

BISC 220 (General Biology: Cell Biology and Physiology), Summer 2018

A. General Course Description and Policies

Catalog Description

Biological Sciences 220L – General Biology: Cell Biology and Physiology

In-depth survey of key topics related to advances in our knowledge of cellular biology and physiology; cell composition/metabolism; gene action; organism structure and function.

(Duplicates credit in BISC 110L, BISC 111L, and BISC 221L.) *Recommended preparation:* high school chemistry; BISC 120L or BISC 121L.

Instructor

Bruce Yazejian HNB B20 Phone 213-740-2220 yazejian@usc.edu

Office hours: by appointment

Laboratory Manager

Gorjana Bezmalinovic, ZHS 362, bezmalin@usc.edu, Phone/Fax 213-740-6078

Office hours: Open door policy

Textbooks

Campbell Biology, by Reece et al., 11th edition, 2016.

N.B. – Although the 11th edition is the official textbook for the class, it is not substantially different from the 10th edition. Students interested in saving money may opt for the older version. However, such students should consult the newer version to transpose the reading assignments and check for differences. A few copies of the 11th edition will be placed in Bio-space (ZHS 360A).

BISC 220 Laboratory Manual, Summer 2018 (chapters posted on Bb)

Optional: *Van de Graaff's Photographic Atlas for the Biology Laboratory*, by Adams and Crawley, 7th Edition, Morton Publishing Company.

Optional: *A Short Guide to Writing About Biology*, by Pechenik, 8th edition, Pearson. (e-copy included with the USC custom textbook).

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

All course materials, information, recordings, announcements, and grades will be posted on Blackboard until Commencement Day. Blackboard is to be used only for appropriate, course-related activities. Use for other purposes will result in disciplinary action.

Lectures

MTWH 10:00-12:05

All lectures will be given in HNB 100.

Laboratory (See Part B below for the complete laboratory syllabus)

The lab portion of the course is held on Tuesdays/Thursdays from 1:00 – 3:50 pm in ZHS 369.

The laboratory is an integral and essential component of the course, intended to give you hands-on experience with the processes, tissues, and concepts discussed in the lecture part of the class, and to deepen your understanding of the scientific literature and science as a process.

The purposes, policies, and procedures of the laboratory are fully explained in Part B of this syllabus.

Performance in the laboratory will account for one-third of each student's grade. The laboratory grade will be based on lab practical exams, lab reports, lab quizzes, lab participation, completeness of the lab manual, a group presentation on a classic scientific paper, and discussion of other students' presentations. See the Grading Table below for point values of each of these components.

Lecture Exams

Lecture exam questions may include multiple choice, matching, fill-in-the-blank, true/false, short answers, short essays, definitions, and quantitative problems.

Online Quizzes

Five lecture quizzes (each worth 8 points) will be administered online via Blackboard. The quizzes will be posted by 2:00 pm on Fridays and must be completed by 9:00 am the following Monday. The first quiz will be posted on May 25 (because of the Memorial Day Holiday, the first quiz will be due on Tuesday, May 29). Questions will cover the previous week's material. Answers to quiz questions will be posted at the end of each quiz period.

Grading

	Item	Pts Each	Number	Total	Portion Totals
Lecture	Lecture Exams	150	4	600	Lecture = 640
	Online quizzes	8	5	40	
Lab	Lab Exam	101	1	101	
	Lab Reports	40	2	80	
	Lab Report Peer Review	10	1	10	
	Lab Quizzes	5	9	45	
	Homework Assignments	6	4	24	
	Identifying the Unknowns	1	8	8	
	Lab Participation	2	9	18	
	Lab Manual	2	9	18	
	Classic Literature Presentation	56	1	56	Lab = 360
					Course total =1000

After each lecture exam, an advisory curve will be posted to help students gauge their standing in the class. Final grades will be determined according to a curve. Points will only be given for the items listed above. No extra credit will be given.

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. Specific policies regarding exams are explained in the next section.

Exam Policies

If you feel an error was made in the grading of an exam question, you may submit the question for a re-grade according to the following procedure. First, prepare a written statement explaining why your answer deserves more credit, using the Regrade Request Form available on Blackboard. Second, submit this statement and your entire original exam to your Teaching Assistant within one week of when the exam was returned to you. *The entire answer will be re-graded, not just the part you think deserves more credit. In addition, the instructors will review the grading of the entire exam to check for errors in grading. Your grade may go up or down as a result of this re-examination.* Be aware that we usually make copies of corrected exams before we return them, to ensure that students do not alter their answers before submitting them for a re-grade. Altering an answer is considered a serious violation of academic integrity. Please see the section on Academic Integrity (below) for additional information.

No make-up exams will be given.

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 or quiz for a legitimate reason, and wish to ask for an accommodation, you should proceed as follows. Within 48 hours of the start of the missed exam, 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. 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.

Academic Integrity

Our university depends on honesty, integrity, and ethical behavior among its members. Among other things, students' ethical behavior includes respecting the intellectual property of others, submitting individual work unless otherwise directed by the instructor, protecting one's own academic work from misuse by others, and avoiding the use of another's work as one's own.

We have reliable, time-tested methods for detecting cheating, plagiarism, and other violations of academic integrity. *Please note that sanctions for violations are severe.* This is necessary to protect the integrity of grades and the academic process. The minimum sanction is usually an F for the course. Suspension or expulsion from the university is also possible in egregious cases or for repeat offenses.

Resources on academic integrity standards, policies, and expectations:

1. Trojan Integrity Guide: <http://www.usc.edu/student-affairs/SJACS/forms/tio.pdf>
2. Guide for Avoiding Plagiarism: <http://www.usc.edu/student-affairs/SJACS/forms/tig.pdf>
3. Overview of Academic Integrity: <http://www.usc.edu/student-affairs/SJACS/forms/AcademicIntegrityOverview.pdf>
4. Tutorial on Academic Integrity: http://www.usc.edu/libraries/about/reference/tutorials/academic_integrity/index.php
5. SCampus (University Governance, paragraph 11):
<http://web-app.usc.edu/scampus/1100-behavior-violating-university-standards-and-appropriate-sanctions/>
6. Scientific Misconduct:
<http://policy.usc.edu/scientific-misconduct/>

Other Conduct Issues

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* (<http://equity.usc.edu/>) or to the *Department of Public Safety* (<http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>).

Call DPS at 213-740-4321 if you need immediate assistance or to report a crime. Reporting such incidents is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. The *Center for Women and Men* (<http://www.usc.edu/student-affairs/cwm/>) provides 24/7 confidential support, and the Sexual Assault Resource Center webpage (<http://sarc.usc.edu>) describes reporting options and other resources.

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 and should be delivered to the Lab Manager early in the semester, preferably by May 21, 2018. If a student's approved accommodation is limited to extra time on examinations, the teaching staff of BISC 220 will provide the accommodation. For any other accommodation, such as a private room, reader, scribe, etc., students must make arrangements with the DSP office at least 2 weeks before the exam date. For more information, you can visit the DSP office in GFS 120 (8:30-5:00, M-F), call at 213-740-0776, email at ability@usc.edu, or go to their website: http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html.

Lecture schedule:

Day	Lecture		Chapter Readings
Wed	May 16	1 Introduction, Biomolecules, Water	1-5
Thu	May 17	2 The Cell	6
Mon	May 21	3 Cell Membranes	7
Tue	May 22	4 Cell Communication	11
Wed	May 23	5 Metabolism part 1 of 2	8
Thu	May 24	EXAM 1	
Mon	May 28	Memorial Day Holiday...no class	
Tue	May 29	6 Metabolism part 2 of 2	8,9
Wed	May 30	7 Photosynthesis	10
Thu	May 31	8 Cell Cycle	12
Mon	June 4	9 Mitosis	12
Tue	June 5	10 Meiosis	13
Wed	June 6	EXAM 2	
Thu	June 7	11 Cardiovascular system	42.1-42.4
Mon	June 11	12 Respiration	42.5-42.7
Tue	June 12	13 Immune system	43
Wed	June 13	14 Fluid and electrolyte balance	44
Thu	June 14	EXAM 3	
Mon	June 18	15 Endocrine system	45
Tue	June 19	16 Reproduction	46
Wed	June 20	17 Nervous system	48
Thu	June 21	18 Nervous system	49
Mon	June 25	19 Motor system	50.5
Tue	June 26	EXAM 4	

B. Laboratory Syllabus

Lab Manager: Gorjana Bezmalinovic ZHS 362 Tel/Fax: 213-740-6078
E-mail: bezmalin@usc.edu
Office hours: Open door policy

Laboratory Schedule:

LAB	DAY	TOPIC	CHAPTER
1	May 17	Intro to BISC 220 Labs & Macromolecules*	1 & 2
2	May 22	Macromolecules**/Scientific Investigation	3
3	May 24	Enzymes*	4
4	May 29	Cell Membranes & Transport	5
5	May 31	Photosynthesis* <i>(Lab Report 1 due)</i>	6
6	June 5	Cellular Respiration and Fermentation*	7
7	June 7	DNA Technology and Genetic Engineering*	8
8	June 12	The Cardiovascular System* <i>(Lab Report 2 due)</i>	9
9	June 14	The Nervous system	10
	June 19	LAB EXAM	
	June 21	Classic Literature Presentations	
	June 26	Graded assignments returned	

* Exercises for which 5-7 page, typed lab reports are required. Guidelines are posted on Blackboard.

* Exercise for which there is a homework assignment.

** Identifying the unknowns (Exercise #3 from *Macromolecules* chapter)

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

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 expected 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.
- You are required to wear *closed toe shoes, long pants*, and a *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 Lab 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 time. Quizzes will consist of 5 multiple choice questions. Questions will test your knowledge of the material you will be covering that day in lab.

Homework Assignments

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

Lab Reports

- Appreciation of the scientific method and development of scientific literacy are among the main goals of the laboratory portion of the class. Accordingly, formal lab reports will be strongly emphasized. Instructions on writing lab reports will be posted on Blackboard.
- Lab reports must be submitted electronically via Turnitin, using the link provided on the Blackboard site for the lab section. Specific instructions on how to upload lab reports will be emailed to each student. It is each student's responsibility to confirm that their lab reports were successfully uploaded.

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

- Cumulative lab practical exam will be given to test your understanding of the topics, concepts and exercises covered during the semester. Emphasis will be on application and analysis.
- *It is your responsibility to be present on the days of the lab practical exams.* If you miss a lab practical exam due to a serious illness, you must present a valid excuse to the Laboratory Manager, Gorjana Bezmalinovic (bezmalin@usc.edu) within 48 hours of the missed exam. A valid excuse is considered to be a statement that you were seen by a doctor, the doctor's name and phone number, and authorization for us to discuss with the doctor whether you were too ill to take the exam, which we will do. Note that neither you nor the doctor need tell us the

nature of your illness. If you have a valid excuse, 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.

Classic Literature Presentation and Participation

- The last lab meeting of the semester is reserved for PowerPoint presentations on classic papers from the cell biology/physiology literature and their relation to modern papers. The goals of this assignment are to give you a greater appreciation of the scientific literature and science as a process, as well as to work and communicate collaboratively with fellow students.
- Briefly, groups of 3 students will pick one classic paper from a list of several dozen papers that will be provided. All these papers are widely recognized as having had a major impact on the evolution of our understanding of cell biology or physiology. Each group must then find a recent paper (a primary paper published within the past 5 years) that directly follows from the classic paper. In the PowerPoint presentation, groups must explain the findings in the classic and modern paper, explain the connection between the two papers, discuss the significance of both studies, and suggest some follow-up experiments that should be done.
- Complete and detailed instructions for this assignment will be presented during the first lab meeting and in the document "*Classic Literature Presentation and Participation*" posted on Blackboard.
- Credit will be assigned to each group based on the clarity of their presentation, understanding of the material, fulfillment of all aspects of the assignment, and their abilities to lead a discussion on the topic and to answer questions. Credit will also be given to non-presenting students based on their participation in discussing the presentations of others.

Lab Participation and Lab Manual

- A total of 36 points will be awarded on the basis of lab participation (18 pts) and completeness of your lab manual (18 pts). We expect you to come to lab well-prepared and ready to contribute positively to the academic atmosphere. We also expect you to complete all aspects of the lab exercises, and to record data, observations, and answers to post-lab questions in your lab manual every week. Each student is required to show his/her Lab Instructor the lab manual before leaving the lab and obtain their signature. Lab manuals will be checked periodically throughout the semester. See the section above entitled "Laboratory Performance Guidelines" for more information on how lab participation points will be assigned.

Missed Lab Meetings

- If you miss a scheduled lab exercise due to illness or emergency, please contact the Laboratory Manager, Gorjana Bezmalinovic (bezmalin@usc.edu) to see whether it will be possible to make up the exercise. Please note that no lab make-ups will be allowed during the week prior to a holiday.
- 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/holidays/absences.html>. Requests for such absences should be made by email addressed to the Laboratory 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 Laboratory Manager, Gorjana Bezmalinovic (bezmalin@usc.edu), at least 2 weeks in advance so alternatives can be arranged.

Laboratory Score Normalization

- The lab scores will be normalized at the end of the semester by the Lab Manager in conjunction with the Lab Instructors to correct for differences in grading between Lab Instructors*. In this procedure, the mean total score of all students in each Lab Instructor's labs is compared to the mean total score of the entire class and each student's score is adjusted.

* If there are two or more lab instructors (TAs).