

**HBIO 405: Evolutionary Medicine****HBIO 405 – Evolutionary Medicine (4 units) - Fall 2016**

Lectures: Tuesday and Thursday 12:30-1:50

Location: VKC 201

**Professors:** Dr. Stephanie Bogart

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**Course Content:** This is an interdisciplinary course discovering the evolutionary, cultural, and environmental factors in the emergence and existence of human diseases with a focus on the Darwinian (evolutionary medicine) examination of illness. This course's objectives include:

- To develop a deeper comprehension of the central and cross-disciplinary concepts of human biology, which include, but are not limited to genetics, metabolic adaptations, origins of human and pathogen diversity, as well as social behaviors; and how these factors shape human medicine.
- To foster the students' process of identifying, exploring, assessing and solving real world problems through independent study and self-directed group projects that solidify their understanding of the scientific method, and basic scientific principles.
- To demonstrate understanding of ecological and evolutionary processes including the role of genetic variation, heredity, and natural selection as well as the implications these processes have for the origins and evolution of modern humans and their biology.
- To place biological knowledge into a socio-cultural context, especially how biology can contribute to the resolution of social, medical, and environmental issues.

Recommended Preparation: HBIO 200

**Required Textbook:**Principles of Evolutionary Medicine

by Gluckman, Beedle, and Hanson (2009, reprint 2015)

**Grading:**

Midterm 1 (Week 5)	25%
Midterm 2 (Week 9)	25%
Midterm 3 (Finals week)	25%
Project (Due Week 14)	25%

**Project:** You will choose a disease to thoroughly investigate in terms of evolution, previous and current treatments, genetic impacts/coevolution, and possible future implications. You will present this information in a 3-5 page written essay using primary references. A handout with further instruction will be presented in class. This project includes a mandatory approval for your topic at Week 6 and a check-in with the professors at Week 13.

**Make up Exams:** can be scheduled only with proper documentation for an appropriate excuse.

**Late Assignments:** Students who submit work up to one week late will receive a penalty of 10% applied to the grade achieved on the late assignment regardless of the day of the week on which the work is submitted. Students who submit the project more than one week late will receive a grade of 0 unless they have made prior arrangements with the instructor.

**SCHEDULE:** (*Subject to revision*)

	<b>Content</b>	<b>Readings and Assignments</b>
Week 1	Evolution Basics (SB)	Chapters 1 and 2
Week 2	Genetics Basics (GPF)	Chapter 3
Week 3	Development (GPF)	Chapter 4
Week 4	Development (GPF) & Life history (SB)	Chapters 4 & 5
Week 5	Human Diversity (SB)	Chapter 6 <b>MIDTERM 1/Project approval</b>
Week 6	Disease – Reproduction (SB)	Chapter 7
Week 7	Disease – Reproduction (SB)	Chapter 7
Week 8	Disease – Nutrition (GPF)	Chapter 8
Week 9	Disease – Nutrition (GPF)	Chapter 8 <b>MIDTERM 2</b>
Week 10	Disease – Defense (GPF)	Chapter 9
Week 11	Disease – Cancer (GPF)	Chapter 12 (new edition)
Week 12	Disease – Social organization (SB)	Chapter 10
Week 13	Disease – Social organization (SB)	Chapter 10 <b>Project Check-in</b>
Week 14	THANKSGIVING	<b>PROJECT DUE</b>
Week 15	Medical Practice and future (GPF & SB)	Chapters 11 & 12
Week 16	Finals week	<b>MIDTERM 3</b>

**USC's Statements on Academic Conduct and Support Systems**

**Academic Conduct**

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/departement/departement-public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate

the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage [sarc@usc.edu](mailto:sarc@usc.edu) describes reporting options and other resources.

### **Support Systems**

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* [http://sait.usc.edu/academicssupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicssupport/centerprograms/dsp/home_index.html) provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.