

The Nature of Human Health and Disease
Biological Sciences 150Lg
Lecture Syllabus, Fall 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) 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/Global health
- 4) Genetic Inheritance and Disease
 - a) Single gene traits
 - b) Complex disease traits—Bipolar disorder, Depression
 - c) Cancer
 - d) Mental Health
- 5) Health Care Administration
 - a) Health insurance
 - b) Drug design/False advertising
- 6) Drug Effects and Abuse
 - a) Prescription Drugs
 - b) Street Drugs
 - c) Alcohol
 - d) Tobacco and Cannabis

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

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Oliver Rizk, Ph.D.

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Guest Lecturers (TBD)**Lecture:** ZHS 159, 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*, Fall 2016 (USC Custom Publishing)**Laboratory Director:****Celeste Chong-Cerrillo, Ph.D.**

Office: ZHS 450

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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 |
| 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, Fall 2016

| Wk | Date | Lecture Topic | Reading | Lecturer |
|----|---------|--|--------------------------------------|----------------|
| 1 | Aug 23 | Overview: Mechanisms of Disease | Ch. 6: pp. 110-128 | Rizk |
| | Aug 25 | Your Amazing Body: Intro to Physiology | Ch. 1: pp. 2-18 Ch. 5: pp. 88-104 | Rizk |
| 2 | Aug 30 | Intro to Cell Biology | Ch. 3: pp. 42-56 | Rizk |
| | Sept 1 | DNA, RNA, proteins and You! (Molecular Biology) | Ch. 2 Ch. 3: pp. 57-62 | Bancroft |
| 3 | Sept 6 | Genetics or "How did I get brown eyes?" | Ch. 25 | Bancroft |
| | Sept 8 | How your body gets its energy (Biochemistry) | Ch. 18 | Bancroft |
| 4 | Sept 13 | Nutrition: You are what you eat | Ch. 19 | Bancroft |
| | Sept 15 | Nutrition: Supplements/Fad diets | Ch. 19 | Rizk |
| 5 | Sept 20 | Immune System and Human Immunodeficiency Virus (HIV) | Ch. 16 | Bancroft |
| | Sept 22 | Midterm 1 | | |
| 6 | Sept 27 | Wash Your Hands! Influenza and the Common Cold | TBD | Bancroft |
| | Sept 29 | Bacterial Infection | TBD | Rizk |
| 7 | Oct 4 | Human Microbiome—Bugs in Your Gut | TBD | Bancroft |
| | Oct 6 | Women's Health: Beyond the Pap Smear | Ch. 23: pp.589-615 | Davis |
| 8 | Oct 11 | Co-evolution of humans and infectious disease | TBD | Rizk |
| | Oct 13 | Vaccines: "To Poke or Not to Poke? That is the Question" | TBD | Bancroft |
| 9 | Oct 18 | Genetic Diseases—"Thanks Mom (or Dad)..." | Ch. 25 | Bancroft |
| | Oct 20 | Gene Therapy, Epigenetics and Multi-gene diseases | TBD | Bancroft |
| 10 | Oct 25 | Diabetes and Obesity | Ch. 12 | Guest Lecturer |
| | Oct 27 | Midterm 2 | | |
| 11 | Nov 1 | Cancer | TBD | DaSilva |
| | Nov 3 | Global Health | TBD | Ferguson |
| 12 | Nov 8 | Drug/Design/Advertising | TBD | Rizk |
| | Nov 10 | Prescription Drug Abuse | TBD | Rizk |
| 13 | Nov 15 | Health Insurance/Health Care Utilization | TBD | Barthold |
| | Nov 17 | Pulmonary System, Tobacco, and Medical Cannabis | Ch. 17 | Rizk |
| 14 | Nov 22 | Alcohol Use, Abuse, and Effects | TBD | Rizk |
| | Nov 24 | No lecture, Thanksgiving Holiday | | |
| 15 | Nov 29 | Mental Health | TBD | Rosenstein |
| | Dec 1 | Street Drugs | TBD | Guest Lecturer |
| 16 | Dec 8 | FINAL EXAM: 11:00 am to 12:20 pm | | |

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/464516>. Six-digit join code: 464516

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 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 Friday, September 30, 2016. The Outline is due on Tuesday, October 11, 2016 and the Paper is due on Tuesday, November 1, 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. 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, Email: ability@usc.edu, Phone: (213) 740-0776.