BIOL220001, Microbiology for Health Professionals; 3 credits
Boston College Summer Session 2016
Summer 2 session, June 27th – July 14th 2016
Mon, Tue, Wed, Thu; 1 PM – 4 PM

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Office Hours: by appointment

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 a study of the basic physiological and biochemical activities of bacteria and viruses. Emphasis will be placed on virulence factors and the mechanism by which a variety of microorganisms and viruses establish an infection. The use of anti-viral drugs and antibiotics, the host immune response to microbial infection, and the effectiveness of various vaccination strategies will also be discussed.

Textbooks & Readings (Required)
Microbiology, An Introduction, 12th edition
Authors: Tortora, Funke, Case
Publisher: Pearson
All forms of the textbook (bound, loose-leaf, e-book) are acceptable for this course. The course will not use any online materials (Mastering Microbiology) that can be purchased with the textbook (however, you may find them helpful for increasing your understanding of the course material). Note that college bookstores generally only buy back the US edition of a textbook.

It is expected that the students have read and understood chapter 2 and the first half of chapter 10 (The Study of Phylogenetic Relationships + Classification of Organisms, plus appropriate study outline and study questions) by the first day of the course.

Textbooks & Readings (Recommended)
Additional materials may be distributed or assigned as appropriate. It is highly recommended that the students keep a physical notebook for this course.

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. Handouts/slides used in class will be posted on Canvas after class.

Course Objectives
In this course, students will gain factual knowledge pertaining to microbiology, microbial diversity and pathogenesis, and immunology, and they will learn the fundamental principles of infectious diseases. Students will apply the course material through discussions and exam questions related to the following:
1. Structure of prokaryotic and eukaryotic cells, viruses, and fungi
2. Physiology and genetics of microbes
3. Mechanisms used to control infections (antimicrobials, antibiotics, vaccines)
4. Differences between bacterial, viral and fungal infections
5. Immune system and immune responses to infection
6. The student will demonstrate competency across cultural settings and will learn the impact of culture, gender, and age in microbial pathogenesis as demonstrated by group exercises and exams.
7. The student will demonstrate ethical knowledge pertaining to epidemiology as demonstrated by discussions.

Grading
Homework/quizzes/in-class assignments: 100 points (lowest score is dropped)
Exam 1: 100 points
Exam 2: 100 points
Exam 3: 100 points
400 points total

Grading criteria are preliminary and subject to change at the instructor’s discretion.

The undergraduate grading system for Summer Session 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**
Assignments are due at the beginning of the class period on the specified dates. Late assignments will result in point deductions equaling 20% of the total possible score for each day late. If it is necessary to turn in a late assignment, it is the student’s responsibility to contact the instructor immediately.

**Course Assignments**
It is expected that 24 hours (2 hours per 1 hour of in-class time) per week of your time will be spent on out-of-class assignments and reading. Please note that some weeks may require more time and some weeks less time but the average is approximately 24 hours per week over the course.

Students are expected to read any assigned material prior to attending the lecture. Over the course of the class, 100 points be earned through the completion of homework, in-class assignments, or quizzes. Quizzes may not be announced prior to the time given and may include questions that pertain to information from either the lectures or reading assignments.

**Course Schedule**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading/Assignments</th>
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</thead>
<tbody>
<tr>
<td>06/27/16</td>
<td>Course overview; intro to microbiology</td>
<td>Chapter 2, 10</td>
</tr>
<tr>
<td>06/28/16</td>
<td>Bacteria I (types, structures)</td>
<td>Chapter 4, 8</td>
</tr>
<tr>
<td>06/29/16</td>
<td>Bacteria II (metabolism, genetics)</td>
<td>Chapter 7, 15, 20</td>
</tr>
<tr>
<td>06/30/16</td>
<td>Bacteria III (pathogenicity, antimicrobials, antibiotics &amp; resistance)</td>
<td>Chapter 13</td>
</tr>
<tr>
<td>07/04/16</td>
<td>NO CLASS – INDEPENDENCE DAY</td>
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</tr>
<tr>
<td>07/05/16</td>
<td>EXAM 1; Viruses I (types, structures, genetics)</td>
<td>Chapter 15</td>
</tr>
<tr>
<td>07/06/16</td>
<td>Viruses II (pathogenesis)</td>
<td>Chapter 12</td>
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<tr>
<td>07/07/16</td>
<td>Fungi, eukaryotic parasites &amp; vectors</td>
<td>Chapter 16, 17</td>
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<tr>
<td>07/11/16</td>
<td>EXAM 2; Immunology I (Innate &amp; adaptive immune system)</td>
<td>Chapter 18</td>
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<tr>
<td>07/12/16</td>
<td>Immunology II (Host-pathogen interactions &amp; vaccines)</td>
<td>Chapter 19, 20</td>
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<tr>
<td>07/13/16</td>
<td>Pathogenesis of selected microbes</td>
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<tr>
<td>07/14/16</td>
<td>EXAM 3</td>
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**Written Work**
Summer Session students are expected to prepare professional, polished written work. Written materials must be typed and submitted in the format required by your instructor. Strive for a thorough yet concise style. Cite literature appropriately, using APA, MLA or CLA style per your instructor’s requirements. Develop your thoughts fully, clearly, logically and specifically. Proofread all materials to ensure the use of proper grammar, punctuation and spelling. For writing support, please contact the Connors Family Learning Center.
**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. Types of absences that are not typically excused include weddings, showers, vacations, birthday parties, graduations, etc. 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. Additional assignments, penalties and correctives may be assigned at the discretion of the instructor. If circumstances necessitate excessive absence from class, the student should consider withdrawing from the class.

**Quiz Make-up Policy:** There are no make-up quizzes. The missed quiz will constitute the dropped score.

**Exam Make-up Policy:** There are no make-up exams. If illness (requires physician or health center note) or personal circumstance (requires Dean’s verification) results in a missed exam, the score of the dropped quiz will constitute the grade for the missed exam.

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)](https://www.bc.edu/sites/accessibility) coordinates services for students with LD and ADHD.
- [The Disabilities Services Office (DSO)](https://www.bc.edu/sites/accessibility) 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](https://www.bc.edu/sites/accessibility) for more information.