BIOL 304001  Cell Biology, 3 credits
Boston College Summer Session 2018
Summer 1, 5/16-6/20,  MW 9-12:15

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Office Hours: MW 12:15-1:30

Boston College Mission Statement
Strengthened by more than a century and a half of dedication to academic excellence, Boston College commits itself to the highest standards of teaching and research in undergraduate, graduate and professional programs and to the pursuit of a just society through its own accomplishments, the work of its faculty and staff, and the achievements of its graduates. It seeks both to advance its place among the nation's finest universities and to bring to the company of its distinguished peers and to contemporary society the richness of the Catholic intellectual ideal of a mutually illuminating relationship between religious faith and free intellectual inquiry.

Boston College draws inspiration for its academic societal mission from its distinctive religious tradition. As a Catholic and Jesuit university, it is rooted in a world view that encounters God in all creation and through all human activity, especially in the search for truth in every discipline, in the desire to learn, and in the call to live justly together. In this spirit, the University regards the contribution of different religious traditions and value systems as essential to the fullness of its intellectual life and to the continuous development of its distinctive intellectual heritage.

Course Description

This course is designed to provide students with a strong foundation in the molecular biology of the cell. Particular attention is made to the human disease relevance of cell biology. Topics covered in the course include cellular biochemistry, regulation of gene expression, subcellular organization, regulation of the cell cycle, membrane trafficking, cell-substrate interactions, cytoskeleton, cancer, and cell signaling. It serves as excellent preparation for more advanced courses in cell biology, neuroscience, physiology, molecular biology, developmental biology, and genetics.

Textbooks & Readings (Required)

Please purchase a iClicker from the bookstore as it is required. Register your iClicker on line on the course Canvas website.
Canvas
Canvas is the Learning Management System (LMS) at Boston College, designed to help faculty and students share ideas, collaborate on assignments, discuss course readings and materials, submit assignments, and much more - all online. As a Boston College student, you should familiarize yourself with this important tool. For more information and training resources for using Canvas, click here.

The course syllabus, lecture Powerpoint presentations, grade information and additional materials are available on the course Canvas web site.

Course Objectives
One goal of cell biology is an understanding of the structure-function relationships in cells. Cell biology aims for both a molecular and systems understanding of cell function, and its study has been transformed by the spectacular advances in molecular biology, live cell imaging, and genetics over the past three decades. Modern cell biology integrates microscopic, molecular, genomic, and biochemical data to understand dynamic processes of cells. This course provides an overview of modern cell biology. The first part of the course focuses on cellular biochemistry and gene regulation. The second part of the course focuses on subcellular organization, with a focus on cell signaling, membrane trafficking, control of cell shape and movements, cell division and cell death. At the end of the course will be a description of pathogenesis and cancer.

Course Objectives:
1. Gaining factual knowledge on the structure, function of cells and how such information has been obtained.
2. Learning fundamental principles, generalizations, and theories common to all eukaryotic cells.
3. Learning to apply course material to human disease.
4. Acquiring skills in working with others as a member of a team by developing a team Youtube video on one aspect of cell biology.
4. “The student will demonstrate knowledge, skill and/or competency, as appropriate for the course across cultural settings and will learn the impact of culture, gender, and age in cell biology.
5. The student will demonstrate ethical knowledge, skill and/or competency, as appropriate for the course pertaining to cell biology as evidenced by performing his/her own work.

Grading: Grades will be based on a total of points:

- Four 30 minute tests 60%
- Clicker questions 15%
- Team Project 10%
- Final 15%

The undergraduate grading system for Woods College is as follows:

A (4.00), A- (3.67)
B+ (3.33), B (3.00), B- (2.67)
C+ (2.33), C (2.00), C- (1.67)
D+ (1.33), D (1.00), D- (.67)
F (.00)

All students can access final grades through Agora after the grading deadline each semester. Transcripts are available through the Office of Student Services.
Deadlines and Late Work

Missed Exams: There will be no make-up exams. If you do not take an exam at the announced date and time, you will receive a zero for that exam. If you miss an exam because of an illness or emergency, you must present written documentation from a health professional or a Dean’s excuse to Dr. Burgess within one week of the exam. If you will miss an exam because of a university-sanctioned event, you must present documentation to the instructors in advance of the exam. If your excuse is accepted as legitimate, your grade for the course will be determined based on the performance on the other exams. No more than one exam can be missed.

Academic Integrity: Students are expected to observe high standards of academic integrity. Students who are caught cheating on an exam will fail the course and be brought up for disciplinary action with the Dean’s office. Cheating includes: copying an exam, using “cheat sheets” or cell phones during an exam, altering an exam after it has been returned and then requesting regarding, and having another student take your exam. We reserve the right to copy your exam after it has been graded but prior to its return.

Please familiarize yourself with the university’s policies on academic integrity.

Course Assignments
It is expected that you will spend 8 hours per week on out-of-class assignments and exercises. These are listed below. Please note that some weeks will require more time and some weeks less time but the average is approximately 8 hours per week over the semester.

Course Schedule

<table>
<thead>
<tr>
<th>Date/Week</th>
<th>Topic</th>
<th>Reading/Assignments</th>
<th>Short Test</th>
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<tbody>
<tr>
<td>May 16</td>
<td>Intro, Macromolecules, Proteins, Chromatin</td>
<td>Chapters 1, 2, 4, 5</td>
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<tr>
<td>May 21</td>
<td>Genes Expression, Gene Evolution, Proteins and Membrane structure</td>
<td>Chapters 8, 9, 11</td>
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<td>May 23</td>
<td>Membrane Transport and Physiology; Mito and Chloroplasts</td>
<td>Chapters 12, 14</td>
<td>Short Text</td>
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<tr>
<td>May 28</td>
<td>Membrane Transport and Physiology; Mito and Chloroplasts</td>
<td>Chapters 12, 14</td>
<td></td>
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<tr>
<td>May 30</td>
<td>Intracellular Compartments, Protein transport, Cell Signaling</td>
<td>Chapters 15, 16</td>
<td>Short Test</td>
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<tr>
<td>June 4</td>
<td>Cell Signaling, Cytoskeleton</td>
<td>Chapters 16, 17</td>
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<tr>
<td>June 6</td>
<td>Cell Motility, Cell Division</td>
<td>Chapters 17, 18</td>
<td>Short Test</td>
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<tr>
<td>June 11</td>
<td>Mitosis/Cytokinesis, ECM, Cell Adhesion</td>
<td>Chapters 18, 20</td>
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<td>June 13</td>
<td>Integration of Signaling, Stem Cells Cancer</td>
<td>Chapters 20</td>
<td>Short Test</td>
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<tr>
<td>June 18</td>
<td>Sexual Reproduction, Apoptosis, Meiosis</td>
<td>Chapter 18, 20</td>
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<tr>
<td>June 20</td>
<td>Finishing up Videos and Final</td>
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**Attendance**

Attending class is an important component of learning. Students are expected to attend all class sessions. When circumstances prevent a student from attending class, the student is responsible for contacting the instructor before the class meets. Students who miss class are still expected to complete all assignments and meet all deadlines. Many instructors grade for participation; if you miss class, you cannot make up participation points associated with that class. Makeup work may be assigned at the discretion of the instructor. If circumstances necessitate excessive absence from class, the student should consider withdrawing from the class. Since attendance is recorded on your iClicker question responses, credit for attendance is part of the iClicker grade.

Consistent with BC’s commitment to creating a learning environment that is respectful of persons of differing backgrounds, we believe that every reasonable effort should be made to allow members of the university community to observe their religious holidays without jeopardizing their academic status. Students are responsible for reviewing course syllabi as soon as possible, and for communicating with the instructor promptly regarding any possible conflicts with observed religious holidays. Students are responsible for completing all class requirements for days missed due to conflicts with religious holidays.

**Accommodation and Accessibility**

Boston College is committed to providing accommodations to students, faculty, staff and visitors with disabilities. Specific documentation from the appropriate office is required for students seeking accommodation in Summer Session courses. Advanced notice and formal registration with the appropriate office is required to facilitate this process. There are two separate offices at BC that coordinate services for students with disabilities:

- The Connors Family Learning Center (CFLC) coordinates services for students with LD and ADHD.
- The Disabilities Services Office (DSO) coordinates services for all other disabilities.

Find out more about BC’s commitment to accessibility at [www.bc.edu/sites/accessibility](http://www.bc.edu/sites/accessibility).

**Scholarship and Academic Integrity**

Students in Summer Session courses must produce original work and cite references appropriately. Failure to cite references is plagiarism. Academic dishonesty includes, but is not necessarily limited to, plagiarism, fabrication, facilitating academic dishonesty, cheating on exams or assignments, or submitting the same material or substantially similar material to meet the requirements of more than one course without seeking permission of all instructors concerned. Scholastic misconduct may also involve, but is not necessarily limited to, acts that violate the rights of other students, such as depriving another student of course materials or interfering with another student’s work. Please see the [Boston College policy on academic integrity](http://www.bc.edu/departments/academic-affairs/policies-and-guidelines) for more information.