MCB 3020 – Basic Biology of Microorganisms

Spring 2026
Asynchronous online, 3.0 Credit Hours

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Office Hours: W from 11:00AM - 12:00PM and Booking through the link under Contact Instructor

TEACHING TEAM:
Teaching assistants:
Announced at the start of the semester

COURSE DESCRIPTION: Introduction to the principles and techniques of microbiology, genetics, taxonomy, biochemistry and ecology and microorganisms. Students will also become familiarized with virology, immunology, and the pathogenicity of microorganisms.

PREREQUISITES: BSC 2010 and BSC 2011 and CHM 2045 and CHM 2046, with minimum grades of C; non-microbiology majors only.

COURSE STRUCTURE:
Online asynchronous course: Each week there is a block of content available with specific due dates. Students may view and submit within the given time window; however, each module is structured to keep the group advancing together.

COURSE OBJECTIVES:
1. Gain a comprehensive understanding of the history and significance of microbiology, including an overview of various types of microorganisms and their roles in different environments.
2. Compare and contrast the structural and functional characteristics of bacteria, archaea, eukaryotic cells, and viruses, understanding their unique cellular components and life processes.
3. Develop knowledge of microbial nutritional requirements, growth dynamics, and methodologies for controlling microbial growth through sterilization, disinfection, and the use of antimicrobial agents.
4. Study the molecular mechanisms of genome replication, gene expression, and regulation in bacteria, eukaryotes, and archaea. Understand the principles and applications of recombinant DNA technology and microbial genomics.
5. Learn about the vast diversity of the microbial world, focusing on the taxonomy, classification, and ecological roles of microorganisms in various environments.
6. Explore the mechanisms of microbial pathogenicity and the host's immune response to infections, identifying specific pathogens and their associated diseases.
7. Apply the principles of microbiology in real-world scenarios, including industrial applications (such as antibiotic production and fermentation), environmental microbiology, bioremediation, and biotechnology.

COURSE MATERIALS:

Instructional materials for this course consist of only those materials specifically reviewed, selected, and assigned by the instructor(s). The instructor(s) is only responsible for these instructional materials.

Required textbook: Prescott's Microbiology by Willey, Sherwood and Woolverton, 12th Edition Connect Access by McGraw Hill Education through the All-Access program.

UF All Access program: Opt-In to gain access to your required course materials through the UF All Access Portal. UF All Access will give you your required materials digitally at a reduced price, and the charge will be posted to your student account. This option will be available 1 week prior to the start of the semester and end 3 weeks after the first day of class.

MGH Connect Guide: Connect Access provides a copy of the E-book which contains the required readings and Learn Smart Assignments for the entire course. All quizzes and exams will use the McGraw Hill Connect Access platform. Connect Access also provides tutorials, animations, and supplemental information that augment student learning. Majority of the content presented in this course will be sourced from the required textbook. You may opt to purchase the physical book for a bit extra. Trial access codes for the first few days of class are available through McGraw Hill.

REQUIRED TECHNOLOGY & DIGITAL INFORMATION LITERACY SKILLS

Technical skills:

- Using the learning management system
- Using email with attachments
- Creating and submitting files in commonly used word processing program formats
- Downloading and installing software
- Using apps in digital devices
- Using web conferencing tools and software

Digital information literacy skills:

- Using online libraries and databases to locate and gather appropriate information
- Using computer networks to locate and store files or data
- Using online search tools for specific academic purposes, including the ability to use search criteria, keywords, and filters
- Analyzing digital information for credibility, currency, and bias (e.g., disinformation, misinformation)
- Properly citing information sources

COMMUNICATION GUIDELINES

Use Course Question Discussion Board, for general course questions that others may have too.

- Use Canvas Inbox (messaging tool) for questions that are specific to your grades or submissions.
- Email & phone correspondence are for (1) setting a meeting time for office hours, (2) DRC accommodations; (3) emergency situations; or (4) highly sensitive situations.
- A respectful tone is used by all community members in all forms of communication.

- Written communication, both formal and informal, uses the official language of instruction rather than popular online abbreviations and graphic elements such as those sometimes used in social media.
- Video interactions reflect a respectful tone in verbal communications and body language.
- Spelling, punctuation, and grammar must be correct.

LMS: The class is on eLearning (Canvas). The class syllabus, lecture presentations, announcements, and other materials will be made available on Canvas. Questions about lecture material should be addressed during office hours or via Canvas messages. Details and clarifications about class policies will be posted online as announcements or emails regularly. Students should check their emails and announcements on Canvas regularly (once a day). Google Chrome, Firefox, and Safari are the recommended browsers for this course. Technical support is not available for other web browsers.

COURSE SCHEDULE:

Please refer to the syllabus page and Course Summary on Canvas for all specific deadlines.

Week	Module	Topic
1	1	Introduction to Microbiology
2	2a	Bacteria and Archaea Cell Structures
3	2b	Eukaryotic Cell Structures and Viruses
4	3	Microbial Nutrition, Growth, and Control
5-6	4a	Bacterial Genome Replication, Expression and Regulation
7-8	4b	Eukaryotic and Archaeal Genome Replication, Expression and Genetic Variation
9	4c	Recombinant DNA Technology and Microbial Genomics
10	5	Diversity of the Microbial World
10	6	Ecology and Symbiosis
11	7a	Pathogenicity and Host Response
12	7b	Pathogenicity and Host Response
13	8	Microbial Disease, Detection, and Control
14	9	Applied Microbiology
15		Reading Days

EXAMS: Four scheduled exams are given through Canvas using the McGraw Hill Connect platform. Academic integrity is maintained through the Honorlock Test Management System. Students must abide by the Honorlock proctoring rules and regulations. Cameras must be turned ON, and the student's face must be visible throughout the exam. The students are expected to

provide their own computer/laptop and secure a testing location that meets the Honorlock standards. Exams are given during the dates stated in the syllabus. Exams are open for two (2) days and start at 12:00 am EST on Day 1. Exams are due at 11:59pm EST on Day 2, thus, the student must start their exam at 9:00 PM at the latest. Exams usually run for approximately 2 hours unless set otherwise. Exam materials come from ***lectures presentations, lecture slides, and all materials presented in the course pages***. *In some cases, information presented in class may be in contradiction with information from other sources, especially internet-posted materials. In these cases, exam questions will be based only on the information available in the textbook, lecture notes, or materials presented during the lecture presentations, and exams will be graded accordingly.*

Exam Dates:

1. Exam 1 – February 11-12, 2026
2. Exam 2 – March 11-12, 2026
3. Exam 3 – April 15-16, 2026
4. Exam 4 – April 27-29, 2026 (cumulative exam)

GRADING/TESTS: The final class grade is based on weighted categories

SmartBook Assignments – 15% (15 assignments, 25 points each)
Quizzes – 15% (9 quizzes, 10 points each)
Virtual Lab – 5% (5 labs, 25 points each)
Discussion – 2% (5 discussions, 10 points each)
Exams 1-3 – 15% each (80 points each)
Exam 4 – 18% (100 points, this includes all the materials covered throughout the entire course)

Note the following information:

- Every single effort you make in this course will count towards your final grade. Every assignment, quiz, and exam will matter.
- No extra credit will be offered at the end of the semester.
- One quiz and one SmartBook assignment will be dropped (lowest score).
- I strongly advise that you be very aware of submission deadlines. Consult the Course Summary under the Syllabus tab for ALL deadlines.
- All quizzes and exams are available for review on the McGraw Hill Connect website 24 hours after the due date.

GRADING SCHEME:

A	100.0%	to 92.0%	**C**	< 77.0%	to 75.0%
A-	< 92.0%	to 90.0%	**C-**	< 75.0%	to 70.0%

B+	< 90.0%	to 87.0%	**D+**	< 70.0%	to 67.0%
B	< 87.0%	to 85.0%	**D**	< 67.0%	to 65.0%
B-	< 85.0%	to 80.0%	**D-**	< 65.0%	to 61.0%
C+	< 80.0%	to 77.0%	**F**	< 61.0%	to 0.0%

LATE SUBMISSION and MISSED DEADLINES: SmartBook assignments adhere to strict deadlines (no extensions). They must be completed before the due date. These adaptive assignments are designed for students to work on them gradually throughout the week. Quizzes automatically incur a 10% penalty for each day late for a week beyond the original deadline. Please take missed quizzes as soon as possible to reduce late penalties. Quiz attempts will no longer be accepted after a week beyond the original due date, and the quiz score will default to zero. Exams, virtual labs, and assignments will adhere to strict deadlines with no extensions. If you are granted a due date extension, late penalties will be dropped, but the missed assignment, virtual lab, quiz, or exam must be completed within one week of the original due date. Failure to do so will result in the quiz/assignment/virtual lab/exam score defaulting to zero. Requirements for class attendance and make-up exams, assignments, and other work in the course are consistent with university policies. *See UF Academic Regulations and Policies for more information regarding the University Attendance Policies.*

CANVAS AND McGraw Hill Connect GRADEBOOK

Manual syncing of both gradebooks will be performed every Friday of the week. Please allow 24 to 48 hours (approximately 2 days) for both gradebooks to sync. If you don't see your grade from McGraw Hill transfer to Canvas within 24 hours of the sync, please contact Dr. Bacusmo. If you do not see your grade on McGraw Hill at all, please contact their tech support.

UNFORSEEN LIFE EVENTS: For ALL matters that require special consideration, please contact UMatter, We Care in the Office of the Dean of Students and complete and Instructor Notification. They will verify your case and contact me with advice on how to deal with your specific situation. I would like to note that a letter or e-mail from them does not guarantee special consideration and deadline extension, it is merely a suggestion on how best to deal with your case. I will make the final decision based on their recommendation after reviewing your case.

HOW TO SUCCEED IN THIS CLASS:

Do the work and submit on time. Do not miss deadlines.

Do NOT wait for the last hour/minute to complete assignments and quizzes. Be aware that this is an online course and successful submissions also depend on internet stability and performance of the required websites (McGraw Hill Connect Access and Canvas). Technical difficulties, server overload, and connection issues often occur when assignments and quizzes are left at the last minute. You will be held responsible for this. Therefore, you should submit your work early to give yourself time to deal with any unforeseen technical difficulties.

Develop a regular study habit. We cover a lot of material in this class and cramming is not the best way to go. Do note that the final exam is cumulative. This means you need to retain information you have studied while preparing for Exams 1-3. Cramming and retention rarely go together.

TECHNICAL SUPPORT

UF Computing Help Desk & Ticket Number: All technical issues require a UF Helpdesk Ticket Number. The UF Helpdesk is available 24 hours a day, 7 days a week. https://helpdesk.ufl.edu/ | 352-392-4357

USE OF ARTIFICIAL INTELLIGENCE IN ACADEMIC WORK

As a class, we will be exploring the use of artificial intelligence (AI) as a tool to facilitate idea generation, organization, and research. AI-powered tools, such as language generators and citation managers, can be useful for creating outlines, definitions, and even assisting with literature reviews. However, I want to emphasize that AI should be used as a supplement to, not a replacement for, human critical thinking and analysis.

When using AI, it's essential to employ a critical eye and not rely solely on its output. While AI can provide suggestions and ideas, it is not infallible and can produce errors or incomplete information. To ensure the accuracy and integrity of your work, please:

- Verify the credibility and reliability of AI-generated sources
- Use AI as a starting point for your research and analysis, not a finish line
- Complement AI output with your own critical thinking and analysis
- Properly cite and acknowledge AI-generated content

To support your academic work, I encourage you to use AI tools for tasks such as creating outlines, organizing research papers, and formatting citations. However, avoid using AI to answer questions or complete assignments that require original thought or critical analysis. Instead, use AI to prepare for class discussions, brainstorm ideas, and refine your understanding of complex concepts.

By using AI thoughtfully and responsibly, you will enhance your productivity, creativity, and academic success. If you have any questions or concerns about the use of AI in this course, please don't hesitate to reach out to me.

- *Make sure you always cite and acknowledge AI-generated content properly.*

Prohibited Use Cases:

- Using AI to complete assignments or projects without human critical analysis.

- Relying solely on AI-generated content for research or analysis.
- Presenting AI-generated content as original work without proper citation.
- Assignment instructions will specify whether use of AI is allowed or not allowed.

By following these guidelines, you will ensure that AI is used as a constructive and responsible tool to support your academic success.

STUDENT PRIVACY DISCLAIMER:
Our class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

IN-CLASS RECORDING
Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or guest lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student

ACADEMIC POLICIES AND RESOURCES
Academic policies for this course are consistent with university policies. See https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/

CAMPUS HEALTH AND WELLNESS RESOURCES
Visit https://one.uf.edu/whole-gator/topics for resources that are designed to help you thrive physically, mentally, and emotionally at UF.

Please contact UMatterWeCare for additional and immediate support.

PRIVACY AND ACCESSIBILITY POLICIES
For information about the privacy policies of the tools used in this course, see the links below: Delete the items that don't apply to your course.

- Adobe
  - Adobe Privacy Policy
  - Adobe Accessibility
- Honorlock
  - Honorlock Privacy Policy
  - Honorlock Accessibility
- Instructure (Canvas)
  - Instructure Privacy Policy
  - Instructure Accessibility
- Microsoft
  - Microsoft Privacy Policy
  - Microsoft Accessibility
- Perusall
  - Perusal Accessibility
  - Perusal Privacy
- PlayPosit
  - PlayPosit Privacy Policy
  - PlayPosit Accessibility
- Respondus
  - Respondus Privacy Policy
  - Respondus Accessibility
- VoiceThread
  - VoiceThread Privacy Policy
  - VoiceThread Accessibility
- YouTube (Google)
  - YouTube (Google) Privacy Policy
  - YouTube (Google) Accessibility
- Zoom
  - Zoom Privacy Policy
  - Zoom Accessibility