MICROBIOLOGY LECTURE SYLLABUS

Course Number: BIOL 2420

Course Title: Microbiology for Non-Science Majors

Instructor’s Name: Donna M. Cain, Ph.D.
Office Number: G201, Spring Creek Campus
Office Hours: Monday/ Wednesday 9-10 am and 2:30-3 pm
Tuesday/ Thursday 9-9:30 am and 2-3 pm
Phone Number: 972-881-5144
Email: DCain@collin.edu

Class Information:
   Section Number: S02
   Meeting Times: Tuesday/Thursday 10:00-11:15 am
   Meeting Location: G212, Spring Creek Campus

Course Description: This course covers basic microbiology and immunology and is primarily directed at pre-nursing, pre-allied health, and non-science majors. It provides an introduction to historical concepts of the nature of microorganisms, microbial diversity, the importance of microorganisms and acellular agents in the biosphere, and their roles in human and animal diseases. Major topics include bacterial structure as well as growth, physiology, genetics, and biochemistry of microorganisms. Emphasis is on medical microbiology, infectious diseases, and public health.

Course Credit Hours: 4
Lecture: 3 contact hours
Lab: 4 contact hours

Pre-requisite: BIOL 2401 within the last 3 years with a “C” or higher, or consent of department chair
Pre- or Co-requisite: Biol 2402
Co-requisite: Biol 2420 Lab

Course Resources:
   Required
      “Microbiology with Diseases by Taxonomy” by Robert Bauman, 4th edition (Note: copy of the text is on reserve in the Collin libraries.)
      Internet access – for supplemental course material and assignments/quizzes on Blackboard
   Recommended
      Mastering Microbiology

Supplies:
   Required
      Scantrons (5) – to be turned in to the instructor during the first week of class
      Pencils (on exam days)
   Recommended
      Notebook

Student Learning Outcomes:
Upon successful completion of this course, students will:
1. Describe distinctive characteristics and diverse growth requirements of prokaryotic organisms compared to eukaryotic organisms.
2. Provide examples of the impact of microorganisms on agriculture, environment, ecosystem, energy, and human health, including biofilms.
3. Distinguish between mechanisms of physical and chemical agents to control microbial populations.
4. Explain the unique characteristics of bacterial metabolism and bacterial genetics.
5. Describe evidence for the evolution of cells, organelles, and major metabolic pathways from early prokaryotes and how phylogenetic trees reflect evolutionary relationships.
6. Compare characteristics and replication of acellular infectious agents (viruses and prions) with characteristics and reproduction of cellular infectious agents (prokaryotes and eukaryotes).
7. Describe functions of host defenses and the immune system in combating infectious diseases and explain how immunizations protect against specific diseases.
8. Explain transmission and virulence mechanisms of cellular and acellular infectious agents.

**Method of Evaluation:**

**Exams:** Five exams will be given during the semester, including a non-cumulative final exam. All exams will be given during class, and will contain a mix of multiple choice, matching, true/false, fill in the blank, and/or short answer questions. Study guides will be posted on Blackboard prior to each exam. Graded exams will be returned in class for a brief review. Thereafter, exams will kept on file in the instructor’s office and will be available for review during scheduled office hours.

**Quizzes:** Quizzes for each chapter will be given on Blackboard. Each quiz will consist of 10 questions, and students will have 20 minutes to complete the quiz. When final grades are calculated, the lowest two quiz scores will be dropped.

**Semester Project:** A group project will be assigned during the latter half of the semester, and will entail both a written report and an oral presentation on a bacterial pathogen of your choosing. Alternatively, students may choose to do a microbiology service-learning project in conjunction with the college’s annual health fair.

**Cooperative Learning Activities:** Team based learning activities will focus on application of course content and critical thinking.

**Bonus-Book Analysis:** Students will have the option to read a microbiology-related book during the semester and write a paper summarizing and critiquing the book. Specific requirements for this assignment are posted on Blackboard.

**Grades** for the lecture portion of the course will be calculated as follows:

- Lecture Exams (5) 65%
- Chapter Quizzes 15%
- Semester Project 10%
- Cooperative Learning Activities 10%

A: 90-100  B: 80-89  C: 70-79  D: 60-69  F: 59 and below

The lecture grade will be integrated with your laboratory grade to determine the final grade for the course (65% lecture and 35% lab).

**Attendance Policy:** ABSENCES will be excused only if acceptable documentation of an instructor-approved excuse is provided. It is your responsibility to provide such documentation upon your return to class, and to confer with the professor regarding make up assignments. Students will not be allowed to make up assignments due to unexcused absences. If you do not drop in accordance with the Collin College Academic Calendar, a grade of “F” will be assigned.

**Withdrawal Policy:** See the current Collin Registration Guide for the last day to withdraw.

**Americans with Disabilities Act:** Collin College will adhere to all applicable federal, state and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal opportunity. It is the student’s responsibility to contact the ACCESS office, D-140 to arrange for
appropriate accommodations. See the current *Collin Student Handbook* for additional information.

**Course Swapping and Lateral Transfers:** Students who decide to switch to another section of this course any time after the first day of the semester will be assessed a course transfer fee. Lateral transfers will not be granted after the 4th week of class or after the first lecture exam, whichever comes first. Exceptions to this are for documented changes in work schedule or family emergencies. If a student does transfer to another section, all previous grades will accompany the student. However, the new instructor can require the student to retake any exam or quiz. For questions concerning this policy, contact the Biology Department Chair.

**Collin College Academic Policies:** See the current *Collin Student Handbook*.

**Scholastic Dishonesty:**
Every member of the Collin College community is expected to maintain the highest standards of academic integrity. Collin College may initiate disciplinary proceedings against a student accused of scholastic dishonesty. Scholastic dishonesty includes, but is not limited to, statements, acts, or omissions related to applications for enrollment or the award of a degree, and/or the submission as one’s own work material that is not one’s own. Scholastic dishonesty may involve, but is not limited to, one or more of the following acts: cheating, plagiarism, collusion, use of annotated texts or teacher’s editions, use of information about exams posted on the Internet or electronic medium, and/or falsifying academic records. Students found guilty of scholastic dishonesty will receive no credit for that assignment. (See the current *Collin Student Handbook* for additional information.)

**FERPA Compliance**
Student performance cannot be discussed with anyone other than the student, unless the student provides written permission. Student information cannot be given to students over the phone or via non-secure e-mail addresses. Students may communicate with the professor about grades and other sensitive information through Blackboard, or via their cougarmail e-mail address, provided by the college to all students.

**STUDENT CONDUCT**
Students are expected to adhere to the Collin College Student Code of Conduct as outlined in the Student Handbook. The college expects students to conduct themselves in class in such a way as to not interfere with or disrupt the educational process. Students are to speak and act in a respectful manner toward their fellow students and the professor. Those who participate in inappropriate behavior will be asked to leave the class. Continuance of such behavior will result in a referral to the Dean of Students for disciplinary action.

**CLASSROOM ETIQUETTE**
*Students should not talk to each other while the instructor or another student is speaking.*
*Students should be respectful of others during group exercises and class discussions.*
*Students should not work on assignments for other courses during class.*
*Students should make every effort to be ON TIME.* Students who are habitually tardy will have points deducted from their lecture grade.
*Students who are late should take a seat close to the door to avoid disrupting the entire class.*
<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPICS</th>
<th>CHAPITERS COVERED (REQUIRED READING)</th>
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<tbody>
<tr>
<td>1 1/20-1/24</td>
<td>Course Introduction and Overview Prokaryotic Cell Structure &amp; Classification</td>
<td>3 (pp. 55-75)</td>
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<tr>
<td>2 1/25-1/31</td>
<td>Prokaryotic Cell Structure &amp; Classification (cont’d) Microbial Metabolism</td>
<td>5 (pp. 124-146)</td>
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<tr>
<td>3 2/1-2/7</td>
<td>Microbial Growth &amp; Culture Methods Microbial Genetics</td>
<td>6 (pp. 193-196, 198-212, 214-215, &amp; 224-229)</td>
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<td>4 2/8-2/14</td>
<td>T: Exam I (February 10) Physical and Chemical Control of Microorganisms (Out-of-class Assignment; class will not meet on 2/12) <strong>Ch 3, 5, 6 &amp; 7</strong></td>
<td>9</td>
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<tr>
<td>5 2/15-2/21</td>
<td>Introduction to the Viruses Antibiotics</td>
<td>13 (pp. 375-386) 10</td>
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<td>6 2/22-2/28</td>
<td>Antibiotics (continued) R: Exam II (February 26) <strong>Ch 9, 10 &amp; 13</strong></td>
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<td>7 3/1-3/7</td>
<td>Epidemiology F: Service Learning Projects (March 6)</td>
<td>14</td>
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<td>9 3/22-3/28</td>
<td>Host Defense (continued) Vaccines</td>
<td>16 (pp. 491-498)</td>
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<td>10 3/29-4/4</td>
<td>T: Exam III (March 31) Bacterial Diseases <strong>Ch 14-17</strong></td>
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<td>11 4/5-4/11</td>
<td>Bacterial Diseases</td>
<td>20</td>
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<td>12 4/12-4/18</td>
<td>T: Group Presentations (April 14) R: Finish Group Presentations Bacterial Diseases cont’d</td>
<td>21</td>
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<tr>
<td>13 4/19-4/25</td>
<td>T: Exam IV (April 23) Viral Diseases <strong>Ch 19-21</strong></td>
<td>13 (pp. 387-397), 24</td>
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<td>14 4/26-5/2</td>
<td>Viral Diseases</td>
<td>25</td>
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<td>15 5/3-5/9</td>
<td>Viral Diseases cont’d Fungal and Parasitic Diseases</td>
<td>22, 23</td>
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<td>16 5/10-5/16</td>
<td>T: Exam V (May 12) <strong>Ch 22-25</strong></td>
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*Last day to withdraw: Friday, March 20

Note: The instructor reserves the right to make changes to the course calendar as needed. Any changes will be discussed in class, and an updated calendar will be posted on Blackboard.