Profs. Watts & Herrera
BISC 220 (General Biology: Cell Biology and Physiology), Spring 2023
Schedule for MWF 9 am & 10 am Lectures (Sections 13011 & 13012)
Tentative Lecture Schedule – Subject to Revision

Date	Day	Topic	Campbell Biology – 12th Ed.	Lecturer
Jan 9	M	01 Introduction – Key Principles of Chemistry	Chs 2-4	Watts
Jan 11	W	02 Biomolecules 1	Chs 4-5	Watts
Jan 13	F	03 Biomolecules 2	Chs 4-5	Watts
Jan 16	M	*Holiday (MLK Day)*	-----	-----
Jan 18	W	04 Biomolecules 3	Ch 5	Watts
Jan 20	F	05 The Cell 1	Ch 6	Watts
Jan 23	M	06 The Cell 2	Ch 6	Watts
Jan 25	W	07 The Cell 3	Ch 6	Watts
Jan 27	F	08 Cell membranes 1 *	Ch 7	Watts
Jan 30	M	09 Cell membranes 2	Ch 7	Watts
Feb 1	W	10 Cell communication 1	Ch 11	Watts
Feb 3	F	11 Cell communication 2	Ch 11	Watts
Feb 6	M	12 Metabolism 1	Ch 8	Watts
Feb 8	W	13 Metabolism 2	Ch 8	Watts
Feb 10	F	14 Metabolism 3 / *EXAM 1 (lectures 1-11)*	Ch 9	Watts
Feb 13	M	15 Metabolism 4	Ch 9	Watts
Feb 15	W	16 Metabolism 5	Ch 9	Watts
Feb 17	F	17 Photosynthesis 1	Ch 10	Watts
Feb 20	M	*Holiday (President's Day)*	-----	-----
Feb 22	W	18 Photosynthesis 2	Ch 10	Watts
Feb 24	F	19 Photosynthesis 3 **	Ch 10	Watts
Feb 27	M	20 The cell cycle	Ch 12	Watts
Mar 1	W	21 Mitosis	Ch 12	Watts
Mar 3	F	22 Meiosis	Ch 13	Watts
Mar 6	M	23 Intro to Physiology; Cardiovascular System 1	Chs 40.1, 40.2; 42.1 - 42.4	Herrera
Mar 8	W	24 Cardiovascular System 2	Ch 42.1 - 42.4	Herrera
Mar 10	F	25 Cardiovascular System 3 / *EXAM 2 (lectures 12-22)*	Ch 42.1 - 42.4	Herrera
Mar 13	M	*Spring Break*	-----	-----
Mar 15	W	*Spring Break*	-----	-----
Mar 17	F	*Spring Break*	-----	-----
Mar 20	M	26 Respiration 1	Ch 42.5 - 42.7	Herrera
Mar 22	W	27 Respiration 2	Ch 42.5 - 42.7	Herrera
Mar 24	F	28 Immunity 1	Ch 43	Herrera
Mar 27	M	29 Immunity 2	Ch 43	Herrera
Mar 29	W	30 Immunity 3	Ch 43	Herrera
Mar 31	F	31 Osmoregulation & Excretion 1	Ch 44	Herrera
Apr 3	M	32 Osmoregulation & Excretion 2	Ch 44	Herrera
Apr 5	W	33 Osmoregulation & Excretion 3	Ch 44	Herrera
Apr 7	F	34 Endocrine System 1 / *EXAM 3 (lectures 23-32)* ***	Ch 45	Herrera
Apr 10	M	35 Endocrine System 2	Ch 45	Herrera
Apr 12	W	36 Endocrine System 3	Ch 45	Herrera
Apr 14	F	37 Reproduction	Ch 46	Herrera
Apr 17	M	38 Nervous System 1	Ch 48	Herrera
Apr 19	W	39 Nervous System 2	Ch 48	Herrera
Apr 21	F	40 Nervous System 3	Ch 49	Herrera
Apr 24	M	41 Nervous System 4	Ch 49	Herrera
Apr 26	W	42 Motor System 1	Ch 50.5	Herrera
Apr 28	F	43 Motor System 2	Ch 50.5	Herrera

* Friday, January 27 is the last day to drop without a mark of W and with tuition refund

** Friday, February 24 is the last day to drop without a mark of W and without tuition refund

*** Friday, April 7 is the last day to drop with a mark of W

May 3	W	*EXAM 4 (lectures 33-43); 9 AM*

Profs. Barakat & Hires
BISC 220 (General Biology: Cell Biology and Physiology), Spring 2023
Schedule for TuTh 9:30 am Lecture (Section 13022)
Tentative Lecture Schedule – Subject to Revision

Date	Day	Topic	Campbell Biology – 11th Ed.	Lecturer
Jan 10	Tu	01 Introduction; Biomolecules	Ch 1, Ch 2, Ch.4, Ch 5	Barakat
Jan 12	Th	02 Water	Ch 3	Barakat
Jan 17	Tu	03 The Cell 1	Ch 6	Barakat
Jan 19	Th	04 The Cell 2	Ch 6	Barakat
Jan 24	Tu	05 Cell membranes	Ch 7	Barakat
Jan 26	Th	06 Cell communication 1 *	Ch 11	Barakat
Jan 31	Tu	07 Cell communication 2	Ch 11	Barakat
Feb 2	Th	08 Metabolism 1	Ch 8	Barakat
Feb 7	Tu	09 Metabolism 2	Ch 8	Barakat
Feb 9	Th	10 Metabolism 3	Ch 9	Barakat
Feb 10	F	*EXAM 1 (lectures 1-7)*	-----	-----
Feb 14	Tu	11 Metabolism 4	Ch 9	Barakat
Feb 16	Th	12 Photosynthesis	Ch 10	Barakat
Feb 21	Tu	13 The cell cycle; Mitosis	Ch 12	Barakat
Feb 23	Th	14 Microtubules **	Ch 12	Barakat
Feb 28	Tu	15 Meiosis	Ch 13	Barakat
Mar 2	Th	16 Cardiovascular system 1	Ch 42.1 - 42.4	Hires
Mar 7	Tu	17 Cardiovascular system 2	Ch 42.1 - 42.4	Hires
Mar 9	Th	18 Respiration	Ch 42.5 - 42.7	Hires
Mar 10	F	*EXAM 2 (lectures 8-15)*	-----	-----
Mar 14	Tu	*Spring Break*	-----	-----
Mar 16	Th	*Spring Break*	-----	-----
Mar 21	Tu	19 Immunity 1	Ch 43	Hires
Mar 23	Th	20 Immunity 2	Ch 43	Hires
Mar 28	Tu	21 Fluid and electrolyte balance 1	Ch 44	Hires
Mar 30	Th	22 Fluid and electrolyte balance 2	Ch 44	Hires
Apr 4	Tu	23 Endocrine system 1	Ch 45	Hires
Apr 6	Th	24 Endocrine system 2	Ch 45	Hires
Apr 7	F	*EXAM 3 (lectures 16-22)*	-----	-----
Apr 11	Tu	25 Reproduction 1	Ch 46	Hires
Apr 13	Th	26 Reproduction 2 ***	Ch 46	Hires
Apr 18	Tu	27 Nervous system 1	Ch 48	Hires
Apr 20	Th	28 Nervous system 2	Ch 49	Hires
Apr 25	Tu	29 Motor system 1	Ch 50.5	Hires
Apr 27	Th	30 Motor system 2	Ch 50.5	Hires

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May 3	W	*EXAM 4 (lectures 23-30); 9 AM*

Prof. Barakat
BISC 220 (General Biology: Cell Biology and Physiology), Spring 2023
Schedule for TuTh 8 am Lecture (Section 13028)
Tentative Lecture Schedule – Subject to Revision

Date	Day	Topic	Campbell Biology – 11th Ed.	Lecturer
Jan 10	Tu	01 Introduction; Biomolecules	Ch 1, Ch 2, Ch.4, Ch 5	Barakat
Jan 12	Th	02 Water	Ch 3	Barakat
Jan 17	Tu	03 The Cell 1	Ch 6	Barakat
Jan 19	Th	04 The Cell 2	Ch 6	Barakat
Jan 24	Tu	05 Cell membranes	Ch 7	Barakat
Jan 26	Th	06 Cell communication 1 *	Ch 11	Barakat
Jan 31	Tu	07 Cell communication 2	Ch 11	Barakat
Feb 2	Th	08 Metabolism 1	Ch 8	Barakat
Feb 7	Tu	09 Metabolism 2	Ch 8	Barakat
Feb 9	Th	10 Metabolism 3	Ch 9	Barakat
Feb 10	F	*EXAM 1 (lectures 1-7)*	-----	-----
Feb 14	Tu	11 Metabolism 4	Ch 9	Barakat
Feb 16	Th	12 Photosynthesis	Ch 10	Barakat
Feb 21	Tu	13 The cell cycle; Mitosis	Ch 12	Barakat
Feb 23	Th	14 Microtubules **	Ch 12	Barakat
Feb 28	Tu	15 Meiosis	Ch 13	Barakat
Mar 2	Th	16 Cardiovascular system 1	Ch 42.1 - 42.4	Barakat
Mar 7	Tu	17 Cardiovascular system 2	Ch 42.1 - 42.4	Barakat
Mar 9	Th	18 Respiration	Ch 42.5 - 42.7	Barakat
Mar 10	F	*EXAM 2 (lectures 8-15)*	-----	-----
Mar 14	Tu	*Spring Break*	-----	-----
Mar 16	Th	*Spring Break*	-----	-----
Mar 21	Tu	19 Immunity 1	Ch 43	Barakat
Mar 23	Th	20 Immunity 2	Ch 43	Barakat
Mar 28	Tu	21 Fluid and electrolyte balance 1	Ch 44	Barakat
Mar 30	Th	22 Fluid and electrolyte balance 2	Ch 44	Barakat
Apr 4	Tu	23 Endocrine system 1	Ch 45	Barakat
Apr 6	Th	24 Endocrine system 2	Ch 45	Barakat
Apr 7	F	*EXAM 3 (lectures 16-22)*	-----	Barakat
Apr 11	Tu	25 Reproduction 1	Ch 46	Barakat
Apr 13	Th	26 Reproduction 2 ***	Ch 46	Barakat
Apr 18	Tu	27 Nervous system 1	Ch 48	Barakat
Apr 20	Th	28 Nervous system 2	Ch 49	Barakat
Apr 25	Tu	29 Motor system 1	Ch 50.5	Barakat
Apr 27	Th	30 Motor system 2	Ch 50.5	Barakat

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May 3	W	*EXAM 4 (lectures 23-30); 9 AM*

A. General Course Description and Policies

Catalog Description

Biological Sciences 220Lg – General Biology: Cell Biology and Physiology (4 units)
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. *Recommended preparation:* high school chemistry; BISC 120Lg or BISC 121Lg. Duplicates credit in BISC 110L, BISC 111L, and BISC 221L.

Note on scheduled times

All times listed are those in Los Angeles, i.e., Pacific Standard Time until March 12, then Pacific Daylight Time after March 12.

Instructors

For MWF 9:00-9:50 am (Section 13011) and MWF 10:00-10:50 am (Section 13012):
Prof. Alan Watts watts@usc.edu
Prof. Albert Herrera aherrera@usc.edu
For TuTh 9:30-10:50 am (section 13022):
Prof. Rita Barakat rbarakat@usc.edu
Prof. Andrew Hires shires@usc.edu
For TuTh 8:00-9:20 am (section 13028):
Prof. Rita Barakat rbarakat@usc.edu
To meet with instructors:
Q&A Sessions will be held twice weekly to discuss course material (see below).
Office hours for discussion of confidential matters will be held by appointment.

Laboratory Manager

Dr. Brett Spatola, ZHS 362, spatola@usc.edu, Phone 213-740-6078
Office hours: open door policy

Laboratory Instructors

TBD

Textbooks

- *Campbell Biology*, by Urey et al., either the 12th edition or 11th edition. The 12th edition has slightly newer content but the 11th edition would be less expensive.
- *BISC 220 Laboratory Manual (chapters posted on Blackboard)*

Website https://blackboard.usc.edu/

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

Lectures

- We do not recommend using the lecture recordings as a substitute for regular participation in the live lectures. They should be used to fill gaps in your notes, review difficult material, and as a substitute for the occasional missed lecture. *It would be a serious mistake to use the recordings as an excuse to procrastinate. Given the breadth and depth of the material, you must not fall behind. Keep up with the lecture schedule!*

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

- The lab portion of the course will be offered in-person at various times, Tuesday - Friday. See the Schedule of Classes for times and locations of the lab sections.
- The laboratory is an integral and essential component of the course, intended to give you 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 and in the Laboratory Manual.
- Performance in the laboratory will account for about one-third of each student's grade. See the Grading Table below for a complete description of how lab points will be assigned.

Lecture Exams

- Times and coverage of lecture exams are as follows.

	Date	**Time**	**MWF Coverage**	**TuTh Coverage**
Exam 1	Friday, Feb 10	2:00-3:05 pm	lectures 1-11	lectures 1-7
Exam 2	Friday, Mar 10	2:00-3:05 pm	lectures 12-22	lectures 8-15
Exam 3	Friday, Apr 7	2:00-3:05 pm	lectures 23-32	lectures 16-22
Exam 4	Wednesday, May 3	8:00-9:00 am	lectures 33-43	lectures 23-30

Note: The time of Exam 4 will be an exception to the usual final exam time listed in the Schedule of Classes.

- ***To balance the coverage on each exam, Exam 2 must be given on March 10, which is the Friday before Spring Break and a regular class day. Note that Spring Break does not begin until Sunday, March 12. Be sure that any travel plans you make do not conflict with Exam 2.***
- Lecture exams will be given in-person and will consist entirely of multiple choice and true/false questions. The exams are closed-book, i.e., you may not consult books, notes, internet sources, other references, or other persons during the exams. Only lecture subjects will be covered on lecture exams; laboratory subjects will be covered on separate lab exams and assignments. Please note: *Exam questions will not ask for rote repetition of information that can be easily memorized or looked up. Rather, questions will require you to use the lecture information to solve novel problems (see comments on quizzes below). Be prepared!*

Instructor-Led Exam Reviews

- For all 4 lecture exams, instructors will hold online review sessions just before the exam. Dates and times of these review sessions will be announced. Exam reviews will be recorded and archived.

Twice Weekly Question & Answer Sessions

- Each instructor will host a live Q&A session once a week via Zoom. Any student, regardless of which lecture section they are registered in, may attend any of the Q&A sessions. All these sessions will be recorded and posted on Blackboard. The Q&A schedule is as follows.

Q&A Times	**First Half of Semester**	**Second Half of Semester**
Tuesdays, 11 am - 12 pm	Barakat	Hires
Fridays, 3 - 4 pm	Watts	Herrera
Fridays, 1 - 3 pm	Barakat	Barakat

- *Although they are not required, it is highly recommended that you participate in the Q&A sessions as often as you can. Don't feel pressure to ask "good" questions, or any questions at all. Just listening is fine, as is asking straightforward questions like "Can you re-explain…," or "I just don't understand…". These are also great opportunities to get to know your instructor better. Besides answering questions, advice may be given on studying, time management, preparing for medical school and other*

graduate/professional programs, research opportunities, etc. Frequent attendance at Q&A sessions is one of several factors that favor boosting your grade in borderline cases (see Grading, below).

Instructor Office Hours

Please contact your instructor directly for individual office hour appointments via Zoom. Office hours are intended for discussion of individual, confidential matters such as grades. Course subject matter and other public issues should be discussed in Q&A sessions so all students can benefit from the interchange.

Lecture Quizzes

- A small percentage of the overall grade will be based on 13 quizzes, administered online via Blackboard. Each quiz will contain 6 questions worth 0.5 points each, for a total of 3 points. The quizzes will be posted by 1:00 pm each Friday beginning January 27 and continuing through April 28. Quizzes must be completed by 9:00 am the following Monday (Tuesday for Quiz 4 – see table below). For each quiz, questions will cover the previous week's material. Answers to most quiz questions will be revealed and discussed in the Q&A session following the Monday deadline or anytime thereafter. Quiz results that are particularly pertinent to our teaching and learning goals may be discussed in class during the first lecture after the deadline. After each deadline, quiz answers will be posted.
- Here is the quiz schedule:

Quiz Number	Posted by 1 pm on Friday	Deadline 9 am on …
1	Jan 27	Monday, Jan 30
2	Feb 3	Monday, Feb 6
3	Feb 10	Monday, Feb 13
4	Feb 17	Tuesday, Feb 21*
5	Feb 24	Monday, Feb 27
6	Mar 3	Monday, Mar 6
7	Mar 10	Monday, Mar 20
8	Mar 24	Monday, Mar 27
9	Mar 31	Monday, Apr 3
10	Apr 7	Monday, Apr 10
11	Apr 14	Monday, Apr 17
12	Apr 21	Monday, Apr 24
13	Apr 28	Monday, May 1

**Note that the deadline is extended for quiz 4.*

- Our intention is to make these lecture quizzes challenging, to help you prepare for the more point-heavy lecture exams. *Being able to look up answers and memorize is only the first step. To do well in this course, you must also be able to apply your knowledge to solve novel problems.* The quizzes are designed to give you low-stakes practice at this and thus gauge your level of preparation for exams.
- *This approach will only work, however, if you take the quizzes seriously and responsibly.* You may consult your textbook and any other printed or electronic material. You may also discuss the quiz questions with fellow students, if those discussions focus on understanding the underlying principles. You should <u>not</u> simply share or reveal your answers to other students, for several reasons. First, you will not know until after the deadline whether your answer is correct. Second, you will deprive that student of a learning opportunity. Third, you will diminish your own chances for a better grade by broadcasting your hard-won answers. The quizzes will require a disproportionately large amount of effort – on our part to craft challenging questions, and on your part to discern and understand the correct answers. It is likely that students who cheat by merely copying other students' quiz answers will pay a price on exam days. Please don't be one of those students.

- In recent years, most students came to see the quizzes as one of the most challenging parts of the course, but also one of the most valuable. If you take the quizzes seriously, we think you will come to the same conclusion.

Grading

- All grades will be posted on Blackboard. Points associated with the lecture (exam scores, online quiz points) will be posted on the Blackboard site for the lecture. Points associated with the lab (lab practical exams, lab reports, quizzes, participation and lab manual, presentation, discussion of other presentations) will be posted on the Blackboard site for the laboratory. We will try diligently to maintain these Blackboard gradebooks accurately, but mistakes may occur. Please check your scores often and notify your Lab Instructor or the Lab Manager as soon as possible if you notice errors.
- After each lecture exam, and once near the midpoint of the semester, an advisory curve will be posted to help students gauge their standing in the class.
- Final grades will be determined according to a curve. Any score within 10 points of the next highest grade will be considered a borderline grade. In such cases, instructors will consider whether to add up to 10 points to increase the grade to the next step. These points will be awarded based on a subjective evaluation of factors such as participation in the laboratory, attendance at Q&A sessions, effort, achievement relative to abilities, background, record of improvement, and other mitigating circumstances.
- If necessary, laboratory scores will be adjusted to correct for differences in grading between Laboratory Instructors.
- Points will only be given for the items listed below. No extra credit will be given.

	Item	Pts Each	Number	Total	Portion Totals
Lecture	Lecture Exams	150	4	600	
	Online Quizzes	3	13	39	Lecture = 639 pts
Lab	Lab Exam	100	1	100	
	Lab Report	40	1	40	
	Peer-review	10	1	10	
	Pre-lab quizzes	4	10	40	
	Homework/post-lab assignments	10	3	30	
	Unknown identification (lab #3)	8	1	8	
	Scientific Reading/questions	1	15	15	
	Presentation	30	1	30	
	Lab manual	4	11	44	
	Lab participation	4	11	44	Lab = 361 pts
					Course total = 1000 pts

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 contact one of the support services listed below, or bring them to the attention of one of the instructors. We may be able to offer accommodations. All such discussions will be confidential. Please seek help as soon as you feel your performance or well-being is affected.

Support Services

- Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents as soon as possible. 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. A list of offices to which one can report such incidents, as well as sources of support for other issues, follows.

- Campus Wellbeing and Crisis Intervention (213) 821-0411 cwci.usc.edu
  Provides support, trouble-shooting, threat assessment, advocacy, education, referrals, and crisis response and support.

- Student Health Counseling and Mental Health Services (213) 740-WELL (9355) studenthealth.usc.edu/counseling. Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. Help is available 24/7.

- National Suicide Prevention Lifeline (800) 273-TALK (8255) suicidepreventionlifeline.org
  Free and confidential emotional support to people in suicidal crisis or emotional distress. Help is available 24/7.

- Relationship & Sexual Violence Prevention Services (213) 740-4900 https://sites.google.com/usc.edu/rsvpclientservices/home. Working to prevent and respond to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking). Free and confidential help available 24/7.

- Office for Equity, Equal Opportunity, and Title IX (213) 740-5086 eeotix@usc.edu. Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

- Bias Assessment Response and Support (213) 740-07619 https://lgbtqplus.usc.edu/resources/bias-incident-reporting/. Avenue to report incidents of bias, hate crimes, hate incidents, and microaggressions for appropriate investigation and response.

- Office of Student Accessibility Services (213) 740-0776 osas.usc.edu
  Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs. Please see section below entitled “Students with Disabilities” for important course-specific information.

- Diversity at USC (213) 740-2101 diversity.usc.edu
  Information on events, programs and training, the Provost’s Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

- USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – on call 24/7 dps.usc.edu,
  Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

- USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call dps.usc.edu Non-emergency assistance or information.

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 to your Laboratory Instructor 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 "curved" 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 Exam 4 and you provide a convincing, well-documented excuse to the Lab Manager within 48 hours of the start of the scheduled exam time, a course grade of Incomplete (IN) will be assigned. It will be your responsibility to contact the instructors to arrange for a make-up version of Exam 4 so that a final grade can be assigned. You will have a year to complete the requirements for removal of the IN. After this, your grade will change to an IX (Lapsed Incomplete), which counts as an F in the GPA. If you miss Exam 4 and do not submit a valid excuse, a course grade will be calculated based on your other scores and a zero for Exam 4.
- Each student must take Exam 4 at the designated time. Keep this in mind as you plan your studying for this and other courses during the final exam period. Do not make travel plans that conflict with your designated Exam 4 time.

Supplemental Instruction

- We strongly recommend that students participate actively in the peer-led Supplemental Instruction program (http://dornsife.usc.edu/supplemental-instruction/). The SI leaders will hold regular study sessions via Zoom, beginning in the second week of classes. They will also conduct review sessions before each exam. Further information about the SI program as well as schedules and weekly worksheets can be found at http://www.usc.edu/si.
- The Supplemental Instruction Leader for BISC 220 will be **TBN**. They may be contacted at bisc220si@gmail.com. The schedules for SI sessions and exam reviews will be posted at

www.dornsife.usc.edu/session-schedules. SI leaders are selected for the high grades they earned in assigned courses and for their overall academic strength, success in advanced biological studies, and superior communication skills. We highly recommend them as sources of academic and pre-professional advice.

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.
- Here is a partial list of actual violations that have been perpetrated by BISC 220 students in recent years. The numbers in parentheses refer to relevant paragraphs in the University Governance section of SCampus (see resource 5 in the list below). *Most of these students received grades of F and were reported to the Office of Student Judicial Affairs and Community Standards.*
  1. Copying answers from other students during lecture or lab exams. (11.13)
  2. Submitting lab reports containing substantial portions plagiarized from other students. (11.11, 11.12)
  3. Use of Blackboard resources for commercial gain (11.19)
  4. Selling class notes and material downloaded from Blackboard to a web-based company that re-sells such material. (11.12B)
  5. Re-submission of a lab report written by the same student in an earlier semester. (11.16)
  6. Altering answers on a graded exam and submitting the altered exam for re-grading. (11.13B)
  7. Continuing to write answers on an exam after time has been called. (11.21)
  8. Unauthorized use of personal electronic devices, e.g., smartphones, during exams. (11.13)

  - *All of these offenses were considered serious and resulted in disciplinary action. Do not do them!*
- Resources on academic integrity standards, policies, and expectations:
  1. Trojan Integrity: A Guide to Understanding and Avoiding Academic Dishonesty: https://sjacs.usc.edu/files/2015/03/tio.pdf
  2. Trojan Integrity: A Guide for Avoiding Plagiarism: https://dornsife.usc.edu/assets/sites/903/docs/Trojan_Integrity_-_Guide_to_Avoiding_Plagiarism.pdf
  3. Overview of Academic Integrity: https://sjacs.usc.edu/files/2015/11/Academic-Integrity-sheet-2013.pdf
  4. Tutorials on Academic Integrity: https://libraries.usc.edu/research/reference-tutorials
  5. SCampus (see especially sections 11, 13, 15 and Appendix A): https://policy.usc.edu/student/scampus/
  6. Scientific Misconduct: http://policy.usc.edu/scientific-misconduct/

Students with Disabilities

Any student requesting academic accommodations based on a disability is 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 and should be delivered to the Lab Manager early in the semester, at least one week before Exam 1. 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 OSAS office at least 2 weeks before the exam date. For more information, consult the OSAS website (osas.usc.edu/) for their remote access procedures. You can also call them at 213-740-0776, or email them at osasfrontdesk@usc.edu.

Policies Concerning Student-Athletes

Student-athletes may not be penalized when University-sanctioned competitions conflict with course activities or examinations. When a class will be missed for a sanctioned competition, it is the student-athlete's responsibility to approach the instructor in advance. The student-athlete must provide the instructor with a letter from Denise Kwok, Director of *Student-Athlete Academic Services* (SAAS) https://saas.usc.edu/academic-support-services/travel/excused-absence-letter/ . The letter must certify that the competition is a University-sponsored event that deserves accommodation. Accommodations will not be made for other types of conflicting events. Details on the University's policy can be found at: https://www.provost.usc.edu/ocaaa_guidelines/ . Arrangements for the accommodation must be agreed upon in advance of the event. If multiple team members will be absent, each must make an individual arrangement with the instructor. If an assignment is due on the date when class is missed, the instructor may require that it be turned in before the missed class or at the first class meeting after the student returns. If a test has been scheduled for the date when class is missed, the instructor may arrange with SAAS to have the test administered by an academically qualified proctor (not a coach) during the trip. Alternatively, the instructor may agree to pro-rate the exam score, i.e., substitute the missing exam score with a score based on the average of the student's scores for the other exams compared to the class average for those exams.

Email Communication

To ensure privacy, only students' USC accounts (*usc.edu* domain name) can be used for email communications regarding confidential matters. Other email accounts cannot be used. Students are responsible for understanding the content of official messages that instructors send to their USC accounts. Therefore, each student must check their USC email regularly and make sure their account is not over quota, so new messages can be received.

Emergency Preparedness / Course Continuity

If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* (http://emergency.usc.edu/ or 213-740-9233) will provide information related to safety and course continuity. We expect that instruction will be continued by means of Blackboard, teleconferencing, and other technologies. Alternative assignments may be given if classes are canceled for prolonged periods. If you have not already done so, please register with TrojansAlert (https://trojansalert.usc.edu/) to facilitate communication during emergencies.

Students Who Are Repeating the Class

The faculty and staff of this course are dedicated to helping you succeed academically. If you are repeating this class because you had to withdraw, earned an unsatisfactory grade, or need to remove a mark of IN (Incomplete) from a previous semester, please take advantage of all the help we have to offer. You should try to attend every lecture, review the material promptly, complete all online and lab assignments to the best of your ability, prepare early for exams, and be ready to change your approach if initial results are not satisfactory. Above all, manage your time to maximize your academic and personal success. Please identify yourself and seek help from the instructors, the Lab Manager, and your SI Leader. We are here to help!

B. Laboratory Syllabus

Laboratory Schedule

Lab #	Date	Lab topic	Assignment
	Jan 10 - 13	No lab this week	
1	Jan 17 - 20	Lab Safety & Pipetting	
2	Jan 24 - 27	Food Macromolecules I	Scientific reading questions
3	Jan 31 – Feb 3	Food Macromolecules II/Experimental Design	
4	Feb 7 - 10	Enzymes	Enzyme results homework
5	Feb 14 - 17	Cell Membrane/Transport	Peer review homework
6	Feb 21 - 24	Fermentation	Lab report assigned
7	Feb 28 – Mar 3	DNA/Restriction enzymes	Restriction digest homework
8	Mar 7 - 10	Cardiovascular Function During Exercise	Lab report due
	Mar 14 - 17	NO LABS—Spring Break	
9	Mar 21 - 24	Photosynthesis	Chromatography homework
10	Mar 28 - Mar 31	Blood/Blood typing	
11	Apr 4 - 7	Nervous System	
	Apr 11 - 14	Lab exam	
	Apr 18 - 21	Presentations	
	Apr 25 - 28	Presentations	

Some minor changes might occur during the semester.

Laboratory Point Distribution

The laboratory portion (361 points) will count for ~36% of your final course grade, distributed as follows:

Activity	Points
Pre-lab quizzes	40 (10 x 4)
Lab manual	44 (11 x 4)
Lab participation	44 (11 x 4)
Homework	30 (10 x 3)
Unknown Identification (lab #3)	8
Scientific reading/questions	15
Lab report	40
Lab report peer review	10
Lab exam	100
Presentation	30

Lab performance

Please read the lab manual and complete the quizzes (when applicable) each week before your scheduled lab time.

You are required to wear closed toe shoes, long pants, safety glasses, and a knee length lab coat. Eating and drinking are NOT allowed during lab. At the end of lab, you must clean and return all supplies to their proper place and clean your work area. Lab participation points will be lost if any of these guidelines are disregarded.

Lab Scores
Scores for all the lab assignments will be posted on Blackboard (https://blackboard.usc.edu), under your lab section. It is the student's responsibility to immediately notify their Lab Instructor or Lab Manager in the event of any mistakes, so please check your Blackboard scores weekly.

Laboratory Attendance
You are required to attend lab sessions during your scheduled lab time. It is a student's responsibility to follow up with their Lab Instructor or lab manager to schedule make-up labs or online alternatives. Note that only students with valid excuses will be accommodated.

Homework / Post-Lab Assignments
You will have several homework/post-lab assignments, based on the material you learned in the lab, or data obtained in your lab experiments. Assignments will be posted on Bb.

Lab Report
After one of the lab activities you will have to write a scientific lab report. Lab report guidelines will be posted on Blackboard in the beginning of the semester. Lab reports will be submitted on Blackboard through the Turnitin link. Note that plagiarism will not be tolerated and will result in a 0 on the lab report and referral to SJACS.

Presentation
This assignment will be done in pairs. With your partner, you will have to prepare a presentation using scientific research articles and share it with other students in your lab section. Detailed instructions will be posted on Blackboard.

Lab Exam
The cumulative lab exam will test your understanding of the topics, concepts and activities covered during the entire semester. This 90-minute test will be administered during your scheduled lab time. It will consist of multiple-choice questions, True/False, fill in the blanks, matching and short answers. Here are some important policies regarding lab exams:

- It is your responsibility to take the lab exam during the scheduled exam time.
- If you miss a lab exam due to a serious illness, you must present a valid excuse to the Lab Manager (spatola@usc.edu) within 24 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 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 within 24 hours. If we judge your excuse to be valid, you will be allowed to take the make-up lab exam. If you do not have a valid excuse or fail to provide it within the allotted time, you will receive a zero.
- Students who miss a lab exam due to the 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 student will be allowed to take the make-up lab exam.
- Student-athletes who will have to miss the lab exam due to a previously scheduled NCAA competition should bring the SAAS excuse letter to the Lab Manager at least 2 weeks in advance so alternatives can be arranged.

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.

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 to email the accommodations letter (PDF) to the Laboratory Manager as early in the semester as possible, ***preferably by Feb 4***. Please consult the OSAS website (osas.usc.edu/) for their remote access procedure. Their telephone number is 213-740-0776. If a student's approved accommodation is limited to extra time on exams, the teaching staff of BISC 220 will provide the accommodation. For any other accommodation, such as a private room, reader, or scribe, students must make prior arrangements with the OSAS office 2 weeks before the exam date.

Changing a Lab Section
During the first three weeks of classes you can change your 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. You are responsible for taking a screenshot of your scores from Blackboard **before** changing sections and emailing it to your lab manager so your scores can be transferred to the new section.

BISC 220L General Biology Laboratory: SEAPHAGES Genomics
Department of Biological Sciences
University of Southern California

Course Overview This course offers students an opportunity for a mentored research experience where they will learn how to apply the scientific method to make new discoveries and contribute to scientific knowledge.

A previously isolated phage genome that was sequenced by Howard Hughes Medical Institute will be provided to our lab section. Students will develop their research experience by learning how to annotate the genome of this phage. They will compare the genes identified in their phage to other phages that have been sequenced by the SEA-PHAGES program in order to appreciate the diversity of actinobacteriophages. At the end of the semester each student will be included as a co-author when the genomes are submitted to GenBank. Students in the course are part of the National Research Initiative funded by the Howard Hughes Medical Institute.

This class won't be like other classes you've taken or may take. There will be minimal lecturing by faculty, and we will instead utilize class time to do research and discuss scientific concepts relevant to our work. This course is an inquiry-guided learning experience, and it is meant to be students' first mentored research project. Some gene calls are more difficult than others, and sometimes there is no "correct answer." Students will be challenged to make the best calls they can with the current information that is available.

Faculty

Name	Email	Office	Office hours
Nancy Castro, PhD	ncastro@usc.edu	ZHS 256	TBD

Section Meeting Times

Section Meeting Times	Section/Course Number	Instructors	Email
Wednesday 11:00 – 1:50	13149	Nancy Castro	ncastro@usc.edu
Wednesday 2:00 – 4:50	13161	Nancy Castro	ncastro@usc.edu

Textbook No textbook is required. The required readings for the course include the SEA-PHAGES Bioinformatics Guide, content unique to this course, and recently published papers on the course topic. They will be available on Blackboard.

Blackboard Course materials and announcements will be posted on Blackboard. You are expected to check regularly for lecture notes, assignments, announcements, and other material. Main communication with the class will be via Blackboard announcements. If you need help accessing BB, contact the computer help desk at 213-740-5555.

Course Policies **Attendance is mandatory for each lab session and there will be no make-up labs**. BISC 220L SEA-PHAGES section is an authentic, research-based course, so making regular progress on your research project is dependent on regular lab attendance and group work. Any absence must be properly excused by a healthcare provider for an illness or a University official for University business. If a class is

missed due to technology problems, please contact the lab instructors via email as soon as possible to determine the best way to make up the lab session and group work.

Objectives At the end of the course, students will be able to:

a) Use a variety of computational software to correctly identify genes in phage genomes that produce functional biological macromolecules in bacteriophages.

b) Describe basic bacteriophage genome properties and how genes of known function work in the phage life cycle.

c) Appreciate the diversity of phage genomes and discuss how little is currently known about the functions of most phage genes.

d) Read and assess primary literature and discuss what is currently know about phage biology and gene function.

e) Submit finished gene calls in a timely and complete fashion.

f) Clearly and concisely communicate scientific findings to others during group discussions, class presentations, and through a scientific laboratory report.

g) Undergraduate students will present a research poster that summarizes our research findings and present this work to members of the university.

*Grading***Laboratory point distribution (361 points):**

Lab Notebook	60 pts (15 x 4)
Assignments and Quizzes	60 pts (12 x 5)
Genome Annotation	111 pts
Peer Review of Annotation	20 pts
Poster Project	60 pts
Journal Article Presentation	50 pts

Assignments and Quizzes – there will be assignments due throughout the term that will assess your overall understanding of the course objectives. Some may be given during class and some may be assigned as out-of-class work. Many of these are written into the course schedule, but additional assignments may arise and due dates may be adjusted throughout the semester. Unless otherwise noted in the course schedule, all assignments are due at the beginning of class. Any assignment handed in late will be docked 10% and will not be accepted after two days late without special permission from the instructor. Pre-lab assignments, such as quizzes and pre-lab notebook entries, are considered to be essential preparation for lab activities and will not be accepted late. Please note that arriving late to class or being absent for any reason does not alter the due date for any assignment.

Genome annotation – Students will work in teams to complete a thorough annotation of a bacteriophage genome. This group project will take several weeks to complete.

Lab Notebook – Students are required to use Google Docs or Google Sheets to maintain an electronic notebook that can be shared with your group and the instructors. Documenting your work in the lab is an essential part of developing your skills as scientists. Whenever possible you are expected to prepare your lab notebook with the title, objective, explanation, and protocol for the day's work. We will do the majority of data collection and analysis during the lab period. The notebooks are timestamped by the electronic notebook provider allowing the instructor to see when your work was completed. While we strongly encourage scientific discussions with your peers, your assignments and analysis of experiments in your notebook must be your own work.

Final Project and Poster – Students will be working in groups to collect data and analyze experiments. At the end of the semester, each group will assemble a scientific poster to be displayed in the Biological Sciences department and can be presented at a later time at the undergraduate research symposium.

Names/Nicknames and Pronouns
Course rosters are provided to instructors by the University with students' legal names as they were originally provided to the University, but we want to be sure that we are addressing you properly. We will gladly honor your request to be addressed by an alternate name or gender pronoun(s) that differ from your official University records. Please let us know of this early in the semester so that we can update our records.

Email Policy
University addresses will be used for all email correspondence. Please remember that emails are a professional correspondence and write them accordingly. Every attempt will be made to respond to emails within 24 hours of receiving them during the week. Email response during the weekend may take up to 48 hours for a response.

Students should also read e-mail sent to their University account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications.

Assignment Re-Grading Policy
You may request a re-grade of any portion of an assignment by submitting your request in writing and explaining why you think the grading was in error. You must include a detailed justification for the correctness of your answer, including references to the text used in the course (text, page, paragraph). This request must be submitted to the instructor within one week (5 business days) after the date the assignment is returned/grade is posted to Canvas. Unless the re-grade is due to an additional error, please be aware that your entire assignment may be reevaluated and any question that was graded incorrectly (in your favor) may also be re-graded resulting in points deducted from your total. Re-grading requests raised beyond a week after an assignment has been returned/grade is posted will not be addressed.

Some Dates to Remember

Jan 9	First day of Spring semester classes
Jan 27	Last day to register, add classes, and drop without a mark of "W" with tuition refund
Jan 16	Martin Luther King Day, university holiday
Feb 20	Presidents' Day, university holiday
Feb 24	Last day to drop without a mark of "W", on transcript only, without tuition refund
Apr 7	Last day to drop with a mark of "W"
Apr 28	Last day of Spring semester classes
Apr 29 - May 2	Study days
May 3	Lecture Exam 4, 9 am

Final Thoughts

- Please forgive the length and detail of this syllabus. In a class like ours, with so many graded assignments and with grades so important to our students' academic and career goals, we feel it is important for everyone to know exactly what to expect.
- Rules and disclaimers aside, we hope that you will enjoy our mutual exploration of cell biology and physiology. The mechanisms we will study are of fundamental importance in all living things, and highly relevant to the understanding of human health and disease. We instructors promise to apply our decades of experience in teaching and research, as well as some of the latest pedagogical techniques, to present an interesting and informative course, assign grades fairly, and prepare you well for future studies in biology.