Graduate Council Report
7 December 2006


A698 VMID 698 Writing for Publication (3-0) Credit 3. Writing in academic disciplines and settings. Writing for different audiences and purposes. Style; planning and development of journal articles; grant proposals; correspondence; oral presentations; technical reports. Permission of departmental/college graduate advisor. Prerequisite(s): advanced standing in master's/doctoral programs.

A699 VTPP 623 Biomedical Physiology I (3-2) Credit 4. Physiological principles, review of cellular physiology, and development of an understanding of the nervous system and muscle, cardiovascular, and respiratory physiology; clinical applications related to organ systems. Prerequisite(s): Grad class; BICH 410 and VIBS 305 recommended.

A700 VTPP 625 Pharmacology (3-0) Credit 3. Introduction to pharmacokinetics and pharmacodynamics; survey of major pharmaceutical classes; uses, mechanisms of action and adverse reactions of selected agents. Prerequisite(s): Grad class; VTPP 423 or Approval of instructor.

A701 VTPP 627 Biomedical Physiology II (3-0) Credit 3. Continuation of VTPP 623 Fluid balance and acid-base balance; development of an understanding of renal, gastrointestinal, endocrine and reproductive physiology using human and other mammalian models; clinical applications related to organ systems. Prerequisite(s): Grad class; VTPP 623.

A702 VTPP 634 Physiology for Bioengineers I (3-3) Credit 4. Cellular anatomy, cellular physiology and biochemistry; systems analysis of digestive, endocrine and musculoskeletal system function including information related to gross anatomy, histology and disease states; quantitative aspects of physiology and engineering applications to clinical medicine. Prerequisite(s): Biomedical Engineering major or instructor approval.

A703 VTPP 635 Physiology for Bioengineers II (3-3) Credit 4. A systems analysis of nervous, cardiovascular, respiratory and urinary function including information related to gross anatomy, histology and disease states; quantitative aspects of physiology and engineering applications to clinical medicine. Prerequisite(s) VTPP 634.

A710 WFSC 619 Wildlife Restoration (2-3) Credit 3. Study of the fundamentals of the restoration of animal populations and the resources they require; factors that control the distribution and abundances of animals in relation to restoration; and how restoration plans for wildlife are developed. Prerequisite(s): graduate classification or instructor approval. Stacked with WFSC 419.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Statistics.

2. Course prefix, number and complete title Stat 657 Advanced Programming using SAS.

3. Course description (not more than 50 words) Programming with SAS/IML, programming in SAS Data step, advanced use of various SAS procedures.

4. Prerequisite(s) Stat 642. Cross-listed with.

5. Is this a variable credit course? ☐ Yes ☐ No If yes, from _________ to _________.

6. Is this a repeatable course? ☐ Yes ☐ No If yes, this course may be taken _________ times. Will the course be repeated within the same semester/term? ☐ Yes ☐ No

7. Has this course been taught as a 489/689? ☐ Yes ☐ No If yes, how many times? 1. Indicate the number of students enrolled for each academic period it was taught Fall 2005 - 14 students.

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
      M.S. in Statistics (Applied Option)
   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix Course # Title (exclude punctuation)
    STA 7657 Advanced Programming in

    Lect. Lab SCH Subject Matter Content Code Admin. Unit Acad. Year FICE Code
    0 3 0 3

    Do not complete shaded area.

    Approval recommended by: Michael Springer 10/30/2006
    Head of Department Date

    Chair, College Review Committee Date

    Dean of College Date

    Submitted to Coordinating Board by:

    Director of Academic Support Services Date Effective Date

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.

OAR/AS-5/04

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STATISTICS 657

SYLLABUS –


II. PREREQUISITES Stat 642

III. Software

You can obtain SAS from SELL - http://cis.tamu.edu/customer-sales/sell/studentorderform.html

IV. COURSE GRADE

EXAMS - There will be three exams.

EXAM 1 - This exam will cover the material from the beginning up until the class immediately preceding the Exam. Exam 1 will count for 25% of the course grade.

EXAM 2 - The exam will be cumulative, i.e., covering the entire course up to the exam. EXAM 2 will count for 30% of the course grade.

FINAL EXAM - The Final will occur at the time as provided in the schedule. The final will be cumulative, i.e., covering the entire course. The final will have theory and application questions, including questions regarding SPSS. The final will count for 30% of the course grade.

Homework: Homework will count for 5% of your grade – Project will count for 10%

SUMMARY

<table>
<thead>
<tr>
<th>HOMEWORK/Project</th>
<th>15%</th>
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<tbody>
<tr>
<td>EXAM 1</td>
<td>25%</td>
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<td>EXAM 2</td>
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<td>FINAL EXAM</td>
<td>30%</td>
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<tr>
<td>TOTAL</td>
<td>100%</td>
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V. OFFICE HOURS

To Be Announced
OFFICE: 510 BLOCKER
PHONE: 979-845-3182
E-MAIL: mspeed@stat.tamu.edu
VI. COURSE OUTLINE

Topics:
1) programming logic
2) control statements
3) looping
4) algorithms
5) simulations
6) array indexing
7) matrix manipulations
8) Numerical accuracy considerations
9) Convergence issues
10) MACROS
11) DATA STEP (Programming)
12) Procs
   a. IML
   b. REG
   c. GLM
   d. MIXED
   e. Others
13) Report Writing

VII. Important Notice.

STATEMENT ON DISABILITIES: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Office of Support Services for Students with Disabilities in Room 126 of the Koldus Student Services Building. The phone number is 845-1637.

STATEMENT ON PLAGIARISM: The handouts used in this course are copyrighted. By "handouts," I mean all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission. As commonly defined, plagiarism consists of passing off as one's own ideas, words, writing, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section "Scholastic Dishonesty."

Aggie Honor Code: See: http://www.tamu.edu/aggiehonor/definitions.php
Texas A&M University  
Departmental Request for a New Course  
Undergraduate • Graduate • Professional  
Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of ___English___

2. Course prefix, number and complete title __VMID 698: Writing for Publication___

3. Course description (not more than 50 words) Writing in academic disciplines and settings. Writing for different audiences and purposes. Style; planning and development of journal articles; grant proposals; correspondence; oral presentations; technical reports. Permission of departmental/college graduate advisor.

4. Prerequisite(s) __advanced standing in master's/doctoral programs___

5. Is this a variable credit course? □ Yes □ No  If yes, from ______ to ______.

6. Is this a repeatable course? □ Yes □ No  If yes, this course may be taken ______ times. Will the course be repeated within the same semester/term? □ Yes □ No

7. Has this course been taught as a 489/689? □ Yes □ No  If yes, how many times? ___ time___ Indicate the number of students enrolled for each academic period it was taught. 25

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography) any master's or doctoral program

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix Course # Title (exclude punctuation)  
    __VMID 698 WRITING FOR PUBLICATION___

    Lect. Lab SCH Subject Matter Content Code Admin. Unit Acad. Year FICE Code
    0 3 0 0 3 2 3 1 1 0 1 0 0 0 1 2 8 8 8 0 6 0 7 0 0 3 6 3 2

    Approval recommended by: 
    [Signature] (10-1-06)

    Head of Department  Date  Chair, College Review Committee  Date

    Head of Department (if cross-listed course)  Date  Dean of College  Date

    Submitted to Coordinating Board by: 
    Dean of College  Date

    Director of Academic Support Services  Date  Effective Date

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.  
OAR/AS-504

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VMID 698: Writing for Publication

Instructor:
Elizabeth Tebeaux
Professor of English
Phone: 862-3593
Email: e-tebeaux@tamu.edu
Office Hours: TBA

Resource website: http://www.tamu.edu/ode/graduatewritingproject
Reading assignments are located on this URL and in the required texts.

Enrollment Prerequisites

The course targets graduate students working on their theses or dissertations and/or students actively planning and writing an article for publication. Students beginning their graduate work should not enroll because of the level of writing projects required. Students who enroll should be focusing on completing their academic work and committed to improving their writing. This course is NOT about grades but having focused time to learn how to improve your writing.

Course Objectives

- Practice elements of communication needed by graduate students in an academic work context.
- Apply principles of design as these apply to sentences, paragraphs, and complete documents.
- Practice developing types of academic writing.
- Review principles of usage and punctuation—essentials of Standard English.
- Develop expertise in writing needed beyond school. Students who enroll are encouraged to focus on an article they may wish to publish or their thesis or dissertation.

Outcomes

- Students will prepare a variety of documents related to their graduate work and writing in the workplace.
- These documents will allow students to practice application of development principles needed for each kind of document.
- Students will improve their command and application of principles of writing as determined by pre-/post-assessment.

Course Description

3 SCH credit. Class sessions will have discussion, lecture, and practice time for students to work on writing projects. Course will focus on principles for developing sentences, paragraphs, scientific papers and presentations. Other topics: understanding the elements of clarity, developing grant proposals, avoiding plagiarism, understanding the perspectives of journal editors, developing effective oral presentations and PowerPoint slides, developing the CV. Students will work in teams to discuss/evaluate some assignments. Students will complete a writing assessment assignment at the beginning and the end of the course to determine improvement. Design of subsequent sections of this course will use assessment results. Course topics/assignments may vary depending on needs of the individual class.
Writing assessment assignment—beginning and end of the term

Analysis of journal publication requirements—memorandum

Effective paragraph development
- Short paragraph abstracts based on short articles
- Revisions of two of your paragraphs.

Introduction— for an article or your thesis/dissertation
Abstracts—descriptive and informative of an article
Developing effective correspondence
- Query letter to an editor of a journal
- Proposal letter (for an article or a presentation)

Two articles:
- Article for publication; or short article summarizing your research findings
- Revision of this article for a general audience.

Effective conference presentations

Review of grammar and usage as needed; in-class practice; avoiding plagiarism

Course Requirements

- Attend class regularly. Complete all assigned readings. Participate in team assignments. Ask questions. Do all assignments. All assignments must be submitted to pass the course.

Evaluation

- Each assignment will be evaluated according to the development principles for each document assigned.
- Evaluations will use rubric to evaluate how well students understand principles of planning, writing, revising, and editing. Grading for the course will be pass/fail.

Academic Integrity

Aggies do not lie, cheat, or steal or tolerate those who do.

Each student is expected to do his/her own work. This course is NOT about grades but about learning how to plan, write, and revise documents important in an academic environment. Any violation of the honor code will be reported to the Honor Code Office and to the Office of Graduate Studies.

Required books (Available at the university book store under Graduate Writing Project)
These books should be useful to you long after you have completed this course.


689: Writing for Publication—4

- **Review of Sentence Structure:** How to write a clear, concise sentence. Sentence analysis will be studied regularly.

  Short essay to study and edit. Goal: improve readability and clarity. In-class project.

- **Review of punctuation, usage, and grammar**—will occur regularly, as needed. Focus: problems that occur in students’ papers.

- **Designing Effective Memoranda and Letters**
  
  ✓ Assignment 5: Memoranda/letters written in response to case situations. Write a letter of inquiry to a journal editor.

- **Designing Proposals—Dr. Phyllis McBride, Office of Proposal Development, VPR**
  
  ✓ Assignment 6: Prepare a proposal for an article or a conference presentation.

  **Scenario:** A colleague in your discipline is planning a special issue on a topic. Graduate students are invited to submit one/two-page proposals for articles/presentations. Write the proposal and attach it to a letter to the person who is soliciting proposals for the special issue/conference.

- **Planning/writing the academic article and the popular article**
  
  ✓ Assignments 7A: Write an article about a topic in your field of research. Article 7B: Target audience: general readers. Goal: Learn to explain your research to non-technical readers.

- **How to read an article at a conference; effective use of PowerPoint.**

- **Developing the effective CV and application letter.**

**Americans with Disabilities Act (ADA) Policy Statement**

The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall or call 845-1637.
Texas A&M University

Departmental Request for a New Course

Undergraduate • Graduate • Professional

Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of ____________
   Veterinary Physiology and Pharmacology

2. Course prefix, number and complete title ____________
   VTPP 623 - Biomedical Physiology I

3. Course description (not more than 50 words)
   Physiological principles, review of cellular physiology, and development of an
   understanding of the nervous system and muscle, cardiovascular, and respiratory physiology; clinical applications
   related to organ systems.

4. Prerequisite(s) ____________
   Grad class; BICH 410 and VIIBS 305 recommended
   Cross-listed with ____________
   Cross-listed courses require the signatures of both department heads.

5. Is this a variable credit course? ☐ Yes ☐ No
   If yes, from _______ to _______.

6. Is this a repeatable course? ☐ Yes ☐ No
   If yes, this course may be taken _______ times. Will the course be
   repeated within the same semester/term? ☐ Yes ☐ No

7. Has this course been taught as a 489/689? ☐ Yes ☐ No
   If yes, how many times? _______. Indicate the number of students enrolled for each academic period it was taught.

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

   ________________________________

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)
   MS/PhD in life sciences

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated
   with these departments. Attach approval letters.

10. Prefix ____________
    Course # ____________
    Title (exclude punctuation) Biomedical Physiology I

    Lect. ____________ Lab ____________ SCH ____________ Subject Matter ____________ Content Code
    Admin. Unit ____________ Acad. Year ____________ FICE Code ____________

    Do not complete shaded area.

   Approval recommended by:
   Head of Department ____________ Date ____________
   Chair, College Review Committee ____________ Date ____________
   Dean of College ____________ Date ____________
   Dean of College ____________ Date ____________

   Submitted to Coordinating Board by:
   Director of Academic Support Services ____________ Date ____________
   Effective Date ____________

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.
OAR/AS-504

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VTPP 423 (VTPP 623), SECTION 501
BIOMEDICAL PHYSIOLOGY I
COURSE INFORMATION
FALL SEMESTER 2006

Discussions: MWF: 8:00 - 8:50 am (Rm 306, Vet Med Sci Bldg)
Lab Sessions: T: 12:40 - 2:30 pm (Rm 316, Vet Med Sci Bldg)
Instructor: J. F. Hunter
Office: Rm 304C (VMS)
Office Hours: MWF 11:00 - 12:00; also by appointment (862-1024)
E-mail: jhunter@cvm.tamu.edu

S I Leaders: TBA


Web-site: http://classes.cvm.tamu.edu/vtpp423/

Course Goal: To understand the physiological significance of cells, organs and organ systems in maintaining homeostasis of the mammalian organism. (To develop critical thinking, problem solving and self-learning skills in preparation for a career in medicine/science.)

Course Grading: A total of 400 points are possible in the course.

Letter grades will be assigned based on total points earned:

A = 360 to 400 points
B = 320 to 359.9 points
C = 280 to 319.9 points
D = 240 to 279.9 points
F = 0 to 239.9 points

A) Major exams: 37.5% of course grade (150 points); 60 minute exams

   Exam A (45 points) - Monday, September 18, 6:00 p.m., Rm 306/316
   Exam B (55 points) - Monday, October 16, 6:00 p.m., Rm 306/316
   Exam C (50 points) - Monday, November 6, 6:00 p.m., Rm 306/316

B) Grade option (see attachment): 12.5% of course grade (50 points)

C) Final exam (comprehensive): 25% of course grade (100 points); 2 hour exam

   Friday, December 8, 10 am - noon, Rm 306/316

D) Laboratory exams and assignments: 25% of course grade (100 points)
attachment I

VTTP 423 (VTTP 623) Course Policy Statements

Note - information in quotation marks is extracted from Texas A&M University Student Rules 2005-2006

Examinations:

Major examinations and the final examination will be written to assess a student's understanding of the information contained in the reading assignments or discussed in class with particular emphasis on the specified objectives. All students enrolled in VTPP 423 (VTTP 623) will take the major examinations at 6:00 p.m. in the room assigned for their section on the following dates: September 18, October 16, and November 6. Laboratory examinations will also be held at 6:00 p.m. on the following dates: October 4 and December 5. The examinations will be multiple choice, standardized exams. ParScore Test Forms will be furnished. Students will need to bring a number 2 pencil to every examination. A non-programmable calculator is required for the lab tests and recommended for the lecture examinations. Seating for examinations is assigned on a random basis; a seating chart will be posted outside the exam room approximately 15 minutes prior to each examination.

Students who have withdrawn from or Q-dropped the course are not considered as officially enrolled in the course and, thus, may not take major, lab or final examinations or attend lectures or participate in labs.

Grade Appeals:

Questions regarding grading of exams, worksheets, quizzes, reports, etc. must be brought to the attention of the instructor within one week following return of these materials. Grades will not be changed following this one week grade appeal period.

Attendance:

Class attendance is expected. Your arrival to the class on time will be appreciated. Should you arrive late, please enter via the door at the back of the classroom and quietly apologize to the students who you may disrupt as you take your seat in the classroom. If the first in-class quiz question has been completed, you will not have the opportunity to answer this question.

“The university views class attendance as an individual student responsibility. Students are expected to attend class and to complete all assignments.”

“If the student is seeking an excused absence, the student must notify the instructor as soon as possible after the absence, but no later than the end of the second working day after the last date of absence.”

Make-up examinations will only be given for excused absences. The format for make-up examinations will not necessarily be the same as for scheduled examinations; the format will be at the instructor’s discretion (eg. short answer, essay, oral, etc.).

The instructor will designate the date and time of make-up examinations.
Classroom Communication:

The university has established a formal process for handling of student grievances associated with any course. If there are major concerns about the conduct of a course, which cannot be resolved by meeting with the instructor of a course, a Classroom Communication Concerns form should be completed and submitted to the appropriate department head. (This form is available in the VTPP Departmental Office, Rm 332, VMA.)

Scholastic Dishonesty:

"It is the responsibility of students and instructors to help maintain scholastic integrity at the university by refusing to participate in or tolerate scholastic dishonesty."

All examinations in this course are closed book, closed note, and closed neighbor exams. Video recording devices and other technological means may be used to supplement documentation of acts involving Scholastic Dishonesty. The instructors of this course regard Scholastic Dishonesty as a very serious offense and disciplinary action will be taken. Sanctions will include either a grade of zero on the examination and/or a grade of “F” in the course. Sanctions will include a letter of reprimand be made a part of your student records. This can also lead to conduct probation, suspension, dismissal, or expulsion from the university.

Folks: do not be confused, these instructors do not tolerate cheating. If you engage in an act of scholastic dishonesty, there is a very high probability that you will be caught. The technological capabilities and talents of the instructors to identify and verify cheating and their commitment to prosecute cheaters should not be underestimated. Almost every semester, one or more students fail to take this warning seriously. Do not shorten your academic studies or sacrifice your future professional career.

Americans with Disabilities Act:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring accommodation, please contact the Department of Student Life Services for Students with Disabilities in Room 126 of the Koldus Building. The phone number of this office is 845-1637.
DATE | ASSIGNMENT - assigned reading in Sherwood text. | OBJECTIVES - to perform well in this course, you will need to understand, apply and, in some instances, quantify the concepts that are presented.

Aug 28 | ASSIGNMENT | Chapter 1 - Organization, control mechanisms, homeostasis

Aug 28 | OBJECTIVES | the logical relationship between the structure and function of cells, tissues and organs, including the concept of differentiation and specialization.

|  |  | processes important in maintaining homeostasis, including the role of negative feedback.

Aug 30 | ASSIGNMENT | Chapter 15 - Body fluid compartments (pages 546-550 and 552-555)

Aug 30 | OBJECTIVE | the body fluid compartments, principle constituents and regulation of fluid balance.

Sep 1-4 | ASSIGNMENT | Chapter 2 - Cellular physiology

Sep 1 | OBJECTIVES | the overall organization of the cell.

|  |  | the functional specialization of specific cellular organelles - the endoplasmic reticulum, Golgi complex, lysosomes and peroxisomes.

Sep 4 |  | the processes of glycolysis, the citric-acid cycle and electron-transport chain, and the role of ATP in cell energetics.

|  |  | the activities carried out within the cytosol.

|  |  | the various structures making up the cytoskeleton and to consider their proposed functions.

Sep 6-11 | ASSIGNMENT | Chapter 3 - Cell membranes, movement of materials

Sep 6 | OBJECTIVES | the functional significance of the various components of the plasma membrane.

|  |  | the role of specialized cell junctions - desmosomes, tight junctions and gap junctions.
the factors influencing simple diffusion and specific examples of diffusion/osmosis.

the limitations in facilitated diffusion and specific examples of this type of mass transport.

Sep 8 membrane active transport; specifically, the involvement of carrier proteins and ATP in this process.

secondary active transport of glucose and amino acids in the kidneys and small intestines.

how interactions between chemical messengers and membrane receptors can alter cellular activities. (pages 111-122)

Sep 11 vesicular transport and the role of caveolae.

the magnitude, polarity and significance of resting membrane potentials.

the various factors contributing to the establishment of membrane potentials.

Sep 13-18 ASSIGNMENT Chapter 4 - Membrane potentials, neuronal physiology, synaptic transmission

Sep 13 OBJECTIVES the difference between graded and action potentials.

the various phases of an action potential and their relation to changes in membrane permeability and ion fluxes.

Sep 15 OBJECTIVES the propagation of action potentials by local current flow and saltatory conduction.

the all-or-none law and the concept of refractory period in excitable cells.

Sep 18 the anatomical structure of synapses and the physiological processes involved in synaptic transmission.

the mechanisms of neuronal signal processing, namely EPSPs, IPSPs, spatial summation, temporal summation and neuromodulation.

Sep 18 EXAM A (Objectives from Aug 28 – Sep 15) - 6:00 p.m.

Sep 20 Review Exam A (attendance optional)
Sep 22-27  ASSIGNMENT  Chapter 5 - Central nervous system: brain, spinal cord, spinal reflexes

Sep 22  OBJECTIVES  the general organization of the nervous system.

the roles of the neuroglia, meninges, cerebral spinal fluid and the blood brain barrier in the protection and/or nourishment of the brain.

the function of selected areas of the cerebral cortex.

Sep 25  

the functions of subcortical structures.

learning and memory.

the various functions of the cerebellum and brain stem.

Sep 27  

the anatomical organization of the spinal cord and simple spinal cord reflexes.

Sep 29-Oct 6  ASSIGNMENT  Chapter 6 - Receptor physiology, special senses: eye, ear

Sep 29  OBJECTIVES  the process of transduction, the law of specific nerve energies and the labeled line principle.

the responses of tonic and phasic receptors.

the process of pain transduction and transmission of information and pain perception in higher centers.

the body's natural analgesic system.

Oct 2  

principles of optics, the anatomy of the eye and formation and movement of ocular fluids.

the control of pupil diameter, near and far vision and the mechanism of accommodation.

Oct 4  

the mechanism for retinal transduction and adaptation of photoreceptors.

signal processing within the eye, neural connections to the CNS and the pupillary light reflex.
Oct 6
the anatomy of the ear and acoustic principles.

the process of sound transduction, auditory pathways and
deafness.

vestibular transduction and the maintenance of balance/equilibrium:
roles of the semi-circular canals, utricle and saccule.

Oct 9-21 ASSIGNMENT Chapter 7 - Efferent nerves, somatic, autonomic

Oct 9 OBJECTIVES the functional anatomy of the autonomic nervous system.

Oct 11
the physiological effects of enhanced parasympathetic tone.

Oct 11 the physiological effects of enhanced sympathetic tone.

Oct 13
autonomic transmitter substances and the classification of autonomic
receptors.

the functions of autonomic control centers.

Oct 16
the synapse and the neuromuscular junction.

Oct 16 EXAM B (Objectives from Sep 18 – Oct 13) - 6:00 p.m.

Oct 18 Review Exam B (attendance optional)

Oct 20-27 ASSIGNMENT Chapter 8 - Muscle physiology

Oct 20 OBJECTIVES the characteristics of skeletal, cardiac and smooth muscle.

the microscopic structure of skeletal muscle.

the sliding-filament mechanism of muscle contraction.

Oct 23 the process of excitation-contraction and relaxation.

the influences of recruitment, frequency of stimulation and muscle
length on muscle tension.

Oct 25 isotonic and isometric contractions.

the metabolism of skeletal muscle and the process of fatigue.

the three major types of muscle fibers.

Oct 27 hypertrophy and atrophy of skeletal muscle fibers.
control of motor movement - input to motor neurons, muscle spindles, Golgi tendon organs.

the contraction mechanisms of cardiac and smooth muscle as compared to skeletal muscle.

Oct 30-Nov 3 ASSIGNMENT
Chapter 9 - Cardiac physiology

Oct 30 OBJECTIVES
the physiological significance of the various anatomical parts of the cardiovascular system.

the characteristics of biopotentials in cardiac cells and the conduction of electrical activity through the heart.

Nov 1
the cardiac cycle in terms of the electrocardiogram, aortic pressure, left ventricular pressure, left atrial pressure, left ventricular volume and heart sounds.

Nov 3
the determinants and regulation of cardiac output.

the coronary circulation.

the pathogenesis of coronary artery disease.

Nov 6-15 ASSIGNMENT
Chapter 10 - Peripheral circulation

Nov 6 OBJECTIVES
the physics of blood flow; Poiseuille's Law.

the functional significance of arteries.

the measurement and significance of systolic and diastolic blood pressure.

Nov 6 EXAM C (Objectives from Oct 16 – Nov 3) - 6:00 p.m.

Nov 8 Review Exam C (attendance optional)

Nov 10 OBJECTIVES
the regulation of blood flow by arterioles.

the exchange of materials across capillaries.

Nov 13
the lymphatic system and the various mechanisms of edema formation.

the functional significance of veins and factors influencing venous return, including the effect of gravity on venous pressure.
Nov 15 the regulation of mean arterial blood pressure.
the causes of hypertension, hypotension and circulatory shock.

Nov 17-22 ASSIGNMENT Chapter 13 - Respiratory system

Nov 17 OBJECTIVES the anatomy of the respiratory system.
the mechanics of respiration.

Nov 20 various respiratory volumes and assessment of respiratory function.

Nov 22 the exchange and transport of oxygen and carbon dioxide.
the factors involved in the control of respiration.

Nov 27-Dec 4 ASSIGNMENT Chapter 14 – Urinary system

Nov 27 OBJECTIVES the anatomy of the kidney.
the functional characteristics of the nephron.
the process of glomerular filtration.

Nov 29 the mechanisms for tubular reabsorption of sodium ions, glucose, amino acids, phosphate ions, calcium ions, chloride ions, water and urea.

Dec 1 the mechanisms for tubular secretion of hydrogen ions, potassium ions and organic ions.
the concept and calculation of plasma clearance.

Dec 4 how the kidney forms hypotonic, isotonic and hypertonic urine.
micturition.

Review
VTPP 423 (VTPP 623)  
SECTION 501  
PHYSIOLOGY  
LABORATORY INFORMATION  
FALL SEMESTER 2006

Lab Sessions:  Tuesday, 12:40-2:30 pm (Rm 316, Vet Med Sci Bldg)

Instructor:  J. F. Hunter  
Office:  Rm 304C (VMS)  
Office Hours: MWF 11:00 a.m. – 12:00 p.m.; also by appointment (862-1024)

Lab Staff:  Judy Walters and Jennifer Shilling (845-5997)


Lab Manual:  Available at Media Resources (basement of VMA Building)

Lab Goals:  To develop critical thinking, problem solving and scientific skills in preparation for a career in medicine/science. To gain experience in the use of modern physiological data acquisition equipment and the application of computers in the statistical analysis of data. To reinforce physiological principles discussed in lecture sessions.

Lab Grading:  A total of 100 points are possible in the laboratory portion of this course.

A) Laboratory worksheets: 50% of lab grade (50 points maximum)

Total points will be determined by averaging the 11 highest worksheet grades and multiplying this average by 0.5. Worksheets are to be submitted prior to the start of lab. Worksheets turned in late will not receive full credit; 10% reduction for each day (or portion of a day) late.

B) Laboratory exams: 50% of lab grade (50 points maximum)

Exam #1 (24 points) - Wednesday, Oct 4, 6:00 p.m., Rm 306/316  
Exam #2 (26 points) - Tuesday, Dec 5, 6:00 p.m., Rm 306/316

Your arrival to lab on time will be appreciated. Lab attendance is required; authorized absences require a written excuse. If you are unable to attend a particular laboratory section (but can attend another lab section), you will be expected to contact the instructor to obtain permission to switch sections.

The VTPP 423 Course Policy Statements (distributed in lecture) also pertain to the laboratory portion of this course.
<table>
<thead>
<tr>
<th>DATE</th>
<th>ASSIGNMENT</th>
<th>LABORATORY EXERCISE(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 29</td>
<td>Appendix A &amp; D</td>
<td>Physiological Measurements</td>
</tr>
<tr>
<td>Sep 5</td>
<td>Appendix B (pp. A3-A10)</td>
<td>Osmolarity and Equivalence Determinations</td>
</tr>
<tr>
<td>Sep 12</td>
<td>63-66</td>
<td>Physico-Chemical Phenomena</td>
</tr>
<tr>
<td>Sep 19</td>
<td>93-101</td>
<td>Nerve Conduction Velocity and Reaction Times</td>
</tr>
<tr>
<td>Sep 26</td>
<td>221-226</td>
<td>Special Senses</td>
</tr>
<tr>
<td>Oct 3</td>
<td></td>
<td>No lab this week (Lab Exam Wednesday evening)</td>
</tr>
<tr>
<td>Oct 4</td>
<td></td>
<td>Lab Exam #1 at 6:00 p.m., Rm 306/316 (24 points)</td>
</tr>
<tr>
<td>Oct 10</td>
<td>370-372</td>
<td>Autonomic Nervous System</td>
</tr>
<tr>
<td>Oct 17</td>
<td>265-272</td>
<td>Skeletal Muscle</td>
</tr>
<tr>
<td>Oct 24</td>
<td>285-293</td>
<td>Properties of Smooth Muscle</td>
</tr>
<tr>
<td></td>
<td>293</td>
<td>Properties of Cardiac Muscle</td>
</tr>
<tr>
<td>Oct 31</td>
<td>311-315</td>
<td>The Electrocardiogram</td>
</tr>
<tr>
<td>Nov 7</td>
<td>315-320</td>
<td>The Relationship Between ECG, Heart Sounds and Pulse</td>
</tr>
<tr>
<td>Nov 14</td>
<td>469-473</td>
<td>Spirometric Analysis of Respiration</td>
</tr>
<tr>
<td>Nov 28</td>
<td>501-509</td>
<td>Urine Production</td>
</tr>
<tr>
<td>Dec 5</td>
<td></td>
<td>Lab Exam #2 at 6:00 p.m., Rm 306/316 (26 points)</td>
</tr>
</tbody>
</table>

50 points will be based on written lab assignments (laboratory worksheets). Written lab assignments turned in late will have a 10% reduction in grade for every day or portion of a day that the report is late. The eleven highest lab assignment grades will be averaged; i.e. the lowest grade on the lab assignments will be dropped. Lab attendance is required; authorized absences require a written excuse.
1. Round numbers only, only, only in your final answer. Rounding numbers in your calculations may result in errors; such errors will result in a reduction in points. Numbers in spreadsheet programs (e.g. Excel) may appear in a rounded format; do not use rounded numbers, except in your final answer. Round final answers to no fewer than 3 significant figures.

2. Points will only be awarded for correct answers. Points will be rounded to the closest integer.

3. Only the answer indicated in the appropriate blank on the laboratory worksheet will be graded.

4. Multiple choice questions with a single correct answer will be graded either as correct or incorrect (i.e. no partial credit).

5. Multiple choice questions with more than one correct answer will be graded on the basis of the percentage of correct and incorrect answers (e.g. if there are two correct answers and only one correct answer is indicated, only half credit will be given for this answer; if there are two correct answers and one correct answer and one incorrect answer are indicated, no credit will be given).

6. Questions which require laboratory measurements (calibration and data acquisition) will be given full credit if the answer is within 10%; half credit will be awarded for an answer that is in error more than 10%, but within 20%. Answers in error more than 20% will receive no credit (this includes decimal errors).

7. Questions that require interpretation of graphical information will receive full credit if the answer is within 25%; half credit will be awarded for an answer that is in error more than 25%, but within 50%. Answers in error more than 50% will receive no credit (this includes decimal errors).

8. Questions that require calculations based on data provided for that question will be awarded full credit if the answer is within 1%. No partial credit will be given for answers in error more than 1% (this includes decimal errors).

9. Questions which require an answer of either Yes or No will not be considered for partial credit.

10. Fill in the blank questions, questions that require graphing of data, or questions which require a short answer, will receive partial credit at the discretion of the grader/instructor.

11. Failure to indicate units (if units are not indicated following the answer blank) or incorrect units will result in a reduction of one-half the value of the question.

12. Points will be deducted on worksheets that are submitted late (i.e. after 12:40 p.m. on the due date); deductions will be 10 points per day (or fraction thereof) late.

Questions related to the grading of laboratory worksheets need to be brought to the attention of the instructor. Please refer to the grading policy outlined above before making such an appeal. The above grading policy does not apply to laboratory or lecture examinations. Regularly scheduled examinations will be multiple choice and partial credit will not be given.
VTPP 423 (VTPP 623) Contract

I have reviewed the syllabus and course information sheet for VTPP 423 (VTPP 623) and understand the basis for determination of my grade. I recognize that major and laboratory examinations in this course will be held in the evenings. By signing this document, I certify that I do not have any other academic activities that conflict with the dates and times for these examinations. **Work, MCAT review sessions and/or evening classes at another college (i.e. Blinn) are not University excused absences.** I understand that my grade will be calculated on the basis of the two options outlined below and that my final grade in the course will be based upon the option for which I receive the most points. I further understand that video recording and other technologies may be used to supplement documentation of acts involving Scholastic Dishonesty.

Your signature ___________________________ Date ________________

Grade Option 1 - Minimal Participation Option, “MIN”

Under this Grade Option category, class participation receives no credit. The 50 points that can be achieved through lecture quizzes, S.I. and CD-ROM study will be assigned to the major exams and the final exam, such that the exams are valued as follows:

- Examination A = 54 points
- Examination B = 60 points
- Examination C = 66 points
- Final Examination = 120 points

Grade Option 2 - Maximal Participation Option, “MAX”

Under this Grade Option category, 50 points can be earned from the following activities:

- Lecture quizzes = 40 points maximum
- Bonus points = 20 points maximum

  Supplementary Instruction - 1 point per hour
  (S.I. sessions will be held each week in Room 306, VMS Building)

  InterActive Physiology (CD-ROM) Instruction – 1 point per hour
  These CD-ROM programs are available on the computers in Rooms 309 and 311, VMS Building. The computers are available for your use Monday through Friday (8 am to 5 pm) when other classes are not using the teaching labs and Sunday through Thursday (5 pm to 9 pm).

  **Note** – the maximum number of points associated with this option is 50. The bonus points will be added to the lecture quiz points.
Grade Option 3 – Graduate credit in VTPP 623, “GRAD” available for graduate students.

Under this grade option (offered only to graduate students), up to 50 points can be earned for a subjectively graded assessment of a formal research project or proposal. Instructor and student will discuss and sign an agreement describing the topic and expectations of this research assignment. Neither the “MIN” nor the “MAX” options are available for graduate students.
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional

Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of: Veterinary Physiology and Pharmacology
2. Course prefix, number and complete title: VTPP 625 - Pharmacology

3. Course description (not more than 50 words): Introduction to pharmacokinetics and pharmacodynamics; survey of major pharmaceutical classes; uses, mechanisms of action and adverse reactions of selected agents.

4. Prerequisite(s): Grad class; VTPP 423 or Approval of instructor

5. Is this a variable credit course? □ Yes □ No If yes, from _______ to _______. 

6. Is this a repeatable course? □ Yes □ No If yes, this course may be taken _______ times. Will the course be repeated within the same semester/term? □ Yes □ No

7. Has this course been taught as a 489/689? □ Yes □ No If yes, how many times? _______ Indicate the number of students enrolled for each academic period it was taught.

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography) MS/PhD in life sciences

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix | Course # | Title (exclude punctuation) | VTPP | 625 | Pharmacology |

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>SCH</th>
<th>Subject Matter Content Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>FICE Code</th>
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<tr>
<td>3</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td></td>
<td>36</td>
<td>3</td>
</tr>
</tbody>
</table>

Approval recommended by:
Head of Department: Dr. Smith 10-2-06
Chair, College Review Committee: Dr. Johnson 10-5-06
Dean of College: Dr. Lee 10-6-06

Submitted to Coordinating Board by:
Director of Academic Support Services: Dr. Brown Date: 10-10-06

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.
OAR/AS-5/04

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VTTP 425/625 Syllabus  
Summer 2006—First Session  
M-F 10:00am-11:35am  
Room 329, VMA

Instructor:  
Maya M. Scott  
326E VMA Building  
458-3510  
mscott@cvm.tamu.edu  
Office hours by appointment

Text:  
Pharmacology  
Lippincott's Illustrated Reviews  
Authors: R.D. Howland & M.J. Mycek  
Editors: R.A. Harvey & P.C. Champe  

Exam Schedule:  
Exam 1—Tuesday, June 6, 2006  
Exam 2—Tuesday, June 13, 2006  
Exam 3—Tuesday, June 20, 2006  
Exam 4—Tuesday, June 27, 2006  
Exam 5—Monday, July 3, 2006 (Final Exam)

Each exam is worth 100 points. The exam with the lowest score will be dropped. A total of 400 points will come from exams. There will be no make-up exams.

Class Attendance:  
Class attendance is expected. Three (3) points will be added to the total semester points for those who have no more than two (2) absences. One (1) point will be deducted from the total semester points for each unexcused absence that exceeds three (3).

Class Participation:  
Each student is expected to participate in class discussion. Ten (10) points of the total semester points will come from class participation.

Provisions for Students with Disabilities  
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. This legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please see me and contact Student Life, Services for Students with Disabilities (Room 126, Koldus Bldg (845-1637)).

Aggie Honor Code  
"An Aggie does not lie, cheat or steal or tolerate those who do.”  
For more information on Honor Council Rules and Procedures, please go to http://www.tamu.edu/aggiehonor.
Presentations:
Friday, June 23, 2006
Monday, June 26, 2006
Wednesday, June 28, 2006
Thursday, June 29, 2006
Friday, June 30, 2006

Each student will make a 15 to 20 minute presentation to the class covering one of the drug classes in the text (see accompanying list for topics). Students will also make peer evaluations of the other students’ presentations. The presentations will be worth 20 points.

Points for the presentation will be distributed as follows

- Explanation of Mechanism of Action: 4 points
- Description of Uses: 4 points
- Discussion of Toxicities/Adverse Effects: 3 points
- Interesting Facts: 2 points
- Overall presentation: 5 points
  - Organization: 3 points
  - Answering of Questions: 2 points
- Peer Evaluation: 2 points
- Total Points: 20 points

Each category will be graded on the following scale:

<table>
<thead>
<tr>
<th>Total points possible for each category</th>
<th>4 points</th>
<th>3 points</th>
<th>2 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>4 points</td>
<td>3 points</td>
<td>2 points</td>
</tr>
<tr>
<td>Above average</td>
<td>3.6 points</td>
<td>2.7 points</td>
<td>1.8 points</td>
</tr>
<tr>
<td>Average</td>
<td>3.2 points</td>
<td>2.4 points</td>
<td>1.6 points</td>
</tr>
<tr>
<td>Below average</td>
<td>2.4 points</td>
<td>1.8 points</td>
<td>1.2 points</td>
</tr>
<tr>
<td>Needs improvement</td>
<td>1.6 points</td>
<td>1.2 points</td>
<td>0.8 points</td>
</tr>
</tbody>
</table>

Points for peer evaluation will be distributed as follows

- Organization: 0.5 points
- Explanation of Mechanism of Action: 0.5 points
- Explanation of Uses: 0.5 points
- Overall Presentation: 0.5 points

- Total: 2 points

For the peer evaluations, each category will be graded on the following scale:

- Excellent: 0.5 points
- Above average: 0.45 points
- Average: 0.4 points
- Below average: 0.3 points
- Needs improvement: 0.2 points
### Presentation Topics

<table>
<thead>
<tr>
<th>Ch. 13 – Neuroleptic Drugs</th>
<th>Ch. 22 – Diuretic Drugs</th>
<th>Ch. 29 – Erectile Dysfunction, Osteoporosis &amp; Obesity</th>
<th>Ch. 39 – Anticancer Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch. 17 – Antiarrhythmic Drugs</td>
<td>Ch. 23 – Hormones of the Pituitary &amp; Thyroid</td>
<td>Ch. 34 – Antimycobacterial Drugs</td>
<td>Ch. 40 – Immunosuppressants</td>
</tr>
<tr>
<td>Ch. 18 – Antianginal Drugs</td>
<td>Ch. 24 – Insulin &amp; Oral Hypoglycemic Drugs</td>
<td>Ch. 36 – Antiprotozoal Drugs</td>
<td>Ch. 42 – Antacoids &amp; Antacoid Antagonists</td>
</tr>
<tr>
<td>Ch. 20 Drugs Affecting Blood</td>
<td>Ch. 25 – Estrogens &amp; Androgens</td>
<td>Ch. 37 – Anthelmintics Drugs</td>
<td></td>
</tr>
<tr>
<td>Ch. 21 – Antihyperlipidemic Drugs</td>
<td>Ch. 28 – Gastrointestinal &amp; Antiemetic Drugs</td>
<td>Ch. 38 – Antiviral Drugs</td>
<td></td>
</tr>
</tbody>
</table>

### Additional information for Graduate Students

In addition to giving a thirty (30) minute presentation following the above guidelines, each graduate student in the course will also complete a 10 page paper on the topic of their presentation. The paper will be worth 100 points. The graduate student should select a drug from the drug class and prepare a paper using these guidelines:

- **Description of drug**
- **Uses**
- **Mechanism of Action**
- **Metabolism and pharmacokinetics of drug**
- **Toxicities/Adverse Reactions**
- **Summary**
<table>
<thead>
<tr>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monday</strong></td>
</tr>
<tr>
<td><em>May 30</em></td>
</tr>
<tr>
<td>Class 1</td>
</tr>
<tr>
<td>June 5</td>
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<tr>
<td>Class 5</td>
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<tr>
<td>June 12</td>
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<tr>
<td>Class 10</td>
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<td>June 19</td>
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<td>Class 15</td>
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<tr>
<td>June 26</td>
</tr>
<tr>
<td>Class 20</td>
</tr>
<tr>
<td><strong>July 3</strong></td>
</tr>
</tbody>
</table>

Tentative List of Chapters to be covered:

- Chapter 1
- Chapter 2
- Chapter 3
- Chapter 4
- Chapter 5
- Chapter 6
- Chapter 7
- Chapter 8
- Chapter 9
- Chapter 10
- Chapter 11
- Chapter 12
- Chapter 14
- Chapter 15
- Chapter 16
- Chapter 19
- Chapter 26
- Chapter 27
- Chapter 30
- Chapter 31
- Chapter 32
- Chapter 33
- Chapter 35
- Chapter 41
Texas A&M University

Departmental Request for a New Course

Undergraduate • Graduate • Professional

Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of **Veterinary Physiology and Pharmacology**

2. Course prefix, number and complete title: **VTTP 627 - Biomedical Physiology II**

3. Course description (not more than 50 words): *Continuation of VTTP 623. Fluid balance and acid-base balance; development of an understanding of renal, gastrointestinal, endocrine and reproductive physiology using human and other mammalian models; clinical applications related to organ systems.*

4. Prerequisite(s): Grad class; VTTP 623

5. Is this a variable credit course? ☐ Yes ☐ No If yes, from _____ to _____.

6. Is this a repeatable course? ☐ Yes ☐ No If yes, this course may be taken _____ times. Will the course be repeated within the same semester/term? ☐ Yes ☐ No

7. Has this course been taught as a 489/689? ☐ Yes ☐ No If yes, how many times? _____ Indicate the number of students enrolled for each academic period it was taught.

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

   MS/PhD in life sciences

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix | Course # | Title (exclude punctuation)
     | VTTP 627 | Biomedical Physiology II

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>SCH</th>
<th>Subject Matter Content Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>FICE Code</th>
<th>Level</th>
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<tr>
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<td></td>
<td>0 0 3 6 3 2</td>
<td></td>
</tr>
</tbody>
</table>

Do not complete shaded area.

Approved recommended by:  
Head of Department  Date: 10-2-06

Chair, College Review Committee  Date: 10-3-06

Head of Department (if cross-listed course)  Date: 10-6-06

Dean of College  Date: 10-11-06

Submitted to Coordinating Board by:  
Director of Academic Support Services  Date:  
Effective Date: 

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.

OAR/AD 504

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Dr. J.D. Herman  
Room 307C, VMS Bldg  
862-7765  
Office hours: MWF — 9:00 to 10:00 a.m.  
jherman@cvm.tamu.edu

Dr. J.F. Hunter  
Room 304C, VMS Bldg  
862-1024  
Office hours: MWF – 11:00 a.m. to 12:00 p.m.  
All others by appointment  
jhunter@cvm.tamu.edu

Lectures:  
TTh 9:35 to 10:50 a.m., Room 306 VMS

Text:  
Human Physiology; From Cells to Systems. L. Sherwood, 5th edition

Supplemental Information:  
http://webctvista.tamu.edu/  
2000.

1984.


Classroom Communication Concerns:

Please be advised that there is a form available in the VTPP Office (Rm 332, VMA) to express any concerns,  
problems, etc., you may have with this course that cannot by resolved by meeting with the instructors.

Americans with Disabilities Act:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive  
civil rights protection for persons with disabilities. Among other things, this legislation requires that all students  
with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their  
disabilities. If you believe you have a disability requiring accommodation, please contact the Department of  
Student Life Services for Students with Disabilities in Room 126 of the Cain Hall. The phone number of this  
office is 845-1637. Please present appropriate documentation of any disability requiring accommodation to the  
instructor during the first week of classes.

Plagiarism:

The handouts used in this course are copyrighted. By “handouts”, we mean all materials generated for this class,  
which includes but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and  
additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts  
unless we expressly grant permission. As commonly defined, plagiarism consists of passing off as one’s own ideas, words, writings, etc., which belong to  
another. In accordance with this definition, you are committing plagiarism if you copy the work of another  
person and turn it in as your own, even if you have the permission of that person. Plagiarism is one of the worst  
academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely  
communicated.
If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rule, under section “Scholastic Dishonesty”.

Academic Integrity Statement

"An Aggie does not lie, cheat or steal, or tolerate those who do."

If you have any questions or concerns over Academic Integrity, please refer to the Honor Code website at http://www.tamu.edu/aggiehonor.

Grades:

A >= 540 points
B = 480 - 539 points
C = 420 - 479 points
D = 360 - 419 points

Clinical Case Design (50 points each) — Design two hypothetical clinical cases, one selected from the first half of the course (due October 5) and one selected from material presented in the second half of the course (due December 5). Submit your cases including expected laboratory values along with an outline of an appropriate treatment. Each case should follow the format below:

- Signalment
- History of Present Illness
- Lab data (with abnormalities explained)
- Discussion (rationale, a physiological basis for determining the problem)
- Treatment options

Due date: October 5 - Fluid balance, electrolyte balance, acid/base balance
December 5 - Digestion, energy balance, temperature regulation, growth, reproduction

If you have any questions, concerns, or anxieties about what topics are to be covered, the appropriateness of a topic, format to be used with respect to bonus assignments, please see either Dr. Herman or Dr. Hunter prior to the due date of the assignment.
Graduate Students (100 points) – Submit a paper that outlines the physiologic impact of a disease covered during the course of this semester. Discuss the mechanisms by which the disease manifests its effects. Discuss any compensatory actions that the body takes. Include the consequences of compensation. Outline possible causes and current treatment options.

Evaluations:

Exam A September 14 90 points
Exam B October 10 100 points
Exam C November 2 110 points
Clinical Cases (2) 100 points
Grad Student Report December 1 100 points
Final December 8 200 points
Total 600 points/700 points

Bonus Points:

A total of 30 point may be earned by completing the following project. Projects will be critically graded and points will be given in accordance with the value of the work. The assignment will be accepted up to December 1.

Computer modeling (30 points).

The proposed project is use of Stella 6.0 on the laboratory computers to model a selected physiological process. The model will address any topic covered during the semester. Expectations and assignment dates will be discussed with the instructor.

If you have any questions, concerns, or anxieties about what topics are to be covered, the appropriateness of a topic, format to be used with respect to bonus assignments, please see Dr. Herman prior to the due date of the assignment.

All bonus work may be submitted prior to deadline.

Honors Contract

Any student who is eligible and interested in receiving honors credit by contract for VTPP 427 should visit with their instructor before the 12th class day to discuss an independent assignment. The grade earned in the course will be calculated using the criteria set forth in the course information sheet (i.e. the same criteria as used for all other students in the course). Assignment of honors credit will be contingent upon successful completion of the assigned project as well as receiving an “A” or “B” in the course.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading Assignment</th>
<th>Instructor/ Important Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>August 29</td>
<td>Introduction / General Principles of Endocrinology</td>
<td>Pp. 667 - 681</td>
<td>HERMAN</td>
</tr>
<tr>
<td></td>
<td>August 31</td>
<td>Hypothalamus &amp; Pineal</td>
<td>Pp. 681 - 684</td>
<td>HERMAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relationship between hypothalamus and pineal gland. Establishment of diurnal rhythms. Hypothalmic control of pituitary function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>September 5</td>
<td>Neurohypophysis &amp; Adenohypophysis</td>
<td>Pp. 685 - 689</td>
<td>HERMAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Anatomic and physiologic differences of the adenohypophysis and neurohypophysis. Hormones associated with each.</td>
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<td></td>
<td>September 7</td>
<td>Control of Volume; ADH ANP</td>
<td>Pp 559 - 571</td>
<td>HERMAN</td>
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<td>Regulation and effects of ADH. Regulation and effects of atrial natriuetic peptide. Relation of volume to blood pressure.</td>
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<td>3</td>
<td>September 12</td>
<td>Adrenal Cortex; Mineralocorticoids</td>
<td>Pp. 707 - 719, 527 - 530</td>
<td>HERMAN</td>
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<td>Production, effects, and regulation of aldosterone; effects of over and under production of mineralocorticoids.</td>
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<td></td>
<td>September 14</td>
<td>Exam A</td>
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<td>HERMAN</td>
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<td>4</td>
<td>September 19</td>
<td>Common electrolytes and their roles</td>
<td>Pp 559 - 571</td>
<td>HERMAN</td>
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<td>Role of Na⁺, K⁺, Ca²⁺, Cl⁻; regulation and effects of imbalances including clinical signs</td>
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<td></td>
<td>September 21</td>
<td>Control of Calcium Metabolism</td>
<td>Pp. 733 - 742</td>
<td>HERMAN</td>
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<td>Regulation of Ca²⁺; role of calcitonin and parathyroid hormone</td>
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<td>5</td>
<td>September 26</td>
<td>Traditional Acid/base</td>
<td>Pp 571 - 586</td>
<td>HERMAN</td>
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<td>Bicarbonate buffering system</td>
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<td></td>
<td>September 28</td>
<td>Role of kidneys and lungs in maintaining acid base</td>
<td>Pp 571 - 586</td>
<td>HERMAN</td>
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<td>Recovery and production of bicarbonate by the kidneys. Loss of acid through the lungs. Concepts of metabolic acidosis and alkalosis as well as respiratory acidosis and alkalosis. Associated laboratory findings and clinical signs.</td>
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<td>6</td>
<td>October 3</td>
<td>Non-traditional Acid/Base balance</td>
<td>Notes, handout</td>
<td>HERMAN</td>
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<td>Limits to traditional acid/base; role of other organ systems in the regulation of acid/base. Concept of independent and dependant variables.</td>
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<td></td>
<td>October 5</td>
<td>Clinical Aspects of Fluid, Electrolyte &amp; Acid/Base abnormalities</td>
<td>Notes, handout</td>
<td>Case 1 due</td>
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<td></td>
<td>Clinical case discussions</td>
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<tr>
<td>7</td>
<td>October 10</td>
<td>Exam B</td>
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<td>HERMAN</td>
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<tr>
<td>8</td>
<td>October 12</td>
<td>Physiologic anatomy of the gastrointestinal tract</td>
<td>Pp. 591 - 641</td>
<td>HERMAN</td>
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<td>Anatomical aspects of the digestive system and their effect on control of digestion</td>
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<tr>
<td>8</td>
<td>October 17</td>
<td>Neural, hormonal, and enzymatic control of</td>
<td>Pp. 591 - 641</td>
<td>HERMAN</td>
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<td>Topic</td>
<td>Pages/Handouts</td>
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<tr>
<td>October 19</td>
<td>Pancreas and control of blood glucose; Adrenal Cortex; Glucocorticoids</td>
<td>P. 667 – 681, 707 - 719</td>
<td>HERMAN</td>
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<td>Control of secretion of insulin and glucagon. Understand the events in the prandial and post-prandial phase. Implications of type I and type II diabetes</td>
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<td>October 24</td>
<td>Obesity</td>
<td>Notes, handout</td>
<td>HERMAN</td>
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<tr>
<td>October 26</td>
<td>Appetite and energy balance</td>
<td>P. 647 - 663</td>
<td>HERMAN</td>
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<td>Role of the hypothalamus in appetite and energy balance</td>
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<td>October 31</td>
<td>Temperature regulation</td>
<td>P. 647 - 663</td>
<td>HERMAN</td>
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<td>Regulation of body temperature; causes and consequences of hypo- and hyperthermia</td>
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<tr>
<td>November 2</td>
<td>Exam C</td>
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<td>November 7</td>
<td>Thyroid</td>
<td>P. 701 – 707</td>
<td>HUNTER</td>
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<td>OBJECTIVES: the synthesis and secretion of thyroid hormones, the direct and permissive actions of thyroid hormones, the mechanism of thyroid hormone action, abnormal thyroid function</td>
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<tr>
<td>November 9</td>
<td>Adrenal Medulla</td>
<td>P. 714 - 721</td>
<td>HUNTER</td>
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<td>OBJECTIVES: the synthesis and secretion of epinephrine/norepinephrine, adrenergic receptor types, the stress response.</td>
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<tr>
<td>November 14</td>
<td>Growth</td>
<td>P. 689 – 700</td>
<td>HUNTER</td>
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<td>OBJECTIVES: the control of growth hormone secretion, the effects of growth hormone on bone and soft tissues, factors affecting growth, abnormal growth.</td>
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<tr>
<td>November 16</td>
<td>Gametogenesis</td>
<td>P. 758 – 763, 770 - 772</td>
<td>HUNTER</td>
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<td>OBJECTIVES: meiosis, the role of sex chromosomes and sex hormones in sexual differentiation, reproductive technologies.</td>
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<tr>
<td>November 21</td>
<td>Male Reproduction &amp; Puberty</td>
<td>P. 749 - 768</td>
<td>HUNTER</td>
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<td>OBJECTIVES: the control and secretion of testosterone, the role of accessory reproductive organs, erection and ejaculation</td>
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<tr>
<td>November 23</td>
<td>Thanksgiving Holiday!</td>
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<tr>
<td>November 28</td>
<td>Female Reproduction</td>
<td>Pp 768 - 799</td>
<td>HUNTER</td>
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<tr>
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<td>OBJECTIVES: the control and secretion of hormones during the ovarian cycle, phases of the sexual act</td>
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<tr>
<td>November 30</td>
<td>Female Reproduction &amp; Contraception</td>
<td>P.768 - 799</td>
<td>HUNTER</td>
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<td>OBJECTIVES: uterine changes during the ovarian cycle, ovulation and fertilization, contraception.</td>
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<tr>
<td>December 5</td>
<td>Pregnancy &amp; Lactation</td>
<td>P. 791 - 799</td>
<td>Case 2 &amp; STELLA project due</td>
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<td>OBJECTIVES: implantation, hormonal secretions during pregnancy, role of the placenta, labor and delivery, lactation</td>
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<tr>
<td>December 8</td>
<td>Final Exam</td>
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Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Veterinary Physiology and Pharmacology

2. Course prefix, number and complete title: VTPP 634 - Physiology for Bioengineers I

3. Course description (not more than 50 words): Cellular anatomy, cellular physiology and biochemistry; systems analysis of digestive, endocrine and musculoskeletal system function including information related to gross anatomy, histology and disease states; quantitative aspects of physiology and engineering applications to clinical medicine.

4. Prerequisite(s): Biomedical Engineering major or instructor approval

5. Cross-listed with: ________

6. Is this a variable credit course? ☐ Yes ☐ No If yes, from ________ to ________

7. Is this a repeatable course? ☐ Yes ☐ No If yes, this course may be taken ________ times. Will the course be repeated within the same semester/term? ☐ Yes ☐ No

8. Has this course been taught as a 489/689? ☐ Yes ☐ No If yes, how many times? ________ Indicate the number of students enrolled for each academic period it was taught. ________

9. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography) MS/PhD in Engineering

10. Prefix: VTPP | Course #: 634 | Title (exclude punctuation): Physiology for Bioengineers I

<table>
<thead>
<tr>
<th>Lect.</th>
<th>Lab</th>
<th>SCH</th>
<th>Subject Matter</th>
<th>Content Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>FICE Code</th>
<th>Level</th>
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<td>0 0 3 6 3 2</td>
<td>Level</td>
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</table>

Approval recommended by:

Head of Department: ___________________________ Date: 10-2-06

Chair, College Review Committee: ___________________________ Date: 10-5-06

Dean of College: ___________________________ Date: 10-6-06

Submitted to Coordinating Board by:

Director of Academic Support Services: ___________________________ Date: ___________________________ Effective Date: ___________________________
Attachment I

VTPP 434/634—PHYSIOLOGY FOR BIOENGINEERS I
Fall Semester, 2006

Instructor: Dr. Jeremy Wasser  jwasser@cvm.tamu.edu
Dr. Katrin Hinrichs  kjinrichs@cvm.tamu.edu

Office Hours: by appointment

VTPP Office: 332 VMA  (979) 845-7261

Lecture:
Section 501  MWF  9:10-10:00 a.m.  Room 330 VMA
Section 502  MWF  11:30-12:20 p.m.  Room 330 VMA

Laboratory
Section 501  W  3:00-4:50 p.m.  Room 316 VMS
Section 502  R  3:00-4:50 p.m.  Room 316 VMS

General course description: This course, along with its spring semester component (VTPP 435), is designed to provide you with a detailed grounding in cellular and organ system anatomy and physiology. During this semester, we will cover basic cell physiology, neurophysiology, reproductive physiology, smooth and skeletal muscle physiology, and the physiology of the cardiovascular system. Emphasis will be placed on engineering/functional design considerations in understanding biological function.

General course objectives: By the end of this semester you should have acquired a thorough understanding of how living organisms function at the cellular and organ system levels as well as an appreciation of the potential applications of bioengineering technology in biomedicine and the life sciences.


% of course grade

Evaluation:
Examination #1 (covers material from Aug. 28-Oct. 4)  12.0
Examination #2 (covers material from Oct. 9-Oct. 30)  12.0
Examination #3 (covers material from Nov. 3-Nov. 29)  12.0
Comprehensive Final Examination  22.0
Device Design Project Presentation  20.0
Student Lecture Project Presentation  12.0
SNBAL Assignments  10.0

Grading: A >90%
B  80-89.9%
C  70-79.9%
D  60-69.9%
F  <60%
Additional information for Graduate Students

In addition to the examinations and graded assignments listed above, each graduate student in the course will also complete a 10 page paper on a bioengineering/physiology topic of their choice (subject to topic approval by the instructor). The paper will be worth 100 points and a grade of 80% or better is required for a student to receive credit for the paper assignment. A successful completion of this assignment is required for a graduate student to receive a passing grade in this course.

Note 1:  Make-up examinations will only be given for excused absences. The format for make-up examinations will not necessarily be the same as for scheduled exams.

Note 2:  My lectures are designed to clarify and expand on selected aspects of the material covered by the reading assignments. In other words I will occasionally lecture on material not covered by your reading. You are responsible (and will be tested on) all of the material from the textbook and other reading assignments as well as what is covered in the lectures.

Note 3:  Classroom Communication Concerns:  Please be advised that there is a form available in the VTPP office (332 VMA) to express any concerns, problems, etc. you may have with this course that cannot be resolved through discussions with the course instructors.

Note 4:  The schedule and procedures in this course are subject to change in the event of extenuating circumstances.

Note 5:  The handouts used in this course are copyrighted. By “handouts”, I mean all all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission.

Note 6:  University policy on plagiarism:  As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writings, etc. which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty”.

Note 7:  Attendance:  “The university views class attendance as an individual student responsibility. Students are expected to attend classes and to complete all assignments” (from the Texas A&M University Regulations).
Note 8: Americans with Disabilities Act: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe that you have a disability requiring accommodation, please contact the Department of Student Life Services for Students with Disabilities in room 126 of the Koldus Building (tel: 979/845-1637).

Note 9: Aggie Honor Code; “An Aggie does not lie, cheat, or steal or tolerate those who do.”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M University community from the requirements or the processes of the Honor System. For additional information please visit: www.tamu.edu/aggiehonor/.

On all course work, assignments, and examinations at Texas A&M University, the following Honor Pledge shall be preprinted and signed by the student:

“On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.”
Group Design Project Information

I will divide the class into six groups of from five to seven students each (I reserve the right to reorganize group personnel at any point in the semester at my discretion). Each group will constitute a "bioengineering device discovery team" and will be responsible for the design of a physiologic prosthetic device over the course of the semester. All of the groups will be assigned the same design problem and will be required to produce competing designs over a 4-6 week period. **You must get your preliminary design concept approved by me before you work out the details of the project.** You will then be required to give a 15 minute long group presentation (with illustrations) on your design. Time will be kept and you must finish within the allotted 15 minute period. You are also required to submit **two copies** of a 3 to 6 page (single spaced) outline of your planned presentation prior to the first presentation for a given project assignment. You must include copies of all of your illustrations with the outlines (they do not count towards the 3-6 page size limit). The outline and the presentation should address the following critical points:

a. A description of the assignment and the physiological problems that must be overcome (15% of the grade for the written component of the project).

b. A discussion of the potential approaches to overcoming the problem and a brief, lucid description of their approach (15% of the grade for the written component of the project).

c. A detailed description of the device design and a description of how it will be controlled (30% of the grade for the written component of the project).

d. Physiological problems that might be created by utilizing this approach (20% of the grade for the written component of the project).

e. A rational comparison of the theoretical performance of the device and the natural organ or structure that it replaces or augments (20% of the grade for the written component of the project).

Include in your outline a listing of: (1) what each group member contributed to the project (e.g. initial conceptual design, mechanical engineering, electrical engineering, materials research, illustrations/graphics/computer animations etc.); and (2) which group members will be presenting and specifically which aspects of the presentation will be covered by which member. **All group members must actively participate in the oral presentation (i.e. everyone has to speak).** I also require you to use about 10 minutes of your time for the presentation and reserve at least 5 minutes for questions from the audience. The order of the group presentations will be determined by lottery. The presentations may be videotaped so that students who wish to review their presentations and improve their public speaking skills may do so. I will also post your PowerPoint presentations to the **Device Design** page of WebCT.
Grading: I will assign group project grades based on how well your group addresses the five critical points listed above. The written outline will count for 45% of your project grade, the oral presentation for 35%, and peer evaluations by your fellow group members for 20%.

Note: I want you to place the emphasis in your project designs on the physiology involved rather than on the engineering details. In other words, you are permitted to take some liberties with the engineering aspects of the design (e.g. you can describe and use materials that exist only in your imaginations). However, for any futuristic designs or materials that you employ, you must be able to provide a rational explanation of how they will be built and how they will work. You must stay within the realm of the real-world in terms of the physiology involved.
Lecture Presentation Information

You will be divided up into groups of 2-3 students for these assignments. I will assign topics to each group approximately two weeks prior to the date of their presentation. The topics will all deal with important human pathologies of the organ systems we are studying this semester and/or with recent developments in biomedical technology that are impacting therapies for important diseases or dysfunctions. Working as a team, you will research the assigned topic and prepare a 25 minute long PowerPoint presentation to be presented to your class on the designated date. You should allow 20 minutes for the presentation and 5 minutes for a question and answer period.

You will need to e-mail me a copy of your PowerPoint presentation along with a complete list of references (if one is not included in the slide presentation) at least 24 hours before your designated time to present. I will post your presentations to the Student Lecture page of WebCT. You will be graded according to the following scheme:

<table>
<thead>
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<th>Lecture Presentation:</th>
<th>background research</th>
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<tr>
<td></td>
<td>organization of lecture</td>
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<td>clarity of lecture</td>
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<td>innovation/creativity</td>
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<td>question handling</td>
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All team members must participate in the oral part of the assignment (everyone must lecture)!

The material presented during the student lectures may be included on the examinations!
“Science News Based Active Learning”
(SNBAL)

A. I will be introducing a new teaching paradigm for this semester’s iteration of “Physiology for Bioengineers I” (VTPP 434), “Science News Based Active Learning” (SNBAL). SNBAL is designed to “activate” the learning process and provide clear cut linkages to currently important clinical and biomedical research discoveries and developments.

1. I will give approximately 2 lectures per week designed to provide an overview and adequate scientific background context for the unit we are studying and for the science news based readings.

2. Students will be assigned readings from our physiology textbook relevant to the unit under study to be done by the corresponding SNBAL period.

3. I will identify and post to our course WebCT site relevant “science news” articles from the primary scientific literature (e.g. the journals Science, Nature, New England Journal of Medicine, Lancet) or from lay (non-scientific but reliable) news sources.

4. Students must then read the SNBAL assignments prior to our discussion of the articles.

5. I will assign questions based on the SNBAL reading assignments which students must answer, in writing, prior to the SNBAL session. I will grade them as part of the SNBAL component of your overall course grade. Students are to post their answers to me via the mail function of WebCT by 5:00 p.m. the day prior to the corresponding SNBAL period.

6. During a SNBAL period, the class will divide up into discussion groups of from 6 to 8 students and spend about 15 minutes talking about the article(s). We will then engage in an all-class discussion of the science underlying the news article, the importance of the scientific development or phenomenon under discussion, and the ramifications of the development or phenomenon for the future of biomedicine. I will call on students to summarize the SNBAL article(s), explicate them, or otherwise comment on them. Participation is mandatory and will be reflected in your SNBAL grade.
Blog

I have set up a group weblog (Blog) for this course, "Bioengineers at Work" which can be found on the Web at www.bioengineersatwork.blogspot.com. Posting to the Blog will provide an opportunity for students to generate some “bonus” points towards their final grade in VTPP 434. I will “invite” students to join the group blog within the first week of the semester. You will receive an e-mail from Blogger with instructions on how to sign up, after which you will be able to post to the blog. Please choose a user name that identifies you (i.e. your full name) rather than some exotic “handle”. This makes it easier for me to identify you and give you credit for the post. What makes things easier for me, makes things easier for you!

Students have the option to locate web-based articles dealing with any aspect of the physiological, biomedical, or bioengineering disciplines that they find interesting and generate a post describing the article and providing a link to it (URL). These postings can be fairly succinct but must be long enough to be descriptive and must include a statement as to “why” the students finds this aspect of physiology interesting enough to share with the rest of us.

I will review the blog postings and reserve the right to judge their “acceptability” in terms of length and content. If a post is judged suitable, a bonus of 0.5 points toward your final grade (i.e. 0.5% of your grade) will be awarded. Students may post up to 4 times for a grand total of 2 bonus points (2% of the final grade). I will add the bonus points to your grand points total at the end of the semester before assigning letter grades for the course.

To avoid “last-minute mass blogging”, I will only accept one post/student between August 28 and Sept. 30; one post/student between Oct. 1 and Oct. 31; one post/student between Nov. 1 and Nov. 30; and one post/student between Dec. 1 and Dec. 10.
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<th>Class #</th>
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<th>Topic</th>
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<td>Introduction</td>
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<td>2</td>
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<td>August 30</td>
<td>Cell Physiology</td>
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<td>Smooth and Cardiac Muscle</td>
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<td>39</td>
<td>F</td>
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<td>Physiology post-examination, course evaluations</td>
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M December 11  8:00 a.m.-10:00 a.m.  **Final Examination--Section 501**
W December 13  10:30 a.m.-12:30 p.m.  **Final Examination--Section 502**
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<td>Introductory Device Design Group meeting and physiology pre-test</td>
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<td>4</td>
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<td>September 20</td>
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<td><em>Student Lecture Presentations Groups 1, 2, 3, and 4-Reproductive Disorders</em></td>
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<td><em>Student Lecture Presentations Groups 5, 6, 7, and 8—Neurological Disorders</em></td>
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<td>November 8</td>
<td><em>Student Lecture Presentations Groups 9, 10, 11, and 12-Neuromuscular</em></td>
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<td><em>Student Lecture Presentations Groups 13, 14, 15, and 16-Cardiovascular Diseases</em></td>
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Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional

Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Veterinary Physiology and Pharmacology

2. Course prefix, number and complete title VTPP 635 - Physiology for Bioengineers II

3. Course description (not more than 50 words) A systems analysis of nervous, cardiovascular, respiratory and urinary function including information related to gross anatomy, histology and disease states; quantitative aspects of physiology and engineering applications to clinical medicine.

4. Prerequisite(s) VTPP 634

5. Is this a variable credit course? □ Yes □ No

6. Is this a repeatable course? □ Yes □ No

7. Has this course been taught as a 489/689? □ Yes □ No

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix Course # Title (exclude punctuation)
    VTPP 635 Physiology for Bioengineers II

    Lect. Lab SCH Subject Matter Content Code Admin. Unit Acad. Year FICE Code
    3 3 4

   Do not complete shaded area.

   Approval recommended by:

   Head of Department Date

   Head of Department (if cross-listed course) Date

   Submitted to Coordinating Board by:

   Dean of College Date

   Director of Academic Support Services Date

   Effective Date

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.
OAR/AS-5/04

48 of 63
Instructor: Dr. Jeremy Wasser
Office Hours: by appointment

VTTP Office: 332 VMA (979) 845-7261

Lecture:

Section 501 MWF 9:10-10:00 a.m. Room 330 VMA
Section 502 MWF 11:30-12:20 p.m. Room 330 VMA

Laboratory

Section 501 W 3:00-4:50 p.m. Room 316 VMS
Section 502 R 3:00-4:50 p.m. Room 316 VMS

General course description: This course, along with its first semester component (VTTP 434), is designed to provide you with a detailed grounding in cellular and organ system anatomy and physiology. During this semester, we will cover the physiology of the cardiovascular, respiratory, renal, and gastrointestinal systems as well as critical aspects of endocrinology and metabolic physiology. Emphasis will be placed on engineering/functional design considerations in understanding biological function.

General course objectives: By the end of this semester you should have acquired a thorough understanding of how living organisms function at the cellular and organ system levels as well as an appreciation of the potential applications of bioengineering technology in biomedicine and the life sciences.

Textbook: D. Silverthorn, "Human Physiology: An Integrated Approach"
3rd edition, Pearson Education, Benjamin Cummings, San Francisco, 2004

% of course grade

Evaluation:

Examination #1 (covers material from Jan. 18-Feb. 15) 12.0
Examination #2 (covers material from Feb. 20-March 31) 12.0
Examination #3 (covers material from April 3-April 28) 12.0
Comprehensive Final Examination 22.0
Device Design Project Presentation 20.0
Student Lecture Presentation 12.0
SNBAL Assignments 10.0

Grading:

A >90%
B 80-89.9%
C 70-79.9%
D 60-69.9%
F <60%
Additional information for Graduate Students

In addition to the examinations and graded assignments listed above, each graduate student in the course will also complete a 10 page paper on a bioengineering/physiology topic of their choice (subject to topic approval by the instructor). The paper will be worth 100 points and a grade of 80% or better is required for a student to receive credit for the paper assignment. **A successful completion of this assignment is required for a graduate student to receive a passing grade in this course.**

**Note 1:** Make-up examinations will only be given for excused absences. The format for make-up examinations will not necessarily be the same as for scheduled exams. **Make-up exams will be held on Tuesday May 2 during the class period(s).**

**Note 2:** My lectures are designed to clarify and expand on selected aspects of the material covered by the reading assignments. In other words I will occasionally lecture on material not covered by your reading. You are responsible (and will be tested on) **all** of the material from the textbook and other reading assignments as well as what is covered in the lectures.

**Note 3: Classroom Communication Concerns:** Please be advised that there is a form available in the VTPP office (332 VMA) to express any concerns, problems, etc. you may have with this course that cannot be resolved through discussions with the course instructors.

**Note 4:** The schedule and procedures in this course are subject to change in the event of extenuating circumstances.

**Note 5:** The handouts used in this course are copyrighted. By “handouts”, I mean all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission.

**Note 6: University policy on plagiarism:** As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writings, etc. which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have any questions regarding plagiarism, please consult the latest issue of the *Texas A&M University Student Rules*, under the section “Scholastic Dishonesty”.

**Note 7: Attendance:** “The university views class attendance as an individual student responsibility. Students are expected to attend classes and to complete all assignments” (from the *Texas A&M University Regulations*).
**Note 8: Americans with Disabilities Act:** The *Americans with Disabilities Act (ADA)* is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe that you have a disability requiring accommodation, please contact the Department of Student Life Services for Students with Disabilities in room 126 of the Koldus Building (tel: 979/845-1637).

**Note 9: Aggie Honor Code:** “An Aggie does not lie, cheat, or steal or tolerate those who do.”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M University community from the requirements or the processes of the Honor System. For additional information please visit: [www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/).

On all course work, assignments, and examinations at Texas A&M University, the following Honor Pledge shall be preprinted and signed by the student:

“On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.”
Group Design Project Information

I will divide the class into six groups of from five to seven students each (I reserve the right to reorganize group personnel at any point in the semester at my discretion). Each group will constitute a "bioengineering device discovery team" and will be responsible for the design of a physiologic prosthetic device over the course of the semester. All of the groups will be assigned the same design problem and will be required to produce competing designs over a 4-6 week period. You must get your preliminary design concept approved by me before you work out the details of the project. You will then be required to give a 15 minute long group presentation (with illustrations) on your design. Time will be kept and you must finish within the allotted 15 minute period. You are also required to submit two copies of a 3 to 6 page (single spaced) outline of your planned presentation prior to the first presentation for a given project assignment. You must include copies of all of your illustrations with the outlines (they do not count towards the 3-6 page size limit). The outline and the presentation should address the following critical points:

a. A description of the assignment and the physiological problems that must be overcome (15% of the grade for the written component of the project).

b. A discussion of the potential approaches to overcoming the problem and a brief, lucid description of their approach (15% of the grade for the written component of the project).

c. A detailed description of the device design and a description of how it will be controlled (30% of the grade for the written component of the project).

d. Physiological problems that might be created by utilizing this approach (20% of the grade for the written component of the project).

e. A rational comparison of the theoretical performance of the device and the natural organ or structure that it replaces or augments (20% of the grade for the written component of the project).

Include in your outline a listing of: (1) what each group member contributed to the project (e.g. initial conceptual design, mechanical engineering, electrical engineering, materials research, illustrations/graphics/computer animations etc.); and (2) which group members will be presenting and specifically which aspects of the presentation will be covered by which member. All group members must actively participate in the oral presentation (i.e. everyone has to speak). I also require you to use about 10 minutes of your time for the presentation and reserve at least 5 minutes for questions from the audience. The order of the group presentations will be determined by lottery. The presentations may be videotaped so that students who wish to review their presentations and improve their public speaking skills may do so. I will also post your PowerPoint presentations to the Device Design page of WebCT.
Grading: I will assign group project grades based on how well your group addresses the five critical points listed above. The written outline will count for 45% of your project grade, the oral presentation for 35%, and peer evaluations by your fellow group members for 20%.

Note: I want you to place the emphasis in your project designs on the physiology involved rather than on the engineering details. In other words, you are permitted to take some liberties with the engineering aspects of the design (e.g. you can describe and use materials that exist only in your imaginations). However, for any futuristic designs or materials that you employ, you must be able to provide a rational explanation of how they will be built and how they will work. You must stay within the realm of the real-world in terms of the physiology involved.
Lecture Presentation Information

You will be divided up into groups of 2-3 students for these assignments. I will assign topics to each group approximately two weeks prior to the date of their presentation. The topics will all deal with important human pathologies of the organ systems we are studying this semester and/or with recent developments in biomedical technology that are impacting therapies for important diseases or dysfunctions. Working as a team, you will research the assigned topic and prepare a 25 minute long PowerPoint presentation to be presented to your class on the designated date. You should allow 20 minutes for the presentation and 5 minutes for a question and answer period.

You will need to e-mail me a copy of your PowerPoint presentation along with a complete list of references (if one is not included in the slide presentation) at least 24 hours before your designated time to present. I will post your presentations to the Student Lecture page of WebCT. You will be graded according to the following scheme:

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<th>background research</th>
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<tbody>
<tr>
<td></td>
<td>organization of lecture</td>
<td>30%</td>
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<td>clarity of lecture</td>
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<td></td>
<td>innovation/creativity</td>
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<td></td>
<td>question handling</td>
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All team members must participate in the oral part of the assignment (everyone must lecture)!

The material presented during the student lectures may be included on the examinations!
“Science News Based Active Learning” (SNBAL)

A. I will be introducing a new teaching paradigm for this semester’s iteration of “Physiology for Bioengineers II” (VTPP 435), “Science News Based Active Learning” (SNBAL). SNBAL is designed to “activate” the learning process and provide clear cut linkages to currently important clinical and biomedical research discoveries and developments.

1. I will give approximately 2 lectures per week designed to provide an overview and adequate scientific background context for the unit we are studying and for the science news based readings.

2. Students will be assigned readings from our physiology textbook relevant to the unit under study to be done by the corresponding SNBAL period.

3. I will identify and post to our course WebCT site relevant “science news” articles from the primary scientific literature (e.g. the journals Science, Nature, New England Journal of Medicine, Lancet) or from lay (non-scientific but reliable) news sources.

4. Students must then read the SNBAL assignments prior to our discussion of the articles.

5. I will assign questions based on the SNBAL reading assignments which students must answer, in writing, prior to the SNBAL session. I will grade them as part of the SNBAL component of your overall course grade. Students are to post their answers to me via the mail function of WebCT by 5:00 p.m. the day prior to the corresponding SNBAL period.

6. During a SNBAL period, the class will divide up into discussion groups of from 6 to 8 students and spend about 15 minutes talking about the article(s). We will then engage in an all-class discussion of the science underlying the news article, the importance of the scientific development or phenomenon under discussion, and the ramifications of the development or phenomenon for the future of biomedicine. I will call on students to summarize the SNBAL article(s), explicate them, or otherwise comment on them. Participation is mandatory and will be reflected in your SNBAL grade.
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March 13—March 17  

Spring Break—no classes

Ch. 14 (449-485)  
Ch. 15 (490-518)  
Ch. 16 (523-542)  
Ch. 17 (546-569)  
Ch. 18 (574-594)  
Ch. 19 (598-621)  
Ch. 20 (625-655)
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<td>33</td>
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<td>34</td>
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<td>37</td>
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<td>Wasser</td>
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<td>Physiology post-examination, course evaluations, peer evaluations</td>
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M May 8  8:00-10:00 a.m.  Final Examination--Section 501
W May 10  10:30 a.m.-12:30 p.m.  Final Examination--Section 502
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<td>3</td>
<td>W</td>
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<td>Device Design Group team meetings</td>
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<td></td>
<td>R</td>
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<td></td>
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<td>4</td>
<td>W</td>
<td>February 8</td>
<td>Device Design Group team on-line meetings (chat function in WebCT)</td>
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<tr>
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<td>5</td>
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<td>February 15</td>
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<td>Student Lecture Presentation Groups 1, 2, 3, and 4—Respiratory diseases</td>
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<tr>
<td>8</td>
<td>W</td>
<td>March 8</td>
<td>Device Design Group team meetings</td>
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<td>R</td>
<td>March 9</td>
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<td>W</td>
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<td>No labs—spring break</td>
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<tr>
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<td>W</td>
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<td>Device Design Group team meetings</td>
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<td>W</td>
<td>March 29</td>
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<td>11</td>
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<td>Student Lecture Presentation Groups 5, 6, 7, and 8-Renal diseases</td>
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<td>12</td>
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<td>Student Lecture Presentation Groups 9, 10, 11, and 12-GI diseases</td>
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<td>R</td>
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<td>April 26</td>
<td>Student Lecture Presentation Groups 13, 14, 15, and 16-Endocrine disease</td>
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Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional

Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of Wildlife & Fisheries Sciences

2. Course prefix, number and complete title

WFSC 619 - Wildlife Restoration

3. Course description (not more than 50 words)
Study of the fundamentals of the restoration of animal populations and the resources they require; factors that control the distribution and abundances of animals in relation to restoration; and how restoration plans for wildlife are developed.

4. Prerequisite(s) graduate classification or instructor approval

Cross-listed with WFSC 419

5. Is this a variable credit course? □ Yes □ No If yes, from ________ to ________.

6. Is this a repeatable course? □ Yes □ No If yes, this course may be taken ______ times. Will the course be repeated within the same semester/term? □ Yes □ No

7. Has this course been taught as a 489/689? □ Yes □ No If yes, how many times? ________ Indicate the number of students enrolled for each academic period it was taught.

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix | Course # | Title (exclude punctuation) | Lect. | Lab | SCH | Subject Matter Content Code | Admin. Unit | Acad. Year | FICE Code | Level |

WFSC 619 WILDLIFE RESTORATION 020303 [Do not complete shaded area.]

Approval recommended by:

Head of Department Date 10/12/06

Chair, College Review Committee Date 10/11/06

Dean of College Date 10-17-06

Submitted to Coordinating Board by:

Director of Academic Support Services Date

Effective Date

To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.
OAR/AS-5/04
WILDLIFE RESTORATION – WFSC 419/619
Course Syllabus

Instructor
Michael L. Morrison, 216 Old Heep Building, 862-7667, mlmorrison@ag.tamu.edu
Office hours: By appointment; open door policy

Credit
3 (2-3): 2 hours lecture, 3 hours lab per week

Course Description
Students will be exposed to the fundamentals of the restoration of animal populations and the resources they require; factors that control the distribution and abundance of animals in relation to restoration; and how restoration plans for wildlife are developed. Additionally, students will learn how to develop and manage a team of restorationists (undergraduates concurrently enrolled in WFSC 419), including fundamentals of teamwork, team assignments, and personnel management. Students will assist the instructor with evaluating team products. The first half of the course emphasizes classroom lectures and discussions, whereas the second half emphasizes field visits and development of the restoration plan.

Upon completion of the course students will understand:
- How concepts of ecology are applied to restoration of wildlife populations
- The tools available for determining the desired conditions for wildlife populations
- How to analyze and address exotic ("pest") species in a restoration context
- How restoration plans for wildlife are developed and implemented
- The central importance of teamwork and leadership in restoration and science in general
- How to develop and manage a restoration team, including development of restoration plans
- How to provide critical feedback to team members

Prerequisites
Graduate standing and consent of instructor.

Course Materials
Required text

Plus journal articles and other materials

Additional requirements of Graduate Students
In addition to the basic course requirements as outlined in this document, graduate students will be required to:
- Read an additional journal article of an advanced nature weekly
• Prepare a critical evaluation of the extra journal articles and briefly present a synthesis of the article to the entire class
• Serve as Team Leaders for the undergraduates in developing the restoration plan

**Student Evaluations**
Course grade will be based on completion of the following. Make sure to complete all work as extra credit is not available

- Weekly writing assignments, reviews, and presentation 10%
- Exams (mid-term and final) 30%
- Restoration plan:
  - Draft 1 10%
  - Oral (group) presentation 15%
  - Final 15%
- Team management 20%

*Weekly writing assignments*
Writing assignments will be due weekly and will include critical review of sections in the required text as well as other assigned materials, materials located by the student, and other related activities. Grading will be on a pass-fail basis; students will revise an assignment until a “pass” is received. Students will assist the undergraduate team members in developing and revising assignments.

*Exams*
A mid-term and final exam will cover all aspects of the course and will include primarily short answer questions.

*Restoration plan*
Students concurrently enrolled in WFSC 419 will be formed into groups to develop a restoration plan that focuses on one or more animal species. The group will be managed by a graduate student(s) enrolled in this (WFSC 619) course. The group will develop a draft plan that will be peer reviewed, make an oral presentation of the plan to the class, and develop a final plan based on feedback from the class and other sources. The graduate student will be the team leader and be directly involved in managing the team.

*Attendance*
Attendance is mandatory. Failure to contact the instructor prior to your absence will result in a zero for any assignments due that day. For group assignments, such a failure will result in a zero for the entire group.

*Field trips and assignments*
Field trips to examine restoration sites will be scheduled throughout the course on a to-be-determined basis, but will involve several all-day trips on weekends. After students have been divided into Teams, you will be expected to visit your selected field site as often as needed to develop a comprehensive restoration plan. The graduate student, in
consultation with the instructor, will oversee the field visits necessary to complete the plan.

**Tentative Schedule**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Assignments</th>
<th>Due/event</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Introduction; history of wildlife restoration; teamwork and development of course restoration plan</td>
<td>Chpt 1</td>
<td>Weekly writing assignment</td>
</tr>
<tr>
<td>2</td>
<td>Population concepts; animal movements; exotic species</td>
<td>Chpt 2</td>
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<tr>
<td>3</td>
<td>Habitat; theory; measurements</td>
<td>Chpt 3</td>
<td>ditto</td>
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<tr>
<td>4</td>
<td>Historic assessments; data sources</td>
<td>Chpt 4</td>
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<td>Study design; scientific methods; monitoring</td>
<td>Chpt 5</td>
<td>ditto</td>
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<tr>
<td>6</td>
<td>Monitoring; sampling considerations; adaptive management</td>
<td>Chpt 6/7</td>
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<td>MID-TERM</td>
<td>Exam</td>
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<tr>
<td>8</td>
<td>Reserve design; buffers; fragmentation</td>
<td>Chpt 8</td>
<td>Weekly writing assignment</td>
</tr>
<tr>
<td>9</td>
<td>Restoration plan: team development</td>
<td>Chpt 9</td>
<td>Team development</td>
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<td>Restoration plan: team development</td>
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<td>Team progress report</td>
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</table>

**FINAL**

**Americans with Disabilities Act (ADA) Policy Statement**

The following ADA Policy Statement (part of the Policy on Individual Disabling Conditions) was submitted to the University Curriculum Committee by the Department of Student Life. The policy statement was forwarded to the Faculty Senate for information.

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room B118 of Cain Hall or call 845-1637.
Academic Integrity Statement

"An Aggie does not lie, cheat, or steal or tolerate those who do."

All syllabi shall contain a section that states the Aggie Honor Code and refers the student to the Honor Council Rules and Procedures on the web http://www.tamu.edu/aggiehonor

Illness

If a student is absent because of illness for more than 3 days, he or she is required to see a physician and provide documentation from that person. If a student is absent because of illness for less than 3 days, then no such requirement exists.