Biology 13L: Cells and Organisms with Lab
Fall 2015 Syllabus

Course Times and Location
Class Meeting: Section 1: Tuesday, Thursday Barnum 008, 10:30-11:45 (D+)
Class Meeting: Section 2: Tuesday, Thursday Barnum 008, 12-1:15 (F+)
Recitation (optional, but recommended): Barnum 008, Monday 4:40-5:30 PM

Please note that you must attend the section in which you are enrolled.
Participation credit will only be given during the appropriate section. Recitation is optional and there is only one recitation time for both sections.

Course Instructor & Coordinator
Dr. Susan Koegel
Office: Barnum 109
Phone: 617-627-3196
Email: susan.koegel@tufts.edu
Office Hours: Tuesday 3-4:30, Wednesday 11-12, Friday 1:30-3 and by appointment

Lab Coordinator
Dr. Michelle Gaudette
Office: Barnum 211
Phone: 617-627-2909
Email: michelle.gaudette@tufts.edu
Office Hours: Thursday 3-5 and by appointment

Course Description
In this course, students will be introduced to general biological principles and widely used methods related to the foundations and the current advances in cell and molecular biology, genetics, and biomedical sciences. Students will be examined on their knowledge of material covered in class meetings, assigned readings, and laboratory activities and their ability to solve problems that are relevant to course content.

Upon completion of the course, students should be able to:

♦ Understand and explain the basic principles of cell structure and function. This background will serve as a strong foundation for more detailed Biology courses for which this course is a prerequisite.

♦ Work independently and in collaboration with others to compile, analyze, interpret, and communicate scientific data and ideas.

♦ Utilize critical thinking skills developed throughout the semester in class meetings and laboratory sessions. In summative assessments, emphasis will be placed on questions requiring that students apply information to new situations in order to reach a conclusion.
Textbook
Biological Science, 5th Edition, authors, Freeman/Quillin/Allison.
MasteringBiology is NOT required.
Four copies of the 5th edition will be kept on three-hour reserve in the library.
Any full-version, 5th edition version of this textbook should contain the same scientific content. We do NOT use the study guide (Study Guide for Biological Science) for this course.

Laboratory
Laboratory sessions, coordinated by Dr. Michelle Gaudette, begin the week of September 21st, 2015. If you know you will need to miss a lab (to observe a religious holiday), you MUST get permission to switch into a different lab from the lab coordinator at least seven days (and preferably two weeks) prior to the scheduled lab date. YOU MUST PASS THE LAB IN ORDER TO PASS THIS CLASS. The laboratory is designed to stress higher-level thinking, particularly in requiring the students to design experiments and evaluate their results. For written assignments the internet-based originality verification system, Turnitin, will be required.

Course Requirements
Grading:

- Exams (4 in-class exams): 64%
- In-Class Questions: 6%
- Problem Sets: 8%
- Laboratory: 22%

*Please note that there will be no extra credit opportunities in this course.*

All students at Tufts University are expected to live up to the highest standards of academic honesty.

Exams: You will have four in-class exams. If you are requesting an accommodation for a documented disability, you must register with Student Accessibility Services at the beginning of the semester. To do so, call 617-627-4539 to arrange an appointment. Additional information can be found at: http://uss.tufts.edu/arc/disability/

In-Class Questions: You are expected to actively participate in this course. You will learn by engaging with the material and your peers; therefore, your participation in this course is extremely important for everyone’s learning.

We will be using Learning Catalytics (https://learningcatalytics.com/), an automated classroom response system to provide an opportunity for you to answer questions in class using a web-enabled device. Questions will be presented during class, and each individual will be able to choose an answer that will be recorded by my computer. Your participation in these exercises (not whether or not you get the correct answer) will contribute towards your final grade. You are required to complete 90% of the questions asked in class from September 15th to the end of the semester to receive the full 6% credit (given that you only need to answer 90% of the questions, credit will not be given for absence due to illness or personal reasons). You cannot make-up missed questions. Learning Catalytics will be used in every class, and you are responsible for bringing your device to each class.
To use this system in class, students can use any modern web-enabled device that you have – laptop, smartphone, or tablet. If you don’t have one of these devices to use in class this semester, please email us the first week of class (susan.koegel@tufts.edu) and an in-class device will be provided for you to use in class.

**Problem Sets:** In addition to the in-class questions, graded weekly problem sets will be provided on Learning Catalytics outside of class. These problem sets will provide you with a mechanism to evaluate your understanding of the material outside of the class environment. Your first assignment (Skills Assessment) opens September 8th at 1:30 PM and must be completed **before 10:00 AM Monday, September 14th.** Although students can work on problem sets with current Bio13L peers, collaboration is not allowed with non-Bio13L students, TAs, or graduate teaching assistants. A problem set schedule for when assignments open and are due has been posted on the Trunk site under Resources/2015 General Course Information.

**Additional Important Course Resources**

**Class Trunk Site:** The course Trunk (https://trunk.tufts.edu/welcome/) site will be the primary avenue in which information is distributed for this course. Announcements, slides, and guiding reading questions will all be posted on the site. Make sure you are able to access the site at the beginning of the semester. **Please check the course Trunk website and your Tufts email account daily.**

**Slides:** We will post lecture slides before each class on our course Trunk site “Class Materials” that we encourage you to print and bring to class (or bring via electronic device).

**Lecture Capture (Echo360):** Sometimes it is helpful to go back to a specific portion of a class and view it a second time. Therefore, as a courtesy, we try to provide a “lecture capture” for each class. However, since technology doesn’t always work – having each lecture available for viewing is **not** guaranteed. It is **highly** recommended that students attend class and only use lecture capture as a back-up. You will not be able to answer in-class questions outside of class for credit. A lecture-capture link for each class meeting will be posted on Trunk under Class Materials. Links will direct students to the Echo360 server which requires students sign in using their Tufts UTLN and password. The lecture captures will be available approximately 24 hours after class.

**Guided Reading Questions:** Textbook reading is required **before** each class meeting. In order to help you focus your reading, general guided reading questions will be available under Class Materials in Trunk for each class date.

**Office Hours:** We strongly encourage you to take advantage of office hours to ask questions about the material covered in class and to also get to know faculty members. This is often an underutilized resource. Feel free to come with other classmates or friends.

**Non-Graded Practice Questions:** Every Thursday at 1:30 PM (except during Exam Weeks), old exam questions will be posted for additional practice of that week’s material. Answers
will be posted the following Monday morning. These questions will not be graded and are strictly for studying purposes.

**Weekly Recitation:** The weekly recitation is optional but is recommended. Even if you are not able to register for the recitation, you are welcome to come. Attendance will not be taken. Dr. Koegel will run all recitation meetings in a Q&A format using student questions. New material will not be presented. The sessions begin September 21st.

**Academic Resource Center (ARC) Peer Tutors:** ARC’s team of peer tutors is an excellent option for asking questions about material (both scheduled appointments and drop-in hours). Go to [http://ase.tufts.edu/arc](http://ase.tufts.edu/arc) to learn how to schedule an appointment.

**Bio13L Study Groups:** Study Groups are an optional resource for students in Bio13L. Students Groups consist of approximately 10 of your Bio13L peers that meet weekly at the same time and location to discuss course material and focus on applying and mastering the material. Undergraduate tutors who have previous taken Bio13L facilitate the groups. During these sessions, your tutor will help facilitate a productive session based upon your questions about the material. Directions on how to sign up for Study Groups will be made available during the first week of class.

**Email Policy:** We do our best to respond to all emails within 24 hours of receiving them. This time frame is not guaranteed (especially over weekends or holidays).

**Important Dates**
- Sept. 22nd: Last day for ADD class
- Oct. 1st: Exam 1
- Oct. 13th: Last day for non-first years to DROP without record of enrollment
- Oct. 22nd: Exam 2
- Nov. 10th: No Class (Tufts Wednesday)
- Nov. 17th: Exam 3
- Nov. 17th: Last day for first years to DROP without record of enrollment
- Nov. 26th: No Class (Thanksgiving)
- Dec. 10th: Exam 4

**Faculty Member** | **When to contact?**
---|---
Dr. Susan Koegel | Questions related to course content & assignments
**Course Instructor**
And Coordinator | General questions or concerns about the course including (but not limited to): study strategies, logistics, and resources
Dr. Michelle Gaudette | Questions related to lab
**Lab Coordinator**
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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Textbook Readings</th>
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<tbody>
<tr>
<td>Sept. 8th</td>
<td>The Cell and Introduction to Chemical Bonding</td>
<td>1.1-1.2,1.5, 3.4, 2.1 Bioskills (B) 8, 15, 16</td>
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<td>Sept. 10th</td>
<td>Chemical Bonding and Amino Acids</td>
<td>2.2, 2.5, 3.1, 3.2</td>
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<td>Sept. 15th</td>
<td>Protein Structure and Analysis</td>
<td>3.2, 3.3, B9</td>
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<td>Sept. 17th</td>
<td>Cell Membranes, Lipids, and Transport</td>
<td>6.1-6.4</td>
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<td>Sept. 22nd</td>
<td>Carbohydrates and the Secretory Pathway</td>
<td>5.1-5.3, 7.1-7.2, 7.5, B11</td>
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<td>Sept. 24th</td>
<td>Thermodynamics and Enzymes</td>
<td>2.3, 3.4, 8.1, 8.3-8.4</td>
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<td>Sept. 29th</td>
<td>Coupled Reactions, Redox, Glycolysis, and TCA Cycle</td>
<td>8.2, 8.5, 9.1-9.4</td>
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<td>Oct. 1st</td>
<td>Exam 1 (through Sept. 24th)</td>
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<td>Oct. 6th</td>
<td>Electron Transport Chain, ATP Synthesis, and Regulation</td>
<td>9.5-9.6</td>
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<td>Oct. 8th</td>
<td>Cell Cycle Regulation</td>
<td>12.1-12.4</td>
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<td>Oct. 13th</td>
<td>Cell Cycle Regulation and Nucleic Acids</td>
<td>12.3-12.4, 4.1, 15.1</td>
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<td>Oct. 15th</td>
<td>DNA Replication</td>
<td>4.2, 15.2-15.4</td>
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<td>Oct. 20th</td>
<td>DNA Repair and Molecular Tools</td>
<td>15.5, 20.2-20.3</td>
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<td>Oct. 22nd</td>
<td>Exam 2 (through Oct. 15th)</td>
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<td>Oct. 27th</td>
<td>Meiosis and Sex Determination</td>
<td>13.1-13.3</td>
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<td>Nov. 3rd</td>
<td>Sex Linkage and Genetic Linkage</td>
<td>14.4-14.6</td>
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<td>Nov. 5th</td>
<td>Extending Mendel’s Rules and Linking Genotype to Phenotype</td>
<td>14.5, 20.4</td>
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<td>Nov. 10th</td>
<td>Tufts Wednesday</td>
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<td>Nov. 12th</td>
<td>The Central Dogma, Mutations, and Transcription</td>
<td>16.1-16.4, 17.1-17.2</td>
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<td>Nov. 17th</td>
<td>Exam 3 (through Nov. 5th)</td>
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<td>Nov. 19th</td>
<td>Translation</td>
<td>17.3-17.5</td>
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<td>Nov. 24th</td>
<td>Regulation of Gene Expression in Prokaryotes</td>
<td>18.1-18.5</td>
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<td>Nov. 26th</td>
<td>Happy Thanksgiving!</td>
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<td>Dec. 1st</td>
<td>Regulation of Gene Expression in Eukaryotes</td>
<td>19.1-19.3</td>
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<td>Dec. 3rd</td>
<td>Regulation of Gene Expression in Eukaryotes</td>
<td>19.5-19.6</td>
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<td>Dec. 8th</td>
<td>Bringing it All Together: Macromolecules, Cells, Organisms, Genotypes, and Phenotypes</td>
<td>22.2</td>
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<td>Dec. 10th</td>
<td>Exam 4 (through Dec. 8th)</td>
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