SYLLABUS Bio 13: Cells and Organisms

Lecture (D+): T/R 10:30-11:45 Cohen Auditorium (5 credit hours)
Lab: Several sections
Recitation (optional but encouraged enrollment): M 4:00-5:00 pm

	Contact	Office Hours
Course Instructor: **Dr. Lauren Crowe**	Bio13@tufts.edu	For content related questions: Tues. 1-2:30 p SEC 327 Wed. 10-11:30 a SEC 327 For grades/concerns/1-on-1 discussion: Fri. 1-2:30 p Robinson 368 or by appt
Lab Instructor: **Dr. Kate Mirkin**	Kate.mirkin@tufts.edu (for lab concerns only)	Please email for appointment
Course TA: **Esther Miller**	Esther.miller@tufts.edu	Recitation, by appointment
Logistics Questions: **Monica Morin**	Bio13@tufts.edu	Robinson 369

Description

Welcome to Bio 13! I'm excited to share the wonderful world of biology with you! In this course, we'll be exploring the fundamentals of cellular and molecular biology and building the foundations on which later biology courses will be based. We will cover the basics of biochemistry, energy flow, gene transfer, and gene expression and learn how this relates to human health and physiology. This course serves as a foundation and is a prerequisite for more advanced Biology courses.

Student and Instructor Goals and Expectations

By the end of this course, you should be able to:

- Analyze graphs and figures from primary literature papers and case studies to draw conclusions
- Develop critical thinking skills built upon scientific principles
- Understand and appreciate how biological foundations can be applied to human physiology, genetics, and disease
- Appreciate the constant changing nature of biological research

I expect all students to check their Canvas pages and Tufts emails regularly, engage with each other during and outside of class, and come to class prepared. Feel free to contact me concerning any problems you are experiencing in this course. You do not need to wait until you receive a bad grade before asking for assistance. Keep in mind that office hours are not only a time to address problems. I'd be happy to talk with you about your areas of special interest, help brainstorm topics, etc.

In turn, you can expect to hear back from emails within 24 hours (except on weekends) and expect me to do whatever I can to facilitate your learning. I also aim to elicit your feedback regularly! Expect a mid-semester evaluation of the class, and feel free to provide anonymous feedback at any time (see Canvas for more info). I am committed to the principle of universal learning. This means that our classroom, virtual spaces, practices, and interactions should strive to be as inclusive as possible.

Materials

Electronic:

- Canvas (https://login.canvas.tufts.edu/)
- Poll Everywhere (https://access.tufts.edu/poll-everywhere); email edtech@tufts.edu for issues
- A charged, portable internet-enabled device, such as a phone, laptop, or tablet. Downloading the apps for Canvas and/or Poll Everywhere will make your life easier!
    - Please feel free to use your computer for notetaking, but keep in mind that other students may be distracted if you start browsing cute cat videos or other non-relevant material

Textbook:

- Biological Science, 7th Edition (Freeman et al.)
  The e-access program associated with the text, MasteringBiology, is NOT required.
  Some copies of the 7th edition will be kept on four-hour reserve in the library. Reading assignments will also cross reference the 6th edition.

Accommodation Information:

Tufts University values the diversity of our students, staff, and faculty, recognizing the important contribution each student makes to our unique community. Tufts is committed to providing equal access and support to all qualified students through the provision of reasonable accommodations so that each student may fully participate in the Tufts experience. If you have a disability that requires reasonable accommodations, please contact the Student Accessibility Services office at Accessibility@tufts.edu or 617-627-4539 to make an appointment with an SAS representative to determine appropriate accommodations. Please be aware that accommodations cannot be enacted retroactively, making timeliness a critical aspect for their provision. Please bring your official SAS letter to Monica Morin in Robinson 369 or by email to bio13@tufts.edu no later than September 20th.

Diversity Statement:

In an ideal world, science would be objective. However, much of science is subjective and is historically built on a small subset of privileged voices. In this class, we will make an effort to recognize the accomplishments from a diverse group of scientists, but limits still exist on this diversity. Integrating a diverse set of experiences is important for a more comprehensive understanding of science. Please contact me (in person or electronically) or submit anonymous feedback if you have any suggestions to improve the quality of the course materials (see the Canvas home page). I aim to create a welcoming learning environment for the well-being of all students.

If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you. You can also submit anonymous feedback (which will lead to me making a general announcement to the class, if necessary, to address your concerns). If you prefer to speak with someone outside of the course, the Center for STEM Diversity is an excellent resource.

Academic Honesty:

You will work collaboratively throughout the course to solve problems. Your work on exams and in-class quizzes should be exclusively your own. Cheating and plagiarism will be reported to the university. I encourage you to review the Academic Misconduct Policy in the Code of Conduct here: https://students.tufts.edu/student-affairs/student-code-conduct/academic-integrity-resources.

Grading

Assignment	%
Problem Sets	15%
In-class quizzes	10%
Engagement	10%
2 Mini-Exams	15%
2 Exams	30%
Lab*	20%
Total	100%

Grade Range	Letter
90-100	A
80-89.9	B
70-79.9	C
60-69.9	D
<60	F

Problem Sets and In-Class Quizzes:

This is a partially flipped classroom, which means that you will be responsible for some background material outside of class so we can actively engage with it in class. Every week, you will be assigned 1-3 short videos ("micro-lectures") and some background reading from the textbook and other articles. Problem sets and background material will be assigned on Thursdays and will be due by 10 am on the following Tuesday. These problem sets enable you to track your own mastery of the material. ***You can work on these homework sets with Bio13 peers but may not collaborate with non-Bio13 students or TAs.***

A very brief (2-3 questions) quiz based directly on the homework set will be given via Poll Everywhere on Tuesdays promptly at the start of class. Your two lowest quiz scores will be dropped. These quizzes are designed to hold you accountable for the homework and to assess your understanding of key course concepts before we actively engage with that material in class. They also provide me with feedback on common misconceptions and topics to revisit/clarify.

Engagement:

Research shows that we learn the best when we engage with our peers and talk through our understanding of the material. You are required to actively engage in presented questions using Poll Everywhere. Questions will be presented during class using Poll Everywhere, and you will be able to choose an answer that will be recorded. Your participation in these exercises (regardless of your answer) will contribute towards your final grade. You are required to complete 90% of the questions asked in class to receive your full participation grade. Thus, credit will not be given for absences, and you cannot make up missed questions.

Mini-exams and Exams:

You will have four in-class multiple choice exams that will be administered via scantron sheets (dates on course schedule). Mini-exams will cover a single unit and are designed to assess your learning in smaller increments with a lower effect on your grade, and the full Exams will cover two units (a midterm and a final) and are designed to assess how you have connected ideas and themes throughout the course. Optional extra credit exam reflections cumulatively worth two points to your final grade will be posted to Canvas and available for completion for a week after each exam.

Lab*:

You must pass the lab portion of this course (letter grade of D or higher) to pass the class. See Canvas for more lab information. If you have any questions, please reach out to your lab TA or Dr. Mirkin.

Late work/make-up policy:

Due to the structure of the class, problem sets will not be accepted late. You will have from Thursday to Tuesday to work on the required background material and problem sets, so plan accordingly! No make-up quizzes or exams will be given. Your two lowest quiz scores will be dropped; thus, if you miss a quiz, it won't affect your grade. If an exam must be missed, you must provide proper documentation (doctor's note, etc.), and your other exam will count for the entirety of that category (for example, if you miss a mini-exam, then your other mini-exam will count for 15% of your grade). Unexcused absences for exams will result in a zero.

Additional Course Resources

Class Canvas Site:

Information for this course will be primarily distributed through the Canvas site. Announcements, slides, reading and video assignments, and homework sets will all be posted on the site. Make sure you can access the site at the beginning of the semester. ***Please check the course website and your Tufts email account daily.***

Out of class – Discussion Page:

Out of class, there are many ways for you to find support and get help for this course! Besides office hours and study groups, you can create threads on the Discussion page on Canvas. Use this discussion page to ask a question to your peers, set up study groups, and clarify points. This forum may not be used to share answers to problem sets and will be moderated by the instructors and TAs.

In class – CatchBox and Canvas Chat Page:

I encourage your active participation in class! We will utilize a passable microphone called a CatchBox to gather feedback and elicit responses. However, due to the size of the class, I recognize that not everyone will get an opportunity to ask questions during class. I will reserve the last 10 minutes of each class for questions/clarifications/review. As the class progresses, feel free to engage with each other on the Canvas chat page. Monica and Esther will be monitoring this page throughout class, and I'll try to get to any outstanding questions before our class time is up.

Signing up for 1-on-1 appointments:

If you have a non-content related question that is more sensitive in nature (i.e., grading concerns), I have 1-on-1 appointments available between 1-2:30 pm on Friday. To sign up, go to your Canvas Calendar and select an available appointment. If you cannot make any of the available time slots, please email bio13@tufts.edu to set up an individual appointment.

Slides:

I will post lecture slides before each class on our course Canvas site via the Course Schedule Page at least 24 hours prior to the start of class. I encourage you to bring them to class, either printed or on a portable electronic device, to facilitate note taking.

Lecture Capture (Echo360):

I try to provide a "lecture capture" for each class; however, as technology doesn't always work, viewing is not guaranteed. I highly recommend that students attend class and only use lecture capture as a back-up. The lecture captures will be available by approximately 5 pm each lecture day. By attending class, you understand class may be recorded for educational purposes.

Academic Resource Center (ARC) Resources:

Study Groups:

These sessions will meet weekly for 1.5 hours. Sign up for study groups will be available the first week of class, and space is limited. See Canvas for more information. Furthermore, the ARC offers one on one sessions, drop-in hours, and time management and study strategies. See http://go.tufts.edu/arc for more information.

Peer Subject Tutors:

If you seek a tutor or are more comfortable working with other students, the ARC Peer Tutors are an excellent option. They cannot help you with problem sets but will assist you in understanding concepts and problem solving. One-on-one appointments are available by going to SIS > Academics > Tutor Finder.

Course Schedule

	Topic	Important Dates	Due at 10 am
3-Sep	Intro to Chemical Bonding		
5-Sep	Bonding, Water		Syllabus Quiz
10-Sep	Functional Groups, Macromolecules		Biochemistry Problem Set #1
12-Sep	Protein Structure and Function		
17-Sep	Nucleic Acids, Carbohydrates	Last day to add classes	Biochemistry Problem Set #2
19-Sep	Lipids and membranes		
24-Sep	**Mini Exam 1 - Biochemistry**		
26-Sep	Energy - Free Energy and reactions		
1-Oct	Enzymes and Signaling		Energy Problem Set #1
3-Oct	Cell Respiration - Glycolysis		
8-Oct	Cell Respiration - Citric Acid Cycle and ETC	Last day to drop without W (non-1st years)	Energy Problem Set #2
10-Oct	Photosynthesis		
15-Oct	**No class**	No class - Monday Schedule	
17-Oct	**Midterm Exam - Biochemistry and Energy**		
22-Oct	The Cell Cycle Overview		Genetics Problem Set #1
24-Oct	Cell Cycle Control and Meiosis		
29-Oct	Mendelian Genetics and Phenotypes		Genetics Problem Set #2
31-Oct	DNA replication and repair		
5-Nov	Genetic Engineering		Genetics Problem Set #3
7-Nov	Genetics and evolution		
12-Nov	**Mini Exam 2 - Genetics**	Last day to drop with W (without W, 1st years)	
14-Nov	Organelles and cytoskeleton		
19-Nov	Genes - Transcription and Translation		Cell Biology Problem Set #1
21-Nov	Gene Expression Prokaryotes vs Eukaryotes		
26-Nov	Secretory Pathway and signal sequences		Cell Biology Problem Set #2
28-Nov	**No class**	No class - Thanksgiving; University Holiday	
3-Dec	Cell-Cell Interactions		Cell Biology Problem Set #3
5-Dec	Cell Signaling		
13-Dec	**Final Exam – Genetics and Cell Biology**	3:30-5:30 pm in Cohen Auditorium	

I have a question! Who do I talk to?