

v 10 days

Submit originals (including syllabus) and one copy and electronic copy to the Faculty Senate Office
See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for a complete description of the rules governing curriculum & course changes.

RECEIVED

CHANGE COURSE (MAJOR) and DROP COURSE PROPOSAL
Attach a syllabus, except if dropping a course.

SEP 21 2012

SUBMITTED BY:

Department	Chemistry & Biochemistry	College/School	CNSM
Prepared by	Thomas Green	Phone	474-1559
Email Contact	tkgreen@alaska.edu	Faculty Contact	tkgreen@alaska.edu

Dean's Office
College of Natural Science & Mathematics

1. COURSE IDENTIFICATION: As the course now exists.

Dept Course # No. of Credits

COURSE TITLE

2. ACTION DESIRED: Check the changes to be made to the existing course.

Change Course If Change, indicate below what is changing. Drop Course

NUMBER	TITLE	DESCRIPTION
<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

*Prerequisites will be required before a student is allowed to enroll in the course.
Reference the registration implications below due to Banner coding of these terms:
Prerequisite: Course completed and grade of "C" (2.0) or higher prior to registering for the course that requires it.
Concurrent: Course may be taken simultaneously (and allows for a course to have been previously completed).
Co-requisite: Courses MUST be taken simultaneously and does NOT allow for fact that a course was previously completed!

CREDITS (including credit distribution) **COURSE CLASSIFICATION**

ADD CROSS-LISTING Dept. (Requires approval of both departments and deans involved. Add lines at end of form for additional signatures.)

STACKED (400/600) Dept. Course #

Stacked course applications are reviewed by the (Undergraduate) Curricular Review Committee and by the Graduate Academic and Advising Committee. Creating two different syllabi—undergraduate and graduate versions—will help emphasize the different qualities of what are supposed to be two different courses. The committees will determine: 1) whether the two versions are sufficiently different (i.e. is there undergraduate and graduate level content being offered); 2) are undergraduates being overtaxed?; 3) are graduate students being undertaxed? In this context, the committees are looking out for the interests of the students taking the course. Typically, if either committee has qualms, they both do. More info online - see URL at top of this page.

OTHER (please specify)

3. COURSE FORMAT

NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council and the appropriate Faculty Senate curriculum committee. Furthermore, any core course compressed to less than six weeks must be approved by the core review committee.

COURSE FORMAT: (check all that apply) 1 2 3 4 5 6 weeks to full semester

OTHER FORMAT (specify all that apply)
Mode of delivery (specify lecture, field trips, labs, etc)

Governance
9/27/12 JCP

4. **COURSE CLASSIFICATIONS:** (undergraduate courses only. Use approved criteria found on Page 10 & 17 of the manual. If justification is needed, attach on separate sheet.)

H = Humanities S = Social Sciences

Will this course be used to fulfill a requirement for the baccalaureate core? YES NO X

IF YES*, check which core requirements it could be used to fulfill:

O = Oral Intensive, W = Writing Intensive, Natural Science,
*Format 6 also submitted *Format 7 submitted *Format 8 submitted

- 4.A **Is course content related to northern, arctic or circumpolar studies? If yes, a "snowflake" symbol will be added in the printed Catalog, and flagged in Banner.**

YES NO X

5. **COURSE REPEATABILITY:**

Is this course repeatable for credit? YES NO X

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

How many times may the course be repeated for credit? TIMES

If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course? CREDITS

6. **COMPLETE CATALOG DESCRIPTION** including dept., number, title, credits, credit distribution, cross-listings and/or stacking, clearly showing the changes you want made. (Underline new wording ~~strike through old wording~~ and use complete catalog format including dept., number, title, credits and cross-listed and stacked.)

Example of a complete description:

PS F450 Comparative ~~Aberiginal~~ Indigenous Rights and Policies (s)

3 Credits

Offered As Demand Warrants

~~Case-study~~ Comparative approach in assessing Aberiginal to analyzing Indigenous rights and policies in different nation-state systems. ~~Seven Aberiginal situations~~ Multiple countries and specific policy developments examined for factors promoting or limiting self-determination. Prerequisites: Upper division standing or permission of instructor. (Cross-listed with ANS F450.) (3+0)

CHEM F321 Organic Chemistry I
~~3~~ 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 with include an introduction to synthetic techniques and spectroscopy. Special fees apply. Prerequisites: CHEM F106X or permission of instructor. (3+0 3)

7. **COMPLETE CATALOG DESCRIPTION AS IT SHOULD APPEAR AFTER ALL CHANGES ARE MADE:**

CHEM F321 Organic Chemistry I
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 with include an introduction to synthetic techniques and spectroscopy. Special fees apply. Prerequisites: CHEM F106X or permission of instructor. (3+3)

8. IS THIS COURSE CURRENTLY CROSS-LISTED?

YES/NO No If Yes, DEPT NUMBER

DROPPING A CROSS-LISTING:

YES DEPT NUMBER

Changing or dropping requires written notification of each department and dean involved. Attach a copy of written notification.

9. GRADING SYSTEM: Specify only one.

LETTER: PASS/FAIL:

10. ESTIMATED IMPACT

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

All first-semester organic chemistry students will take the 3-hour lab to accompany the lecture. The additional lab requires a laboratory space. The department has determined that it can accommodate 4 sections of 16 students in Reichardt 245, which is more than enough to cover expected enrollments. We have taught organic chem lab (CHEM 323) in this Reichardt 245 in the past. It is well-equipped with the necessary glassware and supplies. A lab fee will be assessed. The overall budget will be minimally affected since we are simply shifting some of the second-semester lab exercises to first-semester in the organic chemistry sequence.

11. LIBRARY COLLECTIONS

Have you contacted the library collection development officer (kljensen@alaska.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No Yes We offer the lab already and sufficient library resources are available.

12. IMPACTS ON PROGRAMS/DEPTS:

What programs/departments will be affected by this proposed action?

Include information on the Programs/Departments contacted (e.g., email, memo)

CHEM 321 is a requirement for the BA in Chemistry (including Forensic option) and the BS in Chemistry (including Biochemistry and Environmental option). The course will remain a requirement.

13. POSITIVE AND NEGATIVE IMPACTS

Please specify positive and negative impacts on other courses, programs and departments resulting from the proposed action.

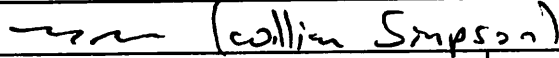
There are no apparent negative impacts. It may positively impact the pre-Physician's Assistance student as many PA schools require only one semester of organic lecture and a lab. Previous pre-PA students needed to take Chem324W (4 credits) or Chem 323 (3 credits) to satisfy their lab requirement, but these courses require a co-requisite of Chem 322 (second semester organic lecture).

JUSTIFICATION FOR ACTION REQUESTED

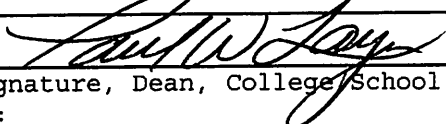
The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. If you ask for a change in # of credits, explain why; are you increasing the amount of material covered in the class? If you drop a prerequisite, is it because the material is covered elsewhere? If course is changing to stacked (400/600), explain higher level of effort and performance required on part of students earning graduate credit. Use as much space as needed to fully justify the proposed change and explain what has been done to ensure that the quality of the course is not compromised as a result.

Chem 321 Organic Chemistry I would change from 3 to 4 credits with this change. Since a 3-hour lab is being added, the additional credit is justified since the students are required to learn more material. Students will need to learn synthesis techniques, practical aspects of spectroscopy, and also write short lab reports.

APPROVALS: (Additional signature blocks may be added as necessary.)

	Date	20 Sep 2012
Signature, Chair, Program/Department of:		Chem + Biology

	Date	9/26/2012
Signature, Chair, College/School Curriculum Council for:		CNSM

	Date	9/26/12
Signature, Dean, College/School of:		CNSM

Offerings above the level of approved programs must be approved in advance by the Provost:

Signature of Provost (if applicable)	Date
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ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE.

Signature, Chair	Date
Faculty Senate Review Committee: <input type="checkbox"/> Curriculum Review <input type="checkbox"/> GAAC	
<input type="checkbox"/> Core Review <input type="checkbox"/> SADAC	

ADDITIONAL SIGNATURES: (As needed for cross-listing and/or stacking; add more blocks as necessary.)

Signature, Chair, Program/Department of:	Date
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Signature, Chair, College/School Curriculum Council for:	Date
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Signature, Dean, College/School of:	Date
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ATTACH COMPLETE SYLLABUS (as part of this application).

The guidelines are online:

<http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/uaf-syllabus-requirements/>

The Faculty Senate curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course (or changes to it) may be denied.

SYLLABUS CHECKLIST FOR ALL UAF COURSES

During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the discipline):

1. Course information:

Title, number, credits, prerequisites, location, meeting time
(make sure that contact hours are in line with credits).

2. Instructor (and if applicable, Teaching Assistant) information:

Name, office location, office hours, telephone, email address.

3. Course readings/materials:

Course textbook title, author, edition/publisher.
 Supplementary readings (indicate whether required or recommended) and
 any supplies required.

4. Course description:

Content of the course and how it fits into the broader curriculum;
 Expected proficiencies required to undertake the course, if applicable.
 Inclusion of catalog description is *strongly* recommended, and
 Description in syllabus must be consistent with catalog course description.

5. Course Goals (general), and (see #6)

6. Student Learning Outcomes (more specific)

7. Instructional methods:

Describe the teaching techniques (eg: lecture, case study, small group discussion, private instruction, studio instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

8. Course calendar:

A schedule of class topics and assignments must be included. Be specific so that it is clear that the instructor has thought this through and will not be making it up on the fly (e.g. it is not adequate to say "lab". Instead, give each lab a title that describes its content). You may call the outline Tentative or Work in Progress to allow for modifications during the semester.

9. Course policies:

Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and plagiarism/academic integrity.

10. Evaluation:

Specify how students will be evaluated, what factors will be included, their relative value, and how they will be tabulated into grades (on a curve, absolute scores, etc.) Publicize UAF regulations with regard to the grades of "C" and below as applicable to this course. (Not required in the syllabus, but may be a convenient way to publicize this.) Faculty Senate Meeting #171:
<http://www.uaf.edu/uafgov/faculty-senate/meetings/2010-2011-meetings/#171>

11. Support Services:

Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

12. Disabilities Services: Note that the phone# and location have been **updated**.

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and ensures that UAF students have equal access to the campus and course materials.

State that you will work with the Office of Disabilities Services (208 WHITAKER BLDG, 474-5655) to provide reasonable accommodation to students with disabilities.

8/1/2012

Chem 321
Organic Chemistry I Syllabus
University of Alaska Fairbanks
Fall Semester

Course Information

Chemistry F321, Organic Chemistry I, 4.0 Credits.
Reichardt 202, MWF 1-2 pm, Reichardt 245 1-4 pm, Thursday
Prerequisite: Chem 106 with grade of C or better.

Instructor

Thomas Green, Professor of Chemistry
Reichardt 174, Phone: 474-1559, Email: tkgreen@alaska.edu
Office Hours: Tues 1-3:30 pm, Thurs 1-3:30 pm and by appointment
Website: <http://www.uaf.edu/chem/faculty/tgreen/tgreen.htm>

Course Materials

Required

Lecture Text: *Organic Chemistry*, 8th Edition, L.G. Wade, Pearson, 2013; ACS Organic Chemistry Study Guide

Lab Text: *Green Organic Chemistry*, KM Doxsee, JE Hutchison, Brooks-Cole, 2005.

Recommended:

ACS Organic Chemistry Study Guide

Solutions Manual for Organic Chemistry [Paperback], L.G. Wade & J.W. Simek; HGS 1003 Molecular Structure Model with Manual

Course Description

Catalog Description: 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.

This course will focus on the theory of organic chemistry (or chemistry of molecules containing carbon) from the viewpoint of structure/reactivity relationships. Topics covered will be bonding, functionality, reactivity, synthesis, spectroscopy, nomenclature, and computer modeling. Homework and Exams will constitute the majority of the points earned in class, with some computer modeling using the Department's HyperChem software. The laboratory will introduce modern techniques of isolation, purification, analysis and structure determination of covalent, principally organic, compounds.

Course Goals

Lecture Goals:

1. Understand fundamental concepts of bonding of organic compounds
2. Understand reactions and associated mechanisms of hydrocarbons.
3. Learn how to related conformations of hydrocarbons to stability
4. Understand the basic concepts of stereochemistry of organic compounds
5. Use spectroscopic techniques to determine structure.

Laboratory Goals:

1. Common safety procedures.
2. Concepts of Sustainable and Green Chemistry
3. Reaction methods
4. Isolation Procedures
5. Purification techniques
6. Spectroscopic analyses

Student Learning Outcomes

At the end of this lecture course, students should

1. Be able to identify and draw common organic functional groups.
2. Know how to name hydrocarbons, including alkanes, alkenes, alkynes, dienes and aromatic compounds.
3. Know how to apply conformational analysis of cyclohexane and associated derivatives.
4. Be able to predict the reactivity alkanes, alkenes, alkynes, and dienes.
5. Know common reagents associated with the transformation of hydrocarbons into other functional groups.
6. Be able to confidently interpret the IR, Mass, NMR spectra of simple organic compounds in order to arrive at a structure.
7. Be able to draw and interpret 3D structures of stereoisomers.
8. Be able to predict and write mechanisms of reactions of hydrocarbons based on fundamental concepts of acid/base chemistry (nucleophiles and electrophiles).
9. Know how to build and optimize organic molecules using molecular modeling program (i.e. Hyperchem).

At the end of the lab course, the students should

1. Know the hazards associated with common chemicals, especially those encountered in the experiments.
2. Know the underlying principles of Green Chemistry and how these concepts are being introduced into the organic laboratory curriculum at UAF.
3. Know how to safely assemble reaction systems using glassware commonly employed in the organic laboratory. These methods include reflux, heating and cooling of reactions, and addition of reagents.
4. Know how to isolate and purify organic products using methods such as extraction, filtration, crystallization, distillation, and solvent removal.
5. Know the importance of stoichiometry to a chemical reaction. Learn how to assess the efficiency of a chemical reaction (percent yield and atom economy).
6. Know the some practical aspects of spectroscopic analyses, especially IR and NMR, of organic compounds.

Instructional Methods

1. The instructor will lecture on the theoretical aspects of organic chemistry, using a combination of Power Point slides and Chalkboard, providing copies of notes to the students via the Blackboard.
2. Computer modeling assignments will be given on a timely basis in order to reinforce concepts in lecture.
3. Online web learning (OWL) will be assigned as homework.
4. Laboratory sessions will consist of conducting reactions of organic compounds and their isolation, purification and characterization.
5. Lab Reports will be required, which will describe various aspects of the experiment, results, and theoretical aspects of the reaction.

Laboratory Safety: Laboratory safety is a major concern of all chemical laboratories but is especially important in organic labs due to the presence of flammable solvents, potentially hazardous fumes, highly reactive reagents, etc. The first lecture will deal explicitly with these hazards and the appropriate safety measures you must follow. Subsequent lectures, besides covering the theory and pitfalls of the coming weeks' experiments and perhaps helping you interpret the previous week's experiment, will also cover specific hazards that you may encounter. Please attend these lectures and be prepared for the lab by doing any assigned readings and having your notebook prepared before coming to lab. If you are not prepared for lab you may be asked to leave.

Lecture Schedule and Coverage

Sept 2 - Sept 14; Chapters 1,2,3
Sept 19 – Sept 30; Chapters 4,5
Oct 5 – Oct 21; Chapters 6,7,8
Oct 26 - Nov 11; Chapters 9,10,11
Nov 16 – Nov 23; Chapter 12,13
Nov 24- Nov 27; Holiday
Nov 30 - Dec 9; Chapters 14,15
Dec 14 Final

Lab Schedule and Experiments. Experiments require two 3-hour periods. The first period is usually a reaction, and the second period is purification and characterization

Week	Experiment
1	Check-in Safety
2	Handout – Extraction of orange peel with CO ₂
3	Handout
4	3 Bromination of Stilbene
5	3
6	4 Preparation of Cyclohexene
7	4
8	5 Synthesis of Adipic Acid; double bond cleavage
9	5
10	10 Kinetics of Hydrolysis of t-butyl chloride
11	10
12	12 Electrophilic aromatic iodination
13	12
14	Make-up labs, check-out

Evaluation

1. Exams (6 @ 100 pts = 600 pts)

Exam I, Sept 19 (Mon); Chapters 1,2,3

Exam II, Oct 3 (Mon); Chapters 4,5

Exam III, Oct 24 (Mon); Chapters 6,7,8

Exam IV, Nov 14 (Mon); Chapters 9,10,11

Exam V, Nov 30: Chapters 12, 13.

Final, Dec 14 (Wed); Comprehensive Final, emphasis on Chapters 14,15: 1 – 3 pm

2. OWL Homework (200 pts)

See OWL Link on the Course Webpage. Due dates are indicated within the OWL website.

3. HyperChem Molecular Modeling Assignments (100 pts)

4 @ 25 pts = 100 pts

See Website for Specific Assignments and due dates.

4. Laboratory (300 pts)

Lab Quizzes 6 x 10 pts = 60 pts

Lab reports 6 x 40 points = 240 pts

5. Point Totals and Grade Assignment

6 exams @ 100 pts each = 600 points

OWL HW = 200 points

Molecular Modeling 5 @ 25 pts = 100 points

Laboratory = 300 pts

Total = 1200 pts

Grading

Letter Grade	Points per Credit	Percentage required
A+	4	93
A	4	90
A-	3.7	87
B+	3.3	83
B	3	80
B-	2.7	77
C+	2.3	73
C	2	70
C-	1.7	67
D+	1.3	63
D	1	60
D-	0.7	57
F	0	<57

Notes and Policies:

1. Molecular models are allowed during the exam. The Final is Dec 14 (Wed) 1-3 pm
2. Modeling assignments will be given in class and will involve the use of the program HyperChem which is available to students in the Departmental Computer Lab. A user name and password is required to use the computers.
3. Class attendance is expected and role will be taken.
4. Make-up exams and labs are only allowed in the event of a legitimate excuse as determined by the instructor. Oversleeping is not an excuse. Exams must be made up as soon as possible. These make-up exams will be scheduled at later date so that all who missed the exam can attend.
5. Cheating will result in a grade of F for the course.
6. The course will move quickly and it is important to keep up on a daily basis. The best way to do this is to read the text, perform OWL homework on a timely basis, and attend class.

Disabilities Services

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. Students with documented disabilities who may need reasonable academic accommodations should discuss these with me during the first two weeks of class. I will work with the Office of Disabilities Services (*208 WHIT, 474-5655) to provide reasonable accommodation to students with disabilities. You will need to provide documentation of your disability to Disability Services.