Columbia Gorge Community College- Hood River Campus
BI234 Microbiology
Lecture: Online
Lab: Tues 2pm-4:50pm

Instructor: Dr. Laura E. McMullen
Email: LMcMullen@cgcc.edu
How to contact me: By CGCC email or talk to me before or after class
Office Hours: E-mail me to arrange a time.

Science Chair: Dan Ropek   Email- dropek@cgcc.edu

Required Text and Materials:
Online Text Resources:
- BOUNDLESS- ONLINE (REQUIRED)
  https://www.boundless.com/microbiology/
- MEDICAL MICROBIOLOGY- ONLINE (REQUIRED)
  http://www.ncbi.nlm.nih.gov/books/NBK7627/
Additional resources may be posted on moodle

Microbiology Lab Manual, 3rd Edition by Pollack

Course Requirements:
Lecture:
- Introductory Moodle Post 10 pts
- Online Quizzes (10 pts each, drop two) 70 pts
- Video Forums (10 pts each, drop two) 80 pts
- HW (30 pts each, drop one) 240 pts
- In-person exams (100 pts each) 200 pts
TOTAL- LECTURE 600 pts

Lab:
- Quizzes (20 pts each, drop one) 180 pts
- In-lab worksheets/ participation 220 pts
TOTAL- LAB 400 pts

TOTAL POSSIBLE 1000 pts

Grading Scale (%):
- 90-100 = A
- 80-89 = B
- 70-79 = C
- 60-69 = D
- Below 60= F
**Online/ Hybrid Courses** There is some helpful information here that covers online etiquette and success tips: [https://www.cgcc.edu/online/student-orientation](https://www.cgcc.edu/online/student-orientation)

I will respond to emails within 48 hours (usually sooner) during the ‘work week’ (M-F). I will grade HW assignments and exams within 10 days of the assignment, but usually sooner.

**Moodle Post DUE BY WEDNESDAY, JUNE 22ND:** Introduce yourself to the class on the designated Moodle discussion thread “Introduction.” Answer the following questions:

- What is your line of study?
- What do you want to do with your degree?
- What do you find interesting about biology in general?
- What do you want to learn more about in this microbiology class?
- Share one thing interesting or unique about yourself.

**Exams** There are two required in-person exams. One is on **Thursday, July 21st at 1pm** and the second is on **Thursday, September 1st at 1pm**. Material will be derived from video forums, homework assignments, and the weekly readings. I do not use ScanTron, but I do include a mix of multiple-choice, fill-in-the blank questions, short answers, and short essays. Because this is a college-level course, you will be required to write clearly and explain your answers in a short-answer or paragraph format when asked. Written communication is a key skill for all careers. All exams are to be taken without use of notes or books. The use of cell phones or any electronic devices is strictly prohibited during exams. If any of these rules is violated you will automatically receive a zero.

**Exam Make-up policy:** You will need to contact me by CGCC email within 24 hours if you cannot make it to the exam. I am very strict about this time limit and will give you a zero for the exam. I accept very few excuses for missing an exam. If an emergency arises, you will need to have DOCUMENTED proof of the incident, such as a doctor’s note, police report, obituary, etc. Car problems, minor weather issues (unless the campus is closed), waking up late, are not acceptable reasons. Have a back-up plan for the days of exams. Have a classmate give you a ride or a bus schedule on hand or even call a cab. If I do allow you to make up an exam, you must do it on my terms and on the day I assign to you otherwise you will be given a zero. You will need to make an appointment with TDC Student Services on the day I assign to be able to take your exam; you cannot show up unannounced and expect them to have a place for you.

**Online Lecture Portion**

Being a hybrid course without in-person lectures, this course requires strong independent reading and study skills. Expect to spend at least 10 hours a week on the lecture portion of this course—this would be analogous to the 4 hours of lecture that would normally be present plus 6 hours of studying. You may require more time than this to complete all the activities.

**Readings** Every week, there will be one or two reading assigned from on-line materials. I will always provide a study guide. You must use the study guides while reading/studying the material to know what to focus on. Your competence of this material will be tested through weekly quizzes and the in-person exams. Do not wait until last minute to not only read but also study and comprehend this material.

**Video Forums** Most weeks of the course, there will be video(s) to watch having to do with course topics, and a forum where you are required to 1) submit an original post with answers to
specific question by Thursday of that week. And 2) respond to two other students’ posts by Sunday of that week. You should not just say “I like your thoughts!” or “Good job!” This needs to be a thoughtful response in terms of academic content. Do you disagree with what they posted, why? Is there additional material or knowledge you can add to the discussion? Your original post and responses are graded. No copying or direct quoting.

**HWs** Every week other than exam weeks, there is a HW assignment due by the Sunday of that week. Most HWs consist of a case study related to course content and you are required to answer questions in complete sentences and submit your HW on Moodle. This work is to be completed independently. No plagiarism or identical work will be tolerated.

**Quizzes** Most weeks, an on-ling Moodle quiz is to be completed between Tuesday-Friday of the week. Each quiz is 10 pts, and the quizzes cover the material in the weekly reading(s). You may not restart a quiz once you begin and there is a 10 minute time limit.

**Lab Portion**

**Quizzes** Starting the second week of the course, at the beginning of each lab a quiz will be given covering content of the previous lab session.

**Participation/ In-lab worksheets** You will be graded each week on participation and completion of in-lab worksheets. The worksheet for a particular lab will be due at the beginning of lab the following week.

**Course Description**

Lecture, recitation, and laboratory cover: bacterial identification, morphology, metabolism and genetics; bacterial, viral, and parasitic relationships with human health and disease; and basic immunology. Laboratory stresses aseptic technique, bacterial identification and physiology using a variety of media, culturing techniques, and staining techniques. Recommend BI 231. Prerequisites: BI 211 (or BI112) and their prerequisite requirements. Audit available.

**Addendum to Course Description**

This microbiology course is required for Applied Science in Nursing and Applied Science in Dental Associate degrees, and recommended for students entering general biology, microbiology, molecular biology and Bachelors degree programs. Students should check with a counselor or microbiology instructor to determine specific programs for which it is recommended or required.

To clarify the teaching of evolution and its place in the classroom, the CGCC Science Department stand by the following statements about what is science and how the theory of evolution is the major organizing theory in the discipline of the biological sciences.

A. Science is a fundamentally non-dogmatic and self-correcting investigatory process. In science, a theory is neither guess, dogma, nor myth. The theories developed through scientific investigation are not decided in advance, but can be and often are, modified and revised through observation and experimentation.

B. The theory of evolution meets the criteria of a scientific theory. In contrast, creation "science" is neither self-examining nor investigatory. Creation "science" is not considered
a legitimate science, but a form of religious advocacy. This position is established by legal precedence (Webster v. New Lenox School district #122, 917 F. 2d 1004).

Biology instructors of CGCC will teach the theory of evolution not as absolute truth but as the most widely accepted scientific theory on the diversity of life. We, the Biology Subject Area Curriculum Committee at CGCC, therefore stand with such organization as the National Association of Biology Teachers in opposing the inclusion of pseudo-sciences in our science curricula.

**Intended Outcomes for the course**
Upon successful completion students should be able to:
A. Relate an understanding of the basic principles of microbiology to personal health and use this understanding to make informed personal and professional decisions.
B. Use an understanding of the impact of microbes on human cultures around the world both historically and in the present day to evaluate current social health issues.
C. Use scientific methods to quantitatively describe microbial characteristics and processes and understand their relationship to the identification of microbial species.
D. Use an understanding of research and laboratory experiences to organize, evaluate, and present data and information to illustrate and articulate basic microbiology concepts.

**Course Content (Themes, Concepts, Issues and Skills)**
1. Historical overview of Microbiology
2. Discuss the major contributions of various individuals who have contributed to the study of microbiology
3. Methods and techniques used to study and examine microbes
4. Describe and discuss the use of various types of microscopy, stains, and media for study of bacteria.
5. Describe the classification system used to identify bacteria
6. Bacterial morphology and physiology
7. Compare the cell components of eukaryons and prokaryons
8. Discuss the structure and functions of the cell components of prokaryons.
9. Discuss enzyme structure, function and regulation
10. Describe the metabolic processes of bacteria
11. Describe endospore formation
12. Bacterial growth
13. Describe bacterial growth and factors that influence it.
14. Bacterial genetics
15. Describe bacterial chromosome, plasmid, and bacteriophage
16. Discuss mutagenesis
18. Describe gene regulation
19. Discuss recombinant DNA and its uses.
20. Antimicrobial methods
21. Discuss physical and chemical methods of antimicrobial control, limitations and applications
22. Describe and discuss use of antibiotics, abuse, limitations and applications.
23. Non-specific immunity
24. Describe non-specific mechanisms of resistance to infection
25. Immunology and specific immunity
26. Describe the human immune system
27. Discuss role in protection from infectious disease
28. Describe and discuss disease due to immunopathology
29. Mechanisms of Pathogenicity
30. Discuss bacterial and host factors that contribute to infection and disease
31. Differentiate between endotoxins and exotoxins
32. Discuss the effect of endotoxins
33. Discuss the effect of selected exotoxins
34. Bacteria and Disease
35. Describe and discuss specific bacterial pathogens, how they cause disease, treatment and protection.
36. Prion Disease
37. Viruses and disease
38. Describe virus structure and replication mechanisms
39. Describe and discuss specific viral pathogens, disease, treatment and protection.
40. Fungi and disease
41. Describe morphology and growth of fungi
42. Describe and discuss specific fungal pathogens, disease, treatment and protection.
43. Parasites and disease
44. Describe and discuss specific parasites, the diseases they cause, life cycles, treatment and protection.
45. Process skills:
46. Laboratory skills:
47. Use of aseptic technique, culturing techniques, and stains
48. Observe and interpret experimental results
49. Microscopic observation and identification of bacteria.
50. Application of the scientific method
51. Critical thinking and collaborative work with peers
52. Library research skills
53. Writing scientific research paper
54. Identification of microbes based on experimental results
**Due Dates/ Activities: (In-person ones are italicized)**

### JUNE 2016

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<td>20- First day of term</td>
<td>21- Lab 1</td>
<td>22- Due: Moodle Intro</td>
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<td>26- Due: Vid Reply 1 and HW 1</td>
<td>28- Lab 2 Lab Q1 Lab WS 1</td>
<td>30- Due: Vid Forum</td>
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<td>5- Lab 3 Lab Q2 Lab WS 2</td>
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<td>17- Due: Vid Reply 4 HW 4</td>
<td>19- Lab 5 Lab Q4 Lab WS4</td>
<td>21- Due: Vid Contr <strong>MIDTERM 1-2:50</strong></td>
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|     |     | 2- Lab 7  
    |     |     |     | 4- Due: Vid Contr 7  
    |     |     |     | 5- Due: Quiz Mod7  
| 7- Due: Vid Reply 7  
Mod 7 HW |     | 9- Lab 8  
    |     |     | 11- Due: Vid Contr 8  
    |     |     | 12- Due: Quiz Mod 8  
| 14- Due: Vid Reply 8  
Mod 8 HW |     | 16- Lab 9  
    |     |     | 18- Due: Vid Contr 9  
    |     |     | 19- Due: Quiz Mod 9  
| 21- Due: Vid Reply 9  
Mod 9 HW |     | 23- Lab 10  
    |     |     | 25- Due: Vid Contr 10  
    |     |     | 26- Due: Quiz Mod 10  
| 28- Due: Vid Reply 10  
Mod 10 HW |     | 30- Lab 11  
    |     |     | FINAL EXAM 1-2:50  
    |     |     | September 1st  

### Academic Honesty-Plagiarism/Cheating Statement:
Students are expected to be honest and ethical in their academic work. Academic dishonesty includes cheating and plagiarism. All work submitted in this course is to be your own new and original work written in response to the assignments. Consciously or unknowingly presenting the ideas or writings of others as your own will result in academic sanctions that may include a grade of F for the assignment or for the class and possible institutional sanctions including suspension or expulsion. See the Code of Student Conduct and the Students Rights and Responsibilities policy for further information. Also, see the College Academic Integrity Policy appended to this syllabus.

### ADA Statement:
Individuals needing accommodation under ADA should contact Shayna Dahl, Advisor, Disability Resources at 541-506-6046 or 541-506-6016 (TTD).

### Discrimination Statement:
It is the policy of Columbia Gorge Community College and its Board of Education that there will be no discrimination or harassment on the grounds of race, color, sex, marital status, national
origin, religion, age, disability, veteran status, sexual orientation, and any other status protected by applicable local, state, or federal law in any educational programs, activities, or employment.

**Safety Statement:**
In this microbiology course, laboratory activities will involve the use of pathogenic and possibly pathogenic microorganisms. Strict adherence to the safety rules outlined in the Laboratory Manual will be enforced. Failure to abide by these rules, will not only increase your risk of a laboratory-acquired infection, including the possibility of spreading that infections to others in your community (e.g. friends and family), it will result in your dismissal from the laboratory for the day and 0 points for that laboratory activity. Repeated violation of safety rules will result in dismissal from the laboratory for the remainder of the term and loss of all points associated with laboratory activities.

**Flexibility Statement:**
The course content and requirements may be adjusted in response to institutional, weather, or class situations as needed, with adequate notice to students.
ACADEMIC INTEGRITY POLICY

Students of Columbia Gorge Community College (CGCC) are expected to behave as responsible members of the college community and to be honest and ethical in their academic work. CGCC strives to provide you with the knowledge, skills, judgment, and wisdom you need to function in society as educated adults. To falsify or fabricate the results of one’s research; to present the words, ideas, data, or work of another as one’s own; or to cheat on an examination corrupts the essential process of higher education.

GUIDELINES FOR ACADEMIC INTEGRITY

You assume full responsibility for the content and integrity of the coursework you submit. The following are guidelines to assist you in observing academic integrity:

- You must do their own work and submit only your own work on examinations, reports, and projects, unless otherwise permitted by the instructor. You are encouraged to contact your instructor about appropriate citation guidelines.
- You may benefit from working in groups. You may collaborate or cooperate with other students on graded assignments or examinations as directed by the instructor.
- You must follow all written and/or verbal instructions given by instructors or designated college representatives prior to taking examinations, placement assessments, tests, quizzes, and evaluations.
- You are responsible for adhering to course requirements as specified by the instructor in the course syllabus.

FORMS OF ACADEMIC DISHONESTY

Actions constituting violations of academic integrity include, but are not limited to, the following:

- **Plagiarism**: the use of another’s words, ideas, data, or product without appropriate acknowledgement, such as copying another’s work, presenting someone else’s opinions and theories as one’s own, or working jointly on a project and then submitting it as one’s own.
- **Cheating**: the use or attempted use of unauthorized materials, information, or study aids; or an act of deceit by which a student attempts to misrepresent academic skills or knowledge; unauthorized copying or collaboration.
- **Fabrication**: intentional misrepresentation or invention of any information, such as falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.
- **Collusion**: assisting another to commit an act of academic dishonesty, such as paying or bribing someone to acquire a test or assignment, taking a test or doing an assignment for someone else, or allowing someone to do these things for one’s own benefit.
- **Academic Misconduct**: the intentional violation of college policies, such as tampering with grades, misrepresenting one’s identity, or taking part in obtaining or distributing any part

PENALTIES FOR ACADEMIC DISHONESTY

If you are found guilty of violating academic integrity, any one or a combination of the following penalties may be imposed by the faculty member:

1. Verbal or written warning.
2. A grade of "F" or "NP" for the assignment, project, or examination.

The following penalty may be imposed by the faculty member only after a hearing conducted by the subject or program area instructional administrator:

3. A grade of "F" or "NP" for the course, overriding a student withdrawal from the course.

The Chief Student Services Officer may also issue the following disciplinary sanctions, in accordance with the CGCC Code of Student Conduct:

4. Disciplinary admonition and warning.
5. Disciplinary probation with or without the loss of privileges for a definite period of time. The violation of the terms of the disciplinary probation or the breaking of any college rule during the probation period may be grounds for suspension or expulsion from the college.
6. Suspension from Columbia Gorge Community College for a definite period of time (i.e. suspension of the privilege to attend Columbia Gorge Community College).
7. Expulsion from Columbia Gorge Community College (i.e. removal of the privilege to attend Columbia Gorge Community College).

ACADEMIC DISHONESTY COMPLAINT AND HEARING PROCEDURES

1. The faculty member observing or investigating the apparent act of academic dishonesty documents the commission of the act, usually by writing down the time, date, place, and a description of the act.
2. The faculty member collects evidence, often by photocopying the plagiarized assignment and creating a paper trail of all that occurs after the alleged act of academic dishonesty. Often the evidence will include various samples of your work showing a
radical disparity in style or ability.

3. The faculty member provides you an opportunity to explain the incident.

4. The faculty member explains to you the procedures and penalties for academic dishonesty and gives the student a copy of the Columbia Gorge Community College Academic Integrity Policy.

5. The faculty member may resolve the matter informally by determining an appropriate course of action, which may include a verbal or written warning, or a grade of "F" or "NP" on an assignment, project, or examination, or no further action. If you contest the faculty member’s decision, a hearing with the subject or program area instructional administrator may be requested.

6. If the faculty member wishes to initiate further action (e.g. assign a lower grade or a grade of “F” or “NP” for the course), you are entitled to a hearing with the subject or program area instructional administrator. The faculty member submits a copy of the Academic Dishonesty Report form and any additional evidence to the administrator within 10 days of the alleged act of academic dishonesty, which initiates the hearing process.

7. Within 10 days of receiving an Academic Dishonesty Report form, the subject or program area instructional administrator notifies all parties in writing of the date, time and location of the hearing. At the hearing, you meet with the faculty member and instructional administrator to hear the charges and present his/her side of the case. You may bring an advisor, who may advise the student but not present the case.

   If you miss the hearing, the faculty member and the instructional administrator may proceed with the process to completion. The subject or program area instructional administrator will consider any evidence submitted within seven days of the hearing and interview persons as warranted. The instructional administrator determines if the action recommended by the faculty member is appropriate.

8. Within 10 days of the hearing, the subject or program area instructional administrator sends written notification of the results to you and faculty member.

9. Within 10 days of the notification, you may submit a written appeal to the Dean of Instruction. The decision of the Dean of Instruction is final.

10. The subject area or program instructional manager sends a final report to the Chief Student Services Officer and the Dean of Instruction. The Chief Student Services Officer may also issue the following disciplinary sanctions, in accordance with the Code of Student Conduct:

   a. Disciplinary admonition and warning.

   b. Disciplinary probation with or without the loss of privileges definite period of time. The violation of the terms of the disciplinary probation or the breaking of any college rule during the probation period may be grounds for suspension or expulsion from the college.

   c. Suspension from Columbia Gorge Community College for a definite period of time (i.e. suspension of the privilege to attend Columbia Gorge Community College).

   d. Expulsion from Columbia Gorge Community College (i.e., removal of the privilege to attend Columbia Gorge Community College).