

The Nature of Human Health and Disease
Biological Sciences 150Lxg
Lecture Syllabus, Fall 2017
August 30, 2017

This course is designed to bring students to a level of understanding of contemporary issues in health and disease through lectures, reading of texts, papers and news media, and laboratory experiments.

Learning Objectives:

- Students will understand basic human biology at the genetic, cellular, and physiological levels.
- Students will know how the human body maintains a healthy balance, and how disturbances of this balance underlie diseases.
- Students will be familiar with modern biomedical scientific approaches to treating disease.
- Students will be able to make informed contributions to discussions of contemporary issues in health and disease with their peers.
- Students will be able to make rational decisions on personal, ethical, and political issues in their health.

Topic List:

General Biology Introduction:

Human physiology, cell and molecular biology, Mendelian genetics

- 1) Nutrition and Health
 - a) Nutrition basics
 - b) Supplements/Fad diets
 - c) Diabetes and obesity

- 2) Microbiology, Infectious Disease and Vaccines
 - a) STDs
 - b) HIV
 - c) Influenza/Common cold
 - d) Bacterial infection
 - e) Immune system and vaccination

- 3) Evolutionary Biology of Health and Infection
 - a) Co-evolution of humans and infectious diseases
 - b) Human microbiome
 - c) Third world disease/Global health

- 4) Genetic Inheritance and Disease
 - a) Single gene traits
 - b) Complex disease traits—Bipolar disorder, Depression
 - c) Cancer

- 5) Environmental Health
 - a) Alzheimer's disease and pollution
 - b) Stress management
 - c) Cardiovascular health

- 6) Drug Effects and Abuse
 - a) Street drugs
 - b) Tobacco and cannabis

Lecturers:

Raffaella Ghittoni, Ph.D.

Office: ZHS 256

Email: rghitton@usc.edu

Office hours: Tues. 2 - 4 PM

Oliver Rizk, Ph.D.

Office: AHF 135

Email: orizk@usc.edu

Office hours: Tues. & Thurs. 11 AM - 12 PM

Guest Lecturers (TBD)

Lecture: ZHS 159, Tues. & Thurs., 9:30 a.m.-10:50 a.m.

Required Textbooks:

A custom textbook from Pearson Publishing will be assembled from the following textbook:

The Biology of Humans, 6th ed., Judith Goodenough and Betty McGuire

A laboratory manual is required:

The Nature of Human Health & Disease Laboratory Manual, Fall 2017 (USC Custom Publishing)

Laboratory Director:

Celeste Chong-Cerrillo, Ph.D.

Office: ZHS 450

Email: chongcer@usc.edu (Subject line should state "BISC 150")

Office Hours: Open door policy and by appointment

Laboratory: ZHS 458

Monday 10:00 – 11:50 a.m., 12:00 – 1:50 p.m., 2:00 – 3:50 p.m.

Tuesday 12:00 – 1:50 p.m., 2:00 – 3:50 p.m.

Wednesday 12:00 – 1:50 p.m.

Website:

Blackboard (<https://blackboard.usc.edu/>)

BISC 150Lg is a participatory course. A research project will lead students to become true experts in a subject of their choice and laboratory experiments will give an appreciation of biotechnology.

Grading. Final letter grades are assigned on a curve, determined entirely by the total number of points earned on lecture exams, participation in lecture, course assignments and in the laboratory. **Only the TOTAL number of points earned by the END of the course will determine the final letter grade.** The distribution of points is as follows:

2 Midterms (100 pts. each)	200
Final Exam	100
Online Quizzes (10 @ 5 points each)	50
Term Research Project	
Outline	10
Research Paper	75
Presentation	25
<u>Laboratory Grade (see syllabus for distribution)</u>	<u>205</u>
Total	665

Wk	Date	Lecture Topic	Reading	Lecturer
1	22-Aug	Overview: Humans in the world of biology	Ch.1	Rizk
	24-Aug	Intro to cell biology	Ch.2	Rizk
2	29-Aug	How your body gets its energy (Biochemistry)	Ch.2	Rizk
	31-Aug Quiz 1	Body organization and homeostasis	Ch.3	Rizk
3	5-Sep	DNA, RNA, proteins and You! (Molecular Biology)	Ch. 4.1 to 4.4	Rizk
	7-Sep Quiz 2	Genetics or "How did I get brown eyes?"	Ch. 5.1	Rizk
4	12-Sep	Genetic Diseases – "Thanks Mom (or Dad).."	Ch. 5.2 +5.3	Rizk
	14-Sep Quiz 3	Cancer	Ch. 10	Rizk
5	19-Sep	Midterm 1		
	21-Sep	Stem Cells	Ch. 9	Ghittoni
6	26-Sep	Immune system	Ch.6	Ghittoni
	28-Sep Quiz 4	Immune system dysfunction	Ch.6	Ghittoni
7	3-Oct	Human Immunodeficiency Virus-HIV	Ch. 7	Ghittoni
	5-Oct Quiz 5	Infectious diseases	Ch. 8	Ghittoni
8	10-Oct	Human microbiome	Ch. 8	Ghittoni
	12-Oct Quiz 6	Drugs of Abuse	TBD	TBD
9	17-Oct	The digestive system	Ch. 11.1 to 11.3	Ghittoni
	19-Oct Quiz 7	Nutrition: Supplements/Fad diets	Ch.11.4 to 11.8	Ghittoni
10	24-Oct	Diabetes and Obesity	Ch. 12 & 13	Rizk
	26-Oct	Midterm 2		
11	31-Oct	Women's Health: Beyond the Pap Smear	Ch. 15	TBD
	2-Nov Quiz 8	Alzheimer's disease and pollution	TBD	TBD
12	7-Nov	Pulmonary System, Tobacco, and Medical Cannabis	Ch.16	Ghittoni
	9-Nov Quiz 9	Stress Management	TBD	TBD
13	14-Nov	Cardiovascular: Myocardial Infarction	TBD	TBD
	16-Nov Quiz 10	Nutrition	TBD	TBD
14	21-Nov	Liver Cancer and Organ Transplant	TBD	TBD
	23-Nov	THANKSGIVING HOLIDAY		
15	28-Nov	Global Health	TBD	TBD
	30-Nov	Review session		Rizk/ Ghittoni
	7-Dec	FINAL EXAM Thursday 11:00am - 12:20pm		

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Readings: Assigned readings from the textbook will be supplemented with articles posted on Blackboard. It will be the student's responsibility to check Blackboard for additional required readings and notices.

Online Quizzes: Part of your total grade will be online quizzes (50 pts). There will be 10 multiple choice quizzes (5 questions each quiz-1pt each question) to be completed over the weekend on Blackboard (<https://blackboard.usc.edu>) during the semester. The quizzes will be posted at 6:00 PM on Thursday and will remain available until 9:00 AM the following Monday on Blackboard. Answers to quiz questions will be posted on Monday afternoons. We hope this will allow us to determine if you are understanding the material as we go along and allow us to spend more time on topics that most people are not understanding.

Join Educational Partnership. There will be an opportunity for a small percentage of the class to participate in a K-12 educational program with the Joint Educational Project (JEP) at USC. This is a semester-long commitment and you will receive extra credit in the class based on your performance in the program.

Exams. There will be 2 midterm exams during the semester and 1 final exam. Exams are multiple choice and short answer. Exams are NOT open book nor open notes. A student is not allowed to start an exam after the first student has left ANY exam room. You will be required to write your full name on EACH page of the exam. If you fail to do so, ½ point will be deducted for each page missing a full name.

Missed exams. There are no makeup exams in the course. If a student misses an exam due to a true emergency, official written documentation (what you feel is appropriate to demonstrate a legitimate reason for missing said exam) should be submitted to the Laboratory Director, Dr. Chong-Cerrillo, **within two (2) days of the missed exam.** If it is a medical excuse, you must also state *in writing* (a) the doctor's name and phone number and (b), a signed statement authorizing us to discuss with the doctor whether you were too ill to take the exam. If you were seen at the USC Engemann Student Health Center, you must sign an "*Authorization for Disclosure of Medical Information*" form and list Dr. Chong-Cerrillo's name on the form. (Note that neither you nor the physician need to tell us the nature of your illness.) Please note that your physician has to be licensed to practice medicine by the State of California (www.medbd.ca.gov) and that it's considered unethical and unwise for a physician to provide medical care for a family member. We will contact the doctor and decide whether you have a valid excuse. If you do, the instructors may, at their discretion, permit the use of the student's performance on other exams in determining the missed exam grade. 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.

Re-grades of exam questions. Your midterm exams will be handed back either in lab or lecture and the answer key will be posted. If you feel an error was made in the grading of your exam, you must submit your exam, along with a Regrade Request Form in which you have thoroughly explained (typewritten) why you think your answer deserves more credit, to your TA within 1 week of the time it was returned to the entire class. Oral and email requests will not be considered. If you took the exam in pencil or used white-out, we will not grant regrade requests. The entire answer will be re-graded, not just the part you think deserves more credit. Your score may increase or decrease as a result of a re-grade.

Term Research Project. Your Research Project consists of 3 components: Outline, Paper, and Presentation, each receiving a grade. Refer to the “*Guidelines for Term Research Project*” document for details regarding this assignment. Your topic must be approved by your TA no later than 5 pm Friday, September 29, 2017. The Outline is due on Tuesday, October 10, 2017 and the Paper is due no later than 5 pm on Tuesday, October 31, 2017. The Outline must be submitted in class, not in lab, and we will NOT accept electronic copies. An electronic copy of your Research paper will be submitted through your LAB Blackboard site, under “Assignments”; you cannot email your paper to your TA. You will also be required to hand in a hard copy of your research paper. For each day the Outline or Paper is handed in late, 20% of the total possible points will be deducted from your grade (e.g., if the report is past 5 days late, you will receive no points for that assignment). Presentations will be given in lab during the last 3 weeks of class. Once you have signed up for a date to give your presentation, you will not be able to change it unless you have a valid medical emergency. If you do not have a valid medical excuse, it will be at the discretion of the Laboratory Director to determine whether you will be able to make up the Presentation, if time allows; however, the maximum possible points you may receive will be reduced by 50%.

The entire Research Project must be an **ORIGINAL WORK** by the student involved. *We will only allow a maximum of 3 quotes for the entire paper.* Plagiarism is strictly forbidden and will be treated with the usual University rules if it is encountered (see below).

You must attend ALL your labs during the presentation weeks. If you do not have a valid excuse for missing lab, *2 points will be deducted from YOUR presentation score for EACH presentation you miss* (i.e., if 5 students present, 10 points will be deducted from your presentation grade). If you have a valid excuse for missing your lab, it must be accompanied with official written documentation and presented to the Laboratory Director, within two (2) days of the missed lab. However, *you are still responsible for making up the missed presentations* by attending another lab section’s presentations. If you fail to do this, points will still be deducted regardless of excuse.

Blackboard and Posting of Grades. Blackboard (<https://blackboard.usc.edu/>) lists BISC 150 lecture and lab sections as “separate courses”. All grades (lecture and lab) are posted in your LAB section. However, be sure to check for additional postings and announcements both in the lecture section and the lab section on a weekly basis.

Blackboard is convenient system to communicate grades; however, **those grades are not authoritative**. It is the student’s responsibility to notify your TA or Lab Director ASAP in the event of any mistakes in your posted grade.

Please remember that (1) the course mean given on Blackboard is also NOT authoritative, and (2) that only the total number of points earned determines your course grade. We will be glad to discuss your performance, and your possible grades, at any time throughout the course. Help provided in this way should be considered only provisional. Your later performance may change (sometimes dramatically) the best- meant extrapolation.

Statement on Academic Conduct and Support Systems

Academic Conduct. Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university->

[standards-and-appropriate-sanctions/](#). Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

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>. This is important for the safety 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 sarc@usc.edu describes reporting options and other resources.

Support Systems. A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

Academic Accommodations. Students requesting academic accommodations based on a learning disability are required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP when adequate documentation is filed. Please be sure the letter is delivered to Dr. Chong-Cerrillo as early in the semester as possible. In addition, an Exam Request Form must be filled out, signed by Dr. Chong-Cerrillo, and returned to DPS 7 days prior to a midterm exam and 14 days prior to the final exam. DSP is open Monday-Friday, 8:30 am - 5:00 pm, GFS 120, Email: ability@usc.edu, Phone: (213) 740-0776.