

RECEIVED

Submit original with signatures + 1 copy + electronic copy to Faculty Senate (350).
See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for a complete description of the rules governing curriculum & course changes.

AUG 17 2016

TRIAL COURSE OR NEW COURSE PROPOSAL

Dean's Office

College of Natural Science & Mathematics

SUBMITTED BY:

Department	Veterinary Medicine	College/School	CNSM
Prepared by	Todd O'Hara	Phone	474-1928
Email Contact	tmohara@alaska.edu	Faculty Contact	Arleigh Reynolds, Assoc Dean Vet Med

1. ACTION DESIRED (CHECK ONE): Trial Course ☒ New Course ☐
BMSC F494 / F694

2. COURSE IDENTIFICATION: Dept BMSC (trial) Course # 432629 No. of Credits 3

Justify upper/lower division status & number of credits:

Biomedical course in pharmacology for pre-health undergraduates and entry level pharmacology for graduate students. There is a demand for additional upper level biomedical courses to make students competitive for post-BS/BA programs and for graduate students interested how drugs and other chemicals affect biological systems.

3. PROPOSED COURSE TITLE: Fundamentals of Pharmacology

4. To be CROSS LISTED? No If yes, Course #
YES/NO Dept:

NOTE: Cross-listing requires approval of both departments and deans involved. Add lines at end of form for additional required signatures.

5. To be STACKED? Yes If yes, Course # 4??/6?? (TBD)
YES/NO Dept.

How will the two course levels differ from each other? How will each be taught at the appropriate level?:

Undergraduates will be tested via traditional written examination. For graduate students, in addition to the written exam they will be required to take an oral exam as well; and provide a term paper on a mutually agreed to topic with the instructor (e.g., class of drugs, certain receptor types). Graduate students are expected to have a more in-depth understanding of the material presented in lecture and from the required text.

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.

6. FREQUENCY OF OFFERING: Trial in Spring of 2017 - If successful, to be offered spring each odd year.
Fall, Spring, Summer (Every, or Even-numbered Years, or Odd-numbered Years) - or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING (AY2013-14 if approved by 3/1/2013; otherwise AY2014-15) Trial in Spring of 2017 - If successful, to be offered spring each odd year.

8. 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. 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)

Mode of delivery Lecture only

(specify lecture,
field trips, labs,
etc)

9. CONTACT HOURS PER WEEK:

LECTURE LAB PRACTICUM
hours/weeks hours /week hours /week

Note: # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-guidelines-for-computing/> for more information on number of credits.

OTHER HOURS (specify
type)

10. COMPLETE CATALOG DESCRIPTION including dept., number, title, credits, credit distribution, cross-listings and/or stacking (50 words or less if possible):

Example of a complete description:

FISH F487 W, O Fisheries Management
3 Credits Offered Spring
Theory and practice of fisheries management, with an emphasis on strategies utilized for the management of freshwater and marine fisheries. Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; ENGL F414; FISH F425; or permission of instructor. Cross-listed with NRM F487. (3+0)

F494 / F694 Fundamentals of Pharmacology
BMSC (Biomedical Sciences) F401/F601 Pharmacology [Hosted by Department of Veterinary Medicine]
3 Credit Trial Course Spring 2017 [If successful Offered Spring of every odd year.]
beginning 2016

Fundamentals of pharmacology with an emphasis on human and veterinary medical applications for the aspiring health practitioner and biomedical scientist.

Pre-Requisite: BIOL F310, BIOL F360/CHEM F360, BIOL F403 or BIOL F465 or CHEM 351; or permission of instructor (3+0)

11. COURSE CLASSIFICATIONS: Undergraduate courses only. Consult with CLA Curriculum Council to apply S or H classification appropriately; otherwise leave fields blank.

H = Humanities S = Social Sciences

Will this course be used to fulfill a requirement
for the baccalaureate core? If YES, attach form.

YES: NO:

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

O = Oral Intensive,
Format 6

W = Writing Intensive,
Format 7

X = Baccalaureate
Core

11.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

12. COURSE REPEATABILITY:

Is this course repeatable for
credit?

YES

NO

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 for credit, what is the maximum number of credit hours that may be earned for this course?

CREDITS

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

13. **GRADING SYSTEM:** Specify only one. Note: Changing the grading system for a course later on constitutes a Major Course Change - Format 2 form.

LETTER:

☒

PASS/FAIL:

☐

RESTRICTIONS ON ENROLLMENT (if any)

14. **PREREQUISITES**

BIOL F310; BIOL F360/CHEM F360; BIOL F403 or BIOL F465 or CHEM 351; and/or permission of instructor (3+0)

These will be required before the student is allowed to enroll in the course.

15. **SPECIAL RESTRICTIONS, CONDITIONS**

16. **PROPOSED COURSE FEES**

\$0.00

Has a memo been submitted through your dean to the Provost for fee approval?

No

Yes/No

17. **PREVIOUS HISTORY**

Has the course been offered as special topics or trial course previously?

Yes/No

No

If yes, give semester, year, course #, etc.:

18. **ESTIMATED IMPACT**

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

None. Space requires traditional classroom. faculty member already available, no course costs.

19. **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

☐

Required text will be the sole resource.

20. **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)

Any program housing graduate students in the biomedical sciences will now have a fundamentals of pharmacology course for their students; and students interested in medical careers (medical doctors, nurses, veterinarians, dentists, pharmacists, etc.) will be able to make their applications more competitive with a directly relevant upper level biomedical course.

21. **POSITIVE AND NEGATIVE IMPACTS**

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

Any program housing graduate students in the biomedical sciences will now have a fundamentals of pharmacology course for their students; and students interested in medical careers (medical doctors, nurses, veterinarians, dentists, pharmacists, etc.) will be able to make their applications more competitive with a directly relevant upper level biomedical course.

Negative impact to biology and chemistry students has been averted as Dr. Larry Duffy has agreed to teach Environmental Toxicology as Dr. O'Hara will drop his responsibility to teach it so as to make room in his workload to teach pharmacology in alternating years.

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. Use as much space as needed to fully justify the proposed course.

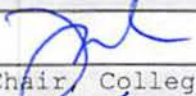
Graduate students in the biomedical sciences need a fundamentals of pharmacology course as many are studying or using these agents in their research.

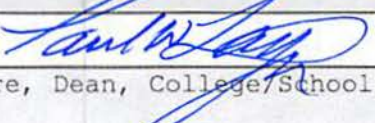
Students interested in medical careers (medical doctors, nurses, veterinarians, dentists, pharmacists, etc.) will be able to make their applications more competitive with a directly relevant upper level biomedical course in pharmacology.

Our 2+2 DVM student advising has identified a lack of relevant upper level biomedical courses for prevet students as a hindrance to being competitive for entry into the DVM program; and some Alaska resident students require this course to be better prepared for Year 1 of the DVM training program (based on performance measures for some Year 1 courses) when accepted.

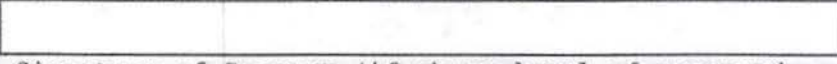
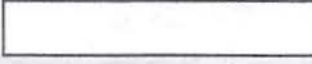
APPROVALS: Add additional signature lines as needed.

 Date 5/9/16
Signature, Chair, Program/Department of: Veterinary Medicine, Associate Dean

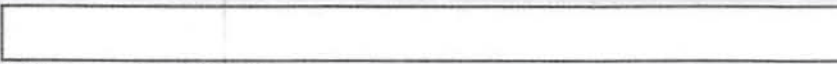
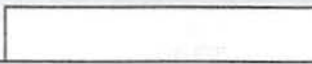
 Date 8-16-16
Signature, Chair, College/School Curriculum Council for: CNSM

 Date 8/12/16
Signature, Dean, College/School of: CNSM

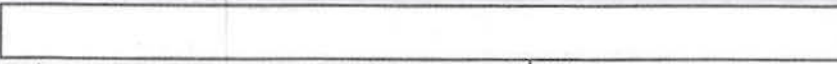
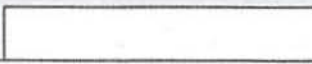
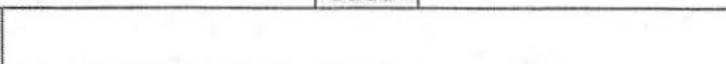
Offerings above the level of approved programs must be approved in advance by the Provost.

 Date 
Signature of Provost (if above level of approved programs)

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

 Date 
Signature, Chair
Faculty Senate Review Committee: ☐ Curriculum Review ☐ GAAC
☐ Core Review ☐ SADAC

ADDITIONAL SIGNATURES: (As needed for cross-listing and/or stacking)

 Date 
Signature, Chair, Program/Department of: 

	Date
Signature, Chair, College/School Curriculum Council for:	
	Date
Signature, Dean, College/School of:	

ATTACH COMPLETE SYLLABUS (as part of this application). This list is online at: <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 is a convenient way to publicize this.) Link to PDF summary of grading policy for "C":
<http://www.uaf.edu/files/uafgov/Info-to-Publicize-C Grading-Policy-UPDATED-May-2013.pdf>

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**.

<http://www.uaf.edu/disability/> 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.

5/21/2013

Course Title: *Fundamentals of Pharmacology*
Course Number: BMSC (Biomedical Sciences) F401/601 F494 / F694
CRN - TBD

3 credit hours (3+0), Mon-Wed-Fri or Tu-Th, time TBD, location TBD
Instructor: Dr. Todd O'Hara (tmohara@alaska.edu, office - TBD)

Pre-Requisite: BIOL F310, BIOL F360/CHEM F360, and BIOL F403 or BIOL F465 or CHEM 351; or permission of instructor (3+0)

Required textbook: "Pharmacology", 4th Edition (Elsevier), by G.M. Brenner and C.W. Stevens

Catalog Description:

Fundamentals of pharmacology with an emphasis on human and veterinary medical applications for the aspiring health practitioner and biomedical scientist.

Course Description:

Teaching the fundamentals of this discipline (pharmacology) starts with pharmacodynamics, pharmacokinetics, and drug adsorption, distribution, metabolism (biotransformation), and elimination (ADME). This includes the essentials of receptor-drug binding and dose-response relationships. Drug receptor binding and signal transduction systems linked with physiological effects is a key foundation for this course (it is how most drugs work!). The autonomic and central nervous systems are key targets and excellent systems to focus on for learning the fundamentals of pharmacology and are emphasized in the lectures and required text. Mechanism of action-based teaching and learning of many classes of drugs used to treat common human diseases, pathologies, and infections is emphasized to make this course highly relevant and to allow students to initiate the process of how to organize these drugs in their minds (enhanced comprehension). Of course, this includes prototype drugs and their clinical uses, mechanisms of actions, toxicities, and drug-drug interactions to drive home these principles for groups of drugs that act similarly. Understanding vertebrate and microbial physiology is important in this course.

In addition to all the requirements for undergraduate students enrolled in this course, graduate students will be required to prepare and submit a written report, approximately 2 weeks prior to the end of the course. This report will consist of a detailed analysis of a drug or drug class related to a focused component of it 1) receptor interactions, 2) unique or intriguing aspects of biotransformation, 3) detailed assessment of second messengers involved, or similar characteristics. This paper will be graded and then an oral exam will be conducted. For graduate students this is worth an additional 100 points, making their total achievable score 400 points for the course. The paper will be written as a well thought out essay type manuscript using Arial 11 font 1.5 space formatting with a page range of 12-15 (not including Tables, Figures, References, etc.).

Course Goals and Student Learning Outcomes: This course is intended to establish a strong foundation in pharmacology for those pursuing biomedical science degrees in research (basic principles, mechanisms of action), and to prepare those students applying for health practitioner programs to make their applications more competitive and to enhance their aptitude in a very applied biomedical field – pharmacology (understanding of drugs).

More specifically, these students will 1. Understand receptor agonists and antagonists. 2. Appreciate the key characteristics of agonist dose-response curves, including hormesis, maximal response, potency, efficacy, and therapeutic index. 3. Define and use drug half-life, volume of distribution, and other pharmacokinetic parameters in problem solving. 4. Recognize the importance of drug adsorption, distribution, metabolism (biotransformation), and elimination (ADME). 5. Reflexively know drugs and their receptors. 6. Appreciate several signal transduction systems linked to well described receptors. 7. Understand the autonomic and central nervous systems and the drug classes affecting these systems. 8. Drug class awareness for the treatment of many diseases, and 9. An appreciation of how pharmacology integrates understanding from a variety of disciplines such as physiology (cell and animal), biochemistry, physics, molecular biology, etc. Graduate students as a part of their written and oral assignment will focus on a key aspect of a drug, or drug class, and provide a detailed assessment that will be critically reviewed.

Instructional methods:

This will be very much a traditional classroom setting with lectures related to assigned readings that are outlined in a timeline over the semester. Assigned readings exclusively come from the required text. Lectures will be very much linked with the text and exam questions will be derived from the text and lecture material.

Course policies

Attendance/tardiness:

Attendance is **NOT** vital to the grade. Much, if not all, of the exam information will be based on information from lectures and the required text (lectures will be provided as pdf). "Notes" from lectures must be obtained from another student when absence is unavoidable if a student would like to know what was discussed. The instructor will not provide this. Attendance is recorded occasionally to maintain an idea of who is actually attending as this could correlate with test performance. Again, attendance is not essential and not a part of the grade. Out of respect for the instructor and classmates please be on time – disruptive tardiness is not appreciated.

Making up an Exam

An exam may be taken ahead of schedule if a suitable time can be agreed upon if there is a **good reason**. Exams can be made up after the scheduled date but this is at the **discretion of the instructor** (i.e., it is not guaranteed) and a **very good reason** for missing the exam must be **documented**. The make-up exam, or the early exam, will not be the same exam given to the other students. There will only be one make-up exam offered per student per semester. Students who miss more than one exam will have difficulty passing the course. This stipulation does not apply to those involved with UAF sanctioned activities (e.g., athletics).

Plagiarism/Cheating (aspects of academic integrity)

Plagiarism or cheating of any kind simply will not be tolerated in any form. If you do not know what this refers to please meet with Dr. O'Hara for an explanation. Dismissal from the University is an option for the instructor and Dean of Students to choose when academic integrity has been violated.

Examinations are to be performed by the individual and any attempts to gain assistance or knowingly provide assistance during an examination will be punished according to University

policy towards “cheating.” Those taking early or make up exams are to not request assistance with the exams nor provide it. The exams should not be discussed until ALL members of the class have taken a specific exam. Please note plagiarism above, and that this applies to any written or oral assignments that are independent projects as well as the examinations.

Evaluation:

The letter grade assigned in this course is dependent on the performance on the 3 exams that are equally waited at 100 points each.

Total Points = 300 (undergraduates); 400 points for graduate students based on paper and oral exam of paper.

Letter grades: no +/- grades given.

A = 90-100%, B = 80-89.5%, C = 70-79.5%, D = 60-69.5%, F <60%

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. The Instructor will work with the Office of Disabilities Services to provide reasonable accommodation to students with disabilities. Please make the Instructor aware of any disabilities that may affect access or performance. For any questions please refer to <http://www.uaf.edu/disability/>. Office of Disabilities Services (208 WHITAKER BLDG, 474-5655) can provide reasonable accommodation to students with disabilities. Students must notify the instructor of any arrangements with ODS as they do not inform us.

Assume Monday/Wednesday/Friday schedule. First day of instruction; Tuesday, Jan. 17. Finals Tuesday-Friday, May 2-5

Week	Date	Topic (B & S 4th ed textbook chapter)
1	1/18 (Wed)	Introduction (Chapter 1+)
1	1/20	Pharmacodynamics (Chapter 3+)
2	1/23	Pharmacodynamics (Chapter 3+)
2	1/25	ADME (Chapter 2+)
2	1/27	ADME / Drug delivery (Chapter 2+)
3	1/30	Pharmacokinetics (Chapter 2+)
3	2/1	Pharmacokinetics (Chapter 2+)
3	2/3	Autonomics – Introduction (Chapter 5)
4	2/6	Autonomics – Cholinergics (Chapters 6 and 7)
4	2/8	Autonomics – Chol & Adren (Chapters 7 and 8)
4	2/10	Autonomics – Adrenergics (Chapters 8 and 9)
5	2/13	Skeletal muscle drugs and local anesthetics (Chapter 21)
5	2/15	Exam 1; 33% of grade
5	2/17	CV/Renal – hypertension, heart failure, diuretics (Ch 10, 12, 13)
6	2/20	CV/Renal Drugs – anti-anginal & - arrhythmics (Ch 11, 14)
6	2/22	CV Drugs – blood (anticoagulant, hematopoietic drugs) (Ch 15-17)
6	2/24	CNS introduction (Chapter 18)
7	2/27	CNS drugs I - Anxiolytic and sedative hypnotic drugs (Chapter 19)
7	3/1	CNS drugs II - Psychotherapeutic drugs (Chapter 22)
7	3/3	CNS drugs III - General Anesthetics and opioids (Chapters 21, 23)
8	3/6	Drugs for neurodegenerative diseases (Chapter 24)
8	3/8	CNS drugs IV – Drugs of abuse (Chapter 25)
8	3/10	Antihistamines and drugs for asthma (Chapters 26, 27)
9	3/13-17	Spring Break No Class Monday-Friday, March 13-17
10	3/20/	GI drugs (Chapter 28)
10	3/22/	Drugs for headache, pain, and inflammation (Chapters 29 and 30)
10	3/24/	Drugs for headache, pain, and inflammation II (Chapters 29 and 30)
11	3/27/	Exam 2 33% of grade
11	3/29/	Endocrine Drugs I – pituitary and thyroid (Chapters 31, 32)
11	3/31/	Endocrine Drugs II – adrenal steroids (Chapter 33)
12	4/3/	Endocrine Drugs III – Oral contraceptives and fertility (Ch 34)
12	4/5/	Endocrine Drugs IV – diabetes (Chapter 35)
12	4/7/	Principles of Antimicrobial therapy (Chapter 37)
13	4/10/	Antibiotics I (Chapters 38, 39)
13	4/12/	Antibiotics II (Chapters 40, 41)
13	4/14/	Anti-fungal drugs (Chapter 42)
14	4/17/	Anti-viral drugs (Chapter 43)
14	4/19/	Anti-parasitic drugs (Chapter 44)
14	4/21	Antineoplastics and Immunopharm I (Chapter 45)
15	4/24	Antineoplastics and Immunopharm II (Chapter 45)
15	4/26	Antineoplastics and Immunopharm III (Chapter 45)
15	4/28	REVIEW!
	5/1	last day of class, Exam 3, 30% of grade
		Final Exam [graduate student paper and oral exam]