

BISC 120Lg 13003 Lecture Syllabus, SPRING 2024

General Biology: Organismal Biology and Evolution

Overview:

This 4-unit biology course will present several key topics in evolution, ecology, environment, and the diversity of life. These topics will be covered in two weekly lectures and one weekly laboratory section.

Learning Objectives:

At the end of the course, students will:

- know the concept of the scientific method
- understand how the scientific method is applied to key questions regarding the nature of life on Earth
- know the mechanisms of heredity
- know the theory of evolution
- understand how evolution explains the diversity of life on Earth
- know the defining characteristics of the domains Archaea, Bacteria, and Eukarya, with special attention to plants, fungi, and animals
- understand how the environment and organisms contribute to the evolution of ecological relationships
- understand how the environment has changed and continues to change and how this affects the evolution of life on Earth
- be able to design and conduct scientific investigations
- be able to think critically about how experimental evidence answers a scientific question • be able to perform biological laboratory techniques

Course Instructor: Dr. Raffaella Ghittoni, ZHS 256, 213-740-8352, rghitton@usc.edu

Lab Manager: Brett Spatola, PhD, ZHS 362, 213-740-6078, spatola@usc.edu

Textbooks: Lecture
[Campbell Biology 11th ed.](#) (Mastering Biology™ is optional)
Laboratory
[Spring 2020 BISC 120 Laboratory Manual](#), (PDF posted on Blackboard)
Adams & Crawley (2018). [Van De Graaff's Photographic Atlas for the Biology Laboratory, 8th ed.](#); optional
Pechenik. (2016). [A Short Guide to Writing About Biology, 9th ed.](#); optional

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

(site for course materials, lecture notes, quizzes, additional readings, grades etc.)

Lecture times: TUE/THU 2:00 - 3:20 PM in **ZHS 159**

Laboratory times: THU at 8:00 AM, THU at 11:00 AM, THU at 5:00 PM, FRI at 8:00 AM, FRI at 11:00 AM and FRI at 2:00 PM in **ZHS 365**

Office Hours: TBA

Lecture Quizzes: There will be 12 multiple choice quizzes (each worth 5 points) to be completed on Blackboard (<https://blackboard.usc.edu>) during the semester. The quizzes will be posted at **6:00 PM** on Thursdays and will remain available until 9:00 AM the following Monday. Answers to quiz questions will be posted on Monday afternoons.

Exams: The lecture portion of this course will include four exams – three midterm exams and a final exam. All exams (midterms and final) may include multiple choice questions, matching, fill in the blank answers, definitions, short answers and quantitative problems. To be assigned a final letter grade at the end of the course, a student must take at least two mid-term lecture examinations and the final examination and have completed at least 80% of the assigned weekly laboratory activities. Any document associated with grading may be photocopied by the instructional staff.

Grading: After each exam, grade point cut-offs will be released. There is not an absolute number of points that predetermines a letter grade of A, A-, B+, B, B-, etc. If the class average is lower than 80% at the end of the semester, the grades for the course will be assigned on a curve, determined by the total number of points as given below.

The point system will total **1000 points**, as follows:

Midterm Exam 1	150
Midterm Exam 2	150
Midterm Exam 3	150
Final Exam (Midterm 4)	150
Lecture Quizzes (12)	60
Laboratory Assignments	340

Laboratory scores will be normalized as explained in the laboratory syllabus in order to correct for possible differences in grading between lab instructors.

Schedule of lecture topics (subject to modification of specific topics and reading assignments*)

Day	Quiz	Lecture	Readings
T	Jan 9	1 Introduction; Biological Variation	Course Syllabus; 1.1, 1.2, 6.2,
TH	Jan 11	2 Genetic Material and Expression	12.1, 13.1, 13.2, 16.1, 17.1
T	Jan 16	3 Mendelian Inheritance	13.3, 13.4, all 14
TH	Jan 18	Quiz 1	4 Molecular Basis of Inheritance
			15
T	Jan 23	5 Descent with Modification	22
TH	Jan 25	Quiz 2	6 Evolutionary Mechanisms
			23 and 25.6
T	Jan 30	7 Speciation	24
TH	Feb 1	Quiz 3	8 Macroevolution
			25.5-25.6
T	Feb 6	MIDTERM 1	
TH	Feb 8	Quiz 4	9 The History of Life on Earth
			25.1-4
T	Feb 13	10 Phylogeny and the Tree of Life	26
TH	Feb 15	Quiz 5	11 Viruses
			19
T	Feb 20	12 Prokaryotes: Structure/Function/Diversity	27
TH	Feb 22	Quiz 6	13 Eukaryotes: Endosymbiosis
			28.1
T	Feb 27	14 Protists: Origins, Diversity and Ecology	28.2-28.6
TH	Feb 29	Quiz 7	15 The Fungi
			31
T	Mar 5	MIDTERM 2	
TH	Mar 7	16 How the Plants Colonized Land	29
T	Mar 12	SPRING BREAK – NO CLASS	
TH	Mar 14	SPRING BREAK – NO CLASS	
T	Mar 19	17 Plant Diversity and Structure	30
TH	Mar 21	Quiz 8	18 Plant Transport and Nutrition
			36
T	Mar 26	19 Animal Diversity, Invertebrates 1	32 & 33
Th	Mar 28	Quiz 9	20 Animal Diversity, Invertebrates 2
			33
T	Apr 2	21 Animal Diversity, Invertebrates 3	33
TH	Apr 4	Quiz 10	MIDTERM 3
T	Apr 9	22 Animal Diversity, Vertebrates 1	34
TH	Apr 11	Quiz 11	23 Animal Diversity, Vertebrates 2
			34
T	Apr 16	24 Animal Diversity, Vertebrates 3	34
TH	Apr 18	Quiz 12	25 Animal Behavior; Introduction to Ecology
			51, 52
T	Apr 23	26 Ecology & Biosphere 1	53, 54, 55.3-55.5
TH	Apr 25	27 Ecology & Biosphere 2	56
TH	May 2	FINAL EXAM 2:00-3:00 PM	

*Additional readings for specific lectures will be posted on Blackboard during the semester.

Course Policies

Policy on Re-grading Exams

If you feel that an error was made in the grading of an exam, you need to do the following: 1) Check the answer key with your TA, 2) Prepare a **printed statement** explaining why you feel your grade was incorrect, and 3) Submit your printed statement, Re-grade Request Form (downloaded from Blackboard) and your original exam to your TA **within one week** of the time the exam was returned to you. The TA will either handle the re-grade or consult with the professors. The entire exam will be regraded and, as a result, your grade may increase or decrease from a requested re-grade. No frivolous reasons will be accepted for requesting grade changes; stated reasons for a grade change must be legitimate (e.g., error in totaling the score).

Policy on Missed Lecture Exams

No make-up lecture exams will be given in this course. You may be excused from an exam in the event of a documented illness, emergency, or other serious problem beyond your control. *No other excuses for missing exams will be accepted.* If you miss an exam for a legitimate reason, and wish to ask for an accommodation, you should proceed as follows. Within 48 hours of the missed exam, send an email to the Lab Manager a request that you be excused. In the case of illness, this request should include either an official letter from your doctor stating that you were too sick to take the exam, or your doctor's name and contact information with permission for us to contact the doctor for a limited discussion of your condition. Note that neither you nor the doctor need tell us the nature of your illness. If you miss an exam for non-illness related reasons, you must provide similarly convincing documentation of the emergency to the Lab Manager within a week. If we judge your excuse to be valid, we will give you a grade for the missed exam equal to the average of your grades for the equivalent exams that you did take. Except in extraordinary circumstances, we will make accommodations for only one missed lecture exam. If your excuse is judged not to be valid, or you do not provide it within the allotted time, you will receive a score of zero for the missed exam.

If you miss the final exam and have provided a valid medical excuse to the Lab Manager 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 Missed Lecture Quizzes **No make-up lecture quizzes will be given in this course.** You may be excused from a lecture quiz only in the event of a documented illness.

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 sources of help and may be able to offer accommodations. All such discussions will be confidential. Please seek help as soon as you feel your performance is being affected.

Students with Disabilities

Students requesting academic accommodations based on a disability are required to register with the Office of Student Accessibility Services (OSAS) each semester. A letter of verification for approved accommodations can be obtained from OSAS. Be sure that the letter is delivered to the Lab Manager as early in the semester as possible, [preferably by January 31](#). OSAS office is located in GFS 120 and is open from 8:30 a.m. to 5:00 p.m., Monday through Friday. Their telephone number is 213-740-0776. If a student's approved accommodation is limited to extra time on examinations, the teaching staff of BISC 120 will provide the accommodation. For any other accommodation, such as a private room, reader or a scribe, students must make prior arrangements with the OSAS office 2 weeks before the exam date. For more information please visit the following website:

http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html.

Statement on Academic Integrity

The instructors in this course strongly support the ethics of academic integrity. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. [Scampus](#), the Student Guidebook, contains the Student Conduct Code in Section 11.00:

<http://webapp.usc.edu/scampus/1100behavior-violating-university-standards-and-appropriate-sanctions/>, while the recommended sanctions are located in Appendix A. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.

Course Website

Students are responsible for logging onto Blackboard (<https://blackboard.usc.edu>) and checking the course website on a regular basis. Postings on Blackboard will be an official source for announcements, course

materials, lecture notes, score postings and general discussions. Lecture quizzes will also be completed on Blackboard. Lecture exam scores and lecture quiz scores will be posted under your [LECTURE SECTION](#). It is the student's responsibility to immediately notify the Lab Manager in the event of any mistakes, so please check your scores on Blackboard weekly.

Gift Policy

No gifts or presents of any kind are permissible to give to any of the instructional staff.

Final Comments

No exceptions will be made to these policies under most circumstances. If you think that the instructor or TA has granted you **any deviation** from the policies in this document, you must obtain their **written agreement** to support that claim.

Lab Schedule*

Lab #	Date	Topic	Post-lab assignments
	Jan 11 & 12	No labs scheduled	
1	Jan 18 & 19	Introduction	
2	Jan 25 & 26	The Microscope	microscope labster
3	Feb 1 & 2	Scientific Investigation I	scientific reading + questions
4	Feb 8 & 9	Scientific Investigation II	bean beetle figure/table
5	Feb 15 & 16	Evolution	evolution labster
6	Feb 22 & 23	Animal Behavior	peer review + questions
7	Feb 29 & Mar 1	Bacteria I	gram stain labster
8	Mar 7 & 8	Bacteria II	lab report (due before lab 10)
	Mar 14 & 15	No labs scheduled (spring break)	
9	Mar 21 & 22	Plants	
10	Mar 28 & Mar 29	Beetle experiment conclusion	lab report due
11	April 4 & 5	Ecology	ecology labster
12	April 11 & 12	Lab exam	
13	April 18 & 19	Biodiversity Conservation Presentations I	presentation review
14	April 25 & 26	Biodiversity Conservation Presentations II	presentation review

*some schedule/assignment adjustments may occur during the semester.

Required Textbook:

[BISC 120 Laboratory Manual](#). PDF will be **posted on Blackboard** and printouts of chapters must be brought to lab each week.

Optional Textbooks:

Adams & Crawley (2018). [Van De Graaff's Photographic Atlas for the Biology Laboratory](#), 8th ed. Pechenik (2016). [A Short Guide to Writing About Biology](#). 9th ed.

LABORATORY POINT DISTRIBUTION

The laboratory portion ([340 points](#)) will count for [34%](#) of your final course grade, distributed as follows:

Assignments	Points (340 total)
Labster simulations (4 @ 10 points each)	40
Post-lab assignments (3 @ 10 points each)	30
Lab Report	40
Lab Exam	100
Biodiversity Conservation Presentation	30
Lab Manual (4 points per chapter)	44
Lab Participation (4 points per lab)	44
Presentation review	12

Lab performance guidelines

You are required to attend all lab sessions. Any unexcused absences will seriously affect your evaluation and lab participation points. Come to lab on time. You are also to remain for the entire lab session or until excused by your instructor. **DO NOT** make any other appointments for the time you are scheduled to be in lab.

You are required to wear gloves, closed toed shoes, long pants and a knee-length lab coat during lab. Lab coats can be purchased from the USC bookstore or online.

Before you begin the lab exercise, make sure that you remove all unnecessary materials from your work area. At the end of the lab session, clean and return all supplies to their proper place, clean your work area, and slide your chair under the table to receive the full participation points. Check with your instructor before leaving.

NO EATING OR DRINKING IS ALLOWED IN THE LABORATORY UNDER ANY CIRCUMSTANCES.

Labster simulation

There will be labster simulations during the semester. These simulations reinforce topics learned during lab and offer learning experiences that usually can't be completed logistically while in lab. Please visit the labster website for troubleshooting tips if you encounter any technical issues:

<https://help.labster.com/students/collections/2286564/sections/3094204/articles/3944461-basic-labster-troubleshooting/>

Lab manual

During each lab students need to record their results (drawings, observations, calculations) in their lab manual. Tables need to be filled and all post-lab questions answered. Each student is required to show the lab instructor a completed lab manual before leaving the lab. Lab manuals will be checked periodically throughout the semester.

Post-lab assignments

During the semester you will have homework assignments, based on the data you obtain or important concepts from your lab experiments. Assignments are explained in the lab manual and more information can be found on Bb. Post-labs will be due 1-week after being assigned.

Lab report

Lab reports must be uploaded on Blackboard via the Turnitin submission link. This program will detect any forms of plagiarism (i.e. using a previous student's report, copy/paste from research articles, etc.) and use of AI-generated tools. Please create your own original lab report and do not share/collaborate with other students. Any violations will result in 0/40 points, and repercussions with Student Judicial Affairs (SJACS).

A paper copy turned in at the beginning of the lab session is optional and dependent on the lab instructor. Lab report guidelines will be posted on Bb (<https://blackboard.usc.edu/>) in the beginning of the semester.

Lab exam

The cumulative lab exam will test your understanding of the topics, concepts and exercises covered during the semester. It will be a mix of multiple-choice, true/false, fill in the blank, and/or short response questions.

Missed Lab Exam: It is your responsibility to be present on the days of the lab exams.

If you miss a lab exam due to a serious illness, you must present a valid excuse to lab manager Brett (spatola@usc.edu) within 48 hours of the missed exam. A valid excuse is considered to be an official note from your doctor or the summary of your visit from the USC Engemann Student Health Center. Note that neither you, nor your doctor, need to tell us the nature of your illness; we just want to verify whether you were too ill to take the exam. If you miss an exam for non-illness related reasons, you must provide similarly convincing documentation of the emergency to the Lab Manager. If we judge your excuse to be valid, you will be allowed to take the exam in another lab section that week. If you do not have a valid excuse or fail to provide it within the allotted time, you will receive zero points for the missed lab exam.

Missed labs

If you miss a scheduled lab due to illness or emergency, please contact lab manager Brett (spatola@usc.edu) immediately to see whether it will be possible to make up the missed lab.

Students who wish to miss a lab for observance of a religious holy day should be aware of the University's policy on such absences, published at: <http://orl.usc.edu/religiouslife/holydays/absences.html>. Requests for such absences should be made by email addressed to lab manager Brett (spatola@usc.edu) at least 2 weeks in advance of the absence. If the absence is approved, the instructors will determine a reasonable accommodation for the student.

Student-athletes who must miss occasional labs for legitimate reasons should bring the SAAS excuse letter to the Lab Manager at least 2 weeks in advance so alternatives can be arranged.

Please note that no lab make-ups will be allowed during the week prior to a holiday, and for school-unrelated activities.

Lab scores

You can find scores for all of your lab assignments on Blackboard: <https://blackboard.usc.edu>. Your lab scores will be posted under your LAB SECTION. Be sure to check for additional postings or announcements on a regular basis. It is the student's responsibility to immediately notify their lab instructor in the event of any mistakes, so please check your Blackboard scores weekly.

Changing a lab section

During the first three weeks of classes, you are responsible for changing your lecture or lab section by dropping your current section and adding your new choice through USC Web registration System. You can switch into a new lab section only if it is open (i.e. if it has less than 20 students). If a lab section is currently closed, you must wait until other students drop before you can switch into that section. No changes are allowed after the third week of classes (i.e., after the second week of lab). You are responsible for printing/saving your grade report from Blackboard before changing sections, as scores may be irrevocably lost from the Blackboard system when students change sections. The same applies if changing lecture or lab sections.