

# BIO206L

## INTRODUCTORY LABORATORY EXPERIMENTS IN BIOLOGY

Summer 2020

### Course Description

This course has been designed to engage you, excite you, and get you thinking like a scientist! You will generate hypotheses, design experiments, and collect and analyze data. This is a survey course, and we will cover a variety of biological topics and concepts. We'll begin at the molecular level and examine biomolecules like enzymes and nucleic acids. We'll then step up to the next level of organization and study cell structure and function. The next section of the course focuses on two physiological processes: cell respiration and photosynthesis. We will end of the semester with two of my favorite fields of study- ecology and evolution. Over the course of the semester you will work with your fellow students during lab to complete **Lab Simulations** and discuss ethical issues. You will also complete **Home Activities** to further explore topics that interest you. At the end of the semester, we hope you are as amazed as we are by the great diversity of life and have a deeper appreciation for the process of science.

This course carries the **Ethics Flag**. Ethics courses, like BIO 206L, are designed to equip you with skills that are necessary for making ethical decisions in your adult and professional life. A substantial portion of your grade (50%) comes from assignments involving ethical issues and the process of applying ethical reasoning to real-life situations.

BIO206L consists of a range of unique numbers (beginning with 84282). Each unique number corresponds to a specific laboratory time (via Zoom). Scheduled times of all BIO206L lab sections are listed in the Summer 2020 Course Schedule online: <http://registrar.utexas.edu/schedules/>

### Required materials

#### **Lab Simulations**

You must purchase access to Lab Simulations for BIO 206L from Hayden-McNeil. See **Canvas** for instructions.

#### **Canvas (<http://canvas.utexas.edu/>)**

I will use Canvas to share slides, articles, activities, AND to send and receive emails, AND to post important announcements. Please check Canvas daily for course information. Canvas will serve as the official repository of the BIO 206L scores that will comprise your total BIO206L final grade. It is your responsibility to ensure that your scores for all of the various BIO 206L assignments are correctly displayed in Canvas. AFTER A GRADE APPEARS IN CANVAS YOU HAVE 48 HOURS TO ASK FOR A REGRADE.

### Course Personnel

#### **Lecturer: Dr. Martha Maas**

Office hours: Mondays and Fridays from 11-12:30 through Zoom. Or by appointment.

Email: [m.maas@austin.utexas.edu](mailto:m.maas@austin.utexas.edu)

## **Laboratory Instructors (LI's)**

Your LI will supervise your work during each Zoom laboratory session. Your LI should be your first point of contact for individual assistance during the course. Your LI will be available to assist you during regularly scheduled office hours or by appointment. Your LI will provide a handout with more details including his/her office hours this week in Canvas.

## **Undergraduate Laboratory Assistants (UGLA's)**

Your lab section has also been assigned an UGLA. Your UGLA is a former BIO 206L student. Their role is to guide you as you complete the simulations with your lab group and also 'prod' you (if needed) to thoroughly discuss ethical issues. and will also will supervise your work during each Zoom laboratory session.

## **Course Structure**

### **1. Lecture Questions**

Lectures will be held on Mondays using Zoom and will consist of activities and mini-lectures to introduce you to the week's concepts and the ethical issues. Lecture materials (handouts, slides, etc.) will be posted on **Canvas**. During lecture, I will pose Lecture Questions to help you assess your own understanding of the material. **Starting on Monday, June 8th**, I will begin to record your answers. Lecture questions will be asked using UT Instapoll. You will access UT Instapoll through Canvas. You can earn up to 50 **participation** points by attending Zoom lecture sessions and answering questions. **You cannot make up Lecture Questions.**

### **2. Laboratory Performance**

Labs will be held during your scheduled time using Zoom. The Course Schedule (page 6) lists the 10 Lab Simulations and Ethics Topics that will be covered during lab. During the Zoom lab sessions, you will be assigned to work with a group of several students (typically 4) to complete Lab Simulations and discuss ethical issues. For each laboratory Zoom session, you can earn up to 5 points for 'Lab Performance' for arriving on-time to the Zoom lab session, participating in the Lab Simulations, and contributing to the discussion of the ethical issue. There will be ten Zoom lab sessions, for a total of 50 points possible for Lab Performance. Once your Laboratory Performance grade is posted in **Canvas**, you have 48 hours to speak with your LI about a grading concern. After 48 hours, your performance grade will not be reviewed or adjusted. **You cannot make-up a Lab Performance grade.**

### **3. Lab Review Questions**

You will answer a series of multiple choice and short answer questions about Lab Simulations and Ethical Issues in **Canvas**. These questions will ask you to share your hypotheses, data, observations, and discuss the results of the activity. Review Questions will be due each Friday (Starting Friday, June 12<sup>th</sup>) before midnight and are worth 10 points each (for a total of 100 points possible). **You cannot make-up Lab Simulation Review Questions.**

Your LI will grade your Lab Review Questions using Speed Grader on Canvas. Once your Lab Review Questions are posted in Canvas, you have 48 hours to speak with your LI about a grading concern. After 48 hours, your grade will not be reviewed or adjusted. **You cannot make-up Lab Review Questions.**

#### 4. Ethics Case Studies

You will complete four Ethics Case Studies. See Canvas for due dates. You can earn up to 10 points for each Ethics Case Study assignment, for a total of 40 points (NO CREDIT FOR LATE ASSIGNMENTS.). Each Ethics Case Study assignment will be posted on Canvas. You will submit a **Word Document** of your Ethics Case Study assignment on **Canvas**. Any Ethics Case Study assignments turned in late will not be accepted for grading, and a "0" grade will be recorded for that case study.

Your LI will grade your Ethics Case Study assignment using Speed Grader on Canvas. Once your Ethics Case Study assignment is graded, you have 48 hours to speak with your LI about a grading concern. After 48 hours, your grade will not be reviewed or adjusted. Any Ethics Case Study assignments turned in late will **not be accepted for grading**, and a "0" grade will be recorded for that report.

#### 5. Home Activities

We've designed Home Activities for you to complete... at home! These activities ask you to explore scientific questions using affordable (or free!) materials you can find at your local grocery or home improvement store. You will complete FOUR of the 10 Home Activities. Each Home Activity is worth 15 points so you can earn up to 60 points for completing four Home Activities. The first Home Activity, 'Experimental Design', is REQUIRED and asks you to design and conduct an experiment and record your data and observations. The instructions for the Experimental Design Home Activity are posted on Canvas. You must submit this assignment by Friday, July 3<sup>rd</sup> before midnight. The table below shows the due dates for the Home Activities. You must complete

Concept	Due Date
Home Activity One: Experimental Design	Friday, July 3 <sup>rd</sup> before midnight.
Home Activity Two: Enzyme Activity Home Activity Three: Biomolecules Home Activity Four: DNA	Complete ONE of these activities by Friday, July 17 <sup>th</sup> before midnight.
Home Activity Five: Nervous System Home Activity Six: Bacterial growth Home Activity Seven: Yeast metabolism	Complete ONE of these activities by Friday, July 31 <sup>st</sup> before midnight.
Home Activity Eight: iNaturalist Home Activity Nine: Animal Dissection Home Activity Ten: Animal Behavior Observation	Complete ONE of these activities by Friday, August 14 <sup>th</sup> before midnight.

## 6. Concept Exam

On Monday, August 17<sup>th</sup> you have from 9 a.m. until 11:59 p.m. to answer 50 multiple-choice and short answer questions about the concepts, techniques, and ethical issues presented in lecture and lab. Each question will be worth two points each (for a total of 100 points possible).

## 7. Extra Credit

I know life happens. You may have to miss a lecture or lab for personal reasons. I do NOT let students 'make-up' Lecture Questions, Lab Performance grades, Lab Review Questions, or Ethics Activities. BUT you can earn 15 points of Extra Credit (WOW!) by completing one EXTRA Home Activity (a fifth one). You must complete and submit the EXTRA Home Activity by Friday, August 14<sup>th</sup> before midnight.

## Grading Summary

Your grade in BIO206L will be determined as follows:

Lecture Questions	Questions answered (participation)	50
Lab Performance	Five points each (10 Labs)	50
Lab Review Questions (10 points each)	10 points each (10 labs)	100
Ethics Case Studies (10 points each)	Four Ethics Case Studies	40
Home Activities (15 points each)	Four Home Activities	60
Concept Exam	50 questions (2 points each)	100
<b>TOTAL POINTS POSSIBLE:</b>		<b>400</b>

This gives a total of 400 possible points. The course grade will be computed by dividing the sum of all points earned by 4 to obtain a score based upon a 100 point scale. If your score falls within one of the categories listed below, you are guaranteed the letter grade indicated. In this course your final course grade will be one of the following:

93-100 points = A, 90-92.99 points = A-, 87-89.99 points = B+, 83-86.99 points = B, 80-82.99 points = B-, 77-79.99 points = C+, 73-76.99 points = C, 70-72.99 points = C-, 67-69.99 points = D+, 63-66.99 = D, 60-62.99 = D-, below 60 points = F.

All scores that will comprise the total final grade will be posted in **Canvas**. All student grades will be available for individual inspection on LabClicker and Canvas using your UT EID. This means YOU ARE RESPONSIBLE to review and confirm within **48 hours** that your assignments have been graded correctly.

## **IMPORTANT Policies**

### **Policy on academic integrity (Honor Code):**

You are expected to maintain academic integrity. ***The University of Texas at Austin Honor Code*** states: “*The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the University is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.*”

**All assignments must be your OWN work.** All submitted assignments will be checked for evidence of cheating. When cheating is suspected, we will act in accordance with the University’s honor code policies. If you become aware of the scholastic dishonesty of a fellow student, you are obligated by the University Honor Code to report it. Students who violate the University’s policies on academic integrity are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. To see the UT academic dishonesty policy, please see:

[http://deanofstudents.utexas.edu/sjs/acadint\\_conseq.php](http://deanofstudents.utexas.edu/sjs/acadint_conseq.php)

### **Policy on Religious Observance**

By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a lecture or lab or an examination in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

### **Students with Disabilities**

Specialized services are available through Services for Students with Disabilities (SSD). Typically you must provide documentation to the Dean of Students’ Office, such that appropriate accommodations can be determined. If deemed that special accommodations may be made, the SSD office should provide you with a letter which you should submit to Dr. Maas (by the 12th class day or as soon as the official accommodation request letter is obtained).

**Summer 2020 COURSE SCHEDULE:** LECTURE AND LABS BEGIN THE WEEK OF JUNE 8TH

<b>Week of</b>	<b>Bio Concept</b>	<b>Ethics Topic</b>
June 8	Experimental Design	Recognizing Ethical Dilemmas
June 15	Enzymes	Ethical Decision-Making Framework
June 22	Biological Molecules	Academic Integrity
June 29	DNA	Reproductive Technology
July 6	Cell Structure and Function	Organ Transplants
July 13	Bacteria	Genetic Testing
July 20	Respiration	Forensic Genealogy
July 27	Photosynthesis	Genetic Engineering
August 3	Ecology	Clean Meat
August 10	Evolution	Everyday Ethics
August 17	<b>On Monday, August 17<sup>th</sup>. Concept Exam Questions on Canvas open from 9 a.m. until 11:59 p.m.</b>	