BSC597: COMPARATIVE ANIMAL PHYSIOLOGY
COURSE SYLLABUS: FALL 2013

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COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

- ***Textbook(s) Required*:** Hill, R.W., Wyse, G.A., and Anderson, M. 2012. *Animal Physiology, Third Edition*. Sunderland, MA: Sinauer Associates, Inc. ISBN: 978-0878935598
  Online access required (directions are posted in eCollege)

Course Description:

A study of concepts necessary to develop a firm understanding of how both invertebrates and vertebrates are adapted physiologically to the various environments found on our planet. Simply stated, this is a course about how animals--not just humans--work. Prerequisite: college level biology. Former course work in physiology will prove very helpful as well since this is an online (self-directed) course.

Student Learning Outcomes

By the end of this course students should have the knowledge and skills to:
1. Understand how a variety of invertebrates and vertebrates meet their energy demands, digest food, respire, circulate body fluids, iono- and osmoregulate and respond to environmental changes in temperature and salinity.
2. Describe in detail physiological regulation of a particular system at multiple levels of organization (e.g. molecular, cellular, organ systems, whole animal).
3. Provide examples of how recent research in comparative animal physiology has contributed to our understanding of basic science (e.g. structure-function relationships, acclimation/acclimatization changes) and applied science (e.g. aquaculture, global climate change).

COURSE REQUIREMENTS

Instructional Methods / Activities / Assessments

This course consists of a series of activities and assessments to assist you in achieving the outcomes for the course and instructional units.

Your entire course grade is based on your performance on various assignments. Most assignments will require you to answer a set of multiple choice questions (MCQs) whereas other assignments (short essays, case studies) will require you to write short answers and/or mini essays. Each assignment will therefore not be worth the same number of points. Graduate students will have to submit a separate assignment (TBD) based on the primary literature.

Grading

The total number of points possible for each assignment will vary. At the end of the semester, the student's grade is determined by calculating the percentage of the total possible points received by the student. Percentages are then converted to letter grades using the following rubric:

Percentage of Total Possible Points Received by Student	Letter Grade
Greater than or equal to 89.5	A
Greater than or equal to 79.5 , but less than 89.5	B
Greater than or equal to 69.5 , but less than 79.5	C
Greater than or equal to 59.5 , but less than 69.5	D
Less than 59.5	F

TECHNOLOGY REQUIREMENTS

This course is web-based, and will therefore be administered via eCollege (see "ACCESS AND NAVIGATION). All course announcements, which mainly include news about assignments, are posted through eCollege (usually via email). In addition to reading the announcements (my emails), you will be uploading your assignments to the Dropbox. As grades are updated, I update the Gradebook. Thus, the three major components used in eCollege are Announcements, Dropbox, and Gradebook.

The following information has been provided to assist you in preparing to use technology successfully in this course.

- Internet access/connection – high speed recommended (not dial-up)
- Word Processor (Microsoft Word, OpenOffice Writer, et cetera) and Slide Program (Microsoft PowerPoint, OpenOffice Impress, et cetera)

Our campus is optimized to work in a Microsoft Windows environment. This means our courses work best if you are using a Windows operating system (XP or newer) and a recent version of Microsoft Internet Explorer (6.0, 7.0, 8.0, or 9.0). Your courses will also work with Macintosh OS X

and most Linux distributions. To launch a browser test within any operating system, login in to eCollege, click on the 'myCourses' tab, and then select the "Browser Test" link under Support Services.

ACCESS AND NAVIGATION

eCollege Access and Log in Information

This course will be facilitated using eCollege, the Learning Management System used by Texas A&M University-Commerce. To get started with the course, go to: https://leo.tamuc.edu/
You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or helpdesk@tamuc.edu.

Being a Successful Student

- What Makes a Successful Online Student?
- Self-Evaluation for Potential Online Students
- Readiness for Education at a Distance Indicator (READI)
  - *Login Information*: Login = ***tamuc***; password = ***online***

COMMUNICATION AND SUPPORT

Interaction with Instructor Statement

I will communicate with you primarily through your college email address (MyLeo email address). If you email me, expect a response within 24 hours; if I email you, I'll expect a response within 48 hours.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures

Academic Honesty Policy

Texas A&M University-Commerce does not tolerate **plagiarism** and other forms of academic **dishonesty**. Conduct that violates generally accepted standards of academic honesty is defined as academic dishonesty. "Academic dishonesty" includes, but is not limited to, plagiarism (the appropriation or stealing of the ideas or words of another and passing them off as one's own), cheating on exams or other course assignments, collusion (the unauthorized collaboration with others in preparing course assignments), and abuse (destruction, defacing, or removal) of resource material.

Assignment Policy

Official due dates are for each assignment will be announced through eCollege or directly by email. Assignments must be uploaded to the eCollege Dropbox. The format of the file may vary, depending on the assignment. Please note that for every file you submit, you must have your last name included in the filename as well as in the header.

Late Work

Late work will not be accepted.

Drop a Course

A student may drop a course by logging into their myLEO account and clicking on the hyperlink labeled 'Drop a class' from among the choices found under the myLEO section of the Web page.

Incompletes
Incomplete grade ("I") may be granted under extreme circumstances.

University Specific Procedures
ADA Statement
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 have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library- Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamuc.edu

Student Conduct
All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See *Code of Student Conduct from Student Guide Handbook).*

COURSE OUTLINE / CALENDAR
There will be numerous sets of multiple choice questions (MCQs) which you will have to complete as the semester progresses. These online MCQs ("online quizzes") will be available at our textbook's website. I will also assign short essay questions and/or case study question sets.

I. Fundamentals of Physiology (weeks 1-3)
   1. Animals and Environments: Function on the Ecological Stage
   2. Molecules and Cells in Animal Physiology
   3. Genomics, Proteomics, and Related Approaches to Physiology
   4. Physiological Development and Epigenetics
   5. Transport of Solutes and Water

II. Food, Energy, and Temperature (weeks 4-6)
   1. Nutrition, Feeding, and Digestion
   2. Energy Metabolism
   3. Aerobic and Anaerobic Forms of Metabolism
   4. The Energetics of Aerobic Activity
   5. Thermal Relations

6. Food, Energy, and Temperature at Work: The Lives of Mammals in Frigid Places

III. Integrating Systems (weeks 7-8)

1. Neurons
2. Synapses
3. Sensory Processes
4. Nervous System Organization and Biological Clocks
5. Endocrine and Neuroendocrine Physiology
6. Reproduction
7. Integrating Systems at Work: Animal Navigation

IV. Movement and Muscle (week 9)

1. Control of Movement: The Motor Bases of Animal Behavior
2. Muscle
3. Movement and Muscle at Work: Plasticity in Response to Use and Disuse

V. Oxygen, Carbon Dioxide, and Internal Transport (weeks 10-12)

1. Introduction to Oxygen and Carbon Dioxide Physiology
2. External Respiration: The Physiology of Breathing
3. Transport of Oxygen and Carbon Dioxide in Body Fluids – With an Introduction to Acid–Base Physiology
4. Circulation
5. Oxygen, Carbon Dioxide, and Internal Transport at Work: Diving by Marine Mammals

VI. Water, Salts, and Excretion (weeks 13-16)

1. Water and Salt Physiology: Introduction and Mechanisms
2. Water and Salt Physiology of Animals in Their Environments
3. Kidneys and Excretion – With Notes on Nitrogen Excretion
4. Water, Salts, and Excretion at Work: Mammals of Deserts and Dry Savannas

Please note the above schedule is flexible, and can change at my discretion.