

PCB 6816 – Thermal Physiology

Description

The course provides information about the fundamentals of how animals produce and exchange heat with the environment, the regulation of body temperature, and how thermal biology has an impact on animal management and production.

Frequency of Offering

Each semester (fall, spring, and summer).

Instructor

P.J. Hansen
Dept. of Animal Sciences
Room 122B Bldg 499 (Dairy Science Building)
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Time and Place

All of the lectures have been recorded as voice-over powerpoint slide shows. These can be accessed at either the t:/hansen/pcb6816 folder on the Animal Sciences server or they can be obtained from the instructor.

There are a total of 19 slide shows that represent 18 lectures (numbered according to sequence) and an additional slide show that corrects an error I made for slide show 6.

Textbooks and Other Readings

There is no required textbook.

Learning Objectives

1. To acquire principles of thermal biology with special focus on homeotherms living in hot climates.
2. To develop the ability to relate principles of thermal biology to problems of animal management caused by adverse environments.

Topics

Introduction to the Course (Lecture 1)
Concepts of Stress (Lecture 2)
Adaptation (Lecture 3)
Heat and Temperature (Lecture 4)
Temperature Measurements (Lecture 5)
Specific Heat and Heat Measurement (Lecture 6)
Thermodynamics (Lecture 7)
Energy Value of Feedstuffs (Lecture 8)
Heat Production through ATP Utilization (Lecture 9)
Brown Adipose Tissue (Lecture 10)
Measuring Heat Production (Lecture 11)
Heat Balance (Lecture 12)

Thermoneutral Zone (Lecture 13)
Heat Loss - Overview (Lecture 14)
Heat Loss – Conduction (Lecture 15)
Heat Loss – Convection (Lecture 16)
Heat Loss – Radiation (Lecture 17)
Heat Loss – Evaporation (Lecture 18)

Grading

Grades are based on an average of three exams (each weighed equally). The grading scale is A, 91-100%; A-, 89-90; B+, 86-89; B 81-85, B- 79-80, C+, 76-78, C 71-75, C-, 69-70, D, 60-68 and F, 0-59. The scale may be adjusted with a curve.

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

If you are having trouble with the course, see the instructor.

Exams

Exams will primarily be essay, problem solving, and short answer questions. Each exam is comprehensive. However, exam 1 will focus on lectures 1-6, exam 2 on lectures 7-13 and exam 3 on lectures 14-18.

Each exam will be emailed to a student when the student feels prepared to take the exam. Note that exams are closed book. You cannot consult your notes, the slides or anyone when taking the exam. You are on the honor system so maintain your honesty! You can either type your answers on a separate file or write the exam by hand and send me the exam after scanning it.

Attendance 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>

Online Course Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

Communication about the Class

Email will be used as the major method for communicating when not in class. Therefore, provide Dr. Hansen with your email address, if one is available. Dr. Hansen's email is pjhansen@ufl.edu

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/process/student-conduct-honor-code>.

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.

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/

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general wellbeing 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

Wellness Coaching

--U Matter We Care, www.umatter.ufl.edu/

--Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Student Complaints

https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf