



**BISC 120Lg: General Biology:
Organismal Biology and Evolution**

4 units

Mon., Wed., Fri. 10:00–10:50 AM (13005)

Room: THH 101

Instructor: Andrew Gracey, Ph.D.

Office: AHF 316

Office Hours: Monday 11:30-12:30

Contact Info: gracey@usc.edu

Lab Manager: Gorjana Bezmalinovic

Office: ZHS 362

Office Hours: Open door policy

Contact Info: bezmalin@usc.edu

Phone: (213) 740-6078

Required Texts:

Lecture

[Campbell Biology 11th ed., 2016.](#)

(10th edition also acceptable)

Laboratory

[Fall 2019 bisc 120 Laboratory Manual.](#)

(Chapters posted as PDF files on Blackboard)

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

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

Course Description

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

Lecture Quizzes: There will be 12 multiple choice quizzes to be completed on Blackboard during the semester. The quizzes will be posted at 11:00 A.M. on Fridays and will remain available until 9:00 A.M. the following Monday. First Bb quiz will be posted on Sept 6th.

Exams: The lecture portion of this course will include three midterm examinations 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 examination will not be cumulative, effectively serving as a fourth midterm. Three midterms will be given during the Friday 2:00 P.M. quiz section, and the final exam is on Wednesday, Dec 18th at 9:00 AM. 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 75% of the assigned weekly laboratory activities.

Grading: After each examination, 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. While there are multiple sections and days offered for BISC 120 this year, your grade will only be based on your performance within the T/TH group of students (i.e., T/TH grades will not be pooled with grades from the M/W/F class to calculate final grades).

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

Midterm Exam 1	150
Midterm Exam 2	150
Midterm Exam 3	150
Final Exam (not cumulative)	150
Lecture Quizzes	72
Laboratory Assignments	328

Laboratory scores will be normalized as explained in the laboratory syllabus in order to correct for possible differences in grading between laboratory instructors. Any document associated with grading may be photocopied by the instructional staff.

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

Day	Quiz	Lecturer	Lecture	Readings
M Aug 26		Gracey	1 Course Introduction	Course Syllabus
W Aug 28		Gracey	2 Mendelian Inheritance	14
F Aug 30		Gracey	3 Chromosomal Inheritance I	15
M Sep 2			LABOR DAY – NO CLASS	
W Sep 4		Gracey	4 Chromosomal Inheritance II	15
F Sep 6	Quiz 1	Gracey	5 Genetic Material and Expression I	16
M Sep 9		Gracey	6 Genetic Material and Expression II	17
W Sep 11		Gracey	7 The Darwinian Revolution	22
F Sep 13	Quiz 2	Gracey	8 Evolutionary Mechanisms I	23
M Sep 16		Gracey	9 Evolutionary Mechanisms II	23
W Sep 18		Gracey	10 Speciation I	24
F Sep 20	Quiz 3	Gracey	11 Speciation II	24
F Sep 20			MIDTERM 1, (lectures 1-10), 2:00-3:00 pm	
M Sep 23		Gracey	12 Macroevolution	24.4, 25.5-25.6
W Sep 25		Gracey	13 Phylogenetic Systematics	26.1-26.3
F Sep 27	Quiz 4	Gracey	14 Insights from Molecular Systematics	26.4-26.6
M Sep 30		Gracey	15 Behavioral and Social Evolution	51
W Oct 2		Gracey	16 Conservation Genetics	56.1-56.2
F Oct 4	Quiz 5	Gracey	17 Origins of Life	25.1
M Oct 7		Gracey	18 History of Life on Earth	25.2-25.3
W Oct 9		Gracey	19 Extinctions and Adaptive Radiations	25.4
F Oct 11	Quiz 6	Gracey	20 Viruses I	19
F Oct 11			MIDTERM 2, (lectures 11-19), 2:00-3:00 pm	
M Oct 14		Gracey	21 Viruses II	19
W Oct 16		Gracey	22 Prokaryotes I	27
F Oct 18	Quiz 7	Gracey	23 Prokaryotes II	27
M Oct 21		Gracey	24 Prokaryotes III	27
W Oct 23		Gracey	25 Classification of Prokaryotes	27
F Oct 25	Quiz 8	Gracey	26 Endosymbiosis and Eukaryotic Diversity	28
M Oct 28		Gracey	27 Protists I	28
W Oct 30		Gracey	28 Protists II	28
F Nov 1	Quiz 9	Gracey	29 Fungi	31
M Nov 4		Gracey	30 Plant Evolution I	29
W Nov 6		Gracey	31 Plant Evolution II	30
F Nov 8	Quiz 10	Gracey	32 History of Animal Life on Earth	32
F Nov 8			MIDTERM 3, (lectures 20-31), 2:00-3:00 pm	
M Nov 11		Gracey	33 Invertebrates I	33
W Nov 13		Gracey	34 Invertebrates II	33

F	Nov 15	Quiz 11	Gracey	35	Invertebrates III	33
M	Nov 18		Gracey	36	Animal Diversity – Chordates	34
W	Nov 20		Gracey	37	Vertebrates I	34
F	Nov 22	Quiz 12	Gracey	38	Vertebrates II	34
M	Nov 25		Gracey	39	Primates and Human Evolution	34
W	Nov 27				THANKSGIVING HOLIDAY – NO CLASS	
F	Nov 29				THANKSGIVING HOLIDAY – NO CLASS	
M	Dec 2		Gracey	40	Our Global Environment Ecology and Biosphere 1	52-53
W	Dec 4		Gracey	41	Ecology and Biosphere 2	54-55
F	Dec 6		Gracey	42	Life in the Anthropocene	56
W	Dec 18				FINAL EXAM (lectures 32-42) 9:00 – 10:00 am	

*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 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. 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 must 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. If you see a doctor at the USC Engemann Student Health Center, you will need to download, sign, and submit an "Authorization for Disclosure of Medical Information" to give us permission to speak to your doctor. This form can be found at: <https://engemannshc.usc.edu/files/2012/11/Authorization-for-Disclosure-of-Medical-Information-Professors-Limited-Discussion.pdf>. 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 Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Be sure that the letter is delivered to the Laboratory Manager as early in the semester as possible, [preferably by September 13, 2019](#). DSP is located in STU 301 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 DSP 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://web-app.usc.edu/scampus/1100-behavior-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.

Changing a Lab or a Lecture 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 (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 out 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.

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.

FALL 2019 BISC 120Lg INSTRUCTIONAL TEAM

For ANY administrative questions about ANY aspects of the lecture and laboratory portions of this course, please FIRST CONTACT the Lab Manager, Gorjana Bezmalinovic (E-mail: bezmalin@usc.edu)

MWF instructors:

Dr. Andrew Gracey
Dr. Trond Sigurdson

TH instructor:

Dr. Oliver Rizk

Lab Manager: Gorjana Bezmalinovic

Lab Instructors: TBA during the first week of classes

Supplemental instruction (SI) leader: Samuel Jump

SI study session times can be found at <http://dornsife.usc.edu/supplemental-instruction> once the semester starts.

[Answers to students' frequently asked questions](#) regarding this course can be found on Blackboard (<https://blackboard.usc.edu>) under Course Information in your lecture section.

BISC 120 LABORATORY SYLLABUS**FALL 2019**

Lab Manager: Gorjana Bezmalinovic
E-mail: bezmalin@usc.edu

ZHS 362 Tel/Fax: 213-740-6078
Office hours: Open door policy

Laboratory Schedule:

<u>Lab #</u>	<u>Date</u>	<u>Laboratory</u>
	Aug 27 – Aug 30	NO LAB THIS WEEK
1	Sep 3 – Sep 6	Introduction to BISC 120 Labs & Assignments/ Laboratory Safety
2	Sep 10 – Sep 13	The Microscope
3	Sep 17 – Sep 20	Scientific Investigation I (Beans & Beetles*)
4	Sep 24 – Sep 27	Scientific Investigation II* / Scientific Writing*
5	Oct 1 – Oct 4	Evolution *
6	Oct 8 – Oct 11	Animal Behavior (Lab Report 1 due)
	Oct 15 – Oct 18	FALL RECESS – NO CLASS
7	Oct 22 – Oct 25	Bacteria I (Lab Report 1 peer review due)
8	Oct 29 – Nov 1	Bacteria II*
9	Nov 5 – Nov 8	Plants
10	Nov 12 – Nov 15	Ecology (Lab Report 2 due)
	Nov 19 – Nov 22	LAB EXAM
	Nov 26 – Nov 29	NO LAB – THANKSGIVING
	Dec 3 – Dec 6	Biodiversity Conservation Presentations

* Exercise for which 5-7 pages, type-written lab report is required.

* Exercise for which there is a homework or a pre-lab assignment.

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

Required Textbook:

Fall 2019 BISC 120 Laboratory Manual. PDF will be [posted on Blackboard](#) and printouts must be brought to lab each week.

LABORATORY POINT DISTRIBUTION

The laboratory portion ([328 points](#)) will count for [~33%](#) of your final course grade, distributed as follows:

Lab Quizzes (9 – 4 points each)	36 pts
Homework (2 – 8 points each)	16 pts
Scientific Reading	12 pts
Lab Report (2 – 40 points each)	80 pts
Lab Report 1 Peer Review	10 pts
Lab Exam	104 pts
Biodiversity Conservation Presentation	30 pts
Lab Manual (2 points per chapter)	20 pts
Lab Participation (2 points per lab)	20 pts

LABORATORY 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. Goggles will be provided in lab.

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.

PRE-LAB QUIZZES

Each student will take a Blackboard pre-lab quiz prior to coming to lab each week. Quizzes will consist of multiple choice questions. Questions will test your knowledge of the material you will be covering that week in lab. There will be no pre-lab quiz before your first lab (Lab Safety chapter).

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.

HOMEWORK ASSIGNMENTS

During the semester you will have two homework assignments, based on your lab experiments. Assignments are explained in the lab manual and more information can be found on Bb.

PRE-LAB ASSIGNMENT – SCIENTIFIC READING

You will have to read a peer-reviewed scientific paper and answer questions on Bb before you come to lab. You are expected to participate in a lab discussion of the paper with your lab instructor and your labmates.

LAB REPORTS

Two lab reports will be written during the semester. Lab reports must be posted on Blackboard (*Lab Reports* [turnitin](#) link) and a hard copy turned in at the beginning of the lab session. Lab report guidelines will be posted on Bb (<https://blackboard.usc.edu/>) in the beginning of the semester.

FIRST LAB REPORT PEER REVIEW

Each student will review one of their lab-mates' lab reports. Instructions will be posted on Blackboard once the semester starts.

LAB EXAM

The cumulative lab exam will test your understanding of the topics, concepts and exercises covered during the semester.

Missed Lab Exam: *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 Gorjana Bezmalinovic (bezmalin@usc.edu) **within 48 hours** of the missed exam. A valid excuse is considered to be an official note from your doctor or the "Authorization for Disclosure of Medical Information" form from the USC Engemann Student Health Center (the '*Professor's Limited Discussion*' form). 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 exercise **due to illness or emergency**, please contact the **Administrative TA Melissa Dellatorre** (dellator@usc.edu) to see whether it will be possible to make up the exercise by attending an alternative lab section. For logistical reasons, it will not be possible to make up a missed lab exercise after Friday afternoon of the week in question. Therefore, students with labs scheduled on Fridays will have little or no alternative should they miss lab unexpectedly. Only a few requests for alternative labs can be accommodated, because few sections have available space. Therefore, it is very important for you to attend your scheduled lab section.

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/life/calendar/absences/>. Requests for such absences should be made by email addressed to the Lab Manager (bezmalin@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.

BIODIVERSITY CONSERVATION PRESENTATION

Detailed instructions for preparing your presentation, including how points will be assigned, will be provided on Blackboard (<https://blackboard.usc.edu/>).

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 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 Blackboard scores weekly.

LAB SCORE NORMALIZATION

The lab scores will be normalized at the end of the semester by the Lab Manager to correct for differences in grading between Lab Instructors (TAs). In this procedure, the mean total score of all students in each lab instructor's lab section is compared to the mean total score of the entire class and each student's score is adjusted.

STUDENTS WITH DISABILITIES

Students requesting academic accommodations based on a disability are required to register with the Office of Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Be sure that the letter is delivered to the Laboratory Manager as early in the semester as possible, [preferably by September 13, 2019](#). DSP 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 DSP 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.