

HBIO 405: Evolutionary Medicine

HBIO 405 – Evolutionary Medicine (4 units)

Fall 2021

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

Location: WPH 207

Professor: Dr. Gioia Polidori

- Office: AHF B40
- Email: gpolidor@usc.edu
- Office Hours: 8:50-9:20 and 10:50-12:20 pm T/Th
- **Office hours will be held ONLINE**
- A google doc will be used to sign up for office hours

Course Modality

This course is offered in person and lectures will also be offered with virtual synchronous modality (i.e. students can attend lectures online at the scheduled time).

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:

- Explain how selective pressures led to the evolution of selected aspects of human anatomy and physiology.
- Discuss the emergence and persistence of selected diseases in terms of the eight main pathways in evolutionary medicine.
- Correlate human genetic variation with disease risk, diagnosis, and treatment.
- Correlate sociocultural factors with disease risk, diagnosis, and treatment.
- Compile and discuss relevant sources of scientific evidence to investigate a disease of choice.
- Hypothesize on the evolutionary underpinnings of a disease of choice.
- Construct a well-supported, logical argument that applies evolutionary medicine principles towards the resolution of ethical, social, or environmental issues

Prerequisite: BISC 120

Required Textbook:

Principles of Evolutionary Medicine by Gluckman, Beedle, and Hanson (2015)

I. Grading Breakdown

Midterm 1 (Week 5)	25%
Midterm 2 (Week 9)	25%
Midterm 3 (Finals week).	25%
Project	20%
Quizzes	5%
JEP	2.5% Extra Credit

II. Grading scale

- The grading scale is based on the traditional scale as follows:

	A (≥93%)	A- (≥90%)
B+ (≥87%)	B (≥83%)	B- (≥80%)
C+ (≥77%)	C (≥73%)	C- (≥70%)
D+ (≥67%)	D (≥63%)	D- (≥60%)
F (≤59.9%)		

III. Description and Assessment of Assignments/Exams

- This course is offered with a partial flipped modality so that class time is dedicated to student-centered activities as well traditional lectures.
- Class material will be evaluated via quizzes and exams.
- Exams will not be given a letter grade. Only the final grade will be given a letter grade.
- A request to take a make-up midterm exam must be accompanied by evidence of necessity (ie: letter from a doctor) and must be made before the date of the scheduled exam.
- **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 professor on Nov 21st.

IV. Blackboard

- Blackboard will be used to post announcements, handouts, articles, rubrics, deadlines, feedback to quizzes and midterm exams so check this site periodically.
- Lecture slides will be posted on blackboard, however, please do not rely entirely on slides, these are meant as a starting point for note-taking. Class notes and textbook information will form the basis of the material that will be on the exams.

V. JEP

JEP is the oldest and largest university service-learning program in the country. It offers students the unique opportunity to combine academic coursework with experiences in the community surrounding the campus. At the beginning of the semester, a JEP representative will visit our class and tell you more about the opportunities available that semester. To register for JEP, visit

<http://dornsife.usc.edu/joint-educational-project/>. JEP is the ONLY extra credit offered for this course.

VI. Tentative Schedule

Date	Lecture Topics	Chapter
Aug 24	Intro & Evolution Basics	1
Aug 26	Evolution Basics and Evolutionary Medicine	2 & 7
Aug 31	Genetics I	3
Sept 2	Genetics II	3
Sept 7	Development I	4
Sept 9	Development II	4
Sept 14	Development III	4
Sept 16	Life Histories	5
Sept 21	Exam I	
Sept 23	Human Diversity	6
Sept 28	Disease – Reproduction I	8
Sept 30	Disease – Reproduction II	8
Oct 5	Disease – Reproduction III/ Nutrition I	8/9
Oct 7	Disease – Nutrition II	9
Oct 12	Disease – Nutrition III	9
Oct 19	Disease – Cancer I	12
Oct 21	Disease – Cancer II	12
Oct 26	Project Check-in	
Oct 28	Exam II	
Nov 2	Disease – Mental Health I	11
Nov 4	Disease – Mental Health II	11
Nov 9	Disease – Defense I	10
Nov 11	Disease – Defense II	10
Nov 16	Disease – Defense III	10
Nov 18	Medical Practice and Future I	13
Nov 23	Project Presentations	
Nov 30	Project Presentations	
Dec 2	Project Presentations	
	Final Exam: See schedule of classes	

VI Additional Policies

- A midterm exam can be taken after the specified date ONLY if the student has a documented medical excuse.
- A request to take a make-up exam must be accompanied by evidence of necessity (ie: letter from a doctor, interview email...) and must be made 2 weeks prior to the date of the scheduled exam.
- Behavior that prevents the professor from conducting the class, or other students from learning, is disruptive. Examples include unauthorized cell phone use, persistent speaking without being recognized by the professor, offensive behavior, will be addressed immediately.

- Lecture slides will 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.

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 Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention and Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call

studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED)- (213) 740-5086 | Title IX – (213) 821-8298
equity.usc.edu, titleix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following *protected characteristics*: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations. The university also prohibits sexual assault, non-consensual sexual contact, sexual misconduct, intimate partner violence, stalking, malicious dissuasion, retaliation, and violation of interim measures.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplicity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity | Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776

dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710

uscса.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.