

ANS 6932 Animal Physiology

Course Syllabus

Instructors

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Catalog Description:

Credit: 3; Prerequisites: BSC 2011, CHM 2211

Overview of animal physiology with an emphasis on farm species that seeks to organize students' knowledge of the basic sciences around physiological processes and functions of animal systems.

Time and Location

Fall Semester

When: Mondays, Wednesdays and Fridays, Period 9 from 4:05 to 4:55

Where: Animal Science, Room 156

* Office hours by appointment

Textbooks

Required:

Animal Physiology, From Genes to Organisms (2nd edition); Editors: Sherwood, Klandorf Yancey.

Supplemental:

Anatomy, Biochemistry and Cell Biology texts.

Course objectives and Outcomes

Objectives:

- To provide advanced undergraduate and introductory graduate students with a comprehensive overview of animal physiology from molecular, cellular and whole animal systems approaches.

- To organize the students knowledge of basic sciences (biology, chemistry, and physics) around the physiological functions of whole animal systems with a special emphasis on farm species.
- To be able to read, interpret and discuss scientific journal articles in physiology.
- To critically evaluate clinical and research case problems relating to endocrinology and cell biology.

To develop independent thinking skills and written and oral communication abilities.

Expected Outcomes:

- Understand the physiological processes that regulate body functions and the regulation of an organ system from the molecular all the way to the whole animal level
- Be able to describe interactions between different organ systems (homeostasis)
- Know the anatomy of different physiological systems and their specific functions
- Understand how changes in one system may impact a different system
- Be able to apply knowledge of a physiological mechanism to explaining how a whole animal physiological process occurs (i.e. gestation, lactation, etc.)

Course website

Power point lectures, supplementary materials, and syllabus are available in Canvas.

Grades

Exams: 4 exams, 100 points each;

Group topic presentation: 50 points;

In class discussions/Quizzes 5 points each: 50 points.

Research Highlights: 100 points.

Total Points: 600

A	(93-100%)
A-	(90-92%);
B+	(87-89%);
B	(83-86)
B-	(80-82)
C+	(77-79%)
C	(73-76%)
C-	(70-72%);
D+	(67-69%)
D	(63-66%)
D-	(60-62%)
E	(<60)

Group Topic Presentation (50 pts)

- Groups of students (2-4) will be assigned to present and lead a 15 minute class discussion on a scientific journal article.
- Student presenters will be expected to present and discuss the following aspects of the paper:
 - Brief background and objectives of the work
 - Explanation of specific studies (i.e. explaining individual figures and tables) which includes a discussion of the methods utilized
 - Interpretation of results
 - General discussion of outcomes and future perspectives
- See Group Presentation handout for specific instructions and deadlines.

In-class discussion questions (50 points)

Throughout the course period, students will be given a question to answer individually or in a small group discussion (3-4/group). There will be 10 discussion questions over the course of the semester, each worth 5 points. Written answers can be submitted by email or hardcopy. If you are absent for the in-class discussion question, you may make-up the points by submitting a review of a journal article related to the discussion question topic (1 page summary and critique of the article).

Research Highlights (100 points)

Over the course of the semester graduate students are required to review five primary journal articles (20 points each). The student is to select the article based on topics covered in class (i.e. cellular physiology, immune system, bioenergetics). Due dates for the reviews are each Friday for topics covered within that week (i.e. if the topic of the article is neurophysiology the review would be due the week that neurophysiology is covered). The students will need to be present a 5 min synopsis of 1-2 of the reviews on Fridays as part of our "Research Highlights."

Course Topics

Week 1 (Aug 24 - 28)

M: Course Overview/Introduction to Physiology

W: DNA: The basis of life

F: Physiological chemistry of water

Week 2 (Aug 31 - Sept 4)

M: Cellular Physiology: Organic reactions

W: Cellular Physiology: Protein structure and function

F: Cellular Physiology: Membranes and electrochemical gradients

Week 3 (Sept 7 - 11)

M: Labor Day (no class)

W: Neurophysiology – Central nervous system

- F: Neurophysiology – neural signaling
- Week 4 (Sept 14 - Sept 18)**
M: Review and Student Presentations Research Highlights
W: Midterm (1)
F: Respiratory
- Week 5 (Sept 21 - Sept 25)**
M: Respiratory
W: Circulatory
F: Circulatory
- Week 6 (Sept 28 - Oct 2)**
M: Renal Physiology
W: Renal Physiology
F: Digestive Physiology
- Week 7 (Oct 5 - Oct 9)**
M: Digestive Physiology
W: Review and Student Presentations Research Highlights
F: Midterm (2)
- Week 8 (Oct 12 - Oct 16)**
M: Immunology I
W: Immunology II
F: Endocrinology I: General Concepts
- Week 9 (Oct 19 - Oct 23)**
M: Endocrinology II: Endocrine Glands
W: Endocrinology III: Hormonal Actions
F: Student Presentations Research Highlights
- Week 10 (Oct 26 - Oct 30)**
M: Liver I: Anatomy and Physiology
W: Liver II: Metabolism
F: The physiology of adipose tissue
- Week 11 (Nov 2 - Nov 6)**
M: Review and Student Presentations Research Highlights
W: Midterm (3)
F: Homecoming (no class)
- Week 12 (Nov 9 - Nov 13)**
M: Energy Balance I: General Principles
W: Veterans Day (no class)
F: Energy Balance II: Regulation
- Week 13 (Nov 16 - Nov 20)**
M: Thermal Physiology: General Principles
W: Reproductive Physiology I
F: Reproductive Physiology II
- Week 14 (Nov 23 - Nov 27)**
M: Student Presentations Research Highlights
W: Thanksgiving (no class)

F: Thanksgiving (no class)

Week 15 (Nov 30 - Dec 4)

M: Lactation Physiology I: General concepts

W: Lactation Physiology II: Hormonal regulation

F: Lactation Physiology III: Milk synthesis and composition

Week 16 (Dec 7 - Dec 9)

M: Student Presentations Research Highlights

W: Review section

Grades and Grade Points

For information on current UF policies for assigning grade points, see

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Absences and Make-Up Work

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.

Software Use:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages

and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/*
 - Counseling Services
 - Groups and Workshops
 - Outreach and Consultation
 - Self-Help Library
 - Training Programs
 - Community Provider Database
- *Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/*

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/