

June 29 2022

BISC 150: The Nature of Human Health & Disease

4 units

Tuesday & Thursday – 9:30-10:50 AM

ZHS 159

Labs (in-person only)

Mon, 10–11:50 AM, 12–1:50 PM, 2–3:50 PM

Tues, 12–1:50 PM, 2–3:50 PM

Wed, 10–11:50 AM

ZHS 458

Instructor: Raffaella Ghittoni, Ph.D.

Office: ZHS 256

Office Hours: Tues. from 3 to 4 pm and Wed from 10 to 11 am

Contact Info: rghitton@usc.edu

Instructor: Rory Spence, Ph.D.

Office: ZHS 256

Office Hours:

Contact Info:

Lab Manager: Celeste Chong-Cerrillo, Ph.D.

Office: ZHS 450 or Zoom ‘meeting room’

Office Hours: By appointment

Contact Info: chongcer@usc.edu (Subject line should state “BISC 150”)

Lab Instructors (LIs):

Office Hours: TBD

Office Hours Location: ZHS 360A (BioSpace) or Zoom ‘meeting room’

Required Texts

Mastering Biology with Pearson e-Text – for *Biology of Humans: Concepts, Applications and Issues*, 6TH Edition. ISBN-10: 9780134389233 (required book is e-text not hard copy).

Authors: Judith Goodenough & Betty A. McGuire.

The Nature of Human Health & Disease Laboratory Manual, Fall 2022 (USC Custom Publishing)

Course Description

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.

Prerequisite(s): no prerequisites

Course Notes

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.

Learning Objectives

- Students will understand basic human biology at the genetic, cellular and physiological levels.
- Students will know 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

2) Microbiology, Infectious Disease and Vaccines

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

3) Genetic Inheritance and Disease

- a) Single gene traits
- b) Complex disease traits—Bipolar disorder, Depression
- c) Cancer
- d) Mental Health

4) Drug Effects and Abuse

- a) Prescription Drugs
- b) Street Drugs
- c) Alcohol
- d) Tobacco and Cannabis

COVID-19 Protocol

Students are expected to comply with any and all aspects of COVID-19 safety protocols outlined by federal, state, local, and university policies. Keep in mind that these policies will evolve with the changing conditions of the COVID-19 pandemic and may include social distancing, the use of appropriate masks which cover your nose and mouth at all times (regardless of vaccination status), and regular Trojan Check and/or COVID testing, among others. Failure to comply may result in removal from the class and referral to Student Judicial Affairs and Community Standards (SJACS).

Email Communication

To ensure privacy, only student's USC email accounts may be used for email communications. Students are responsible for understanding the content of email messages that the instructor sends 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.

Grading Breakdown

The course grade will be based upon **747 possible points**:

Assignment	Points	% of Grade
Midterm 1	100	13.4
Midterm 2	100	13.4
Final Exam	100	13.4
At-home Quizzes	45 (3pts/lecture)	6
In-class problem sets	75 (5pts/lecture)	10
Participation points	12 (2pts/guest lecture)	1.6
Critical Assessments	40	5.4
Disease Presentation Project	70	9.4
Laboratory grade	200	27.4
Total	742	100

Grading Scale

Course final grades will be determined using the following scale:

A	90.1 - 100
A-	86.7 - 90
B+	83.3 - 86.6
B	80 – 83.2
B-	76.7 – 79.9
C+	73.3 – 76.6
C	70 – 73.2
C-	66.7 – 69.9
D+	63.3 – 66.6
D	60 – 63.2
D-	56.7 – 59.9
F	≤56.6

Description, Assessment and Submission Policy of Assignments

Exams. There will be 2 midterm exams during the semester and 1 final exam. Exams will be administered during lecture, will be 60 min long, and will consist of multiple choice, short answer, matching or fill-in-the-blank questions. 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.

Disease Presentation Project. Your Disease Presentation Project consists of 2 components: Outline and Oral Presentation, each receiving a grade. Refer to the "*Guidelines for Disease Presentation Project*" document on Blackboard for details and specifics regarding this project. Your topic must first be approved by your LI. You will need to submit 3 different topics no later than 5 p.m. Friday, September 23, 2022 in order to get your final topic approved. Topics will be approved on a first come first basis (that means if you submit a topic that has already been approved, you may have to present your 2nd or 3rd choice). For every day the topic submission is late, 1 pt/day will be deducted from your Outline grade. The Outline, consisting of *PowerPoint slides*, is due no later than 5 p.m. Monday, October 17, 2022. Both the Topics and PowerPoint Outline will be submitted through "Assignments" on your LAB Blackboard site; you cannot email your topics nor outline to your LI.

Presentations will be given in the lab during the last 3 weeks of class; the schedule will be determined in lab. 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. Please see the *Missed Presentations* policy if you wish for us to make an accommodation. If you do not have a valid (medical) excuse, it will be at the discretion of the Laboratory Manager to determine whether you will be able to make up the Presentation, if time allows; however, the maximum possible points you may receive may be reduced by 50%.

The entire Disease Presentation Project must be an **ORIGINAL WORK** by the student involved. The slide presentation should not be text-heavy; overly text-heavy presentations may be analyzed through Turnitin for its originality. Plagiarism is strictly forbidden and will be treated with the usual University rules if it is encountered. You are also NOT allowed to use a presentation you have given for a previous course or submitted to another instructor from ANY educational institution.

You must attend ALL your labs, **in-person**, 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). Attending lab remotely will NOT count for presentation attendance and you will still be considered absent. If you have a compelling reason for needing to attend lab remotely (whether you are a spectator or presenter), it must be pre-approved by the Lab Manager and accompanied by official written documentation (refer to the *Missed Presentations* policy on documentation). If remote attendance is approved, you will be required to keep your camera on for every presentation. If your camera is off, we will assume you are not present and the above policy will apply (-2 pts/presentation).

Missed Presentations (presenter or spectator). If you miss a lab during presentation week due to a true emergency and wish for us to make an accommodation, official written documentation (what you feel is appropriate to demonstrate a legitimate reason for missing lab) which MUST include your name and a date, should be submitted to the Lab Manager within 36 hrs of the missed lab session. With respect to student privacy we will not dictate what sort of documentation needs to be provided; however, our decision to grant an accommodation will ultimately be based on what documentation we do receive. Even if we judge your excuse to be valid, you will still be 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. Students will only be excused for one missed presentation lab with a valid excuse.

Please note: The Engemann Student Health Center has changed their medical excuse policy. They will no longer provide: 1) class excuse notes for illness, 2) clinical appointments for class excuse, and 3) authentication of outside physician certificates. The *Absence of Class - Self Verification* Form provided by the Student Health Center is *insufficient documentation* for our purposes.

Understanding and Avoiding Plagiarism Modules. All students must complete the Understanding and Avoiding Plagiarism Modules 1 & 2 which can be found in the following links (<https://libraries.usc.edu/tutorial/understanding-and-avoiding-plagiarism-module-1-what-plagiarism-what-citation>; <https://libraries.usc.edu/tutorial/understanding-and-avoiding-plagiarism-module-2-citing-avoid-plagiarism>). This assignment will be posted under the COURSE Blackboard site. Complete both tutorials to earn your certificates which can be printed as pdf files and uploaded as completion of your assignment. You must have this assignment turned in before 9 am on Friday, Oct 28, 2022. This assignment is not worth any points but a penalty of ½ pt per day will be applied for certificates received after the due date. This can add up to a 10 pt deduction by the end of the semester.

At-home Quizzes & In-class Assignments. Before attending each lecture, you will be required to study the material and answer quiz questions. Each quiz assignment will be worth 3 points and based on the upcoming lecture material. Quiz answers should be submitted prior to the start of class at 9:30 am on Mastering Biology. Quizzes will typically be open 48 hours in advance of the next lecture.

Each lecture will have an in-class assignment where questions are expected to be completed during or shortly after lecture. In-class assignments will typically be open until midnight (PST) the day of lecture. Attendance at all lecture sections is expected. If you must miss class due to illness or valid USC travel, please present Dr. Spence or Dr. Ghittoni with evidence of the reason for absence and you will be allowed to make-up in-class work assignments within **1 week** of the missed lecture period.

Participation. Each guest lecture will require mandatory attendance and count as 2 participation points/per lecture (6 guest lectures) for a total of 12 points. Signing in will occur within the first 10 minutes of class, afterwards no credit will be given.

Critical Assessments (CA). The goal of this assignment is for you to engage in critical thinking and evaluate and discuss science in the media. There will be 2 CAs and more detailed information on the assignment will be posted on your LAB Blackboard. CAs are due before 5:00 pm on Friday, September 16, 2022 and Friday, November 11, 2022.

Joint 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. The maximum amount of extra credit points a student can receive is 50 points and participation is capped at 10% of class enrollment.

Grading Timeline

Grades for Midterm Exams will be posted within one calendar week following the exam date.

Additional Policies

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 instructors, Dr. Ghittoni or Dr. Spence, **within two (2) days of the missed exam**. Students will only be excused for ONE exam with a valid excuse. 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. (Note that neither you nor the physician need to tell us the nature of your illness.) 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.

Please note: the Student Health Center has changed their medical excuse policy. The Student Health Center will no longer provide: 1) class excuse notes for illness, 2) clinical appointments for class excuse, and 3) authentication of outside physician certificates. The Absence of Class - Self Verification Form provided by the Student Health Center is *insufficient documentation* for our purposes.

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 LI 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.

Late Policy. For every 12-hour increment any assignment is handed in late, you will lose 10% of the total possible points [i.e., if the assignment is 5 days (120 hrs) late, you will receive a zero (0) for that assignment]. Saturdays, Sundays, and University holidays ARE counted. The Labster simulations adhere to the policy as stated in the Lab Syllabus.

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 LI or Lab Manager 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.

Course Schedule: The Nature of Human Health and Disease

Wk	Date	Lecture Topic	Reading	Lecturer	Assignments
1	23-Aug	Overview: Humans in the world of biology	Ch. 1	Spence	Problem Set Demo
	25-Aug	Intro to cell biology	Ch. 2	Spence	Quiz & Prob. Set
2	30-Aug	How your body gets its energy (Biochemistry)	Ch. 2	Spence	Quiz & Prob. Set
	1-Sep	Body organization and homeostasis	Ch. 3	Spence	Quiz & Prob. Set
3	6-Sep	DNA, RNA, proteins and You! (Molecular Biology)	Ch. 4.1 - 4.4	Spence	Quiz & Prob. Set
	8-Sep	Genetics	Ch. 5.1	Spence	Quiz & Prob. Set
4	13-Sep	Genetic Diseases	Ch. 5.2 5.3	Spence	Quiz & Prob. Set
	15-Sep	Cancer	Ch. 10	Spence	Quiz & Prob. Set
5	20-Sep	Midterm 1		Spence	
	22-Sep	Stem cells	Ch. 9	Ghittoni	Quiz & Prob. Set
6	27-Sep	Immune system	Ch. 6	Ghittoni	Quiz & Prob. Set
	29-Sep	Immune system dysfunction	Ch. 6	Ghittoni	Quiz & Prob. Set
7	4-Oct	Human Immunodeficiency Virus-HIV	Ch. 7	Ghittoni	Quiz & Prob. Set
	6-Oct	Infectious diseases	Ch. 8	Ghittoni	Quiz & Prob. Set
8	11-Oct	Human Microbiome	Ch. 8	Ghittoni	Quiz & Prob. Set
	13-Oct	FALL RECESS			
9	18-Oct	The digestive system	Ch. 11.1 - 11.3	Ghittoni	Quiz & Prob. Set
	20-Oct	Nutrition: Supplements/Fad diets	Ch. 11.4 - 11.8	Ghittoni	Quiz & Prob. Set
10	25-Oct	Midterm 2			
	27-Oct	Respiratory system	Ch. 16	Ghittoni	Quiz & Prob. Set
11	1-Nov	Diabetes & Obesity	Ch. 12 & 13	Spence	Quiz & Prob. Set
	3-Nov	Pulmonary System, Tobacco, and Medical Cannabis	Ch. 16	TBD	
12	8-Nov	HIV Treatment	TBD	TBD	
	10-Nov	Cardiovascular: Myocardial Infarction	Ch. 15	TBD	
13	15-Nov	Liver Cancer & Organ Transplant	TBD	TBD	
	17-Nov	Alzheimer's disease and pollution	TBD	TBD	
14	22-Nov	Women's Health: Beyond the Pap Smear	TBD	TBD	
	24-Nov	THANKSGIVING HOLIDAY			
15	29-Nov	Stress Management	TBD	TBD	
	1-Dec	Review Session		Ghittoni & Spence	
	8-Dec	FINAL EXAM 11:00 am - 12:00 pm			

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 Part B, Section 11, “Behavior Violating University Standards” <https://policy.usc.edu/scampus-part-b/>. 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>.

Support Systems

Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. <https://engemannshc.usc.edu/counseling/>

National Suicide Prevention Lifeline - 1-800-273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. <http://www.suicidepreventionlifeline.org>

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. <https://engemannshc.usc.edu/rsvp/>

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: <http://sarc.usc.edu/>

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. <https://equity.usc.edu/>

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. <https://studentaffairs.usc.edu/bias-assessment-response-support/>

Office of Student Accessibility Services (OSAS)

Provides certification for students with disabilities and helps arrange relevant accommodations. <https://osas.usc.edu/>

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. <https://studentaffairs.usc.edu/ssa/>

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. <https://diversity.usc.edu/>

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible, <http://emergency.usc.edu>

USC Department of Public Safety – 213-740-4321 (UPC) and 323-442-1000 (HSC) for 24-hour emergency assistance or to report a crime. Provides overall safety to USC community. <http://dps.usc.edu>