

Course: BISC 606 Advanced Mammalian Physiology II
Location: 318 Wolf Hall
Class Time: Tuesday/Thursday - 11:00-12:30

Instructors: Randall L. Duncan, Ph.D. Christopher A. Knight, Ph.D.
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Office Hours: By appointment only

Learning Management System: Sakai (<http://www.udel.edu/sakai/>)

Course description:

This course will focus on cell, organ and systemic physiology of three selected systems; endocrinology, musculoskeletal systems and neurophysiology, with particular emphasis on human physiology. Included in this course are discussions of primary literature in the field of physiologic research and case studies of pathophysiology. There are three goals for the student in this course: 1) to be able to integrate the principles and concepts learned from each system into an understanding of the physiology of the organism, 2) to learn to research the literature and other available resources to answer a problem and 3) to logically and succinctly defend an answer to a problem.

Text:

There is no required text for this course. Suggested reading will be provided through Sakai. If students want to purchase a reference text, I suggest *Textbook of Medical Physiology, 12th Edition, (eds) Guyton and Hall, Elsevier-Saunders, Philadelphia, PA, 2006.*

Grading:

Testing - Examinations will be open book/open note/open internet and will be administered following the completion of each section through Sakai. Each exam is worth 100 points and will be available for download one hour after the last class of the section. Each question on the test will have a word limit that will be indicated with the question. Providing drawings, sketches and graphs to support your answer to a question is encouraged and will not count against the word limit. Collaboration between students is prohibited. Exams are to be uploaded through Sakai prior to the times indicated in the syllabus. Each test will be comprehensive in that the principles and concepts learned from the previous section(s) that are relevant can be included in the test. Thus, the final will be a comprehensive final exam.

Oral Case Studies – Students will be divided into groups and assigned a case study for oral presentation to the class. These will be presented in a problem-based learning format and the students are expected to work in groups to provide a complete, but succinct, discussion of the problem, including graphs, figures and calculations. Each group will hand in a hardcopy of the assignment prior to the class they are scheduled to present their case study. Presentations will be limited to 20 min with an additional 5 minutes for questions from the class. Grading will be based on the complete presentation of the case study, the logic behind the clinical tests and assays to test the groups' hypothesis and the diagnoses and treatment regimen decided on by the group. Presentation of these case studies will be worth 100 points.

Extra-Credit – Extra credit can be earned by attending seminars from either UD faculty or visiting faculty presented within the Department of Biological Sciences or in other departments or programs across campus that are biology based. Schedules of these seminar programs will be posted on the BISC 606 Sakai site as well as on the bulletin board in front of 319 Wolf. Other seminar opportunities that are not part of these programs will be presented in class and posted on Sakai. To receive this credit, the student must submit a summary of the seminar and their own conclusions (limited to 300 words) to the Sakai site by the end of each section. Each summary is worth 2 points with a maximum of 5 summaries allowed per section.

Final Grades – Grades will be administered as a percentage of 500 total points with percentages rounded to the nearest whole percentage point. Letter grades will be assigned as follows:

A ≥ 94%	A- 90-94%	
B+ 88-90%	B 84-88%	B- 80-84%
C+ 78-80%	C 74-78%	C- 70-74%
D+ 68-70%	D 64-68%	D- 60-64%
F < 60%		

Plagiarism:

Plagiarism is defined in the Student Guide to University Policies (<http://www.udel.edu/stuguide/06-07/code.html#honesty>). While I expect the student to incorporate previously published data and conclusions into their assignments, exams and extra credit summaries; paraphrasing and summarizing previously published or written reports can also be considered plagiarism without proper documentation¹. Each reference must be cited in a bibliography presented at the end of each assignment. A good reference for the proper documentation of sources can be found at the Curtin University of Technology website². Students must present their own interpretation of the data and a logical argument for their conclusions for each assignment, separate from their referenced citations. Failure to do so will result in a failed grade for that assignment. A second violation could result in university prosecution that may culminate in dismissal from the University of Delaware.

1. *Defining and Avoiding Plagiarism: The WPA Statement on Best Practices*, 2003. Retrieved August 29, 2006 from <http://www.ilstu.edu/~ddhesse/wpa/positions/WPAplagiarism.pdf>.

2. Curtin University of Technology, Library and Information Services. *Harvard Referencing* 2005. Retrieved August 29, 2006 from <http://startup.curtin.edu.au/lis/guides/harvard.pdf>.

Disabilities:

The University of Delaware seeks to ensure that all students receive a fair opportunity for education. Should a student believe they have a learning disability, they can contact the Office of Academic Enrichment (http://www.aec.udel.edu/LD_ADHD_students.html) to determine the appropriate course of action.

**BISC 606: Advanced Mammalian Physiology II
Course Syllabus – Spring 2015**

Date	Lecturer	Topic	Available on Sakai
SECTION 1: ENDOCRINOLOGY			
2/10	Duncan	Lecture 1: General Principles/Central Control	
2/12	Duncan	Lecture 2: Growth/Development	
2/17	Duncan	Lecture 3: Metabolism	
2/19	Duncan	Lecture 4: Electrolyte Balance	Case studies for presentations
2/24	Duncan	Lecture 5: Fight or Flight	
2/26	Duncan	Lecture 6: Reproduction	
3/3	Duncan	Lecture 7: Local Endocrine Function	
3/5	Duncan	Lecture 8: Calcium and Bone Metabolism	1PM Test downloaded
TBD	Student presentations	Case study presentations	
End of Section 1: Test answer uploads decided on 3/5			
SECTION 2: MUSCULOSKELETAL SYSTEMS			
3/10	Duncan	Lecture 9: : Bone Modeling and Remodeling	
3/12	Duncan	Lecture 10: Cartilage and OA	
3/17	Szczesny	Lecture 11: Biomechanics	
3/19	Duncan	Lecture 12: Ligament/Tendons and Repair	
3/24	Knight	Lecture 13: Muscle Structure and Contraction	Case studies for presentations
3/26	Knight	Lecture 14: Muscle adaptations: strength, endurance	
3/28-4/6	No Classes – Spring Break		
4/7	Knight	Lecture 15: Muscle adaptations in paralysis	
4/9	Knight	Lecture 16: Muscle recovery from injury	

4/14	Student presentations	Case study presentations	1PM Test downloaded
End of Section 2: Test answer upload decided on 4/14			
SECTION 3: NEUROPHYSIOLOGY			
4/16	Knight	Lecture 17: Motor unit control I	
4/21	Knight	Lecture 18: Motor unit control II	
4/23	Knight	Lecture 19: Muscle spindle	
4/28	Knight	Lecture 20: Melatonin and neuroregeneration	
4/30	Knight	Lecture 21: Exercise neuroprotection and rehabilitation	Case studies for presentations
5/5	Knight	Lecture 22: Parkinson's disease & recovery	
5/7	Knight	Lecture 23: Parkinson's disease & exercise	
5/12	Knight	Lecture 24: Neural basis of high activity	
5/14	Student presentations	Case study presentations	1PM Test downloaded
End of Section 3: Answer uploads determined on 5/14			