

BISC 120Lg Lecture Syllabus, Summer 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 a series of four weekly lectures (Monday, Tuesday, Wednesday, and Thursday) and two weekly laboratory sections (Tuesday and Thursday).

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

Faculty Instructors Dr. Raffaella Ghittoni, ZHS 256, 213-740-8352, rghitton@usc.edu

Dr. Trond Sigurdson,

Lab Manager Dr. Brett Spatola, ZHS 362, spatola@usc.edu

Textbooks Lecture
[Campbell Biology 12th ed., 2020.](#)

Laboratory
BISC 120 Laboratory Manual (PDF available on Brightspace)

Lecture times Monday, Tuesday, Wednesday, Thursday, 10:00 A.M. – 12:05 P.M.

Laboratory times Tuesday and Thursday, 1:00 – 3:50 P.M.

Office Hours Ghittoni: Monday and Wednesday, 12:05 to 1:00 P.M.

Sigurdson: Monday and Tuesday, 12:05 to 1:00 P.M.

Exams

The lecture portion of this course will include four exams (two from each professor). All exams may include multiple choice questions, matching questions, fill-in answers, true/false answers, short answers, short essays, definitions, and quantitative problems. Students must take all four lecture exams to complete the course and complete at least 80% of the assigned laboratory activities.

Lecture Quizzes

Five lecture quizzes (each worth 15 points) will be administered online via **Brightspace**. The quizzes will be posted by 2:00 pm on Fridays and will remain available until 9:00 am the following Monday. Questions will cover **the preceding week's material**. Answers to quiz questions will be posted at the end of each quiz period.

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. The final letter grade for the course will be assigned on a curve, determined by the total number of points as given below.

Exam 1	150
Exam 2	150
Exam 3	150
Exam 4	150
Lecture Quizzes	75
<u>Laboratory Assignments</u>	<u>325</u>
TOTAL POINTS IN COURSE	1000

Schedule of lecture topics

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

Day		Lecturer	Lecture	Readings
Wed	May 15	Ghittoni	1 Introduction; The Scientific Method	Course Syllabus, 1.3
		Ghittoni	Genetic Material and Expression	12.1, 16.1, 17.1
Thu	May 16	Ghittoni	2 Mendelian Inheritance 1	14
Mon	May 20	Ghittoni	3 Mendelian Inheritance 2	14
Tue	May 21	Ghittoni	4 Molecular Basis of Inheritance	15
Wed	May 22	Ghittoni	5 The Darwinian Revolution, Mechanisms 1	22, 23, 25.6
Thu	May 23	Ghittoni	EXAM 1	
Mon	May 27		MEMORIAL DAY NO CLASS!	
Tue	May 28	Ghittoni	6 Evolutionary Mechanisms 2; Speciation 1	23.3-4, 24.1-2, 25.5
Wed	May 29	Ghittoni	7 Speciation 2	24.3-4, 25.5
Thu	May 30	Ghittoni	8 The History of Life on Earth	25
Mon	June 3	Ghittoni	9 Phylogeny and the Tree of Life	26
Tue	June 4	Ghittoni	10 Viruses	19
Wed	June 5	Ghittoni	EXAM 2	
Thu	June 6	Sigurdson	11 Prokaryotes	27
Mon	June 10	Sigurdson	12 Endosymbiosis and Protists 1	28, 31.1-3
Tue	June 11	Sigurdson	13 Protists 2; Fungi	28, 31.1-3, 31.5
Wed	June 12	Sigurdson	14 Plant Evolution 1	29
Thu	June 13	Sigurdson	EXAM 3	
Mon	June 17	Sigurdson	15 Plant Evolution 2, Animal Development	29, 30.1-3, 32
Tue	June 18	Sigurdson	16 Animals: Invertebrates, Vertebrates 1	33 & 34
Wed	June 19		JUNETEENTH NO CLASS!	
Thu	June 20	Sigurdson	17 Animals: Vertebrates 2	34
Mon	June 24	Sigurdson	18 Ecology and Biosphere 1	52-56
Tue	June 25	Sigurdson	EXAM 4	

*Additional readings for specific lectures will be posted 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, 3) Submit your printed statement and your original exam to your TA **within one week** of the time the examination was returned to you. The TA will either handle the regrade or consult with the professors. The entire exam will be re-graded 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. If you have to miss a lecture exam due to religious holiday (<http://orl.usc.edu/religiouslife/holydays/absences.html>) or University sanctioned event (e.g., student athletes with away-games) you must notify the Lab Manager **at least 7 days in advance**. If you miss an exam due to medical illness you must email a valid medical excuse to the Laboratory Manager (spatola@usc.edu) **within 48 hours** of the missed exam. The excuse cannot be to attend a dental appointment, a conference, or other similar reasons. The reason for missing an exam must be of a medical nature or totally unavoidable (e.g., a verified automobile collision on the day and time of the examination).

Remember that the

USC Student Health Center does not provide routine medical excuses. You should notify the Laboratory Manager in writing that you were seen by a doctor, making sure that you include: 1) the doctor's name and telephone number, and 2) a statement authorizing us to discuss with the doctor whether you were too ill to take the examination. We will contact the doctor and decide whether or not you have a valid excuse. If the excuse is valid, your grade for that exam will be pro-rated based on the average of your other comparable exams and the class average for that particular test. An invalid excuse will result in a score of zero for the missed exam.

If you miss the final exam and have provided a valid medical excuse to the Laboratory Manager **within 48 hours of the examination time**, a final course grade of incomplete (IN) will be recorded and you will be permitted to take a make-up final examination during the following semester. **You will receive zero points for an exam if you miss it for an invalid reason.**

Extra Credit

No extra credit will be given for special projects, etc.

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 your accommodations letter is emailed to the Laboratory Manager (spatola@usc.edu) as early in the semester as possible, preferably **by May 20**. OSAS is located in STU 301 and is open from 8:30 a.m. to 5:00 p.m., Monday through Friday. The telephone number of OSAS 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, computer, scribe, etc., 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

USC seeks to maintain an optimal learning environment. 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://web-app.usc.edu/scampus/1100-behavior-violating-university-standardsandappropriate-sanctions/>, while the recommended sanctions are located in **Appendix A**. Students will be referred to the Office of Student Judicial Affairs and Community Standards (SJACS) 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/>.

Website

Students are responsible for logging onto Brightspace and checking the course website on a regular basis. Postings will be an official source for announcements, course materials, lecture notes, lab notes, score postings and general discussions. Weekly quizzes will also be completed on Brightspace.

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 and associated course syllabus, you must obtain their **written agreement** to support that claim.

BISC 120 Laboratory Syllabus

Lab Manager: Brett Spatola

ZHS 362

E-mail: spatola@usc.edu

Office hours: Open door policy

Laboratory Schedule:

Lab #	Date	Laboratory	Post-lab assignment
1	May 16	Safety and introduction	Watch tutorials + certificates
2	May 21	Microscopes	
3	May 23	Scientific Investigation I	Research article + questions
4	May 28	Scientific Investigation II	Bean beetle results
5	May 30	Evolution	Phylogenetic tree analysis
6	June 4	Bacteria I	Peer review + questions
7	June 6	Bacteria II	Lab report (due before lab 9)
8	June 11	Animal Behavior	Lab report
9	June 13	Ecology	
10	June 18	Lab exam	
11	June 20	Biodiversity Presentation	Presentation review + comments

The Lab Manager reserves the right to make adjustments during the semester.

Required Textbook:

BISC 120 Laboratory Manual. PDF will be [posted on Brightspace](#) and printouts/electronic copies must be brought to lab each week.

Lab point distribution

The laboratory portion (325 points) will count for ~32% of your final course grade, distributed as follows:

Post-lab assignments (6 x 10 points each)	60 pts
Lab report	40 pts
Lab exam	105 pts
PPT presentation	30 pts
Lab Manual (5 points per chapter)	45 pts
Lab Participation (5 points per lab)	45 pts

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 closed toe shoes, long pants and a knee-length lab coat.

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. Check with your instructor before leaving.

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

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 his/her TA the lab manual before leaving the lab and obtain their signature. 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 in your lab experiments or related to the lab topic. Assignments are explained in the lab manual and more information can be found on Brightspace.

Lab report

Lab reports must be posted on Brightspace (*Lab Reports* turnitin link). 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 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.

It is your responsibility to be present on the days of the lab practical exams.

If you miss a lab exam due to a serious illness, you must present a valid excuse to the Lab Manager Dr. Spatola (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 practical exam.

Missed labs

If you miss a scheduled lab due to illness or emergency, please contact the Lab Manager (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 the Lab Manager (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 Brightspace. Your lab scores will be posted under your LAB SECTION. Be sure to check for additional postings on a regular basis. It is the student's responsibility to immediately notify his/her Lab Instructor or Lab Manager in the event of any mistakes, so please check your scores weekly.