

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

Fall 2018

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

Location: VKC 261

Professor: Dr. Gioia Polidori Francisco

- Office: AHF B40
- Email: gpolidor@usc.edu
- Office Hours: Tuesday 10-12 and by appointment

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, and Hanson (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. 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 Topics	Chapter
Aug 21	Intro & Evolution Basics	1
Aug 23	Evolution Basics and Evolutionary Medicine	2 & 7
Aug 28	Genetics	3
Aug 30	Genetics	3
Sep 4	Development	4
Sep 6	Development	4
Sep 11	Development	4
Sept 13	Life Histories	5
Sep 18	Midterm I	
Sep 20	Human Diversity	6
Sep 25	Disease - Reproduction	8
Sep 27	Disease - Reproduction	8
Oct 2	Disease - Reproduction	8
Oct 4	Disease - Nutrition	9
Oct 9	Disease - Nutrition	9
Oct 11	Disease - Nutrition	9
Oct 16	Midterm II	
Oct 18	Disease - Defense	10
Oct 23	Disease – Defense	10
Oct 25	Disease – Defense	10
Oct 30	Disease – Cancer	12
Nov 1	Disease - Cancer	12
Nov 6	Disease – Social Organization	11
Nov 8	Disease – Social Organization	11
Nov 13	Check-in	
Nov 15	Medical Practice and Future	13
Nov 20	Medical Practice and Future	14
Nov 22	Thanksgiving	
Nov 27	Presentations	
Nov 29	Presentations	
	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/academicsupport/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.