

The Nature of Human Health and Disease
Biological Sciences 150Lg
Lecture Syllabus, Spring 2016

The Nature of Human Health and Disease course is designed to bring students to a level of understanding of basic human biology, health, and disease, as well as modern biomedical science that will enable them to make rational decisions on personal, ethical, and political issues in their health. This level will be reached through lectures, reading of texts, papers and news media, and laboratory experiments.

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) Cardiovascular system/Heart disease
 - d) Diabetes

- 2) Microbiology, Infectious Disease and Vaccines
 - a) STDs
 - b) HIV
 - c) Influenza/Common cold
 - d) Bacterial infection-
 - e) Human microbiome
 - f) How they work and myths—autism, ethics of vaccinating/not vaccinating

- 3) Evolutionary Biology of Health and Infection
 - a) Co-evolution of humans and infectious disease
 - b) Third world disease/Wilderness medicine

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

- 5) Drugs and Your Health
 - a) Prescription drug abuse (Adderall, Ritalin)
 - b) Drug design/False advertising
 - c) Pulmonary system and tobacco use
 - d) Medical Cannabis

- 6) Senescence
 - a) Osteoporosis and bone health
 - b) Aging brain—Alzheimer's disease
 - c) Stem Cells and Regenerative Medicine

Lecturers:**Christa Bancroft, Ph.D.**

Office: ZHS 470

Phone: (213) 740-5553

Email: cbancrof@usc.edu

Office hours: Tu/Th 11-12 p.m.

Oliver Rizk, Ph.D.

Office: AHF 135

Phone: (213) 740-4862

Email: orizk@usc.edu

Office hours: Tu/Wed 11-12 p.m.

Guest Lecturers (TBD)**Lecture:** ZHS 252, Tues. & Thurs., 9:30 a.m.-10:50 a.m.

Required Texts:

The Human Body in Health and Disease, 6th ed., Kevin Patton and Gary Thibodeau (Mosby)*The Nature of Human Health & Disease Laboratory Manual*, Spring 2016 (USC Custom Publishing)Laboratory Director:**Celeste Chong-Cerrillo, Ph.D.**

Office: ZHS 450

Phone: (213) 740-6085

Email: chongcer@usc.edu

Office Hours: Open door policy and by appointment

Laboratory: ZHS 458

Tuesday 12:00 – 1:50 p.m.

Wednesday 10:00 – 11:50 a.m. & 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
Participation	75
Term Research Project	
Outline	10
Research Paper	75
Presentation	25
<u>Laboratory Grade (see syllabus for distribution)</u>	<u>205</u>
Total	690

The Nature of Human Health and Disease
BISC 150Lg
Lecture Schedule, Spring 2016

Wk	Date	Lecture Topic	Reading	Lecturer
1	Jan 12	Overview: Mechanisms of Disease	Ch. 6: pp. 110-128	Rizk
	Jan 14	Your Amazing Body: Intro to Physiology	Ch. 1: pp. 2-18 Ch. 5: pp. 88-104	Rizk
2	Jan 19	Intro to Cell Biology	Ch. 3: pp. 42-56	Rizk
	Jan 21	DNA, RNA, proteins and You! (Molecular Biology)	Ch. 2 Ch. 3: pp. 57-62	Bancroft
3	Jan 26	Genetics or "How did I get brown eyes?"	Ch. 25	Bancroft
	Jan 28	How your body gets its energy (Biochemistry)	Ch. 18	Bancroft
4	Feb 2	Nutrition: You are what you eat	Ch. 19	Bancroft
	Feb 4	Nutrition: Supplements/Fad diets	Ch. 19	Rizk
5	Feb 9	Midterm 1		
	Feb 11	Diabetes and Obesity	Ch. 12	Guest Lecture
6	Feb 16	Immune System and Human Immunodeficiency Virus (HIV)	Ch. 16	Bancroft
	Feb 18	Wash Your Hands! Influenza and the Common Cold	TBD	Bancroft
7	Feb 23	Bacterial Infection	TBD	Rizk
	Feb 25	STDs	Ch. 23: pp.589-615	Guest Lecture
8	Mar 1	Human Microbiome—Bugs in Your Gut	TBD	Bancroft
	Mar 3	Co-evolution of humans and infectious disease	TBD	Rizk
9	Mar 8	Vaccines: "To Poke or Not to Poke? That is the Question"	TBD	Bancroft
	Mar 10	Genetic Diseases—"Thanks Mom (or Dad)..."	Ch. 25	Bancroft
10	Mar 15	Spring Break, no lecture		
	Mar 17	Spring Break, no lecture		
11	Mar 22	Multi-gene diseases—It's a little more complicated	TBD	Bancroft
	Mar 24	Midterm 2		
12	Mar 29	Global Health/Tropical Medicine	TBD	Guest Lecture
	Mar 31	Cancer	TBD	Guest Lecture
13	Apr 5	Autism Spectrum Disorder	TBD	Guest Lecture
	Apr 7	Drug/Design/Advertising	TBD	Rizk
14	Apr 12	Prescription Drug Abuse	TBD	Rizk
	Apr 14	Street Drugs	TBD	Guest Lecture
15	Apr 19	Pulmonary System, Tobacco, and Medical Cannabis	Ch. 17	Rizk
	Apr 21	Osteoporosis and Bone Health	Ch. 8	Rizk
16	Apr 26	The Aging Brain	TBD	Guest Lecture
	Apr 28	Stem Cells and Regenerative Medicine	TBD	Guest Lecture
17	May 10	FINAL EXAM: 8:00 am to 9:20 am		

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.

Participation: Part of your total grade will be from Participation points (75 pts) during lecture. We will be using an in-class app that will allow us to ask questions in class and for you to answer in real-time. We will collect responses and give points for participation as well as correct answers. 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.

You will receive an email from the company, Top Hat, inviting you to join our class. The cost for enrolling in one class is \$20.

The link to our course website is: <http://app.tophat.com/e/317053>. Six-digit join code: 317053

Top Hat is very good at helping with any questions you have regarding the app, so please contact them with any problems.

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, short answer and essay format. 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, 1 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 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, 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 Friday, February 19, 2016. The Outline is due on Thursday, March 3, 2016 and the Paper is due on Tuesday, March 29, 2016. 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. 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/academicssupport/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, Email: ability@usc.edu, Phone: (213) 740-0776.