Biology 15B
Cells and Organisms
Spring 2016

Dr. Maria Miara
mmiara@brandeis.edu
Vol 317
Office Hours: Mondays 12:00-2:00pm

Lectures
Mondays, Wednesdays and Thursdays 9:00-9:50am

Recitations
Section 1: Mondays 5:30-6:20pm, Kayla Newbie, knnew070@brandeis.edu
Section 2: Mondays 6:30-7:20pm, Evie Notis, notis@brandeis.edu
Section 3: Mondays 7:30-8:20pm, Emily Greenwald, greeemi@brandeis.edu
Section 4: Mondays 7:30-8:20pm, Daniela Valentino, dval@brandeis.edu
Section 5: Tuesdays 5:30-6:20pm, Ben Grenier, greiner@brandeis.edu
Section 6: Tuesdays 5:30-6:20pm, Tiffany Mei, tmei7@brandeis.edu
Section 7: Tuesdays 6:30-7:20pm, Ari Matz, amatz18@brandeis.edu
Section 8: Tuesdays 7:30-8:20pm, Ari Matz, amatz18@brandeis.edu

Course Description
This course introduces contemporary biology with an emphasis on cells, organs, and organ systems. Topics include the forms and functions of macromolecules, organelles, and cells, the integration of cells into tissues, and the physiology of fundamental life processes. The course is intended to prepare students to understand the biology of everyday life, and to provide a strong foundation for those who continue to study the life sciences.

Learning Goals
After completion of this course students should be able to:

- Explain basic concepts in biology including cellular structure, bio-macromolecule composition, structure, and synthesis
- Explain the concept of central dogma and its role in the cell.
- Describe how and why cells make and use energy.
- Describe the major characteristics of human organ systems and their functionality at the molecular level.

Textbook
OR

Please use whichever version best suites your needs. Readings will be given by chapter and/or section so differences in page numbers will not matter.
Evaluation

200 points - top 10 of 13 Weekly Responses
• due at noon on Sundays
• no make-ups for any reason
• not accepted late
• graded on completion with “good faith effort”

300 points - top 3 of 4 Non-Cumulative Tests
• no make-ups for any reason

100 points - top 5 of 8 In-Class Quizzes (unscheduled)
• no make-ups for any reason

200 points - top 10 of 12 Recitation Assignments
• due at start of recitation
• not accepted late
• no make-ups for any reason
• graded on completion with “good faith effort”
• must attend recitation for credit

200 points - Cumulative Final
• tentatively scheduled by Registrar for Tuesday, May 10, 1:30pm (this may change)

1000 points total

***THERE WILL BE NO OPPORTUNITIES FOR EXTRA CREDIT***

Academic Honesty
You are expected to be familiar with and to follow the University’s policies on academic integrity (see http://www.brandeis.edu/studentlife/sdc/ai). Faculty may refer any suspected instances of alleged dishonesty to the Office of Student Development and Conduct. Instances of academic dishonesty may result in sanctions including but not limited to, failing grades being issued, educational programs, and other consequences.

Time Commitment
Success in this 4 credit hour course is based on the expectation that students will spend a minimum of 9 hours of study time per week in preparation for class (readings, papers, discussion sections, preparation for exams, etc.). This is in addition to the 3 hours of lecture and 1 hour of recitation that students are expected to attend per week.
Disabilities
If you are a student who needs academic accommodations because of a documented disability, please contact me and present your letter of accommodation as soon as possible.

If you have questions about documenting a disability or requesting academic accommodations, you should contact Beth Rodgers-Kay in Academic Services (x6-3470 or brodgers@brandeis.edu.)

Letters of accommodation should be presented at the start of the semester to ensure provision of accommodations. Accommodations cannot be granted retroactively.

TeachBack
In this class we will be using TeachBack, a free Brandeis-developed classroom app. You can access this app from your laptop, smartphone or tablet. For every activity, quiz or in-class assignment that we do there will be a hardcopy (paper) version available for students who do not have such a device with them, run out of battery, have technical difficulties, etc. Please visit http://teachback.herokuapp.com/ to create an account and use the PIN 6614083 to enroll in the course.
<table>
<thead>
<tr>
<th>Week</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Recitation</th>
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<tbody>
<tr>
<td>January</td>
<td>No Class</td>
<td>Lecture 1: Life Read 1.1-1.4</td>
<td>Lecture 2: Molecules I Read 2.1-2.4</td>
<td>No Recitation</td>
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<tr>
<td>11-15</td>
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<td>January</td>
<td>No Class</td>
<td>Brandeis Monday Lecture 3: Molecules II Read 2.5-2.6, 3.1-3.2</td>
<td>Lecture 4: DNA replication Read 12.1-12.2</td>
<td>Recitation 1 - Scientific Method NOTE: Mon sections meet Wed</td>
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<td>18-22</td>
<td>Lecture 5: Transcription I Read 3.3-3.4</td>
<td>Lecture 6: Transcription II Read 3.3-3.4</td>
<td>Lecture 7: Translation I Read 4.1-4.3</td>
<td>Recitation 2 - RNA World</td>
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<tr>
<td>January</td>
<td>Lecture 8: Translation II Read 4.1-4.3</td>
<td>Lecture 9: Cell membranes Read 5.1-5.2</td>
<td>Lecture 10: Cell Compartments Read 5.3-5.5</td>
<td>Recitation 3 - Protein Evolution</td>
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<td>25-29</td>
<td>Test 1 Lectures 1-9</td>
<td>Lecture 11: Energy &amp; Thermodynamics Read 6.1-6.3</td>
<td>Lecture 12: Enzymes Read 6.4-6.5</td>
<td>Recitation 4 - Endosymbiosis</td>
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<td>February</td>
<td>Lecture 13: Cell Respiration I Read 7.1-7.3</td>
<td>Lecture 14: Cell Respiration II Read 7.3-7.5</td>
<td>Lecture 15: Cell Respiration III Read 7.6-7.7</td>
<td>Recitation 5 - Crispr/Cas9</td>
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<td>1-5</td>
<td>Lecture 16: Photosynthesis I Read 8.1-8.2</td>
<td>Lecture 17: Photosynthesis II Read 8.3-8.4 (8.5)</td>
<td>Lecture 18: Cell Communication I Read 9.1-9.3</td>
<td>Recitation 6 - Biofuel Cell</td>
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<td>February</td>
<td>Test 2 Lectures 10-17</td>
<td>Lecture 19: Cell Communication II Read 9.3-9.4 (9.5)</td>
<td>Lecture 20: Cytoskeleton Read 10.1-10.3</td>
<td>Recitation 7 - Quorum Sensing</td>
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<td>22-26</td>
<td>Lecture 21: Extracellular matrix Read 10.4-10.5</td>
<td>Lecture : Mitosis Read 11. 1-11.2</td>
<td>Lecture 23: Meiosis Read 11.3</td>
<td>Recitation 8 - Cancer</td>
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<td>March 4</td>
<td>No Class</td>
<td>Test 3 Lectures 18-26</td>
<td>Lecture 27: Endocrine System Read 38.1-38.3</td>
<td>No Recitation</td>
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<td>March 14-18</td>
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<td>March 21-25</td>
<td>Lecture 31: Cardiovascular System Read 39.4-39.5</td>
<td>Lecture 32: Digestive System Read 40.1-40.4</td>
<td>Lecture 33: Renal System Read 41.1-41.3</td>
<td>Recitation 11 - Sports Physiology</td>
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<td>March 28-April 1</td>
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<td>April 4-8</td>
<td>Lecture 34: Reproductive System Read 42.3-42.4</td>
<td>Lecture 35: Immune System Read 43.1-43.3 (43.4)</td>
<td>No Class</td>
<td>Recitation 12 - Microbiome</td>
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<td>April 11-15</td>
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<td>April 18-22</td>
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<td>May 2-6</td>
<td>Test 4 Lecture 27-35</td>
<td>No Class</td>
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