MICROBIOLOGY LAB SYLLABUS

Course Number: BIOL 2420

Course Title: Microbiology Lab 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: s1L
Meeting Times: Monday/Wednesday 10:30 am -12:20 pm
Meeting Location: H130, Spring Creek Campus

Course Description: This course covers basics of culture and identification of bacteria and microbial ecology. This course is primarily directed at pre-nursing and other pre-allied health majors and covers basics of microbiology. 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 grade of “C” or higher, or consent of department chair
Pre- or co-requisite: BIOL 2402
Co-requisite: Biol 2420 Lecture

Course Resources:
Required
Online course packet: “Microbiology Lab Manual 2420L” by Cain et. al.
(Available on Blackboard or at http://iws2.collin.edu/dcain/CCCCD%20Micro/index.htm)
Internet access – for supplemental course material and assignments on Blackboard

Supplies:
Required
Disposable lab coat, disposable gloves, safety goggles

Student Learning Outcomes:
Upon successful completion of this course, students will:
1. Use and comply with laboratory safety rules, procedures, and universal precautions.
2. Demonstrate proficient use of a compound light microscope.
3. Describe and prepare widely used stains and wet mounts, and discuss their significance in identification of microorganisms.
4. Perform basic microbiology procedures using aseptic techniques for transfer, isolation and observation of commonly encountered, clinically significant bacteria.
5. Use different types of bacterial culture media to grow, isolate, and identify microorganisms.
6. Perform basic bacterial identification procedures using biochemical tests.
7. Estimate the number of microorganisms in a sample using methods such as direct counts, viable plate counts, or spectrophotometric measurements.
8. Demonstrate basic identification protocols based on microscopic morphology of some common fungi and parasites.
Method of Evaluation:

**Quizzes:** Quizzes will be given at the beginning of class according to the laboratory schedule, and will cover material from the previous day’s experiments. If you arrive late to class after the quizzes have been collected, you will not be allowed to take the quiz. No makeup quizzes will be given. Grades will be assigned for quizzes missed during excused absences based on your final practical exam grade. When final grades are calculated, the lowest quiz grade will be dropped.

**Unknown Identification Project:** Unknowns will be assigned to each student the latter part of the semester, and will require a formal lab write up. A separate handout will provide detailed instructions for the format of these reports.

**Lab Skills & Participation:** Students will receive a daily grade based on participation, preparedness, punctuality and technique.

**Practical Exams:** There will be a midterm lab practical and a final lab practical.

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

- Practical Exams (2) 50%
- Quizzes 20%
- Unknown ID Project 20%
- Lab Skills & Participation 10%

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

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

**Attendance Policy:** PARTICIPATION is a vital component of all laboratory courses, therefore attendance is mandatory. You will be allowed two unexcused absences during the semester before your grade is affected. Each additional unexcused absence will result in a 5% reduction in your final grade. ABSENCES will be excused only if documentation of an instructor-approved excuse is provided. It is your responsibility to provide such documentation upon your return to class. If an absence is unexcused, you will not be allowed to make up any missed assignments. If a student misses more than three lab periods in the semester, that student will be strongly urged to drop the course. 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, Room D140, (972.548.6816) 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
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 more information.)

FERPA COMPLIANCE
Student performance cannot be discussed with anyone other than the student, unless written permission is provided by the student. 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 such as excessive talking, cell phone use (including texting/social media), verbal altercations, or blatantly disregarding instructor’s directions will be asked to leave the class. Continuance of such behavior will result in a referral to the Dean of Students for disciplinary action.

LABORATORY RULES
* All safety and biosafety rules must be followed at all times.
* Microscopes must be cleaned thoroughly after each use and put away properly.
* Students are responsible for cleaning up their areas at the end of each lab period, and properly disposing of all waste.

LABORATORY EXERCISES will usually be performed as group exercises, and all students should contribute equally to group laboratory exercises. Each lab group will be assigned a specific color, and will use colored tape to label their bacterial cultures, making it easier to identify and retrieve them from the incubator. Since bacteria need time to grow, most of the lab exercises will be set up and inoculated during the Monday lab period, and results will be obtained during the Wednesday lab period.

Note: The instructor reserves the right to make changes to the syllabus as needed. Any changes will be discussed in class, and an updated syllabus will be posted on Blackboard.
<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPICS</th>
<th>LABS</th>
<th>ASSIGNMENTS/QUIZZES</th>
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<tbody>
<tr>
<td>1 8/23-8/29</td>
<td>M: Course Introduction and Biosafety M: Microscopy Staining Specimens and Smear Preparation</td>
<td>pp. 4-6 Exp 1 pp. 8-9 Exp 2</td>
<td>W: (8/26) Quiz 1: Biosafety</td>
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<td>3 9/6-9/12</td>
<td><strong>M: Labor Day Holiday – all campuses closed</strong> W: Viable Plate Counts Colony and Broth Culture Characteristics</td>
<td>Exp 8 Exp 9</td>
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<td>4 9/13-9/19</td>
<td>Effect of Temperature on Microbial Growth Atmospheric Oxygen Requirements Cultivation of Anaerobic Organisms</td>
<td>Exp 10 Exp 11 Exp 12</td>
<td>M: (9/14): Microscopy Skills Quiz must be completed by today (Quiz 4) W: (9/16): Quiz 5 due (Take home)</td>
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<td>7 10/4-10/10</td>
<td><strong>M: Review for Practical</strong> <strong>W: Lab Practical I</strong></td>
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<td>M (10/5): Quiz 8: Normal Microbiota &amp; Urine Cultures <strong>W: LAB PRACTICAL I (October 7)</strong></td>
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<td>8* 10/11-10/17</td>
<td>Identification of <em>Bacillus</em> species Transformation</td>
<td>Exp 20 Exp 21</td>
<td>*Last day to withdraw: Friday, October 16</td>
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<td>9 10/18-10/24</td>
<td>Catalase Test Identification of <em>Streptococcus</em> species Rapid Strep test Identification of <em>Staphylococcus</em> species Rapid Staph test Coagulase Test</td>
<td>Exp 22 Exp 23 Exp 24 Exp 25 Exp 26 Exp 27</td>
<td>M (10/19) <em>Bacillus</em> flow chart due (Quiz 9)</td>
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<td>11 11/1-11/7</td>
<td>Unknowns</td>
<td>Appendix A</td>
<td>M (11/2): Part 2 of procedure outline for Unknown Project due</td>
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<td>14 11/22-11/28</td>
<td><strong>M: Epidemiology&amp; ELISA Testing</strong> <strong>W: Thanksgiving Holiday – class will not meet</strong></td>
<td>Exp 29, 30</td>
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<td>15 11/29-12/5</td>
<td><strong>M: Review for Practical</strong> <strong>W: Lab Practical II</strong></td>
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<td>M (11/30): Quiz 11: Epidemiology /ELISA <strong>W: LAB PRACTICAL II (December 2)</strong></td>
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<td>16 12/6-12/12</td>
<td><strong>(Labs do not meet during final exam week)</strong></td>
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