

## **BISC 150: The Nature of Human Health & Disease**

**4 units**

**Spring 2023**

### **Lectures (no Zoom recordings)**

Tuesday & Thursday – 9:30 - 10:50 am

**ZHS 252**

### **Labs**

Tues, 12:00 – 1:50 pm

Wed, 10:00 – 11:50 am, 12:00 – 1:50 pm

**ZHS 458**

**Instructor: Raffaella Ghittoni, Ph.D.**

**Office:** ZHS 256

**Office Hours:** Tues. and Thurs. 11:00 am - 12:00 pm

**Contact Info:** [rghitton@usc.edu](mailto:rghitton@usc.edu)

**Instructor: Nancy Castro, Ph.D.**

**Office:** ZHS 256

**Office Hours:** Tues. and Thurs. from 8:30 am - 9:30 am

**Contact Info:** [ncastro@usc.edu](mailto:ncastro@usc.edu)

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

**Office:** ZHS 450

**Office Hours:** By appointment

**Contact Info:** [chongcer@usc.edu](mailto:chongcer@usc.edu) (best choice) Subject line should state "BISC 150"

**Lab Instructor (LI):** TBD ( \_\_\_\_\_@usc.edu)

**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*, 6<sup>TH</sup> 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*, Spring 2023 (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 identify 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.

## 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 mouth AND nose 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 **748 possible points**. Exceptions to the grading policy are not expected and there are no additional opportunities for extra credit.

Assignment	Points	% of Grade
Midterm 1	100	13.4
Midterm 2	100	13.4
Final Exam	100	13.4
At-home Quizzes (16)	48	6.4
In-class problem sets (16)	80	10.7
Participation points	10	1.3
Critical Assessments (2)	40	5.3
Disease Presentation Project	70	9.4
Laboratory grade	200	26.7
<b>Total</b>	<b>748</b>	<b>100</b>

## 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. The 2 midterm exams will be administered during lecture, will be 50 min long, and will consist of mainly multiple-choice questions. The final exam will be 60 min long. 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 pm Friday, February 10, 2023 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 each day the topic is submitted late, 1 pt/day will be deducted from your overall Disease Presentation Project grade. The Outline, consisting of PowerPoint slides, is due no later than 5 pm Friday, March 10, 2023. 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.

Oral presentations will be given in 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 (including high school).

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 session 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, March 31, 2023. 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. Castro 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 (5 guest lectures) for a total of 10 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, one in which you will examine a news article on healthy living/lifestyle and the second on human disease. More detailed information on the assignment will be posted on your LAB Blackboard. CAs are due before 5:00 pm on Friday, February 3, 2023 and Friday, April 7, 2023.

**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. Castro, **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](http://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.** Any exam regrade requests should be addressed to the respective professor (whomever taught the lecture material), during office hours, and within 1 week from when the exam scores were released.

**Laboratory Policies.** Lab is participatory and must be attended in-person and the policies and safety rules and regulations, which are published in the Lab Manual, adhered to. Chronic, unexcused absence from the lab (more than 2 unexcused absences) can result in a grade penalty above and beyond missed work or exercises.

**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 a 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.

## BISC 150 - Course Schedule

Wk	Date	Lecture Topic	Lec. #	Reading	Lecturer	Assignments
1	10-Jan	Overview: Humans in the world of biology	1	Ch. 1	Castro	
	12-Jan	Intro to cell biology	2	Ch. 3	Castro	Quiz & Problem set
2	17-Jan	How your body gets its energy (Biochemistry)	3	Ch. 3	Castro	Quiz & Problem set
	19-Jan	Body organization and Homeostasis	4	Ch. 4	Castro	Quiz & Problem set
3	24-Jan	DNA, RNA, proteins and You! (Molecular Biology)	5	Ch. 21	Castro	Quiz & Problem set
	26-Jan	Mutation, Biotech. & GMOs	6	Ch. 21	Castro	Quiz & Problem set
4	31-Jan	Genetics	7	Ch. 20	Castro	Quiz & Problem set
	2-Feb	Genetic Diseases	8	Ch. 20	Castro	Quiz & Problem set
5	7-Feb	Cancer	9	Ch. 21a	Castro	Quiz & Problem set
	9-Feb	<b>Midterm 1 (Lectures 1-9)</b>				
6	14-Feb	Endocrine system	10	Ch. 10	Castro	
	16-Feb	Hormones Documentary	11		Castro	
7	21-Feb	Stem cells	12	Ch. 19a	Ghittoni	Quiz & Problem set
	23-Feb	Immune system	13	Ch. 13	Ghittoni	Quiz & Problem set
8	28-Feb	Immune system dysfunction	14	Ch. 13	Ghittoni	Quiz & Problem set
	2-Mar	Human Immunodeficiency Virus	15	Ch. 17a	Ghittoni	Quiz & Problem set
9	7-Mar	Infectious diseases	16	Ch.13a	Ghittoni	Quiz & Problem set
	9-Mar	Human Microbiome	17	Ch.13a	Ghittoni	Quiz & Problem set
10	Mar. 13-17	<b>Spring Recess</b>				
11	21-Mar	<b>Midterm 2 (Lectures 10-17)</b>				
	23-Mar	The digestive system part 1	18	Ch. 15	Ghittoni	Quiz & Problem set
12	28-Mar	The digestive system part 2	19	Ch. 15	Ghittoni	Quiz & Problem set
	30-Mar	Respiratory system	20	Ch. 14	Ghittoni	
13	4-Apr	Respiratory system	21	Ch. 14	Ghittoni	
	6-Apr	HIV Documentary	22		Ghittoni	
14	11-Apr	Guest Lecture	23			
	13-Apr	Guest Lecture	24			
15	18-Apr	Guest Lecture	25			
	20-Apr	Guest Lecture	26			
16	25-Apr	Guest Lecture	27			
	27-Apr	Review Session			Cast/Ghitt	
	<b>Tuesday May 9</b>	<b>9:00-10:00am Final Exam (Lectures 18 - 27)</b>				

## 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” [policy.usc.edu/scampus-part-b](http://policy.usc.edu/scampus-part-b). Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on [Research and Scholarship Misconduct](#).

### Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University’s educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at [osas.usc.edu](http://osas.usc.edu). You may contact OSAS at (213) 740-0776 or via email at [osasfrontdesk@usc.edu](mailto:osasfrontdesk@usc.edu).

### Support Systems:

*Counseling and Mental Health - (213) 740-9355 – 24/7 on call*

[studenthealth.usc.edu/counseling](http://studenthealth.usc.edu/counseling)

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

*National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call*

[suicidepreventionlifeline.org](http://suicidepreventionlifeline.org)

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

*Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call*

[studenthealth.usc.edu/sexual-assault](http://studenthealth.usc.edu/sexual-assault)

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

*Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086*

[eeotix.usc.edu](http://eeotix.usc.edu)

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

*Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298*

[usc-advocate.symplicity.com/care\\_report](http://usc-advocate.symplicity.com/care_report)

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

*The Office of Student Accessibility Services (OSAS) - (213) 740-0776*

[osas.usc.edu](http://osas.usc.edu)

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

*USC Campus Support and Intervention - (213) 821-4710*

[campussupport.usc.edu](http://campussupport.usc.edu)

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.



*Diversity, Equity and Inclusion - (213) 740-2101*

[diversity.usc.edu](http://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 – 24/7 on call*

[dps.usc.edu](http://dps.usc.edu), [emergency.usc.edu](http://emergency.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](http://dps.usc.edu)

Non-emergency assistance or information.

*Office of the Ombuds - (213) 821-9556 (UPC) / (323) 442-0382 (HSC)*

[ombuds.usc.edu](http://ombuds.usc.edu)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

*Occupational Therapy Faculty Practice - (323) 442-3340 or [otfp@med.usc.edu](mailto:otfp@med.usc.edu)*

[chan.usc.edu/otfp](http://chan.usc.edu/otfp)

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.