

University of Southern California – Human and Evolutionary Biology
Biological Sciences 515 – Evolution and Human Biology (4 Units)
Fall 2017

Instructors: Scott Kanoski, PhD; Craig Stanford, PhD; Lorraine P. Turcotte, PhD
Office Hours: by appointment
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Lecture: Monday, 4:00-6:50 PM; Hancock Building (AHF B10 seminar room)

I. Course Objectives:

This learner-centered course is designed for graduate students at all levels as well as advanced upper-level undergraduate students. Students with diverse scientific backgrounds that have cross-disciplinary areas of interest related to human biology are welcome to enroll. The course content focuses on scientific principles that help advance our understanding of how diverse biological organisms survive and solve problems related to form, function, and energy intake and use as part of ongoing interaction with the environment.

Key concepts include:

- (1) evolutionary theories,
- (2) the regulation and integration of physiological systems in whole organisms, and
- (3) how evolution has shaped the integration of various systems in different organisms. By the end of the semester, students should be able to discuss (written paper and oral presentation) the topics presented in class.

The learning objectives of this course are

- (1) to cultivate the students' development of a deeper understanding of evolution and human biology across species and
- (2) to engage and mentor the formulation of critical thinking and problem solving skills which facilitate the application of scientific principles from different disciplines to advance our current understanding of biological systems.

Pre-requisites: Students are expected to be at the upper division level and have completed core undergraduate courses in Biology equivalent to BISC120L. Advanced undergraduates are able to enroll with permission of the instructor.

II. Course Description (for The Catalog of courses):

- Topics in evolution and human biology with emphasis on lifespan, form, function and energy intake and use in the context of genetics, natural selection and ecology.

III. Course Textbook & Format

- **Human Physiology: An integrated approach.** 6th edition. *D. Silverthorn.* Benjamin Cummings
- **Princeton Guide to Evolution** *Loses et al.* Princeton University Press
- Selected literature readings (for all sections of the course)

IV. Course Format

Grading Scale:

>90%=A, >80%=B, >70%=C, >65%=D, <65%=F

Expectations and Make-up Policy:

1. Sincere personal investment in critical review of the literature.

2. Honor due dates (after due date, assignments will be given a grade of zero).
3. Class participation is a **MUST**. Be ready to discuss the readings and to **ask questions**.

•Human Biology portion of course (66.67% of total course grade):

Reading Materials: Material will be posted on the web in a PDF file or will be distributed in class. Each student is responsible for downloading the material and reading it. Please be ready for discussion every class.

Homework Assignments and Presentations (26.67% of total course grade): Each week reading assignments will be distributed, in addition to pre-assigned textbook chapters, in advance of the following week's lecture/discussion. On certain weeks, review questions will be given as homework assignment and will require a short written assignment based on the questions. These papers will be worth 10% of the total grade. Students will be required to act as discussants of the material each week. Students will be expected to be ready for discussion every class. On certain weeks students will be asked to present one or more of the assigned readings. Presentations should summarize the experimental questions, approach, and findings, as well as identify potential weaknesses and areas for further class discussion.

Paper 1 and 2 (40% of total course grade; 20% per paper): For each half of the course, students will be asked to write a paper on a topic agreed upon. Each paper utilizes the following structure consistent with that commonly required for research proposals:

•Evolution portion of course (33.33% of total course grade):

Reading Materials: Each week I will assign textbook chapters, in advance of the following week's lecture/discussion, and sometimes a reading or two (posted on the web in a PDF file or will be distributed in class). Students will be required to act as discussants of the material each week.

Short Written Assignments (13.33% of total course grade): I will distribute a review question for each weekly topic, and will require a short written assignment (e.g., an essay of about 800-1,000 words or 2-3 pages) based on the questions, in which the student expands on a prompt based on lecture topics. For example, a lecture about species concept might be accompanied by a short essay prompt that requires the student to integrate textbook readings and what she/he gleaned from lecture to describe some of the salient points about our conceptions of what constitutes a species.

Paper 3 (20% of total course grade): There will be one final written assignment, which will be a mini-proposal in NSF format, on an evolutionary topic that you will decide with me as the weeks progress.

V. Tentative Class and Lecture Schedules:

Week & Date	Lectures	Homework	Professor
		HUMAN BIOLOGY SECTION	
1 (Aug 21)	Feeding Behavior	Short Written Assignment & Presentation	Kanoski
2 (Aug 28)	Biological Consequences of Obesity	Short Written Assignment & Presentation	Kanoski
3 (Sept 4)	NO CLASS - LABOR DAY		
4 (Sept 11)	Endocrine Physiology I	Short Written Assignment & Presentation	Kanoski
5 (Sept 18)	Genetics and Obesity	Short Written Assignment & Presentation	Kanoski

6 (Sept 25)	Muscle Physiology	Assignment & Presentation PAPER 1 DUE	Turcotte
7 (Oct 2)	Digestion	Assignment & Presentation	Turcotte
8 (Oct 9)	Energy Metabolism	Assignment & Presentation	Turcotte
9 (Oct 16)	Endocrine Physiology II	Assignment & Presentation	Turcotte
10 (Oct 23)	Endocrine Physiology II	Assignment & Presentation	Turcotte
		EVOLUTIONARY BIOLOGY SECTION	
11 (Oct 30)	Introduction; history of evolutionary thought	PAPER 2 DUE	Stanford
12 (Nov 6)	Evolutionary Principles: natural & sexual selection		Stanford
13 (Nov 13)	Evolutionary Principles: speciation & population genetics		Stanford
14 (Nov 20)	Molecular Evolution		Stanford
15 (Nov 27)		PAPER 3 DUE	Stanford

VI. Blackboard

- Notes will **NOT** be posted on blackboard. Class notes and textbook information will form the basis of the material that will be on the exams.
- If you attend class regularly, you will be updated on the status of lecture notes and course material/announcements.

VII. Academic Accommodations:

- Any student requesting academic accommodations based on a disability are required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP.
- Please be sure the letter is delivered to me (the instructor) as early in the semester as possible. DSP is located in Student Union (STU) 301 and is open 8:30-5:00pm Monday – Friday. The phone number for DSP is 213) 740-0776.

VIII. Academic Integrity:

- Students who violate University standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the University. Since dishonesty in any form harms the individual, other students and the University, academic integrity policies will be strictly enforced.
- I expect you will familiarize yourself with the Academic Integrity guidelines found in the current SCampus.

IX. Academic Integrity Violations:

- Academic dishonesty/misconduct (plagiarism, cheating, unauthorized collaboration, etc.) will not be tolerated. All academic integrity violations will result in a grade sanction and will be reported to the Office for Student Judicial Affairs.
- It is your responsibility to “reasonably” protect your own work from the plagiarism of others. If plagiarism is detected on a group project, all members of the group will be held responsible.
- You are expected to be familiar with the Academic Integrity guidelines found in the current SCampus (student guidebook). An electronic version is available at <http://usc.edu/scampus>.

X. Electronic Devices

- Please turn off or disable all cell phones or other electronic communication devices during class time.
- Using a laptop in class to take lecture notes is permitted. However, please turn off your browser, email, messaging and any other programs that do not involve the course material.

XI. Disruptive and Threatening Student Behavior:

- Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students’ ability to learn and an instructor’s ability to teach.
- A student responsible for disruptive behavior may be required to leave class pending discussion and resolution of the problem and may be reported to the Office of Student Judicial Affairs for disciplinary action.

