

**BISC 121Lg**  
**Advanced General Biology: Organismal Biology and Evolution**  
**~ Fall Semester 2017 ~**

Course Overview: BISC 121Lg is an advanced introductory course that will expose students to the breadth of biological diversity, evolution, and environmental biology. The course is designed to provide relatively even coverage of all major taxonomic groups, providing an evolution-based description of form and function, and an overview of ecology, behavior, population genetics, and conservation biology.

Lecturer: **David Caron, Ph.D.**, AHF 301, 213 740-0203, [dcaron@usc.edu](mailto:dcaron@usc.edu)

Office Hours: Open door policy, or by appointment

**Jed Fuhrman, Ph.D.**, ACB 305, 213 740-5757, [fuhrman@usc.edu](mailto:fuhrman@usc.edu)

Office Hours: 2-3 P.M. on Mondays, or by appointment

Lab Manager: **Gorjana Bezmalinovic**, ZHS 362, 213-740-6078, [bezmalin@usc.edu](mailto:bezmalin@usc.edu)

Office Hours: Open door policy

Lab Instructors: **Sammi Ali, Jonathan Lee, Fabian Seidl**

Required Textbooks:

Lecture: [Campbell Biology](#), by Reece et al., 11<sup>th</sup> edition, 2016.

Laboratory: [Fall 2017 BISC 121 Laboratory Manual](#) (chapters posted on *Blackboard*)

Optional Textbooks:

[Van De Graaff's Photographic Atlas for the Biology Laboratory](#), 7<sup>th</sup> ed., Adams & Crawley. 2013.

[A Short Guide to Writing About Biology](#). 9<sup>th</sup> ed. Pechenik (e-copy included with the USC custom textbook).

[Sustaining Life, How Human Health Depends on Biodiversity](#). E. Chivian and A. Bernstein (editors). 2008.

Website: <https://blackboard.usc.edu/> (for detailed class notes, announcements and grades—you will want to check this website regularly)

Grading: Final grades are assigned on a curve, determined entirely by the total number of points earned on lecture exams and in the laboratory. See the **Course Contract** posted on Bb for more details. After each exam a curve will be published to indicate roughly what letter grade corresponds to each student's current number of points. **Only the total number of points earned by the end of the course will determine the final grade.**

Exam Schedule:

Exam 1: Monday, Sep 18

Exam 2: Monday, Oct 9

Exam 3: Friday, Nov 3

Final Exam: Monday, Dec 11, 8:00-10:00 AM

**For policies on re-grading and missed exams, refer to Course Contract available on the course website.**

Students with Disabilities: Any student requesting academic accommodations based on a disability is 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 director as early in the semester as possible, preferably by September 8, 2017. DSP is located in GFS 120 and is open 8:30-5:00, Monday through Friday. The telephone number for DSP is 213-740-0776.

**Lecture schedule: MWF 10:00 - 10:50 AM**

Date	Lecture Topic	Campbell Biology 11 <sup>th</sup> Ed.	Lecturer	Lecture Number
Aug 21	Introduction	Ch.14,15,16*	Caron	1
23	Darwinian Evolution: Concepts & Background	Ch. 22, 23	Caron	2
25	Evolution: The Modern Synthesis	Ch. 22	Caron	3
Aug 28	Micro/Macroeolution: Evolutionary Processes	Ch. 24	Caron	4
Aug 30	Microevolution (Narrated Lect.) No Class Today	Ch. 24	Caron	5
Sep 1	Macroeolution, the Species Concept, Speciation	Ch. 25	Caron	6
Sep 4	<i>Labor Day</i>			Holiday
6	CRISPR Tech. & Applications (In-Class Disc.)	Ch. 26	Caron	7 (Discuss.)
8	Phylogeny, Systematics, and The Tree of Life	Ch. 26	Caron	8
Sep 11	Unicellular Eukaryotes: Protists I	Ch. 26	Caron	9
13	Unicellular Eukaryotes: Protists II	Ch. 28	Caron	10
15	Fungi Phylogeny and Ecology	Ch. 28	Caron	11
<b>Sep 18</b>	<b>1<sup>st</sup> EXAM</b>		Caron	Exam 1
20	Animal Diversity	Ch. 31	Caron	12
22	Invertebrates I	Ch. 32	Caron	13
Sep 25	Invertebrates II	Ch. 32	Caron	14
27	Invertebrates III (Narrated Lect.)(No Class Today)	Ch. 33	Caron	15
29	DNA Barcoding (IN –Class Discussion)	Ch. 33	Caron	16 (Discuss.)
Oct 2	Vertebrates: The Origin of Jaws	Ch. 34	Caron	17
4	Vertebrates: Amniotes	Ch. 34	Caron	18
6	Vertebrates: Primates & Hominid Evolution	Ch. 34	Caron	19
<b>Oct 9</b>	<b>2<sup>ND</sup>EXAM</b>		Caron	Exam 2
Oct 11	Origins of Life	Ch. 25	Fuhrman	20
13	Virus Introduction	Ch. 19	Fuhrman	21
Oct 16	Viruses and Prokaryotic Genetics	Ch. 18.1, 27	Fuhrman	22
18	Prokaryote Structure & Function	Ch. 27	Fuhrman	23
20	Global Change Presentation	TBA	Fuhrman	24
Oct 23	Prokaryote Metabolic Diversity	Ch. 27	Fuhrman	25
25	Prokaryote Diversity and Ecology	Ch. 27	Fuhrman	26
27	The Evolution of Land Plants	Ch. 29	Fuhrman	27
Oct 30	Seed Plants	Ch. 30	Fuhrman	28
Nov 1	Elements of Plant Structure and Function	Ch. 35-39 (concepts only)	Fuhrman	29
<b>Nov 3</b>	<b>3<sup>RD</sup> EXAM</b>		Fuhrman	30

Nov 6 8	Behavioral Biology Introduction to Ecology	Ch. 51 Ch. 52	Fuhrman Fuhrman	Exam 3 31
10	Population Ecology	Ch. 53	Fuhrman	32
Nov 13 15	Community Ecology	Ch. 54	Fuhrman	33
17	Community Ecology	Ch. 54	Fuhrman	34
	Ecosystems	Ch. 55	Fuhrman	35
20	Ecosystems	Ch. 55	Fuhrman	36
22	<i>Thanksgiving Holiday</i>			Holiday
24	<i>Thanksgiving Holiday</i>			Holiday
Nov 27 29	Conservation Biology	Ch. 56	Fuhrman	37
Dec 1	Conservation Biology	Ch. 56	Fuhrman	38
	Global Change and Catch Up.		Fuhrman	39
Dec 2-5	Study Days. No Classes or Exams.			
<b>Dec 11</b>	<b>Final Exam 8:00 AM – 10:00 AM</b>			Final Exam

**NOTES:** \* Indicates chapters that students should read and/or review, especially if they have little or no prior familiarity with genetics. This syllabus may be subject to minor changes, which will be announced in class.

**NOTES:** Professors' lectures will be supplemented with PDF or PowerPoint documents posted for download on the class web site (<https://blackboard.usc.edu/>). The PDF files will generally be available a few days prior the respective lecture under *Course Documents*.

This syllabus may be subject to minor changes, which will be announced in class & posted on Blackboard. Again, it is YOUR RESPONSIBILITY to check the <https://blackboard.usc.edu/> website frequently.

ACADEMIC INTEGRITY is critically important. Familiarize yourself with USC academic integrity guidelines. See <http://www.usc.edu/student-affairs/SJACS/forms/tio.pdf>, and also The Undergraduate Guide for Avoiding Plagiarism at <http://www.usc.edu/student-affairs/SJACS/forms/tig.pdf>.

Please check your grades on Blackboard frequently (on your *My USC* home page click on *View Grades* in the *Tools* box); all corrections to grades must be completed PRIOR to the lecture final. Please notify your TA and the laboratory manager of the error and follow-up that it is corrected in a timely manner.

Please note your final exam schedule as soon as soon you can! You must have 3 or more documented final exams on the same day to warrant a final exam day change. If you have the required 3 finals on the same day, bring your documentation to the laboratory manager for approval at least a week before the scheduled final exam time.

Please consult the Course Contract for further information on switching laboratories, exams, and how to handle class before the big game, holiday, etc.

**BISC 121 LABORATORY SYLLABUS**  
**FALL 2017**

**Lab Manager:** Gorjana Bezmalinovic  
E-mail: [bezmalin@usc.edu](mailto:bezmalin@usc.edu)  
Office hours: Open door policy

ZHS 362

Tel/Fax: 213-740-6078

**Laboratory Schedule:**

<u>Lab #</u>	<u>Date</u>	<u>Laboratory</u>
	Aug 22 – 24	NO LAB THIS WEEK
1	Aug 29 – 31	Introduction to BISC 121 labs & assignments Lab Safety
2	Sep 5 – 7	The Microscope
3	Sep 12 – 14	Scientific Investigation I (Beans & Beetles*)
4	Sep 19 – 21	Scientific Investigation II / Intro to Scientific Writing <b>Journal Club 1</b>
5	Sep 26 – 28	Evolution
	Oct 3 – 5	Amphibians and Fishes Comparison (Lab Report 1 due)
6	Oct 10 - 12	Bacteria I/ Scientific Writing Review (Lab Report 1 peer review due)
7	Oct 17 – 19	Bacteria II*
8	Oct 24 – 26	Plant Diversity (Lab Report 2 due)
9	Oct 31 – Nov 2	Animal Behavior
10	Nov 7 – 9	Ecology <b>Journal Club 2</b>
	Nov 14 – 16	<b>LAB EXAM</b>
	Nov 21 – 23	NO LAB – THANKSGIVING
	Nov 28 – 30	Biodiversity Presentations

\* Exercise for which 5-7 pages, type-written lab report is required. Guidelines posted on Bb.



Tide Pools Field Trip – Nov 5<sup>th</sup>



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

### Required Textbook

Fall 2017 BISC 121 Laboratory Manual (PDF posted on Blackboard).

### Recommended Textbooks

Adams & Crawley (2013). [Van De Graaff's Photographic Atlas for the Biology Laboratory](#), 7<sup>th</sup> ed.

Pechenik. [A Short Guide to Writing About Biology](#). 9<sup>th</sup> ed. (e-copy included with the USC custom textbook).

## **LABORATORY POINT DISTRIBUTION**

The laboratory portion (**370 points**) will count for 37% of your final course grade, distributed as follows:

Pre-lab Quizzes (10 – 5 points each)	50 pts
Homework (3 – 7 points each)	21 pts
Lab Report 1	40 pts
Peer Review	5 pts
Lab Report 2	40 pts
Lab Exam	100 pts
Journal Club (12 points each)	24 pts
Tide Pools Field Trip	20 pts
Intertidal Presentation	30 pts
Lab Manual	20 pts
Lab Participation	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 other appointments for the time you are scheduled to be in lab.

**Students who are within 10 points of a grade borderline at the end of the semester will be considered for an upgrade based on the following criteria: class participation, attendance, coming to office hours, and subjective evaluation by the Lab Instructor, Lab Manager, and faculty.**

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**

Students will take a Blackboard pre-lab quiz prior to coming to each lab. Quizzes will consist of multiple choice questions. Questions will test your knowledge of the material you will be covering that day in lab.

## **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.

## 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.

## LAB EXAMS

The cumulative lab practical 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 the doctor, need 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.

## JOURNAL CLUB:

Dr. Caron and Dr. Fuhrman will each lead a journal club discussion of one peer-reviewed scientific paper related to the course lecture material. You are responsible for reading and understanding the scientific papers and you are each expected to participate actively in the discussion of the papers during journal club.

## TIDE POOLS FIELD TRIP

This project is designed to provide you with an opportunity to explore the marine (intertidal) environment, observe animals and plants from a diverse array of phyla/divisions, and learn how animals and plants adapt and interact with each other and their environment. We will go to the beach located between the *Royal Palms State Beach* and *Point Fermin Park* in San Pedro. All the necessary information regarding this field trip will be posted on Blackboard (<https://blackboard.usc.edu/>) at the beginning of the semester.

## INTERTIDAL PRESENTATION

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

## MISSED LABS

If you miss a scheduled lab exercise **due to illness or emergency**, please contact the Lab Manager Gorjana Bezmalinovic ([bezmalin@usc.edu](mailto:bezmalin@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 our last lab of the week (THU 8 A.M. lab). Therefore, students with labs scheduled on Thursdays will have little or no alternative should they miss lab unexpectedly. 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, see: <http://orl.usc.edu/religiouslife/holydays/absences.html>. Requests for such absences should be made by email addressed to the Lab Manager 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 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 on Blackboard 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. 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 8, 2017. 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 121 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](http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html).