



South Portland, Maine 04106

Biological Sciences Department

Title: Microbiology

Catalog Number: BIOL 250 M2

Credit Hours: 5

Total Contact Hours: 5

Lecture and Laboratory

Professor : Gabrielle Conrad

Office Hours by Appointment

Contact Information: gconrad@smccme.edu

Course Syllabus

Course Description

This course is designed to provide the student with an introduction to the principles and techniques of microbiology. Consideration will be given to microbial structure, growth, physiology, and the reaction of microorganisms to their physical and chemical environments. The laboratory will emphasize the development of proper laboratory technique and the identification of microorganisms.

Learning Outcomes

- SMCC students recognize the methodology and content of science and its relevance. SMCC students:
 - Recognize the methodology and content of science and its relevance
 - Apply scientific methodology to the study of the natural world
 - Participate in hands-on and interactive lab activities
 - Demonstrate the ability to make scientifically-informed decisions

Course Objectives

Upon successful completion of this course, the student should be able to:

1. Describe the structure of bacteria and other microorganisms,
2. Conduct quantitative and qualitative tests on microorganisms,
3. Interpret and evaluate the results of these tests,
4. Understand the cellular functions that promote growth and reproduction of microorganisms, and
5. Employ the proper laboratory techniques for the study of microorganisms.

Course Requirements

The course is organized into modules that will correspond to chapters in the textbook and lab exercises from your lab manual. Our class will be held on Mondays and Wednesdays from 5:00pm until 9:35pm. We will begin each class with lab, recess for a 15-minute break, and finish with our lecture period.

Classroom Conduct and Attendance Policy

The college policy regarding attendance states that if a student should have three consecutive absences they are to be dropped from the course. Because of the online nature of this course that includes laboratory participation, if a student misses a total of 5 courses (consecutive or non-consecutive), they would be dropped from the course.

Required Texts

“Prescott’s Microbiology” by Joanne Willey, Kathleen Sandman, and Dorothy Wood – 11th edition

ISBN10: 1260211886 | ISBN13: 9781260211887

Online McGraw Hill Connect Microbiology Access

ISBN10: 1260297683 | ISBN13: 9781260297683

Online link to purchase directly: <https://www.mheducation.com/highered/product/prescott-s-microbiology-willey-sandman/M9781260211887.html#interactiveCollapse>

Once on webpage, scroll down and select the “Digital” tab. Here you can buy a Connect access which includes an eBook of Prescott’s Microbiology for \$95.

Optional Resource - “Microbiology Laboratory Theory and Application” by Michael Leboffe and Burton E. Pierce

ISBN10: 1617312509 | ISBN13: 978-1617312502

My recommendation for a cost saving option for your lecture text– Purchasing “McGraw Hill Connect” access comes with an eBook of our lecture textbook “Prescott’s Microbiology.” For those who would prefer an online version of the textbook, this is a great cost-effective option when buying your text for this class.

Grading

Scores for your exams, quizzes and lab assessments can be found under Grades in Brightspace. There will also be an estimate of your semester grade based on all your work up to that point.

Microbiology in the News Presentations	2	10%
Quizzes	5	15%
Exams	3	40%
Connect Homework	25	10%
Lab Notebook	2	15%
Bacterial Unknown Project	1	10%
Total		100%

Letter grades are assigned following the policy in the SMCC handbook:

A	93 and above	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	F	62 and below
C+	77-79		

Course Assignments

All materials will be turned in at a designated time. If class is cancelled for any reason, the assigned work will be due the following class period. Each student will be allowed **one** excuse to turn in material late – Please notify your professor if you are using this excused extended deadline. Otherwise, late assignments will lose 10% of the assignment value for every day the assignment is late. Assignments that have not been turned in within five days after the assigned due date will receive an automatic zero “0” for their score.

Microbiology in the News (MITN) Presentation Slideshows

Presentations should cover an article of your choice on microbiology from the popular press. This is an opportunity for you to learn more about a topic from daily life that you find particularly interesting. Slideshows should be 7 to 10 slides in length with the sections: Article Summary, Microbiology Principle, Synopsis and Reference. Please follow guidelines in rubric and handout.

Sources for articles include major newspapers (Portland Press Herald, New York Times, Wall Street Journal) or major magazines such as Time or Newsweek. The article must be referenced in the report (source, date, and page number or website). For article citation, please use MLA, APA, or CSE for your citation style.

Exams and Quizzes

Exams and Quizzes may cover aspect of the material covered in lecture, lab, or assigned reading can be expected on exams or quizzes. If you are not able to take the exam during this time, you must plan with the professor prior to the scheduled exam date.

Exams and quizzes will be proctored through McGraw Hill Connect. To use these tools, Google Chrome and a working camera is required. A simple (one-question) Practice Quiz is given at the beginning of the semester to ensure your tools are working correctly.

Proctoring Rules:

1. The student must ensure that their camera is on and is pointing at their face during the entire duration of test.
2. The student must sit at a clean desk or table. Use of outside material is prohibited (notes, textbook, electronics, etc.)
3. The lighting in the room must be bright enough to be considered “daylight” quality. Overhead lighting is preferred. If overhead lighting is not available, the source of light must not be behind (causing a shadow effect).
4. The room must be as quiet as possible. Sounds such as music or television are not permitted.
5. The student must not use headphones, ear buds, or any other type of listening equipment. The student must not use a phone for any reason.
6. The student must not communicate with any other person by any means.
7. The student must not leave the room or camera view during the test for any reason. For each time the student leaves the camera view, 10% will be deducted from the total grade.

For the first violation of Proctoring Rules, the instructor will contact the student directly to notify of violation. For any other offense, failure to use the proctoring tools correctly will cause the test result to be discarded and the student will receive a zero.

Lab Notebook

Your lab notebook is used to record your work in lab throughout the semester. The organization, thoroughness, and clarity of the notebook will be graded two times throughout the semester. Please follow guidelines in lab notebook rubric and handout. *If the course is moved to the online format, lab reports will be assigned instead of a lab notebook.*

Virtual Labs are assigned each week through McGraw-Hill Connect as a supplement to the material covered in lab. To access our class section, please follow the Connect link supplied in our Brightspace section. This will allow dual flow of information and grades from Connect into Brightspace.

Bacterial Unknown Samples will be handed out to each student for identification during the last half of the semester. A written report on the identification scheme chosen will be included. Please follow guidelines in Unknown Project report rubric and handout.

Lecture and Lab Schedule

Schedule is subject to change

Week	Dates	Lecture Topic	Lab Exercises
1	May 30	<u>Memorial Day – No Class</u>	<u>Memorial Day – No Class</u>
	June 1	Introduction and Syllabus	Introduction, Lab Safety, 3-1, 3-3, Microscopy
2	June 6	Chapter 1: Intro to Microbiology	1-3: Aseptic Transfer
	June 8	Chapter 2: Microscopy Practice Quiz Due	3-5: Simple Stain, 1-4: Environmental Swab Streak Plate 2-2: Colony Morphology
3	June 13	Quiz 1	3-7: Gram Stain
	June 15	Chapter 3: Bacterial Cell Structure	3-10: Endospore Stain, Handwashing Lab
4	June 20	<u>Juneteenth – No Class</u>	<u>Juneteenth – No Class</u>
	June 22	Chapter 4: Archaeal Cell Structure Review for Exam MITN Presentation 1 Due	6-1: Standard Plate Count
5	June 27	Exam 1	2-9: Effect of Temperature on Microbial Growth
	June 29	Chapter 5: Eukaryotic Cell Structure	2-6, 2-7, 2-8: Anaerobic Growth, 2-11: Effect of Osmotic Pressure on Microbial Growth
6	July 4	<u>Independence Day – No Class</u>	<u>Independence Day – No Class</u>
	July 6	Chapter 6: Viruses and Other Acellular Infectious Agents, COVID Slideshow	Bacterial Unknown Project
7	July 11	Quiz 2	5-3: Differential Media: Phenol Red
	July 13	Chapter 7: Bacterial and Archaeal Growth	Selective/Differential Media: 4-4: Mannitol Salt, 4-6: EMB, 4-5: MacConkey, and 5-25: Enriched/Differential Blood Plate Lab Notebook Set #1 Due

8	July 18	Chapter 8: Control of Microorganisms in the Environment	IMVIC: 5-9: Citrate, 5-20: SIM, 5-4: MR-VP
	July 20	Review for Exam MITN Presentation 2 Due	Enzyme Assays: 5-6: Catalase, 5-7: Oxidase, 5-8: Nitrate Reductase
9	July 25	Exam 2	Enzyme Assays: 5-17: Gelatinase, 5-13: Amylase, 5-18: Urease
	July 27	Chapter 9: Antimicrobial Chemotherapy	Disinfectant Susceptibility
10	Aug. 1	Chapter 10: Intro to Metabolism	7-3: Antibiotic Susceptibility
	Aug. 3	Quiz 3	Work on Unknown Project
11	Aug. 8	Chapter 13: Bacterial Genome Replication and Expression	11-6: ELISA Testing
	Aug. 10	Chapter 17: Microbial DNA Technologies	10-2: Restriction Enzymes and Agarose Gel Electrophoresis of DNA "Paternity Test Simulation" Lab Notebook Set #2 Due
12	Aug. 15	Review for Exam	Review for Exam Bacterial Unknown Project Due
	Aug. 17	FINAL EXAM	

End-of-Course Evaluation

Students complete evaluations for each course attended at SMCC. Evaluations are submitted online and can be accessed through the student portal. Students can access the course evaluations beginning one week before the end of classes. The deadline for submission of evaluations occurs Monday at 5 p.m. following the last day of the class. You will receive an e-mail to your student e-mail account when course evaluations are available.

For Classes with any Face- to -Face Component

While the syllabus represents current plans, there may be changes during the semester in response to the on-going Covid-19 pandemic. Depending on the progression of the virus, it is possible that the College may have to suspend face-to-face instruction for part of the semester. If we must stop face to face instruction anytime during the semester, your instructor will contact you via your SMCC email or the Brightspace course homepage to discuss next steps for the course.

ADA Statement

Southern Maine Community College is an equal opportunity/affirmative action institution and employer. For more information, please call (207) 741-5798. If you have a disabling condition and wish to request accommodations in order to have reasonable access to the programs and services offered by SMCC, you must register with the Disability Services Coordinator, Sandra Lynham, who can be reached at 741-5923. Further information about services for students with disabilities and the accommodation process is available upon request at this number. Course policies about online testing are modified to suit each individual's accommodations.

The Learning Commons:

The library, tutoring and writing centers, and reference/research assistance (typically located on the second floor of South Portland's Campus Center and in the Midcoast's LL Bean Learning Commons and Health Science Center) will be fully available online during the semester.

Here you can find free academic support through individually scheduled and drop in, online tutoring. You can also find information literacy/research librarians, and professional academic strategy/planning mentoring online. While the physical space of the Learning Commons will not be available at this time, we can also work with you to set up zoom classrooms for small group study. Services are offered by appointment or as drop-in assistance.

To access services:

- Visit My Learning in My Maine Guide or
- Select the "tutoring needed or need help?" button if it appears inside your Brightspace course.

Whether On Site or Online, students have consistently reported that the Learning Commons is a friendly, risk-free, and helpful place to seek academic support. It has also been shown that those who make use of the Learning Commons do better in a course than those who do not. We strongly encourage you to take advantage of this valuable and enjoyable resource.

SMCC Pay-for-Print Policy

Each semester students receive a \$20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The College's pay-for-print system monitors printing on all printers (including those in general access labs, library printers, Tutoring Services, Campus Center Lounge and technology labs). Be sure to log OUT of the system when you've finished your printing, to prevent unauthorized access to your account. Students can check the number of pages they have printed by using the Printing Balance tool available on SMCC computers (located in the lower right corner of the screen, near the clock). Departments with work study students who need to print documents for the department should contact the Help Desk at 741-5696 to have a special account set up. To find ways to reduce your printing charges, please go to the IT Help tab on My SMCC. If you have questions about the pay-for-printing policy or your printing charges, please contact the Help Desk at 741-5696 or send an e-mail to helpdesk@smccme.edu.

Refunds

Print jobs are eligible for a refund in the event of mechanical or electronic error on the part of the printer, print server, or software used to submit the job. Jobs are not eligible for a refund in cases where the job was not set up correctly, was submitted multiple times, or the student is not satisfied with the result. To request a refund, please bring the offending print to the IT Department in the basement of the Ross Technology Center. Refunds will be granted in the form of a credit to the student's account.

Add-Drop Policy

Students who drop a course during the one-week "add/drop" period in the fall and spring semesters and the first three days of summer sessions receive a 100% refund of the tuition and associated fees for that course. Please note any course that meets for less than the traditional semester length, i.e., 15 weeks, has a pro-rated add/drop period. There is no refund for non-attendance.

Withdrawal Policy

A student may withdraw from a course only during the semester in which s/he is registered for that course. The withdrawal period is the second through twelfth week of the Fall and Spring semesters and the second through ninth week of twelve-week Summer courses. This period is pro-rated for shorter-length courses, Usually 75 percent of course meeting times; please check with the Registration Office. To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Registration Office. This process must be completed either in person or by using SMCC e-mail accounts.

Plagiarism Statement

If an instructor suspects that a student has knowingly committed a violation defined in the Maine Community College System Policy on Student Grade Appeals and Academic Misconduct, the instructor has the authority to review the alleged misconduct and determine the grade that the student should receive for the assignment and the course. The instructor may assign a failing grade for the assignment or course and may require the student to complete additional work for the course. The instructor may consult with the department chair and/or the College's chief academic officer prior to making such decisions. If a student seeks to challenge an instructor's determination, the student should submit a grade appeal. Grade appeal forms are available in the Advising Office on the South Portland Campus or in the administrative offices in the Learning Commons on the Midcoast Campus. An instructor may also refer the matter to the College's disciplinary officer for review under the procedures of the MCCS Student Code of Conduct.