

Course Information

Semester & Year:	Spring 2024, 2 nd 8-week session
Course Title:	Microbiology
Course Prefix & Number:	BIO205
Section Number:	16769 & lab sections 16770 & 32254
Credit Hours:	4.0
Start Date:	March 18, 2024
End Date:	May 10, 2024, at NOON
Room Number:	In-person lab meets in NS 315
Meeting Days:	Labs meet on Monday (16770) or Wednesday (32254). Lecture exams are given on specified dates in the lab room.
Meeting Times:	10:30 a.m. – 1:20 p.m.

Course Format

Study of microorganisms and their relationship to health, ecology, and related fields. The course format for this course is Hybrid with lecture material presented On Your Time online and both in-person and OYT lab activities. This is an 8-week accelerated course and students are expected to follow the class schedule to successfully complete this course.

Instructor Information

Instructor:	Anne Cedergren-Healy
Email:	anne.cedergren-healy@scottsdalecc.edu
Phone:	480-423-6779
Office Location:	NS 118
Office Hours:	Monday & Wednesday from 10:00 a.m. – 10:25 a.m. in-person in NS 118. Canvas Webex appointments are available on other days/times. Just message me in Canvas to make an appointment.

Course Description

Study of microorganisms and their relationship to health, ecology, and related fields.

Prerequisites

Prerequisites: A grade of C or better in (BIO156, or BIO156XT, or BIO181, or BIO181XT, or one year of high school biology) and (RDG100, or RDG100LL, or higher, or eligibility for CRE101). CHM130 or higher or one year of high school chemistry suggested but not required.

Course Competencies

1. Identify the significant and critical contributions to microbiology.
2. Use significant and critical contributions to microbiology to illustrate and explain the collaborative nature of science.
3. Identify structural characteristics identifying the major groups of microorganisms.
4. Compare and contrast prokaryotic and eukaryotic cells.
5. Compare and contrast viruses and cells.
6. Compare and contrast the physiology and biochemistry of the various groups of microorganisms.
7. Describe the modes of bacterial and viral reproduction and proliferation.
8. Describe the replication of genetic information, protein synthesis, and mutation in bacteria and viruses.
9. Compare and contrast microbial methods of genetic recombination including transformation, conjugation, and transduction.
10. Describe techniques and applications of genetic engineering and discuss their ethical implications.
11. Describe modes of regulation of bacterial gene expression.
12. Describe and compare the effectiveness of physical and chemical methods of microbial control.
13. Describe, compare, and contrast innate and acquired immune responses.
14. Describe the roles and actions of phagocytes and lymphocytes in the control of infection.
15. Describe Immunologic disorders.
16. Describe the effect of immunization on the primary and secondary immune responses to pathogens.

17. Describe the symptoms, associated pathogen, transmission, course, treatment, and prophylaxis of common infectious diseases.

Texts and Course Materials



Our text is OpenStax Microbiology, which is available for free at <https://openstax.org/details/books/microbiology>

All lab materials are either provided or available free online.

Maricopa Systems

This course uses key Maricopa systems for course management and communication.

- Canvas Learning Management System
- Student Maricopa Gmail Account

Synchronous Communication Tools

This course implements the use of web conferencing and/or other synchronous course tools only for Office Hour or individual student video conferences with the instructor.

- Cisco Webex (link is in Canvas)

Streaming Media/Audio/Video Tools

This course uses webcasting, lecture capture systems, YouTube, and/or other streaming media services.

- YouTube
- ScreenPal

Student Assignment Tools

This course requires students to participate in or submit assignments using desktop or cloud-based applications.

- Google Products

- Microsoft Office 365
- Mac tools such as Pages are also accepted.
- Adobe pdf files are also accepted.

Plagiarism Checker Tool (Turnitin)

Turnitin is a plagiarism check tool that matches text to a vast database of sources including the internet, published works, commercial databases and student work submitted to Turnitin in institutions internationally. Students must submit their library papers to Turnitin when instructed. Information and instructions for Turnitin are provided in the course. For your reference, read the [Turnitin Terms of Service](#).

Course Policies

The following are policies specific to this course. Students are also responsible for the college policies included on the [Student Regulations](#) page of the Maricopa Community College District website.

Generative Artificial Intelligence (AI) Policy

Opening Statement Regarding Generative Artificial Intelligence (AI)

The World Economic Forum defines generative AI as “a category of artificial intelligence (AI) algorithms that generate new outputs based on the data they have been trained on. Unlike traditional AI systems that are designed to recognize patterns and make predictions, generative AI creates new content in the form of images, text, audio, and more.”

Some examples of generative AI tools include but are not limited to: ChatGPT, Google Bard, Microsoft Copilot, Stable Diffusion, GrammarlyGo, and Adobe Firefly.

In this class, all work submitted must be your own. The use of generative AI tools will be considered academic misconduct (see Administrative Regulation 2.3.11 1. B(b)) and will be treated as such. If you are unsure if the tool or website you are using is a generative AI tool, please contact the instructor for further clarification before using the tool or website. Using AI to write your library research paper will result in an F in this course.

Grading Standards & Practices

Grade Scale

Letter Grade	Points Range
A	90 – 100%
B	80 – 89%
C	70 – 79%
D	60 – 69%
F	0 – 59%

Assignments

Assignment Name	Points	Approximate Percent of Grade
Lab Activities	268	35%
Canvas Quizzes	80	11
Avoiding Plagiarism Quiz	12	2
Library Checkpoint worksheets	50	7
Library Research paper	50	7
Exams	300	40
TOTAL:	760	

There is **no** extra credit available. There are **no** retakes. Points in this course are based upon your lab activity points, quiz points, exams, library checkpoints, Avoiding Plagiarism quiz, and research paper. Canvas quizzes are open note, but are timed and you only get one attempt, so allowing time to study your notes is essential to passing. Exams do **not** allow notes or aids of any kind and may **not** be retaken.

Exams

- Exams cover lecture topics and may include writing definitions, writing/diagramming a description of a microbial process, or multiple choice.
- Students must write in complete sentences using proper English when answering essay questions to receive full credit for correct answers. (I do not ask students to spell microbe names.)
- Make-up exams require a doctor's note, court summons, etc., otherwise it is the student's responsibility to avoid scheduling conflicts. Approved make-up exams must be taken in the SCC Testing Center by appointment.

Incomplete Grades

An incomplete grade will be awarded only if you meet the following criteria:

- An emergency prevents you from completing the **last 2 weeks** of the course by May 10, 2024. If you are missing more work than that, you will receive a W and
- You are passing with a C or higher grade at the start of your emergency and
- You provide documentation of your emergency, such as a doctor's note, court subpoena, etc. and
- The deadline for completing remaining work will be NOON (12:00 p.m.) on May 24, 2024, for this course and
- The understanding that the majority of BIO205 students who requested Incomplete grades in the past received F grades because they failed to complete missing work by the incomplete contract deadline.
- Heavy work schedules **will not** be considered a reason for requesting an incomplete grade. You enrolled in the course with the understanding that at least 21 hours per week of work would be required to complete it on time.

Late Work Policy

1. This is an accelerated class. Lecture and lab work can be submitted late up to 1 week after the due date with a 10% grade reduction for each day late. In-person lab work cannot be made up.
2. You can miss up to 2 in-person labs maximum. In-person labs cannot be made up. You will only receive credit for labs which you attend. If you miss 3 labs, excused or not, you will receive a failing grade for BIO205.

Academic Dishonesty

See the College Policies link in Canvas for details. Students must submit their own work. **Do not** copy and paste entire paragraphs from HHMI Biointeractive, Coursera, Answers, or any similar site. Remember that the same websites students use to cheat I can use to prove you cheated and as justification for assigning you an F as a course grade. The risk is too great! Use your own wording whenever an answer is more than a few (5) words long. Ask the SCC Writing Center for help at <https://www.scottsdalecc.edu/students/tutoring/writing-center>

Information Sharing Policy

Students may not share notes nor answers to past, present, or future assignments or exams. They may not upload notes or course content outside of the class, sell, or otherwise distribute without written permission from the instructor. This is considered academic dishonesty. Please report any violations or attempts to the instructor.

Response Time

Students can expect a response time on the same day for the instructor to respond to messages sent via the Canvas Learning Management System or email for messages sent Monday - Friday. Messages sent on weekends may not be answered until the following Monday morning, but **you can email me in case of a weekend emergency**. Students can expect lab assignments, exams, and the library research paper to be graded within 1 week of the due date.

Attendance Policy

- Regular attendance in this Hybrid course means attending lab, submitting lab work, and completing weekly quizzes and online labs by the deadlines posted in Canvas.
- Please notify me immediately if you become ill or have another emergency and are not able to complete activities for the week. If you do not submit anything by that week's deadline you will receive a Canvas message warning you of excessive absences.
- Missing more than 2 in-person labs or online work will result in withdrawal from the course for excessive absences and a W (withdrawn passing) will appear on your transcript. The number one reason students fail this course is failure to keep up or being unrealistic about how much time they can devote to studying.

Instructional Contact Hours (Seat Time)

This is a four (4) credit-hour course. Plan to spend at least 3 hours on microbiology course content each day. Please be realistic about the amount of time you will be able to devote to this course! Think about all the time needed for your work, driving, shopping, household chores, childcare, and studying for other classes as you make this decision.

Course refund deadline: March 25, 2024

Guaranteed W withdrawal deadline: April 8, 2024

Online Tutoring

SCC's tutors are available online to help with your courses. You may work with an SCC tutor remotely using Google Meet, your phone, or email. Visit the Natural Sciences Tutoring <https://www.scottsdalecc.edu/students/tutoring> page for detailed information on the five learning center's hours and procedures.

Alex and Adam in the Natural Science Tutoring Center are former students of mine and I keep them updated as to what we are covering each week. I highly recommend meeting with them online or in NS 107 for help if you prefer peer tutoring.

Learning Tools and Your Privacy and Security

SCC utilizes a variety of software applications and web-based tools operated by third party vendors to support student learning. To allow student access to the application, site or tool, certain identifiable information may be required to establish a username or password and submit work and/or download information from these tools. Inherent with all internet-based tools, there is a risk that individuals assume when electing to use these tools, as they may place information at risk of disclosure.

To use learning tools responsibly, please observe all laws and the Maricopa Community College District [Student Conduct Code](#), such as copyright infringement, plagiarism, harassment or interference with the underlying technical code of the software. As a student using a learning tool, you have certain rights. Any original work that you produce belongs to you as a matter of copyright law. You also have a right to the privacy of your educational records. Your contributions to learning tools constitute an educational record. By using the tool, and not taking other options available to you in this course equivalent to this assignment that would not be posted publicly on the internet, you consent to the collaborative use of this material as well as to the disclosure of it in this course and potentially for the use of future courses.

Cross-Listed Sections

The lab sections of this course are combined with the lecture section on Canvas. Each week's online lab activity is labeled LAB ACTIVITY in the lecture modules of our course.

In-Person Microbiology Lab

- Meets in NS 315.
- No lab manuals required.
- Goggles, gloves, and lab coats are provided, but *you must wear or bring closed-toe shoes to each lab.*
- You will only receive credit for labs that you attend in their entirety. Leaving early or arriving more than 15 minutes late without documentation or valid reason will be considered an absence. Attending a lecture that day but skipping the lab will be considered an absence.
- Missing more than 2 in-person labs will result in withdrawal from the course for excessive absences.
- Your lab grade is combined with your lecture grade for a final microbiology grade.
- If you have any reason to suspect you are at higher risk of infection than the average student, please discuss the situation with your physician. I can provide you with a list of microorganisms and chemicals used in the lab if your doctor requires more information. You may be advised to take this course at another time for your safety.

Bio 205 – Microbiology Lab Schedule

Week	Date	In-person lab exercises	Online lab exercises
Week 1	March 18 & 20	Introduction to lab, microscope, handwashing	Introduction to Brightfield Microscope
Week 2	March 25 & 27	Aseptic transfers, Gram stain, acid-fast stain	Eukaryotes of Microbiology
Week 3	April 1 & 3	Lecture Exam 1 over Chapters 1,3, 4, 5 in NS 315 at your lab day and time.	COVID-19
Week 4	April 8 & 10	Bacterial transformation	DNA replication, transcription, translation, and mutations.
Week 5	April 15 & 17	Lecture Exam 2 over Chapters 6, 9, 11, 12 in NS 315 at your lab day and time.	Library Research Module
Week 6	April 22 & 24	PCR	Epi Curves
Week 7	April 29 & May 1	Gel electrophoresis Antiseptics, disinfectants, antibiotics	The Immune System, Parts 1 & 2
Week 8	May 6 & 8	Look at gels & plates & clean up. Lecture Exam 3 over Chapters 13,15, 16, 17, 18 in NS 315 at your lab day and time.	Course evaluation

Lab Rules:

1. Only necessary materials in the work area. Store everything else. This includes your phone and laptop.
2. Wash your hands before and after the lab.
3. Tie back long hair.
4. Wear old clothes or scrubs and closed-toe shoes in the lab. No sandals or flip-flops.
5. Wear goggles and gloves.
6. No eating, drinking, smoking, applying make-up/Chapstick, chewing gum, or candy while in the lab.
7. Disinfect lab bench before and after lab. A clean lab is a safe lab.
8. Cultures must stay at the bench. They must remain in the lab! Students who remove cultures for any reason will be reported to the V.P. of Student Affairs for disciplinary action.
9. Notify me of spills or broken equipment immediately.
10. Follow all disposal procedures. If you don't remember where something goes, please ask me.
11. No chewing pens or fingernails. I have suggestions on how to break these bad habits.
12. Only registered students are permitted in the lab. You can take photos at the end of the lab if you want to show your friends and family how much fun you are having.

Micro Lab Disposal Rules

Microscopes:

1. Remove slides from the stage.
2. Student-made slide: drop in the used slide box in front of the biohazard bag.
3. Commercially prepared slide: clean it with Sparkle and lens paper and return it to the proper box.
4. Remove all oil from microscope lenses and/or stage using Sparkle and lens paper.
5. Replace cover and return scope to its matching number on the shelf in the cabinet. Return the cord to the storage box.

Test Tubes:

1. Remove *all* tape and/or stickers.
2. Leave test tubes *in racks* under the green sign in the discard area.

Used Petri dishes, gloves, swabs, cardboard test cards:

1. Drop into a biohazard bag.

Loop and needle:

1. Sterilize and return to the wire basket.

Goggles: Wipe with disinfectant and paper towel and return to the storage area.

Lab coats: Return to storage area. If the coat you used needs cleaning, please let your instructor know.

Always wipe down the lab table with disinfectant and wash your hands before leaving the lab.

Students are responsible for the information contained in this syllabus, the Syllabus page in your Canvas course and the **College Policies & Student Services** page found in the First Steps module of your Canvas course. Students will be notified by the instructor of any changes in course requirements or policies.