

**UCLA EEB 170
ANIMAL ENVIRONMENTAL PHYSIOLOGY
COURSE OUTLINE
FALL QUARTER 2007**

Professor: Malcolm S. Gordon
Office: LS 1118
Office hours: by appointment

TA: Brian Kot
Office: LS 1123
Office hours: W 9-11
TA: Kris Kaiser
Office: LS 4835
Office hours: M 12:30-2:30 PM;
by appointment

TEXTBOOK

Willmer, P., G. Stone, and I. Johnston. 2005. ENVIRONMENTAL PHYSIOLOGY OF ANIMALS, 2nd Edition. Blackwell Publishing, Malden, MA. xiii+754 pp.

LECTURES AND READING ASSIGNMENTS

See accompanying pages.

Lectures: MWF 11:00 – 11:50, Franz 2258A

Holidays: No lectures M, 11/12; Thanksgiving, ThF, 11/22-23.

Lectures and reading assignments will provide the basic physiological information needed to understand the nature of environmental physiology and to permit carrying out course laboratory projects. It is impossible to cover all significant aspects of the subject matter in a one-quarter course. Lectures will cover the major topic areas relating to environmental adaptations of animals (primarily, but not exclusively, vertebrates) to four sets of important physical-chemical variables: water and solutes, temperature, gases, and light.

Reading assignments are correlated as much as possible with lecture topics. In order to properly develop and carry out your laboratory projects, however, it may well be necessary to read additional parts of the textbook that are not part of assigned reading, to read parts of reading assignments out of sequence with the lectures, and to do additional reading in the library.

LECTURE EXAMINATIONS

There will be two 1-hour long midterm examinations on lecture and reading materials. All examinations will be given in the lecture room.

Dates: F, 10/26 and F, 11/16.

Final examination: Th, 12/13, 8:00 – 11:00 AM

LABORATORY PROJECTS

Section 1A: MW 1-3:50 PM; Section 1B: TuTh 1-3:50 PM. All labs in LS 5309.

Holidays: No labs M, 11/12; Th, 11/22.

The laboratory part of the course will operate as an introduction to environmental physiological research using living animals. The people in each section will divide themselves into groups of 2-3 (a maximum of one group of two/section only if enrollments require that). Each group, in consultation with the course instructor and the TAs, will develop its own research project that it will carry through to completion by the end of the quarter. This process will involve: selection of a research question, of a study organism, and of a study design; development of a written project proposal; acquisition and setup of necessary equipment and

supplies; acquisition of and care for study organisms; carrying out of experiments and observations (limited field work may be involved) and acquisition of necessary data; compilation and statistical analysis of data; writing of a term report presenting the results of your work; and presentation to the entire class of an oral report on your work.

Discussion of possible projects will begin in lab sessions M, 10/1 and Tu, 10/2. Brief written preliminary proposals will be due at the start of lab sessions M, 10/8 and Tu, 10/9. Final written proposals will be due at the start of lab sessions M, 10/15 and Tu, 10/16. Results will be presented in oral symposia on W, 11/28 (sec. 1A) and F, 11/30 (sec. 1B).

Projects must be completed by the last day of classes, with written reports turned in by 5 PM, F, 12/7.

GRADING

Lecture midterm examinations	200 pts (100 pts each)
Final examination	300 pts
Projects	500 pts (200 oral, 250 written, 50 participation)
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Total	1000 pts

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LECTURE SCHEDULE AND READING ASSIGNMENTS

LECTURE SCHEDULE

<u>WEEK</u>	<u>DATES</u>	<u>GENERAL TOPICS</u>
1	9/28	Introduction
2	10/1, 10/3, 10/5	Basic principles; Water and solutes
3	10/8, 10/10, 10/12	Water and solutes
4	10/15, 10/17, 10/19	Water and solutes; Temperature
5	10/22, 10/24 10/26	Temperature 1 st Midterm Examination
6	10/29, 10/31, 11/2	Temperature
7	11/5, 11/7, 11/9	Temperature; Gases
8	11/14 11/16	Gases 2 nd Midterm Examination
9	11/19, 11/21	Gases
10	11/26 11/28, 11/30	Gases Lab symposia (1A, 11/28; 1B, 11/30)
11	12/3, 12/5, 12/7	Extreme environments (Guest lecturer: Prof. K. Nagy)
12	12/13	Final Examination (8:00 AM – 11:00 AM)

READING ASSIGNMENTS

Assigned readings are Chs. 1, 3 and Chs. 11 – 16 in Part 3 of the textbook. Read sections of these chapters that parallel the subjects being discussed in lectures.

Part 2 of the textbook (Chs. 4 – 10) is not formally assigned, but the chapters contain large amounts of important and relevant background information. Lectures will cover major parts of the background issues.