

Coconino Community College
BIOLOGY 205 – *Microbiology* (4 credit hours)
Syllabus – Spring 2020

Instructor

Doug Friedman

Contact Information

Canvas Inbox (preferred)

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Class Meetings

This class meets online.

Office

Room: Lone Tree Campus, 417

Hours: MW 2:30 pm – 4:00 pm

TR 11:30 am – 12:30 pm

Also available by appointment
or video conference.

Course Description and Prerequisite

Microbes and their relationships to health, ecology, and related areas. General Education: Lab Sciences. Prerequisite: BIO 181 or consent of instructor. Three lecture; three lab.

Course Content

1. Cellular and colonial morphology of microbes
2. Microbial nutrition and metabolism
3. Microbial genetics
4. Infectious disease and antimicrobial resistance
5. Bacteria and archaea
6. Viruses and other noncellular pathogens
7. Protozoa, algae, fungi, and parasitic worms
8. Mechanical, chemical, and physical control of microorganisms
9. Antimicrobial chemotherapy
10. Environmental microbiology
11. Applied and industrial microbiology
12. The human microbiota and its relationship to human physiology and health
13. Major concepts related to the history of modern microbiology
14. Tools and techniques of the microbiology laboratory

Course Outcomes

Upon completion of this course, students will be able to:

1. Categorize microorganisms by domain and kingdom and explain the relationship among the biological domains
2. Communicate laboratory results in written form
3. Identify and describe the common morphologies among bacteria
4. Describe bacterial growth at the cellular and population levels
5. Describe the major metabolic pathways and relate them to microbial growth and ecology
6. Describe microbial genetics, including mechanisms of genetic recombination
7. List and describe the events of viral multiplication cycles
8. Explain the fundamental principles of antimicrobial therapy and describe the common modes of action of antimicrobial drugs
9. Discuss commercial, industrial, and biotechnological applications of microbes

Course Goals

To give students a greater understanding of the principles of microbiology and the role that microbes play in everyday life.

Course Requirements

Textbook: *Foundations in Microbiology: Basic Principles, 10th ed.*, Talaro, K., and B. Chess, McGraw-Hill, 2018.

Laboratory Materials: eScience Microbiology Lab Kit, available through CCC Bookstore

Access to Canvas: Canvas is the online course management system for CCC. Each student is expected to access their Canvas web page each day.

Access to a webcam: Online proctoring software, which requires a webcam, will be used in this course.

Course Policies

Course Etiquette/Standards of Conduct

The instructor will treat students as adults, and the students are expected to behave accordingly. All class discussions will be conducted with courtesy and respect.

Academic Dishonesty Procedure

Academic dishonesty is a violation of the Student Code of Conduct as defined in Procedure 503-01. When a student commits an act of academic dishonesty, the instructor is responsible for determining the grade for the course or assignments. Incidents of academic dishonesty are reported to the Dean of Student Affairs for adjudication and follow up. Both your instructor and the College regard any act of academic dishonesty as a very serious offense. Academic dishonesty includes, but is not limited to, cheating, plagiarism, and forgery.

Safe Working and Learning Environment

Coconino Community College is committed to providing a safe working and learning environment for students, faculty, and staff alike. Any form of discrimination or harassment will not be tolerated. If you feel you have been the victim of discrimination, harassment, or intimidation, you are advised to seek resolution with the Dean of Student Affairs.

Attendance

The college requires the implementation of an attendance policy and adherence to this policy applies equally to all students. Attendance for online classes is defined by the Department of Education as taking an assessment, submitting an assignment, contributing in a chat or discussion, or emailing the instructor. **Logging into an online course and then logging out is not considered attendance in an online class. Students must engage in an academically related activity.**

In an online class, attendance is based on participation. Participation (hence attendance) is calculated based on the timely completion of assigned work. EACH missed assignment counts as an absence. For example: one missed quiz counts as one absence; one missed discussion board posting, either original or reply, counts as one absence; one missed lab assignment, counts as one absence.

Deadlines and Late Work

With few exceptions, assignments are due by 11:59 pm on Sunday evenings. Late work is not accepted without prior approval. If an extension is granted, the instructor reserves the right to alter the assignment requirements and/or assess a penalty, depending on the situation. It is expected that you will plan your next seventeen weeks so as to complete all assignments, quizzes, etc. on time. Please check the calendar and announcements frequently and understand that the listed **activities take time to complete**. Be sure to ask questions in advance of the due date as, in general, NO late work is accepted without approval.

Extra Credit

No extra credit assignments or projects will be offered or accepted. *Please do not ask*. The only opportunity you may have to earn credit beyond the point values of the course assignments is the possible appearance of bonus questions on quizzes.

Assessment

Course Outcome	Course Content	Assessment
Categorize microorganisms by domain and kingdom and explain the relationship among the biological domains	Bacteria and archaea Viruses and other noncellular pathogens Protozoa, algae, fungi, and parasitic worms	Quizzes, Discussion Posts, Final Exam
Communicate laboratory results in written form	All Lab Activities	Lab Activity Submissions
Identify and describe the common morphologies among bacteria	Bacteria and archaea	Quizzes, Discussion Posts, Final Exam
Describe bacterial growth at the cellular and population levels	Cellular and colonial morphology of microbes Bacteria and archaea	Quizzes, Discussion Posts, Final Exam
Describe the major metabolic pathways and relate them to microbial growth and ecology	Microbial nutrition and metabolism Environmental microbiology	Quizzes, Discussion Posts, Final Exam
Describe microbial genetics, including mechanisms of genetic recombination	Microbial genetics	Quizzes, Discussion Posts, Final Exam
List and describe the events of viral multiplication cycles	Viruses and other noncellular pathogens	Quizzes, Discussion Posts, Final Exam
Explain the fundamental principles of antimicrobial therapy and describe the common modes of action of antimicrobial drugs	Antimicrobial chemotherapy	Quizzes, Discussion Posts, Final Exam
Discuss commercial, industrial, and biotechnological applications of microbes	Applied and industrial microbiology	Quizzes, Discussion Posts, Final Exam

Course Evaluation

Your grade will be based primarily on your combined points from quizzes, laboratory exercises, discussion posts, and a comprehensive final exam. The point distribution for the course will be as follows:

1 Syllabus Agreement		5 points
1 Introductory Post		5 points
15 Quizzes	20 points each	300 points
15 Lab Exercises	15 points each	225 points
15 Discussion Posts	15 points each	225 points
1 Final Exam		150 points
		910 points total

Grading Scale

The grading scale for this course is as follows:	90 – 100%	= A (excellent)
	80 – 89%	= B (exceeds standard)
	70 – 79%	= C (standard)
	60 – 69%	= D (below standard)
	<60%	= F (failure)

Quizzes

Each of the first fifteen modules in this course contains a quiz consisting of a variety of question formats, including multiple-choice, true/false, and matching. Each quiz must be completed within the allotted time. The quizzes will test your understanding of key microbiological concepts listed in the learning objectives.

Quizzes in this course are individual, closed-book, closed-note, closed-web assessment exercises. The only resource you are allowed is your own understanding of the material. You are not permitted to collaborate with any other person during a quiz. Adherence to these rules will be enforced by an online audio/video proctoring software product called **Proctorio**, which must

be installed on your device as an extension to the Chrome browser. Instructions for installation will be given before the first proctored assessment.

You will not have an opportunity to retake a quiz, so make sure you understand the material before you begin the quiz.

Laboratory Exercises

Labs are to be completed in a timely fashion. Most labs are designed to be completed using an eScience Lab kit. Be sure to prepare and/or acquire all necessary materials early in the week, so that last-minute problems do not prevent you from completing the lab on time. Labs will be graded on the basis of your completion of all assigned components. In other words, if you do all the things you're supposed to do, you'll get full credit.

Discussion Posts

Students will demonstrate their understanding of the concepts of the course by participating in interactive discussions. Discussion thread participation will be evaluated as an academic discourse in which students practice critical thinking. **To receive full credit, you must post at least one time, and respond to at least one other student's post.** You must state your own original ideas and develop a line of thought that goes beyond a restatement of the question. While it is certainly appropriate and acceptable to base your discussion posts on information from outside sources, your posts and comments **must be in your own words.**

Note: By definition, discussions feature interaction between students. Thus, late posts will not be accepted because they provide no opportunity for others to read and respond to your post. Therefore, **plan early** so you do not accumulate absences and miss out on grades.

Final Exam

The final exam will be comprehensive for the semester. The format of the final exam will be similar to that of the quizzes, and the policies barring collaboration and the use of outside resources also apply.

Video Testing Requirements

Congratulations! You are part of a course chosen to use the latest online proctoring technology with Proctorio. All quizzes and the Final Exam will require online proctoring. Therefore, **students will be required to have a webcam** (USB or internal) with a microphone when taking an exam or quiz. Students understand that this remote recording device is purchased and controlled by the student. Setup information will be provided prior to taking the first proctored assessment. Proctorio runs right within your Chrome web browser, with only a Chrome Extension to make it work. You'll be able to focus on acing your exams without having to come to campus for in-person proctoring. For more information, visit our [online proctoring student FAQ](#).

More information on Proctorio, including installation instructions, can be found here: <https://proctorio.com/students>

Disclaimer

The instructor reserves the right to make additions, deletions, and modifications to the syllabus with adequate notification to the students.