BIO105 –Microbiology w/Lab

Kamal M. Gandhi, PhD
Course Syllabus
Online

Course description

Classification, morphology, reproduction, transmission, and control of micro-organisms causing disease in man. Laboratory practice in culturing methods, microscopic observation, and physical and chemical control.

Course text

Recommended: Tortora, Funke, and Case. **Microbiology: An Introduction**. Pearson Publishing. 12th ed. 2016. ISBN: 9780321929150
* you can save some money by finding the 11th ed instead, or can rent your text
** you can also buy just the Mastering Microbiology code from the book store, which includes an etext

Lab materials

Hands On Lab Microbiology kit sku LP-3033MB-01

About Me

Kamal Gandhi
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Office Hours

I will hold a virtual office hour every Wednesday from 5-6pm PST. You can join using the link: https://oregontechonline.zoom.us/j/974130637 (also posted in Blackboard). Additionally, you can schedule additional office hours by emailing me with some available times.

Weekly Schedule

Each week will cover one topic, with a lecture tied to some readings from the text and some videos I have created. Assignments for the week will include a threaded discussion prompt along with a series of questions and a quiz based on the lecture/reading. You will also perform a lab, either virtually or using the kit purchased from Hands On Labs. Finally, there will be a **proctored midterm** in week 6, covering weeks 1 – 5, and a **proctored final** in week 11 (covers weeks 6 – 10).

Course Learning Objectives

- The student shall be able to discuss the structure, morphology, and reproduction of microorganisms.
- The student shall be able to describe how to culture microorganisms in various media.
- The student shall be able to discuss the role microorganisms have in human infectious diseases.
- The student shall be able to explain the physical and chemical methods to control the growth of microorganisms.

Grade Breakdown and Criteria

The tentative grade breakdown is as follows:

Introduction	15 pts
Weekly discussions	15 pts x 9
Weekly questions	10 pts x 10
Weekly quizzes	15 pts x 10
Weekly labs	20 pts x 10
Midterm Exam	100 pts
Final Exam	100 pts
total	800 pts

This class uses the standard OIT grading scale:

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

Teaching Method & Activities

BIO105 utilizes a coordinated lecture and laboratory format. **The class moves at a fast pace and concepts build on previous concepts**. My teaching philosophy combines repetition and practice to build long-term memory. As such, topics and themes often repeat, and this helps solidify the foundation of knowledge utilized in this course and in the future. Additionally, discussions are incorporated into weekly modules to enhance critical thinking and engagement with the material. **While this may be an online course, it is vital that you organize your schedule to give yourself time each week to spend on class material.**

The lab portion of the class will train you to work with live cultures of bacteria. This requires that you purchase an at home kit that will guide you through hands-on microbiology techniques. While I understand that the kit is somewhat costly, our philosophy at OIT encourages active participation and hands on training for the benefit of our student's future careers. As such, having an at-home kit is required for this course. And, due to the safety measures that accompany having to send live cultures of organisms to your home and providing the materials needed to grow and study these organisms, the kit is unfortunately a bit costly.

Tentative Schedule

The schedules below are tentative, and are subject to change. Changes will be announced in class and posted on our Blackboard announcements.

Lecture schedule

Week	Topic
1	Overview of course; Bacterial Cells
2	Bacterial Cell Wall
3	Microbial Growth
4	Bacterial Metabolism
5	Bacterial Genetics
6	Pathogenesis & Epidemiology; **midterm** (weeks 1 – 5)
7	Example Infectious Strategies
8	Viral Diseases
9	Immunity
10	Prevention & Treatment
11	**Final Exam**

Lab schedule

Week	Lab
1	Comparison of cells
2	Hands On Labs – getting started, lab safety, lab prep
3	Hands On Labs – virtual microscope
4	Growth curve
5	Aseptic Technique and Culturing Microbes (HoL kit)
6	Ubiquity of Microorganisms (HoL kit)
7	Bacterial staining lab (HoL kit)
8	Hand washing & normal flora (HoL kit)
9	Differential media (HoL kit)
10	Antimicrobial agents

OIT Policies

Student responsibility

Students are responsible for knowing and understanding Oregon Institute of Technology's requirements relating to registration, academic standards, student activities and student organizations. A partial view of academic regulations is included in the class schedule introduction pages on Oregon Tech's Web site and distributed to new students during their first registration at Oregon Tech. Students are encouraged to meet regularly with their departmental advisors and to contact the Registrar's Office with questions about academic procedures, policies or regulations.

Academic Integrity

According to the official policies and procedures of Oregon Tech, cheating or plagiarism in connection with an academic program is prohibited and students may be disciplined for the following cause. Plagiarism is defined as copying from a written source verbatim without putting the material in quotes and citing the source. Included in the realm of cheating is the presentation of work copied from other students as your own, such as copying from another's lab book. I take cheating and plagiarism very seriously.

Disability statement

Students with a documented disability who require assistance or academic accommodations should contact the office of Disability Services immediately to discuss eligibility. Disability Services staff are located on both the Klamath Falls and Wilsonville campuses, however arrangements can be made to meet with a student on any campus. Meetings are by appointment only, so please contact the Disability Services office at the campus closest to you: **Klamath Falls (541) 885-1790** and **Portland-Metro (503) 821-130**5. Specific information and Disability Services forms can be found at www.oit.edu, then go to "Academics" and click on "Student Success Center" and then "Disability Services." This link leads to the department's website: http://www.oit.edu/academics/ssc/disability-services

Disruption statement

Obstruction or disruption of teaching, research, administration, disciplinary procedures, or other institutional activities, including the institution's public service functions or other authorized activities on institutionally owned or controlled property is strictly prohibited by Oregon Tech's code of student conduct and may result in disciplinary action. For our online class, this particularly means using disrespectful or harassing language in your threaded discussion responses.

Proctored Exams

You may either go to a university testing center or take the test online using ProctorU. If you chose the Proctor U option, you are able to get a lower rate for the exams then the standard rate, so please by access codes through the bookstore. Also note, you need to plan a specific time to take the test with Proctor U, so please plan ahead and schedule your appointment early.

ProctorU is a live online proctoring service that allows you to take your exam from the comfort of your home. ProctorU is available 24/7, however you will need to schedule your proctoring session at least 72 hours in advance to avoid any on demand scheduling fees. Creating a ProctorU account is very simple. All you will need to do is visit https://go.proctoru.com/registrations.

ProctorU also provides free technical support to ensure you have the best testing situation possible. That is available at www.proctoru.com/testitout. On this page you will also be able to test your equipment, learn about what to expect during your proctoring session, and ask any questions you may have about the proctoring process with a ProctorU representative.

In order to use ProctorU you will need to have a high-speed internet connection, a webcam (internal or external), a windows or apple Operating System, and a government issued photo id. ProctorU recommends that you visit proctoru.com/testitout prior to your proctoring session to test your equipment. For additional technical services needed before your exam, you can click on the button that says "connect to a live person.