



SEMESTER
Life and Natural Sciences Department
School of Science, Technology, Engineering, and Mathematics

Program Name: Biology
Course Name: Microbiology and Immunology – Lecture
Course Number: BIO231 **Section:** XXX
Meeting day(s) and time(s):
Credits: 4 (combined lecture and lab)
Contact Hours 3
Text: *Microbiology Fundamentals: A Clinical Approach*, Cowan, Marjorie Kelly; Smith, H., McGraw- Hill Publishers, 2024.
Instructor Name:
Office Location:
Office Hours:
Owens CC Email:
Phone:
**** Please use only Owens email for course communications

CATALOG DESCRIPTION:

Presents a broad approach to microbiology with the focus on the role of microorganisms in disease processes. Emphasizes the study of Microbial growth, metabolism, classification, genetics and interactions with man. Human microbial diseases and their control, as well as basic principles of immunology as they relate to resistance to disease are covered. Students retaking this course must repeat both the lab and lecture. This course is not recommended for students in developmental reading.

COREQUISITES: None

PREREQUISITES: BIO201 or BIO211

TEXTBOOKS and MATERIALS

Microbiology Fundamentals: A Clinical Approach, Cowan, Marjorie Kelly; Smith, H., McGraw-Hill Publishers, 2024.

Microbiology and Immunology Laboratory Manual, 6th Edition, Mika, T.; Klein, R., Pearson Learning Solutions, 2016.

Support Text: (Available on reserve in the Owens CC Library)

Bergey's Manual of Determinative Bacteriology, 9th Edition, edited by John G. Holt et al., Williams & Williams Publishers, 1994.

Course Objectives

1. To provide allied health students pursuing an associate degree with a working knowledge of the impact of microbial life forms on the human condition such that the student can function in the medical/clinical setting.
2. To provide students with hands on laboratory experiences including; microscopy, aseptic techniques, bacterial staining, microbial identification through biochemical testing, other medical diagnostic testing procedures, antibiotic and disinfectant testing

Student Learning Outcomes:

After completing this course, the student should be able to:

1. Describe the early history of microbiology and immunology and the events leading to our modern study of it.
2. Classify and describe the major groups of microorganisms.
3. Describe biochemical principles related to the nutrition, growth and metabolism of microorganisms.
4. Describe the genetic control and regulation of microbial systems
5. Describe the various Human-Microbe Relationships and the Microbial Flora indigenous to humans.
6. Describe the principles and applications of Recombinant DNA Technology.
7. Describe the various Chemical and Physical means of Control of Microorganisms.
8. Describe Nonspecific/Specific Human Defenses against Disease, Clinical Applications of Immunological Function, and Disorders of the Immune System.
9. Describe Major Microbial Diseases of Humans, their Causes, and their Transmission.
10. Demonstrate Laboratory Skills, including the following:
 - a) Properly prepare, view, and analyze specimens using microscopy.
 - b) Draw and identify microscopic characteristics of pathogenic microorganisms.
 - c) Identify bacteria utilizing cultural characteristics.
 - d) Estimate the number of microorganisms in a sample by direct or indirect methods.
 - e) Utilize specialized media to isolate and identify different types of microbes.
 - f) Analyze the effects of radiation on microbial growth.

- g) Utilize biochemical testing for identification of microbes.
- h) Measure and identify the effects of antimicrobials on bacterial growth.
- i) Utilize molecular diagnostics and serological profiles to identify microbes.

GRADING

EVALUATIONS

1. Lecture Exams: Five exams will be given, each worth 100 points. The exams may include but are not limited to multiple choice, matching, true/false, short answer, identification, or fill-in the blank. Exams will have a time limit of 60 minutes.
2. Laboratory Grade: See laboratory syllabus for this information.
3. Homework: weekly graded homework will be assigned throughout the semester covering lecture material for a total of 100 points. There are no extensions for homework deadlines for any reason.

LABORATORY EVALUATION

You do not receive a separate letter grade for the laboratory portion of the course. Points earned in the lab will be added in with points earned in the lecture at the end of the semester. Your course grade will be determined by the total points earned for the course (lecture points and lab points added together). **If you do not earn at least 147 (60%) out of a possible 245 total lab points, you will receive a “F” letter grade for the course.** Points earned from the laboratory portion of the course are as follows:

The laboratory points will involve:

1. Three laboratory exams each worth 50 points
2. Three graded laboratory projects, worth a total of 45 points
3. Identification of two bacterial unknowns worth 50 points total

A laboratory syllabus (with exam dates) will be distributed the first laboratory meeting. The laboratory syllabus and schedule are subject to change as determined by the instructor.

Make-Up Exam Policy (face to face and synchronous delivery)

Any exam not taken during the assigned day and time specified by the instructor will be in **essay format**. Acceptable reasons to qualify for a makeup exam are **at the discretion of the instructor** and may require documentation before a makeup exam is allowed. This policy pertains to both lecture and lab portions of the course.

If a student misses a regularly scheduled exam, it is the student's responsibility to contact his/her instructor **immediately** to schedule a make-up exam.

Lecture and lab make-up exams must be completed within **one week** of the missed exam. Make-up exams for the final lecture exam (Exam 5) and the final lab exam (lab exam 3) must be completed within **two days** of the missed exam. If the student does not complete a make-up exam within the specified time periods above the student will receive zero (0) points for

the missed exam.

There are NO MAKEUP EXAMS for any student for any reason for asynchronous online sections.

Other Information

During exams, unauthorized use of a phone, tablet, e-watch (smart watch) or any other unauthorized electronic device is prohibited. Use of these devices during an exam could result in forfeiture of exam points.

Student athletes will be treated the same as all other students per policies in this course syllabus.

COURSE GRADE DETERMINATION

<u>LECTURE EXAMS</u>	<u>Total Point Possible</u>	<u>My Points</u>
Exam 1	100	_____
Exam 2	100	_____
Exam 3	100	_____
Exam 4	100	_____
Exam 5	100	_____
 <u>HOMEWORK</u>	 100	 _____
 <u>LABORATORY</u>		
Exam 1	50	_____
Exam 2	50	_____
Exam 3	50	_____
Laboratory Projects		
Project 1(Microbial Taxonomy Drawings)	25	_____
Project 2 (Bergey's Manual)	10	_____
Project 3 (Antibiotics)	10	_____
Bacterial Unknown Project:		
Part I (Bacterial Stains)	5	_____
Part 2 (Metabolic Identification)	45	_____
	845	_____

GRADING SCALE:

845- 761 points	=	A
760 - 676 points	=	B
675 - 592 points	=	C
591 - 507 points	=	D
506 points or below	=	F

Students must pass the laboratory portion with at least 147 points (60%) or higher to pass the course.

Your letter grade is determined by which bracket your point total fits into. If partial points are awarded in lecture or lab the final points for the class will be rounded up or down to the nearest whole number. For example, a total of 800.5 points will be rounded UP to 801 points. A total of 800.4 points will be rounded DOWN to 800 points. There will be NO EXCEPTIONS to this policy. There is no extra credit in this course.

WEB SECTIONS

Using LockDown Browser for Online Exams

This course requires the use of LockDown Browser and video monitor for online exams. Watch the video (*link below*) to get a basic understanding of LockDown Browser and the webcam feature. To get started on your computer, watch the instructional video and then download and install LockDown Browser from the link.

- <http://www.respondus.com/products/lockdown-browser/student-movie.shtml>

To get started on your computer, download and install LockDown Browser from this link.

- <http://www.respondus.com/lockdown/download.php?id=139313370>

To take an online test, start LockDown Browser and navigate to the exam. (*You won't be able to access the exam with a standard web browser.*) For additional details on using LockDown Browser, review quick start guides from Respondus in Course Content.

Helpful Hints

When taking an online exam, follow these guidelines:

- Ensure you're in a location where you won't be interrupted
- Turn off all mobile devices, phones, etc.
- Clear your desk of all external materials — books, papers, other computers, or devices
- Remain at your desk or workstation for the duration of the test
- LockDown Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted

Under some circumstances, dropping a course may negatively affect your ability to receive financial aid in future semesters. Consult your academic advisor with questions.

BIO231 LECTURE READING LIST

Week	S.L.O.	Topics	Reading Assignments	Exams
1 DATE	1, 2	Introduction to Microbes	Ch 1 1.1-1.4	1
2 DATE	2, 9	Eukaryotic Cells and Microorganisms	Ch 4 4.1-4.4	
3 DATE	2, 9	Bacteria and Archaea	Ch 3 3.1-3.6	2
4 DATE	3	Microbial Nutrition and Growth	Ch 6 6.1-6.3	
5-6 DATE	3	Microbial Metabolism	Ch 7 7.1-7.4	
7 DATE	4, 6	Microbial Genetics and Recombinant Technology	Ch 8 8.1-8.6	3
8 DATE	2	Viruses and Prions	Ch 5 5.1-5.6	
9 DATE	7	Physical and Chemical Control of Microbes	Ch 9 9.1-9.3	4
10 DATE	7	Antimicrobial Treatment	Ch 10 10.1-10.4	
11 DATE	5, 9	Interactions Between Microbes and Humans	Ch 11 11.1-11.4	
12 DATE	8	Host Defenses I: Overview and Innate Defenses	Ch 12 12.1-12.3	5
13-14 DATE	8	Host Defenses II: Adaptive Immunity and Immunization	Ch 13 13.1-13.6	
15 DATE	8	Disorders in Immunity	Ch 14 14.1-14.7	
16	NO NEW ASSIGNMENTS			

Laboratory Student Learning Outcomes:

Outcome	Where Assessed
Properly prepare, view, and analyze specimens using microscopy	Lab Exam 1 Unknown 1 report
Draw and identify microscopic characteristics of pathogenic microorganisms	Microbial Taxonomy Project Lab Exam 1
Identify bacteria utilizing cultural characteristics	Lab Exam 2 Cultural Characteristics Research Project Unknown 2 report
Estimate the number of microorganisms in a sample by direct or indirect methods	Lab Exam 2
Utilize specialized media to isolate and identify different types of microbes	Lab Exam 2 Unknown 2 report
Analyze the effects of radiation on microbial growth	Lab Exam 2
Utilize biochemical testing for identification of microbes	Lab Exam 3 Unknown 2 report
Measure and identify the effects of antimicrobials on bacterial growth	Antibiotics Research Project Lab Exam 3
Utilize molecular diagnostics and serological profiles to identify microbes	Lab Exam 3

Institutional General Education Competencies:

As a student at Owens Community College, you will take General Education courses as part of your degree program. While specific to the General Education courses, they will be reinforced in many of your degree program major courses and may be measured in your capstone course(s) and others as identified.

Competency	Where Assessed
Communicate effectively.	Lecture Exams, Homework, Lab Exams, Unknown Reports, and Research Projects
Think analytically, critically, and creatively.	Lecture Exams, Homework, Lab Exams, Unknown Reports, and Research Projects

GENERAL COLLEGE INFORMATION

Classroom Admittance

Owens Community College (OCC) classes (e.g. traditional, land-based, laboratory, hybrid, asynchronous online, synchronous online, etc.) shall only be attended by officially registered OCC students, instructor of record, guest lecturer or substitute instructor. Visitors are not permitted in the classroom and should not attend or participate in an online class session. See FERPA information at <http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html>

Student Printing

For information on student printing solutions including page quotas, printing accounts, FAQs and other inquiries, contact the Help Desk at 567.661.7120 or

<https://www.owens.edu/studentprint/>

Disability Services

If you have a disability or acquire one, you may be entitled to receive individualized services and/or accommodations intended to assure you an equal opportunity to participate in and benefit from the program. To receive more information or to apply for services, contact the Office of Disability Services at 567-661-7007 or <https://www.owens.edu/disability/>

Counseling Services

Counseling services are available at no charge to Owens CC students providing assistance with personal, educational, interpersonal, family, social, or psychological difficulties. If you feel you may benefit from this service, contact Counseling Services at 567.661.7168 or

<https://www.owens.edu/counseling/students/>

Tutoring and Academic Assistance

Information on tutoring services, writing center and academic success centers is available at

<https://www.owens.edu/successcenters/>

Safety

If you have concerns about your safety or the safety of others, contact the Department of Public Safety at 567-661-7575 or <https://www.owens.edu/dps/>

Anti-Discrimination and Harassment and Title IX/Sexual Misconduct

All students, faculty, and staff are expected to follow Owens Community College's Anti-Discrimination and Harassment Policy and the College's Title IX/Sexual Misconduct Procedures and Guidelines. The College strictly prohibits and will not tolerate harassment, discrimination, intimidation, or hostile/offensive working or learning environments.

The Anti-Discrimination and Harassment Policy can be found at:

<https://www.owens.edu/trustees/procedures/proc3358-11-4-17.pdf>

The Title IX/Sexual Misconduct Procedures and Guidelines can be found at:

<https://www.owens.edu/trustees/procedures/proc3358-11-4-17-titleIX.pdf>

Student Code of Conduct

All students are expected to follow Owens Community College's Student Code of Conduct.

Review the Code of Conduct at <https://cdn.owens.edu/conduct/code.pdf>

- Any student suspected of cheating or plagiarism will be dealt with in accordance with the standards set forth in the College Catalog.
- For information on FERPA and Assessment of Student Learning Outcomes, please refer to the appropriate section of the current Owens Community College Catalog online.
- All student athletes will be treated the same as all other students as per policies in the course syllabus and college's student handbook.

Religious Accommodations

A student seeking an accommodation for an absence permitted under Ohio's Testing Your Faith Act must provide the instructor with a **written email** notice with the specific dates for an absence, and must do so not later than fourteen (14) days after the first day of instruction.

Alternative accommodations are not retroactive, and no academic penalty will be imposed for an absence under the policy*. The request for an alternative accommodation will be kept confidential. Students with questions about a religious accommodation under Ohio's Testing your Faith Act may contact the College's Office of Academic Affairs: provost@owens.edu

- The policy may be found on the Owens website: [3358:11-2-63 Accommodation](#) for a Student Absence for the Observance of Religious Beliefs and Practices Policy.

Health and Safety Information

Please note that while unlikely, there is a possibility courses might need to change the delivery method due to public health concerns. If this happens, the college will communicate any changes via email and/or other communication methods.

If you are not able to come to class because you are ill, please let me know as soon as possible. When possible, class materials will be available through Blackboard (or Zoom or). I will do my best to arrange for you to make up the work you missed, if practicable.

Currently, masks are allowed but not required on campus; however, this requirement may change depending on circumstances. If changes are made, you will be informed via email and/or other communication methods.

Tentative Exam Schedule

Exam 1 Covering Chapters 1 and 4	Week 3: DATE at TIME
Exam 2 Covering Chapters 3, 6, and 7	Week 6: DATE at TIME
Exam 3 Covering Chapters 8 and 5	Week 8: DATE at TIME
Exam 4 Covering Chapters 9, 10, and 11	Week 12: DATE at TIME
Exam 5 Covering Chapters 12, 13, and 14	Week 16: DATE at TIME

****All homework assignments are due on DATE at TIME ****

Academic Calendar

DATE	Semester begins
DATE	Last day of classes
DATE	Exam week
DATE	Commencement

Please check the Owens website for important dates regarding registration, drop deadlines, and financial aid information.

The instructor reserves the right to amend this syllabus as necessary and will communicate amendments to students in the course