440.**Stacked with** ED F640.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F445 Gender in Cross-cultural Perspective (s)**

3 Credits

Offered As Demand Warrants

Gender is examined as both cultural construction and social relationship through studies that explore gender diversity, roles, experiences, and expressions in a broad variety of societies and contexts, past and present. Includes a range of theoretical and methodological approaches in anthropology for exploring and understanding gender cross-culturally.

Prerequisites: ANTH F215 or WGS F201X.**Cross-listed with** ANTH F445.**Stacked with** ANTH F645.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F460 Women and Development (s)**

3 Credits

Offered As Demand Warrants

Explores interrelationships of gender roles and development in the global economy, emphasizing Alaska and the circumpolar north. Examines the historical marginalization of women, women in indigenous communities, and changing socio-economic and cultural gender roles in community development. Examines women's life histories that illustrate strategies for individual and community empowerment.

Cross-listed with RD F460.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WGS F492 Seminar**

1-3 Credits

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**Repeatable for Credit:** May be taken 15 times for up to unlimited credits**WGS F492P Seminar**

1-3 Credits

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Pass/Fail Grades**Repeatable for Credit:** May be taken 15 times for up to unlimited credits

Writing (WRTG)

College of Liberal ArtsDepartment of English (<https://www.uaf.edu/english/>)

907-474-7193

Community and Technical CollegeDepartment of Developmental Education (<https://www.uaf.edu/deved/>)

907-455-2869

English Department Courses

WRTG F111X Writing Across Contexts

3 Credits

Offered Fall and Spring

An introduction to writing strategies and processes for reading and responding to rhetorical situations across a variety of public and academic contexts.

Prerequisites: Placement into WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WRTG F211X Writing and the Humanities**

3 Credits

Offered Fall and Spring

An introduction to what writing is and does and how people learn to do it in the humanities, with a focus on the disciplinary questions, methods and reasoning that shape the genres and writing practices in the field.

Prerequisites: WRTG F111X.**Recommended:** Sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WRTG F212X Writing and the Professions**

3 Credits

Offered Fall and Spring

An introduction to what writing is and does and how people learn to do it in the professions, with a focus on the disciplinary questions, methods and reasoning that shape the genres and writing practices in the field.

Prerequisites: WRTG F111X.**Recommended:** Sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WRTG F213X Writing and the Sciences**

3 Credits

Offered Fall and Spring

An introduction to what writing is and does and how people learn to do it in the social and natural sciences, with a focus on the disciplinary questions, methods and reasoning that shape the genres and writing practices in the field.

Prerequisites: WRTG F111X.**Recommended:** Sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WRTG F214X Arguing Across Contexts**

3 Credits

Offered Fall and Spring

Instruction and practice in written research-supported arguments for a variety of audiences, with an emphasis on rhetorical strategies across a variety of public and academic contexts.

Prerequisites: WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Developmental Education Department Courses

WRTG F068 College Literacy Skills

1-3 Credits

Offered As Demand Warrants

Individualized instruction in writing and/or reading. Coursework can be designed to support specific courses or specific individuals as needed. This course does not fulfill the prerequisites for any other course.

Special Notes: May be repeated for credit.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 99 times for up to 99 credits

WRTG F080 Basic Writing and Reading

4 Credits

Offered Fall and Spring

Introduces college writing and reading skills. Develops sentences, paragraphs and short essays. Introduces strategies for effective revision. Enhances reading comprehension and vocabulary for academic reading. **Special Note:** On completing this course students may retake Accuplacer for a higher placement. A grade of C or higher in this course qualifies students for WRTG F090.

Prerequisites: Placement into WRTG F080.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

WRTG F090 Writing and Reading Strategies

4 Credits

Offered Fall and Spring

Develops college writing and reading strategies. Reviews sentence and paragraph structure as part of the development of essays. Emphasizes revision techniques for essays and critical reading in academic contexts. A grade of C or higher in this course qualifies students for WRTG F110.

Prerequisites: Placement into WRTG F090, or a grade of C or higher in WRTG F080, or DEVE F060 and DEVS F052.

Special Notes: On completing this course students may retake Accuplacer for placement into WRTG F111X.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

WRTG F110 Introduction to College Writing

3 Credits

Offered Fall and Spring

Intensive preparatory work in the college writing skills needed for WRTG F111X, including research, writing, revising and critical reading skills. Special fees apply.

Prerequisites: C or better in WRTG F090, or placement.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Writing (WRTG)

WRTG F068 College Literacy Skills

1-3 Credits

Offered As Demand Warrants

Individualized instruction in writing and/or reading. Coursework can be designed to support specific courses or specific individuals as needed. This course does not fulfill the prerequisites for any other course.

Special Notes: May be repeated for credit.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Pass/Fail Grades

Repeatable for Credit: May be taken 99 times for up to 99 credits

WRTG F080 Basic Writing and Reading

4 Credits

Offered Fall and Spring

Introduces college writing and reading skills. Develops sentences, paragraphs and short essays. Introduces strategies for effective revision. Enhances reading comprehension and vocabulary for academic reading. **Special Note:** On completing this course students may retake Accuplacer for a higher placement. A grade of C or higher in this course qualifies students for WRTG F090.

Prerequisites: Placement into WRTG F080.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

WRTG F090 Writing and Reading Strategies

4 Credits

Offered Fall and Spring

Develops college writing and reading strategies. Reviews sentence and paragraph structure as part of the development of essays. Emphasizes revision techniques for essays and critical reading in academic contexts. A grade of C or higher in this course qualifies students for WRTG F110.

Prerequisites: Placement into WRTG F090, or a grade of C or higher in WRTG F080, or DEVE F060 and DEVS F052.

Special Notes: On completing this course students may retake Accuplacer for placement into WRTG F111X.

Lecture + Lab + Other: 4 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

WRTG F110 Introduction to College Writing

3 Credits

Offered Fall and Spring

Intensive preparatory work in the college writing skills needed for WRTG F111X, including research, writing, revising and critical reading skills. Special fees apply.

Prerequisites: C or better in WRTG F090, or placement.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

WRTG F111X Writing Across Contexts

3 Credits

Offered Fall and Spring

An introduction to writing strategies and processes for reading and responding to rhetorical situations across a variety of public and academic contexts.

Prerequisites: Placement into WRTG F111X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

WRTG F211X Writing and the Humanities

3 Credits

Offered Fall and Spring

An introduction to what writing is and does and how people learn to do it in the humanities, with a focus on the disciplinary questions, methods and reasoning that shape the genres and writing practices in the field.

Prerequisites: WRTG F111X.

Recommended: Sophomore standing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

WRTG F212X Writing and the Professions

3 Credits

Offered Fall and Spring

An introduction to what writing is and does and how people learn to do it in the professions, with a focus on the disciplinary questions, methods and reasoning that shape the genres and writing practices in the field.

Prerequisites: WRTG F111X.**Recommended:** Sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WRTG F213X Writing and the Sciences**

3 Credits

Offered Fall and Spring

An introduction to what writing is and does and how people learn to do it in the social and natural sciences, with a focus on the disciplinary questions, methods and reasoning that shape the genres and writing practices in the field.

Prerequisites: WRTG F111X.**Recommended:** Sophomore standing.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**WRTG F214X Arguing Across Contexts**

3 Credits

Offered Fall and Spring

Instruction and practice in written research-supported arguments for a variety of audiences, with an emphasis on rhetorical strategies across a variety of public and academic contexts.

Prerequisites: WRTG F111X.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus

Yup'ik (YUP)

College of Rural and Community DevelopmentAlaska Native Language Center (<https://www.uaf.edu/anlc/>)

907-543-4500 or 907-474-7874

YUP F101X Elementary Central Yup'ik I (an, h)

5 Credits

Offered Fall

Introduction to Central Yup'ik, the language of the Yukon and Kuskokwim deltas and Bristol Bay. Open to both speakers and nonspeakers. For speakers the course provides literacy and grammatical analysis. For others, it provides a framework for learning to speak, read and write the language. Consideration given to dialect differences.

Attributes: UAF GER Humanities Req**Lecture + Lab + Other:** 5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**YUP F102X Elementary Central Yup'ik II (an, h)**

5 Credits

Offered Spring

Continued introduction to Central Yup'ik, the language of the Yukon and Kuskokwim deltas and Bristol Bay. Open to speakers and nonspeakers. For speakers the course provides literacy and grammatical analysis. For others, it provides a framework for learning to speak, read and write the language. Consideration given to dialect differences.

Prerequisites: YUP F101X.**Attributes:** UAF GER Humanities Req**Lecture + Lab + Other:** 5 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**YUP F103 Conversational Central Yup'ik I (an)**

1-3 Credits

Offered As Demand Warrants

Entry-level course to learn to speak and understand Yup'ik. Focus on communication in everyday situations. Kuskokwim and Northwest campuses only.

Lecture + Lab + Other: 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**YUP F104 Conversational Central Yup'ik II (an)**

3 Credits

Offered As Demand Warrants

Continuation of YUP F103. Beginning level Yup'ik. Focus on communication in everyday situations. Kuskokwim and Northwest campuses only.

Prerequisites: YUP F103.**Lecture + Lab + Other:** 1-3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**YUP F109 Central Yup'ik Orthography (an)**

3 Credits

Offered Fall

An entry-level class for persons fluent in Central Yup'ik. Covers reading - silent and oral - and writing, emphasizing specific skills and practical application of those skills through writing assignments. Dialect differences in the Central Yup'ik region are used to demonstrate standardization of the writing systems.

Prerequisites: Demonstrated conversational Yup'ik skills.**Lecture + Lab + Other:** 3 + 0 + 0**Grading System:** Letter Grades with option of Plus/Minus**YUP F121 Elementary Central Yup'ik Apprenticeship I (an)**

4 Credits

Offered As Demand Warrants

Entry-level course to learn to speak/understand Yup'ik. The local speaker acts as a language mentor/primary resource. Focus on everyday situations. Students and mentors are required to participate in a 10-hour orientation, maintain weekly contact with the instructor of record and participate in monthly assessments. Requires mentor meeting Yup'ik Faculty approval.

Special Notes: Kuskokwim Campus only.**Lecture + Lab + Other:** 1 + 10 + 0**Grading System:** Letter Grades with option of Plus/Minus**YUP F122 Elementary Central Yup'ik Apprenticeship II (an)**

4 Credits

Offered As Demand Warrants

Continuation of YUP F121. Increasing emphasis on listening and speaking skills. Kuskokwim Campus only. Special Conditions: Dependent on ability to identify willing mentor who meets Yup'ik faculty approval.

Prerequisites: YUP F121 or formal assessment indicating equivalent speaking and listening skills.**Lecture + Lab + Other:** 1 + 10 + 0**Grading System:** Letter Grades with option of Plus/Minus**YUP F123 Elementary Central Yup'ik Apprenticeship III (an)**

4 Credits

Offered As Demand Warrants

Continuation of YUP F122. Increasing emphasis on listening and speaking skills. Kuskokwim Campus only. Special Conditions: Dependent on ability to identify willing mentor who meets Yup'ik faculty approval.

Prerequisites: YUP F122 or formal assessment indicating equivalent speaking and listening skills.**Lecture + Lab + Other:** 1 + 10 + 0**Grading System:** Letter Grades with option of Plus/Minus

YUP F130 Beginning Yup'ik Grammar (an, h)

3 Credits

Offered Spring

Literacy and grammatical analysis of Central Yup'ik language for language learners. Students will learn basic grammatical concepts and literacy skills, with consideration given to dialect differences.

Prerequisites: YUP F103 or YUP F122 or basic conversational Yup'ik skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F131 Beginning Yup'ik Grammar II (an, h)

3 Credits

Offered Fall

Continuation of literacy and grammatical analysis of Central Yup'ik. Students will learn intermediate grammatical concepts and literacy skills, with consideration given to dialect differences.

Prerequisites: YUP F130.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F155 Conversational Siberian Yupik I (an)

1-3 Credits

Offered As Demand Warrants

Introductory course for students who wish to acquire the ability to speak in Siberian Yupik, the language of St. Lawrence Island and parts of the Chukchi Peninsula in Siberia. Students first learn to understand simple spoken language, then to speak simple Siberian Yupik, developing a beginning level of communicative competence.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F156 Conversational Siberian Yupik II (an)

1-3 Credits

Offered As Demand Warrants

Introductory courses for students who wish to acquire the ability to speak in Siberian Yupik, the language of St. Lawrence Island and parts of the Chukchi Peninsula in Siberia. Students first learn to understand simple spoken language, then to speak simple Siberian Yupik, developing a beginning level of communicative competence.

Prerequisites: YUP F155.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F158 Siberian Yupik Orthography (an)

1-3 Credits

Offered As Demand Warrants

Introduction to the standard writing system (orthography) of Siberian Yupik. Students learn the skills of spelling, reading and writing words in Siberian Yupik, which are the fundamentals of basic literacy.

Prerequisites: Ability to speak Siberian Yupik.

Special Notes: Northwest Campus only.

Lecture + Lab + Other: 1-3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

Repeatable for Credit: May be taken unlimited times for up to 3 credits

YUP F201 Intermediate Central Yup'ik I (an, h)

3 Credits

Offered Fall

Continuation of YUP F101X and YUP F102X. Increasing emphasis on speaking, reading and writing.

Prerequisites: YUP F102X.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F202 Intermediate Central Yup'ik II (an, h)

3 Credits

Offered Spring

Continuation of YUP F201. Increasing emphasis on speaking, reading and writing.

Prerequisites: YUP F201.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F203 Conversational Central Yup'ik III (an, h)

3 Credits

Offered Fall

A continuation of YUP F103 and YUP F104. Kuskokwim Campus only.

Prerequisites: YUP F104.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F204 Conversational Central Yup'ik IV (an, h)

3 Credits

Offered Spring

Continuation of YUP F203. Development of proficiency in the Central Yup'ik language, vocabulary for everyday situations, reading and writing.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F205 Regaining Fluency in Yup'ik (an, h)

3 Credits

Offered Fall

Yup'ik speaking skills and fluency for those with some background in the language.

Prerequisites: Each potential student must be evaluated for language capabilities.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F206 Regaining Fluency in Yup'ik II (an, h)

3 Credits

Offered Spring

Continuation of YUP F205. Speaking skills and fluency for those with some background in the language. Each potential student must be evaluated for language capabilities.

Prerequisites: YUP F205.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F208 Yup'ik Composition (an, h)

3 Credits

Offered Spring

An examination of the development of written Yup'ik and exploration of writing where Yup'ik is the dominant language. New writing styles are examined, rather than simply translating the standard categories of English composition. Students receive extensive practice in Yup'ik orthography and participate in the evaluation of each other's writings.

Prerequisites: YUP F109.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F221 Intermediate Central Yup'ik Apprenticeship I (an)

3 Credits

Offered As Demand Warrants

Intermediate-level learning to speak and understand Yup'ik. Local speaker acts as mentor/primary resource. Focus on everyday situations. Yup'ik faculty member serves as instructor of record. Student and mentor required to participate in ten hour orientation, maintain weekly contact with instructor of record, and participate in monthly assessment. Kuskokwim Campus only. Special Conditions: Dependent on ability to identify willing mentor who meets Yup'ik faculty approval.

Prerequisites: YUP F123 or formal assessment indicating equivalent speaking and listening skills.

Lecture + Lab + Other: 1 + 10 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F222 Intermediate Central Yup'ik Apprenticeship II (an)

3 Credits

Offered As Demand Warrants

Continuation of YUP F221. Increasing emphasis on listening and speaking skills. Dependent on ability to identify willing mentor who meets Yup'ik faculty approval. Kuskokwim Campus only.

Prerequisites: YUP F221 or formal assessment indicating equivalent speaking and listening skills.

Lecture + Lab + Other: 1 + 10 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F223 Intermediate Central Yup'ik Apprenticeship III (an)

3 Credits

Offered As Demand Warrants

Continuation of YUP F222. Increasing emphasis on listening and speaking skills. Dependent on ability to identify willing mentor who meets Yup'ik faculty approval. Kuskokwim Campus only.

Prerequisites: YUP F222 or formal assessment indicating equivalent speaking and listening skills.

Lecture + Lab + Other: 1 + 10 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F230 Introduction to Interpreting and Translating I (an, h)

3 Credits

Offered As Demand Warrants

Introduction to interpreting and translating, designed for both those wishing to enter the field and those who wish to upgrade their skills. Discussion of problems which arise during interpreting and translating along with suggestions on how to handle them.

Prerequisites: Must be fluent in English and Yup'ik.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F231 Introduction to Interpreting and Translating II (an, h)

3 Credits

Offered As Demand Warrants

Continuation of YUP F230.

Prerequisites: YUP F230.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F240 Introduction to Reading and Writing Yup'ik (an)

3 Credits

Offered Spring

Emphasis on reading and writing Yup'ik for practical purposes (posters, brochures, pamphlets, newsletters, signs) and continued language learning (short stories, descriptions and narratives).

Prerequisites: YUP F130; YUP F204 or YUP F222.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F250 Yup'ik Literature for Children (an)

3 Credits

Offered As Demand Warrants

Students explore and practice reading children's literature in Yup'ik. Students are exposed to a variety of genres (fiction, nonfiction, traditional stories, poetry, songs, etc.). Reader leveling will be discussed. Students are required to write targeted readers for specific reading levels in Yup'ik. Kuskokwim campus only.

Prerequisites: YUP F208 or equivalent reading and writing skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F251 Teaching Beginning Yup'ik Reading and Writing (an)

3 Credits

Offered As Demand Warrants

Teaching strategies in Yup'ik literacy. Focus on reading, writing at the primary/early through intermediate levels. Students develop lessons; for reading, writing, and word study; manage instructional time; use assessment for placement and instructional purposes. Materials, reading resources, instructional guides will be reviewed, for the development of lessons.

Prerequisites: YUP F208 or equivalent reading and writing skills.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F260 St. Lawrence Island Yupik I (an, h)

3 Credits

Offered As Demand Warrants

A course in the Yupik language of St. Lawrence Island and the opposing area of Chukotka in Russia. Concentration on literacy and grammar with background given for conversation. Open to speakers of the language and others if they have taken one or more years of Central Yup'ik or Inupiaq courses. Lawrence Island Yupik or one year of study of other Inuit languages.

Prerequisites: Ability to speak St.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F261 St. Lawrence Island Yupik II (an, h)

3 Credits

Offered As Demand Warrants

Continuation of studies in the Yupik language of St. Lawrence Island and the opposing area of Chukotka in Russia. Concentration on literacy/grammar, with background given for conversation. Open to speakers of the language and others if they have taken one or more years of Central Yup'ik or Inupiaq courses.

Prerequisites: YUP F260, ability to speak St Lawrence Island Yupik or one year of study of another Inuit language.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F301 Advanced Central Yup'ik (an, h)

3 Credits

Offered Fall

Continuation of YUP F201 and YUP F202. Completes the basic study of the Central Yup'ik grammar.

Prerequisites: YUP F101X; YUP F102X; YUP F201; YUP F202.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F330 Yup'ik Literature/Yupiit Quliraitnek Igaryaraq (an, h)

3 Credits

Offered Fall Even-numbered Years

Central Yup'ik literature with exposure to a variety of literary styles, including qulirat, qaneryaraqegtaaraat, ak'allaat qulirat, qanruyutet/alerquutet. Broad range of regional, stylistic and orthographic traditions through a variety of short papers and a final paper/project. Specific content announced at time of registration. Taught entirely in Yup'ik. Kuskokwim Campus only.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; YUP F208; YUP F240.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F375 Yup'ik Philosophy/Umyuarteqsaraq (an, h)

3 Credits

Offered Fall Even-numbered Years

Exploration of Yup'ik philosophy and spirituality, including exploration of the relationship between modern and traditional belief systems and the influence of western religion and philosophy. Taught entirely in Yup'ik. Kuskokwim Campus only.

Prerequisites: COM F131X or COM F141X; YUP F240.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F415 Additional Topics in Advanced Yup'ik (an, h)

3 Credits

Offered Spring

Further study of Yup'ik linguistics. Includes text transcription, editing, analysis and discussion. Yup'ik dialectology. Study of related Inuit languages from the standpoint of Central Yup'ik. Additional topics to be studied depend upon the interests of the students and the instructor.

Prerequisites: YUP F101X; YUP F102X; YUP F201; YUP F202.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus

YUP F488 Documenting Yup'ik Traditions/Caliarka (an, h)

3 Credits

Offered Fall Even-numbered Years

Major research project relating to Yup'ik language and culture (e.g., traditional narratives, personal/local histories, local customs/beliefs).

Project formats include (but are not limited to) research papers, video/audiotapes, curricula and public presentations.

Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; YUP F330; senior standing.

Special Notes: Writing-intensive course, all formats will include a significant written component; Taught entirely in Yu'pik; Kuskokwim Campus only.

Lecture + Lab + Other: 3 + 0 + 0

Grading System: Letter Grades with option of Plus/Minus