

HBIO 405: Evolutionary Medicine**HBIO 405 – Evolutionary Medicine (4 units)**

Fall 2017

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

Location: VKC 261

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.

Prerequisite: BISC 120

Required Textbook:Principles of Evolutionary Medicine

by Gluckman, Beedle, Buklijas, Low, and Hanson (2016) Second Edition

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. 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.

SCHEDULE: (*Subject to revision*)

Date	Lecture Topic	Chapter
Aug 22	Intro & Evolution Basics (SB)	1
Aug 24	Evolution Basics & Evolutionary Medicine (SB)	2 & 7
Aug 29	Genetics (GP)	3
Aug 31	Development (GP)	4
Sep 5	Development (GP)	4
Sep 7	Development (GP)	4
Sep 12	Life Histories (SB)	5
Sep 14	Human Diversity (SB)	6
Sep 19	Midterm I	
Sep 21	Disease – Reproduction (SB)	8
Sep 26	Disease – Reproduction (SB)	8
Sep 28	Disease – Reproduction (SB)	8
Oct 3	Disease – Reproduction (SB)	8
Oct 5	Disease – Nutrition (GP)	9
Oct 10	Disease – Nutrition (GP)	9
Oct 12	Disease – Nutrition (GP)	9
Oct 17	Midterm II	
Oct 19	Disease – Defense (GP)	10
Oct 24	Disease – Defense (GP)	10
Oct 26	Disease – Cancer (GP)	12
Oct 31	Disease – Cancer (GP)	12
Nov 2	Disease - Social organization (SB)	11
Nov 7	Disease - Social organization (SB)	11
Nov 9	Disease - Social organization (SB)	11
Nov 14	Check in (GP & SB)	
Nov 16	Medical Practice and Future (GP & SB)	13 & 14
Nov 21	Medical Practice and Future (GP & SB)	13 & 14
Nov 23	Thanksgiving	
Nov 28	Presentations	
Nov 30	Presentations	
Dec 2-5	Study Days	
	FINAL EXAM: See schedule of classes	

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/department/department-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 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/academic-support/center-programs/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.