<table>
<thead>
<tr>
<th>Course Information</th>
<th>Instructor Information</th>
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</thead>
<tbody>
<tr>
<td><strong>Microbiology for Non-Science Majors</strong></td>
<td>Sheryl Lumbley, M.S.</td>
</tr>
<tr>
<td><strong>Spring 2019</strong></td>
<td><a href="mailto:slumbley@dcccd.edu">slumbley@dcccd.edu</a></td>
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<tr>
<td><strong>BIOL2420.33001</strong></td>
<td>972-860-8090</td>
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<tr>
<td>Lecture: 8:00 – 9:20 TR M214</td>
<td>Office Location: M-225C</td>
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<tr>
<td>Lab: 9:30 – 11:20 TR M240</td>
<td>Hours: M 2:00 – 3:00 PM in M236</td>
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<td></td>
<td>T 12:30 – 1:30 PM in M240</td>
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<tr>
<td></td>
<td>W 2:00 – 2:30 PM in M240</td>
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<td>R 12:30 – 1:30 PM in M240</td>
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<td>F 4:30 – 6:00 PM in M240 or M226</td>
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<td>Other hours: by appointment</td>
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**Course Description**

An overview of the morphology, physiology, and taxonomy of representative groups of pathogenic and non-pathogenic organisms. Emphasis is placed on applications to humans and techniques used in growing pure cultures of microorganisms on selected media. A brief preview on public health issues is also presented. Designed for non-science majors and allied health students. **This is a Texas Common Course Number. This is a Core Curriculum course selected by the colleges of DCCCD.**

**Required Materials**


Additional lab supplies listed on ecampus will be required as the class begins.

*Note: A minimum of 12 hours per week should be devoted to course material outside of class time*

**Course Prerequisites**

BIOL 1406 or SCIT 1407. One of the following must be met:

1. DREA 0093 AND DWRI 0093;
2. English as a Second Language (ESOL) 0044 AND 0054;
3. have met Texas Success Initiative (TSI) in Reading and Writing standards AND the college Writing score prerequisite requirement.

Student cannot take both BIOL 2420 and BIOL 2421 to satisfy the core science credit.

**Disclaimer**

The instructor reserves the right to amend this syllabus as necessary.

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**Texas Core Objectives for Student Learning**

The College defines essential knowledge and skills that students need to develop during their college experience. These general education competencies parallel the Texas Core Objectives for Student Learning. In this course, the following skills are in focus.

1. **Critical Thinking Skills** - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. **Communication Skills** - to include effective development, interpretation and expression of ideas through written, and visual communication
3. **Empirical and Quantitative Skills** - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
4. **Teamwork** - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
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.

9) Use and comply with laboratory safety rules, procedures, and universal precautions.

10) Demonstrate proficient use of a compound light microscope.

11) Describe and prepare widely used stains and wet mounts, and discuss their significance in identification of microorganisms.

12) Perform basic microbiology procedures using aseptic techniques for transfer, isolation and observation of commonly encountered, clinically significant bacteria.

13) Use different types of bacterial culture media to grow, isolate, and identify microorganisms.

14) Perform basic bacterial identification procedures using biochemical tests.

15) Estimate the number of microorganisms in a sample using methods such as direct counts, viable plate counts, or spectrophotometric measurements.

16) Demonstrate basic identification protocols based on microscopic morphology of some common fungi and parasites.

CVC Learning Signature

CVC’s Learning Signature is One College Transforming Lives. Cedar Valley College establishes clear expectations for
students through engagement and empowerment leading to excellence.

**CVC Faculty and Staff expect students to:**
- take responsibility for their own learning
- commit to achieving high academic performance
- be meaningfully engaged in the campus community

**CVC Faculty and Staff expect to:**
- provide students a clear pathway of instruction
- establish clear learning outcomes
- serve as role models and mentors for students

**Course Outline**

For maximum success in this course you should spend a **minimum** of 12 hours per week working on course material.

<table>
<thead>
<tr>
<th>Week</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>1</td>
<td>Chapter 1 Microbial World and You and Chemical Principles</td>
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<tr>
<td>2</td>
<td>Chapter 2 Chemicals Principles</td>
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<td>3</td>
<td>Chapter 3 Microorganisms Through a Microscope</td>
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<tr>
<td>4</td>
<td>Chapter 4 Prokaryotic and Eukaryotic Cells</td>
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<tr>
<td>5</td>
<td>Chapter 13 Viruses, Viroid’s and Prions</td>
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<td>6</td>
<td>Chapter 5 Microbial Metabolism</td>
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<tr>
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<tr>
<td>8</td>
<td>Chapter 6 Microbial Growth</td>
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<td>9</td>
<td>Chapter 7 Control of Microbial Growth</td>
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<td>10</td>
<td>Chapter 8 Microbial Genetics</td>
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<tr>
<td>11</td>
<td>Chapter 8 Microbial Genetics</td>
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<tr>
<td>12</td>
<td>Chapter 14 Principles of Disease and Epidemiology</td>
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<td>13</td>
<td>Chapter 15 Mechanisms of Pathogenicity</td>
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<td>14</td>
<td>Chapter 16 Innate Immunity</td>
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<tr>
<td>15</td>
<td>Chapter 17 Adaptive Immunity</td>
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A more detailed schedule will be posted on eCampus.

**Evaluation Procedures**

At the beginning of the course, the instructor provides a schedule of examinations and assignments that contribute to the final grade in the course for each student.

900 of the 1000 total points possible will result in an A
800 of the 1000 total points possible will result in a B
700 of the 1000 total points possible will result in a C
600 of the 1000 total points possible will result in a D
Below 599 = F

**Exams and Assignments**

The final grade for the course reflects evaluation of the student’s work on the following assignments that are calculated as follows:

- 5 examinations valued at 100 points each
- 1 unknown project valued at 100 points
- 2 lab practicals valued at 50 points each
- Daily assignments and quizzes valued at a total of 300 points
Honors Credit Availability
You can earn Honors Credit in this course that will show the completion of an Honors Course on your transcript. Honors credit is important in transfer evaluation for graduation with both Associates and Bachelor degrees with honors.

To qualify for Honors credit, you must sign an Honors Contract at the beginning of the semester. Meet with me to design your program and complete the contract form. You must earn an A or B in the course in order to receive Honors Credit.

Attendance Policy
In general, daily class attendance enhances student achievement of an A, B or C in the course. Students should advise instructors of illness, work or family situations that may require absence from a class. An absence from lab will remove any points awarded for the lab quiz for that day.

Classroom Policies
NO FOOD, DRINK, CHEWING GUM, CELL PHONES or CHILDREN ARE ALLOWED IN THE LAB. Students will be taught to perform all microbiological procedures safely and we expect that students will do their utmost to perform all procedures in the approved manner. If a student does not follow all microbiological procedures in a safe manner, that student will be asked to leave and be dropped from the course. Students are required to wear closed-toe shoes and a lab coat at all times in the lab. Lab goggles must be worn when microorganisms are being handled at the lab table.

Lab coat, goggles, and any writing utensils used for lab must be kept in the lab throughout semester and must be disinfected before leaving the lab at the end of the semester. You may not take the lab coat or goggles from the microbiology lab to use for any other course during the semester.

Be Prepared for Lab
All students must read the lab and take a lab quiz before they may participate in that day’s lab. Students will be asked to leave lab if they are not prepared or the lab quiz is not completed. This is a safety issue. If you are not wearing protective items, you will be asked to leave, and you will not receive credit for the lab.

Lab Hazards
Students will be routinely handling pathogenic organisms during lab. You should consult your physician as to whether you can safely participate in a microbiology lab class if you are pregnant, immunocompromised, or have any other health issues.

Lab Supplies
Students are required to bring a lab coat (disposable is fine), lab goggles or safety glasses, a box of glass slides (available in the bookstore), #2 pencils with erasers, a black ultra-fine-point Sharpie, ¾” masking tape, a box of gloves in your size, and three ring binder with ruled notebook paper (to hold lab manual).
Important Institutional Policies are detailed at the following link:  
www.cedarvalleycollege.edu/syllabipolicies

QUALITY ENHANCEMENT PLAN
Cedar Valley College's Quality Enhancement Plan is designed to improve student learning in mathematics. Read more about our QEP at:  
http://www.cedarvalleycollege.edu/QEP/default.aspx