



BISC180Lxg: Evolution

Section: 13400R

4 units

Lecture Meeting days/time: Monday, Wednesday, Friday 11:00-11:50

Location: [Zumberge Hall](#) (ZHS) 352

Lab Meeting days/time: Monday, Wednesday, or Friday (section dependent) 12:00-1:50

Lab Location: [Zumberge Hall](#) (ZHS) 460

Instructor: Cameron Egan, Ph.D. (he/him)

Office: [Hancock Foundation Building](#) (AHF) 141

Office Hours: Tuesday and Friday, 2:00-3:00 pm (and by appointment)

- Office hours are open for drop-ins and dedicated entirely to you. During these hours, my office door is open and all are welcome!
- I also have availability outside of my scheduled office hours. Please contact me via email to set up an appointment.

Contact Info: camegan@usc.edu

Teaching Assistant: Jaycee Lanza

Contact Info: jlanza@usc.edu

Office Hours: AHF 316, Monday 2:30-3:30, Thursday 4-5, or by appointment

Course Description

Evolution is the unifying principle of all biology, but the importance of its study is not restricted to biologists. Understanding evolution is of paramount importance to comprehending the “why” and “how” of the natural world (including us). This course provides students from all disciplines with an understanding of evolution as both a pattern and a process. The course will help prepare students to think critically about a wide range of everyday issues including environmental and human health, and the origin of human society.

Learning Objectives

At the end of the course, you will be able to:

- Describe what science is (including its limitations) and how it applies to evolutionary biology
- Explain how DNA is structured and how heredity works, in simple terms
- Describe all of the mechanisms by which evolution acts and a real-life example of each
- Define natural selection in your own words, and apply that definition to explain the evolution of a particular trait or behavior
- Outline the main events and questions in human evolution
- Use critical thinking and the best available information to frame and investigate a question related to evolution and its significance to us today

Website: <https://brightspace.usc.edu/>

Brightspace will be your home base for this course! Please check frequently for announcements and course materials including lecture notes, evolution in the news articles, additional/supplemental readings, and grades.

Textbook

Evolution: Making Sense of Life (3rd edition) by Douglas Emlen and Carl Zimmer (2020). Although this textbook is technically optional, you are highly encouraged to purchase it and use it as a resource for this class. Reading the assigned chapters before or after class helps reinforce concepts discussed in class.

Laboratory Description

Labs will meet weekly (unless otherwise noted) in your designated laboratory section. Labs are dedicated times for you to think critically and evaluate different aspects of evolution through an inquiry-based approach.

The last three lab meetings of the semester will be devoted to student presentations on topics of the students' choice related to evolution and aimed at a general (non-academic) audience. Detailed instructions and guidelines, including deadlines for topic submission will be posted to Brightspace.

Labs will be posted as PDF files on Brightspace

Evaluation Criteria and Grading

Evolution in the News:	In randomly assigned groups of three, you will be responsible for locating and presenting one evolutionary biology-related current event during the semester. Oral presentations must utilize PowerPoint, Keynote, or similar software, and last no longer than 20 minutes. You will be responsible for emailing a link to the current event to Professor Egan <u>at least 72 hours in advance of class</u> so that your fellow students have time to review the current event prior to your presentation.
Exit ticket:	To encourage participation with in-class discussion, you will be scored based on the completion of at minimum 16 exit tickets during our Friday evolution in the news discussions. Exit tickets must be filled out by the end of the class.
Exams:	The lecture portion of this course will include one midterm examination and a final examination. All examinations (midterms and final) may include multiple choice questions, fill in the blanks, matching, definitions, short answers, and quantitative problems. The final exam is non-cumulative.
Laboratory:	Your laboratory score will be assessed within your respective laboratory section. Attendance to all laboratory sessions is mandatory except for in the case of emergency or extreme circumstances. An acceptable written excuse for missing a lab must be proactively provided to your lab instructor.
Grading:	Your final grade in the course will be determined using the breakdown shown in Table 1 below. Grades will be updated continuously throughout the term as assessments are completed.

Table 1. Grading Breakdown

The course grade will be based upon 500 possible points:

Assessment	Points	% of Grade
Midterm Exam (March 10)	125	25%
Final Exam (May 7, 11:00 am -1:00 pm)	125	25%
Oral Presentation Project	40	8%
Laboratory Assignments	150 (6 x 25 pts)	30%
Evolution in the News	50	10%
Evolution in the News Exit tickets	10	2%
TOTAL	500	100

Course Grading Scale

Course final grades will be determined using the following scale:

Letter grade	Corresponding numerical percentage range
A	90 – 100
A-	86 – 89
B+	82 – 85
B	78 – 81
B-	74 – 77
C+	70 – 73
C	66 – 69
C-	62 – 65
D+	58 – 61
D	54 – 57
D-	50 – 53
F	49 and below

Grading Curve Policy

To ensure both equity and academic rigor in the evaluation process, a grading curve may be applied to final scores at the end of the term. This curve is designed to account for unforeseen variations in assessment difficulty while maintaining fairness across the class.

The curve will not penalize high-performing students or artificially inflate grades but will aim to reflect a balanced and realistic distribution of outcomes. Adjustments, if necessary, will be based on overall class performance, ensuring that final grades align with expected academic standards.

Students are encouraged to focus on mastery of course material rather than grades and comparisons with peers. Any curving adjustments will prioritize consistency and fairness.

Tentative Lecture Schedule

Following is a tentative schedule of topics for the term which may subject to modification dependent on time and learning needs.

Day	Date	Class Topic	Readings
Mon	13-Jan	Introduction to Course and How Scientists Study Evolution	Syllabus Chapter 1
Wed	15-Jan	From Natural Philosophy to Darwin	Ch 2
Fri	17-Jan	Evolution in the News (Cameron)	LA Times - 99 years after the Scopes monkey trial
Mon	20-Jan	No class - Martin Luther King Jr. Day	
Wed	22-Jan	Evolutionary History of Life	Ch 3
Fri	24-Jan	Evolution in the News (Groups 1 and 2)	To be posted on Tuesday before
Mon	27-Jan	Evolution of Mammals	None
Wed	29-Jan	Primate Evolution	Ch 17
Fri	31-Jan	Evolution in the News (Groups 3 and 4)	To be posted on Tuesday before
Mon	03-Feb	Evolutionary Hypotheses - Phylogenetic Trees	Ch 4
Wed	05-Feb	Evolutionary Hypotheses - Phylogenetic Trees	Ch 4
Fri	07-Feb	Evolution in the News (Groups 5 and 6)	To be posted on Tuesday before
Mon	10-Feb	Raw material: heritable variation among individuals	Ch 5
Wed	12-Feb	Raw material: heritable variation among individuals	Ch 5
Fri	14-Feb	Evolution in the News (Groups 7 and 8)	To be posted on Tuesday before
Mon	17-Feb	No class - President's Day Holiday	
Wed	19-Feb	The Ways of Change: Genetic Drift	Ch 6
Fri	21-Feb	Evolution in the News (Groups 9 and 10)	To be posted on Tuesday before
Mon	24-Feb	The Ways of Change: Natural Selection	Ch 6
Wed	26-Feb	Natural Selection: Empirical Studies in the wild	Ch 10
Fri	28-Feb	Evolution in the News (Groups 11 and 12)	To be posted on Tuesday before
Mon	03-Mar	Natural Selection: Empirical Studies in the wild	Ch 10
Wed	05-Mar	Review and Q&A for Midterm 1	
Fri	07-Mar	Evolution in the News (Groups 13 and 14)	To be posted on Tuesday before
Mon	10-Mar	Midterm	
Wed	12-Mar	Sex: Causes and Consequences	Ch 11
Fri	14-Mar	Evolution in the News (Groups 15 and 16)	To be posted on Tuesday before
Mon	17-Mar	No class - Spring Recess	
Wed	19-Mar	No class - Spring Recess	
Fri	21-Mar	No class - Spring Recess	
Mon	24-Mar	Sex: Causes and Consequences	Ch 11
Wed	26-Mar	After Conception: Life History and Parental Care	Ch 12
Fri	28-Mar	Evolution in the News (Groups 17 and 18)	To be posted on Tuesday before
Mon	31-Mar	After Conception: Life History and Parental Care	Ch 12
Wed	02-Apr	The Origin of Species: What is a species?	Ch 13.1 - 13.2
Fri	04-Apr	Evolution in the News (Groups 19 and 20)	To be posted on Tuesday before
Mon	07-Apr	The Origin of Species: Speciation	Ch 13.3-13.6
Wed	09-Apr	Macroevolution: The Long Run	Ch 14
Fri	11-Apr	Macroevolution: The Long Run	Ch 14
Mon	14-Apr	Macroevolution: The Long Run	Ch 14
Wed	16-Apr	Intimate Partnerships: How Species Adapt to Each Other	Ch 15
Fri	18-Apr	Intimate Partnerships: How Species Adapt to Each Other	Ch 15
Mon	21-Apr	Intimate Partnerships: How Species Adapt to Each Other	Ch 15
Wed	23-Apr	Brains and Behavior	Ch 16
Fri	25-Apr	Brains and Behavior	Ch 16
Mon	28-Apr	Brains and Behavior	Ch 16
Wed	30-Apr	Evolution and Society	
Fri	2-May	Final day of class wrap-up	

Tentative Lab Schedule

Lab attendance and participation is mandatory to receive a passing grade in the course. You must attend the lab section in which you are registered.

Week	Date	Lab Topic	Lab Deliverable
1	Jan 13-17	No Lab - First Week of Classes	None
2	Jan 20-24	No Lab - Monday Holiday	None
3	Jan 27-31	Lab 1 - Natural History of Life on Earth	Lab Assignment 1 - Natural History Museum Tour
4	Feb 3-7	Lab 2 - Building Phylogenies	Lab Assignment 2 - Phylogenetic Tree Building Assignment
5	Feb 10-14	Lab 3 - Genetics	Lab Assignment 3 - Population Genetics
6	Feb 17-21	No Lab - Monday Holiday	None
7	Feb 24-28	Lab 4 - Genetic Drift	Lab Assignment 4 - Genetic Drift
8	Mar 3-7	Lab 5 - Natural Selection	Lab Assignment 5 - Natural Selection
9	Mar 10-14	Lab 6 - Evolution in Space	Lab Assignment 6 - Evolution in Space: Species Distributions
10	Mar 17-21	No Labs - Reading Week	None
11	Mar 24-28	Presentation Prep Week	Presentation Outline
12	Mar 31-Apr 4	Term Project Presentations	Oral Presentations
13	Apr 7-11	Term Project Presentations	Oral Presentations
14	Apr 14-18	Term Project Presentations	Oral Presentations
15	Apr 21-25	No Labs	None

16	Apr 28-May 2	No Labs	None
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Course Specific Policies

Communication – I am here to support you in your learning and want you to be in contact with me as much as possible. The best way to reach me is by email. In your communication, please be sure to include the course in the subject line (**BISC180**) so I will be better suited to respond to your email. I do my best to respond to emails within 24hr (during the week) and on Monday if your email is sent over the weekend. If it has been more than 24hrs please send me a gentle reminder.

Policy on Re-grading Exams – If you feel that an error was made in the grading of an exam, please use the following steps: 1) Double check the posted answer key and think critically about the responses provided, 2) Prepare a **written statement** explaining why you feel your grade was incorrect which includes references of lecture material. Submit the request along with your original exam to Professor Egan within one week of the time the exam was returned to you. The entire exam will be subject to a re-grade and, as a result, your grade may increase or decrease from a requested re-grade.

Policy on Missed Exams – Exam dates are firm and there are no make-up exams given in this course. You may be excused from the midterm exam in the event of a documented illness, emergency, or other extreme circumstance beyond your control. No other excuses for missing exams will be accepted. Please be proactive in your request by sending an email to Professor Egan requesting that you be excused. If you miss the midterm exam, your exam grade will be provided on a pro-rated based upon your score in the final exam.

If you miss the final exam and have provided a valid medical excuse within 48 hours of the exam time, a final course grade of Incomplete (IN) will be recorded and you will be permitted to take a make-up final exam during the following semester.

Policy on Late Work – Late laboratory assignments will be penalized by a 10% reduction in the assignment grade every 24 hours late unless due to an emergency situation excused by the instructor. Email the instructor as soon as possible to discuss alternate arrangements due to an emergency.

Extra Credit – **No extra credit will be given** for special projects, etc.

Impairments Affecting Your Performance – Students occasionally encounter difficulties that affect their academic performance, such as illness, accidents, bereavement, depression, anxiety, learning disabilities, and other problems. If you encounter such difficulties, please bring them to the attention of one of the instructors. We can refer you to resources and may be able to offer accommodation. All such discussions will be confidential. Please seek help as soon as you feel your performance is being affected.

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Course Evaluations

Course Evaluations will be conducted towards the end of the semester and will appear in the 'Course Evaluations' tab on the Blackboard. It is an important review of your experience in the class with the intent being for you to provide feedback on my teaching practice. Please take the time to complete these evaluations as I use these to help improve/strengthen my teaching. I welcome all constructive feedback!

Statement on Academic Conduct and Support Systems

Academic Integrity:

The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, compromises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see [the student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. [The Office of Student Accessibility Services](#) (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

[Learning Support & Resources](#) - You are part of a learning community made up of faculty, staff, and fellow students. Follow the link to find resources to help support your academic growth and success!

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

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

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

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.

[Reporting Incidents of Bias or Harassment](#) - (213) 740-5086 or (213) 821-8298

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

[The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

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

[Diversity, Equity and Inclusion](#) - (213) 740-2101

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

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) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.