Prokaryotic Cell Structure and Function / Bacterial Physiology

Course Information

Course Numbers: MCB4403 sections 0024, 3376

Credit Hours: MCB6407 sections 18BF, 24H6, 7143, BPEM

Credit Hours: 3 credits

Semester/Year: Fall 2025

Class Meeting Time(s): Asynchronous. Live attendance is not required. Office hours discussions will be held on Tuesdays 4:00-5:30 PM EST throughout the semester through an online platform (Zoom). Meetings with the instructor are also available by appointment for those who cannot make office hours.

Course Website: http://elearning.ufl.edu

Contact Information

Instructor: Dr. Julie Maupin-Furlow

Office: UF Microbiology and Cell Science Building (#981) Room 1153

Phone: 352-392-4095

Email: jmaupin@ufl.edu

Office Hours: Tuesdays 4:00 – 5:30 PM (on Zoom) or by appointment for those who cannot make the scheduled office hours

Course Communication

The preferred method for communication is by email (jmaupin@ufl.edu). Expect a response within 24 hours during regular business hours.

Please feel free to ask questions regarding the course policy and/or material through email and/or Zoom meetings. Please note that questions related to the exam material must be asked prior to the scheduled exam time. For emergencies, please email (jmaupin@ufl.edu) or call (352-392-4095).

Course Description

This course enables you to explore and analyze the structure and physiology of prokaryotic cells, including bacteria and archaea. It covers cell division, growth, stress responses, bioenergetics, and metabolism in depth, while also examining the assembly and function of crucial cell structures such as cell walls, membranes, and appendages.

Course Objectives

At the end of this course, you will be able to…

All sections (undergraduate + graduate):

1. Interpret the analytical methods used to examine the structure and function of prokaryotic cells. [Quizzes]

2. Critically evaluate research studies on the physiology and biochemistry of prokaryotes. [Quizzes]
3. Apply theories of prokaryotic cell structure and function to contemporary issues, such as controlling bacterial pathogens and engineering microorganisms for high-level production of biofuels and renewable chemicals. [Quizzes]

Graduate sections and MCB4403 honors sections:

4. Explain the major findings, methods, and limitations of past and present research. [Perusall or Honors Presentation]
5. Determine significant questions that still need to be addressed by the field. [Perusall or Honors Presentation]

How This Course Relates to the Student Learning Outcomes in the Microbiology and Cell Science Program

You will develop competency in the biological and physical sciences to better understand the principles that govern the natural world. You will acquire new perspectives, methods, and tools to explore both traditional and newly discovered aspects of prokaryotes, including the thermodynamic principles that dictate how these cells live and survive.

Instructional Methods

This course is structured in an online format that will include lectures and optional discussion sessions. Graduate sections will also read and analyze research articles and reviews.

Course Requirements

Course Materials

There is no required textbook. The following supplemental text may be helpful, but it is not required:

White, D., Drummond, J., & Fuqua, C. (2012). *The physiology and biochemistry of prokaryotes* (4th ed.). Oxford University Press. ISBN13: 9780195393040, ISBN10: 019539304X.

Available through UF Marston Science Library General Collection QR88.W48 2012

Materials/Supply Fee

There is no materials/supply fee.

Additional Resources

Useful Websites

- UF exchange
- UF e-learning
- UF Zoom
- UF Marston Science Library
- PubMed
- Interlibrary Loan
- Web of Science (be sure to be connected via VPN for Web of Science)
- Endnote Web

- UniProt
- Protein Data Bank
- UCSF Chimera (to visualize 3D-protein structures)

Research Articles/Reviews

Scientific research literature is available in pdf format FREE of charge through PubMed, journal websites, the UF library website, or the UF interlibrary loan program listed above. These services are for UF students/faculty so be sure to sign in using the UF VPN connection when using an off-campus computer that is not linked to the UF mainframe. Please note that if access to the article requires use of the UF interlibrary loan program, this service is not instantaneous and may some time – so plan accordingly. Details on obtaining a VPN connection and using these literature search engines can be found in the modules section of this course. If you require assistance in finding a research article and/or searching the research literature, please contact your course instructor at jmaupin@ufl.edu. If you require assistance with the VPN connection, please contact the UF helpdesk (352-392-HELP/4357).

Prerequisite Knowledge and Skills

CHM 2211 and (MCB 3020 or MCB 3023) and (MCB 3020L or MCB 3023L) with minimum grades of C. It is recommended that students have completed or be concurrently enrolled in BCH 4024 or a similar biochemistry course.

Minimum Technology Requirements Knowledge and Skills

The University of Florida expects students entering an online program to acquire computer hardware and software appropriate to their degree program. Most computers are capable of meeting the following general requirements. A student's computer configuration should include:

- Webcam
- Microphone
- Broadband connection to the internet and related equipment (cable/DSL modem)
- Microsoft Office Suite installed (provided by the university)

Individual colleges may have additional requirements or recommendations that students should review before starting their program.

Minimum Technical Skills

To complete your tasks in this course, you will need a basic understanding of operating a computer and using word processing software.

Minimum Digital Information Literacy Skills

To complete this course's assignments, you will be required to navigate the course's Canvas site.

Course Policies

Attendance Policy

This course is offered asynchronously, so you do not need to attend online lectures or discussions at specific times. However, you must master the material covered in the lectures and discussions before each quiz or assignment.

Quiz/Exam Dates/Policies

All quizzes are CLOSED note. You must independently complete the quiz without assistance from others through Honorlock Online Proctoring according to the quiz policy. Cameras must be used and on during the quizzes. Use of any external information, e-book or textbook is NOT ALLOWED. Cell phones, internet searches, tablets, laptops, smart watches, and any other electronic devices are NOT PERMITTED. Failing to follow these instructions could result in a violation.

Assignment Policy

All assignments are OPEN note, and the use of computers and other resources is encouraged. However, you must complete the assignments independently, without assistance from others or using their work. If you have any questions or need help, please contact the instructor via email (jmaupin@ufl.edu). Not working independently or solely relying on the instructor's assistance could result in a violation.

Make-Up Policy

Excused absences from quizzes and assignments are consistent with the UF policies in the catalog and require appropriate documentation. Requests for excused absences (*e.g.*, illness, serious family emergency, military obligations, religious holidays) must be communicated by formal signed documentation to the instructor prior to the missed quiz or assignment. Appropriate documentation MUST be provided for the absence caused by serious illness, accident, jury duty or death in the immediate family. You MUST contact the instructor IN ADVANCE of the missed quiz or assignment. An alternative time for the quiz and/or assignment will only be arranged by the instructor.

Use of Artificial Intelligence

1. Ethical Use of AI
   - 1.1. Students are expected to adhere to ethical guidelines when using AI tools and resources. This includes respecting privacy, security, and confidentiality of data, as well as ensuring fairness, transparency, and accountability in their AI applications.
   - 1.2. Students should consider the potential biases and implications of their AI models and make efforts to mitigate any discriminatory or harmful effects.
   - 1.3. Any use of AI for illegal or unethical purposes is strictly prohibited and may result in academic penalties.
2. Data Collection and Usage
   - 2.1. Students should obtain and use datasets in compliance with applicable legal and ethical standards. They should ensure that they have proper authorization, consent, or rights to use the data.
   - 2.2. Students should handle personal or sensitive data responsibly and take appropriate measures to protect the privacy and security of such data.
3. AI Tools and Libraries
   - 3.1. Students are encouraged to explore and utilize a variety of AI tools and libraries, such as TensorFlow, PyTorch, scikit-learn, and others, to enhance their understanding and practical skills.
   - 3.2. When using AI tools, students should ensure that they comply with the respective licenses and terms of use set by the tool developers.
   - 3.3. Students should properly attribute any code or resources used from external sources, including AI libraries, frameworks, or pre-trained models.

4. Academic Integrity
    - 4.1. Students should uphold academic integrity at all times. Plagiarism, cheating, or any form of dishonesty is strictly prohibited.
    - 4.2. If students use existing AI models, algorithms, or code in their projects, they should clearly acknowledge the source and provide appropriate citations.
5. Collaboration
    - 5.1. Collaboration among students is encouraged, as it fosters a collaborative learning environment. However, students should submit their own original work, and any collaborative effort should be appropriately acknowledged.
    - 5.2. In group projects, each team member is responsible for contributing to the project's development and should be able to demonstrate their individual understanding of the concepts covered in the course.
6. Responsible AI Deployment
    - 6.1. Students should consider the broader societal impact and implications of AI applications. They should be mindful of the potential consequences, biases, and risks associated with AI deployment.
    - 6.2. Throughout the course, students will engage in discussions on responsible AI practices, and they are expected to critically analyze and reflect on the ethical, legal, and social implications of AI.

Grading Policies

I will make every effort to have each assignment graded and posted within two weeks of the due date.

Methods By Which Students Will Be Evaluated and Their Grade Determined

All sections (undergraduate and graduate):

Assignment Type	Description
Quizzes 13 quizzes × 15 points each, lowest quiz score dropped	Thirteen equally weighted multiple-choice quizzes are scheduled throughout the semester (see course schedule for details). Each quiz is worth 15 points and has a 50 min time limit. The quizzes will be administered through the UF Canvas e-learning website. Honorlock will be used to proctor the quiz. The quizzes will focus on the material covered in the online class lectures. Material outside of the class lectures will not be used on the quiz. To perform well on the quiz, students are encouraged to read the textbook chapters noted in parenthesis, print out the lecture notes (in pdf format, online), watch the online-recorded lectures available in the modules section of the course, and study! The lowest quiz score of the semester will be dropped.
Extra Credit 15 points, optional	Students have the option to complete an extra credit assignment (please refer to the course schedule for the specific deadline). This assignment is aimed at enriching your comprehension of the lecture material while also offering an opportunity to acquire valuable skills related to prokaryotic cell structure and function. The primary objective of this extra credit

	task is to deepen and broaden the understanding and knowledge base of students. Please ensure that the completed extra credit assignment is uploaded to Canvas, the e-learning course website, no later than 11:59 PM on the specified deadline. It is important to adhere to the guidelines provided in Canvas regarding acceptable file types. Please note **that corrupted files will not be considered**. The deadlines for submission can be found in the "COURSE SCHEDULE" section. It is crucial that students avoid any form of plagiarism when completing this assignment.

Graduate (MCB6407) sections ONLY:

Assignment Type	Description
Perusall Assignments 13 × 3 points each; 32.5 points total	Students in MCB6407 sections are expected to critically evaluate scientific literature. Each week a scientific research article will be posted in Perusall. Students are required to explain the major findings, methods, and limitations of the research presented in the scientific publication. Students should compare the research study described in the article to previous research findings. Students should also determine significant questions that still need to be addressed by the field.

Assigning Grade Points

See the current UF grading policies for more information on assigning grade points.

MCB4403 sections:

Quiz/Assignment	Points or Percentage
Quiz 1	15 points or ~8.3%
Quiz 2	15 points or ~8.3%
Quiz 3	15 points or ~8.3%
Quiz 4	15 points or ~8.3%
Quiz 5	15 points or ~8.3%
Quiz 6	15 points or ~8.3%
Quiz 7	15 points or ~8.3%
Quiz 8	15 points or ~8.3%
Quiz 9	15 points or ~8.3%
Quiz 10	15 points or ~8.3%
Quiz 11	15 points or ~8.3%

Quiz 12	15 points or ~8.3%
Quiz 13	15 points or ~8.3%
	Drop lowest quiz
Extra Credit	Optional – extra 15 points, ~8.3%
TOTAL POINTS	**180 points or 100%**

MCB4403 honors section:

Quiz/Assignment	Points or Percentage
Quiz 1	15 points or ~6.7%
Quiz 2	15 points or ~6.7%
Quiz 3	15 points or ~6.7%
Quiz 4	15 points or ~6.7%
Quiz 5	15 points or ~6.7%
Quiz 6	15 points or ~6.7%
Quiz 7	15 points or ~6.7%
Quiz 8	15 points or ~6.7%
Quiz 9	15 points or ~6.7%
Quiz 10	15 points or ~6.7%
Quiz 11	15 points or ~6.7%
Quiz 12	15 points or ~6.7%
Quiz 13	15 points or ~6.7%
	Drop lowest quiz
Honors Activities (Honors Presentation)	45 points or ~20%
Extra Credit	Optional – extra 15 points (~6.7%)
TOTAL POINTS	**225 points or 100%**

All MCB6407 sections:

Quiz/Assignment	Points or Percentage
Quiz 1	15 points or ~6.8%
Quiz 2	15 points or ~6.8%
Quiz 3	15 points or ~6.8%
Quiz 4	15 points or ~6.8%
Quiz 5	15 points or ~6.8%
Quiz 6	15 points or ~6.8%
Quiz 7	15 points or ~6.8%
Quiz 8	15 points or ~6.8%
Quiz 9	15 points or ~6.8%
Quiz 10	15 points or ~6.8%
Quiz 11	15 points or ~6.8%
Quiz 12	15 points or ~6.8%
Quiz 13	15 points or ~6.8%
	Drop lowest quiz
Graduate Perusall Assignments	39 points or ~17.8%
Extra Credit	Optional – extra 15 points, ~8.3%
TOTAL POINTS	**219 points or 100%**

Grading Scale

Your final grade will be determined by the following scale:

Percentage	Letter Grade
100% – 94.5%	A
< 94.5% – 89.5%	A-
<89.5% – 86.5%	B+
<86.5% – 83.5%	B
<83.5% – 79.5%	B-
<79.5% – 76.5%	C+

<76.5% – 73.5%	C
<73.5% – 69.5%	C-
<69.5% – 66.5%	D+
<66.5% – 63.5%	D
<63.5% – 60.5%	D-
<60.5%	E

UF Policies

University Policy on Accommodating Students With Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

University Policy on Academic Conduct

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Plagiarism

The Student Honor Code and Student Conduct Code states that:

"A Student must not represent as the Student’s own work all or any portion of the work of another. Plagiarism includes but is not limited to:

- Stealing, misquoting, insufficiently paraphrasing, or patch-writing.
- Self-plagiarism, which is the reuse of the Student’s own submitted work or the simultaneous submission of the Student’s own work without the full and clear acknowledgment and permission of the Faculty to whom it is submitted.
- Submitting materials from any source without proper attribution.
- Submitting a document, assignment, or material that, in whole or in part, is identical or substantially identical to a document or assignment the Student did not author."

Student Complaints

Should you have any complaints with your experience in this course, please see the Student Complaint Process to submit a complaint.

UF 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 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 Honor Code and Student Conduct Code.

Getting Help

Technical Difficulties

For issues with technical difficulties for Canvas, please contact the UF Help Desk at:

- UF Help Desk
- (352) 392-HELP (4357)
- Walk-in: Hub 132

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from the Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Health and Wellness

- **U Matter, We Care:** If you or someone you know is in distress, please email umatter@ufl.edu, call 352-392-1575, or visit U Matter We Care to refer or report a concern, and a team member will reach out to the student in distress.
- **Counseling and Wellness Center:** Visit the UF Counseling & Wellness Center website or call 352-392-1575 for information on crisis services and non-crisis services.
- **Student Health Care Center:** Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the UF Student Health Care Center website.
- **University Police Department:** Visit the UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).

- **UF Health Shands Emergency Room/Trauma Center:** For immediate medical care in Gainesville, call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608. Visit the UF Health Shands Emergency Room/Trauma Center website.

Academic and Student Support

- **Career Connections Center:** For career assistance and counseling services, visit the UF Career Connections Center website or call 352-392-1601.
- **Library Support:** For various ways to receive assistance concerning using the libraries or finding resources, visit the UF George A. Smathers Libraries Ask-A-Librarian website.
- **Teaching Center:** For general study skills and tutoring, visit the UF Teaching Center website or call 352-392-2010.
- **Writing Studio:** For help with brainstorming, formatting, and writing papers, visit the University Writing Program Writing Studio website or call 352-846-1138.

Netiquette

It is important to recognize that the online classroom is, in fact, a classroom, and certain behaviors are expected when you communicate with both your peers and your instructors. These guidelines for online behavior and interaction are known as netiquette.

Security

Remember that your password is the only thing protecting you from pranks or more serious harm.

- Don't share your password with anyone.
- Change your password if you think someone else might know it.
- Always log out when you are finished using the system.

General Guidelines

Remember that your password is the only thing protecting you from pranks or more serious harm.

Email

When you send an email to your instructor, teaching assistant, or classmates:

- Use a descriptive subject line.
- Be brief.
- Avoid attachments unless you are sure your recipients can open them.
- Avoid HTML in favor of plain text.
- Sign your message with your name and return email address.
- Think before you send the email to more than one person. Does everyone really need to see your message?
- Be sure you REALLY want everyone to receive your response when you click “Reply All.”
- Be sure that the message author intended for the information to be passed along before you click the “Forward” button.

Discussion Boards

When posting on the discussion board in your online class:

- Check to see if anyone already asked your question and received a reply before posting to the discussion board.
- Remember your manners and say please and thank you when asking for something from your classmates or instructor.
- Be open-minded.
- If you ask a question and many people respond, summarize all posts for the benefit of the class.
- When posting:
  - Make posts that are on-topic and within the scope of the course material.
  - Be sure to read all messages in a thread before replying.
  - Be as brief as possible while still making a thorough comment.
  - Don't repeat someone else's post without adding something of your own to it.
  - Take your posts seriously. Review and edit your posts before sending them.
  - Avoid short, generic replies such as, "I agree." You should include why you agree or add to the previous point.
  - If you refer to something that was said in an earlier post, quote a few key lines so readers do not have to go back and figure out which post you are referring to.
  - Always give proper credit when referencing or quoting another source.
  - If you reply to a classmate's question, ensure your answer is correct; don't guess.
  - Always be respectful of others' opinions, even when they differ from your own.
  - When you disagree with someone, you should express your differing opinion in a respectful, non-critical way.
  - Do not make personal or insulting remarks.
  - Do not write anything sarcastic or angry; it always backfires.
  - Do not type in ALL CAPS; if you do, IT WILL LOOK LIKE YOU ARE YELLING.

Zoom

When attending a Zoom class or meeting:

- Do not share your Zoom classroom link or password with others.
- Even though you may be alone at home, your professor and classmates can see you! While attending class in your pajamas is tempting, remember that wearing clothing is not optional. Dress appropriately.
- Your professor and classmates can also see what is behind you, so be aware of your surroundings.
- Ensure the background is not distracting or something you would not want your classmates to see.
- When in doubt, use a virtual background. If you choose to use one, you should test the background out first to make sure your device can support it.
- Your background can express your personality, but be sure to avoid using backgrounds that may contain offensive images and language.
- Mute is your friend, especially when you are in a location that can be noisy. Don't leave your microphone open if you don't have to.
- If you want to speak, you can raise your hand (click the "raise hand" button at the center bottom of your screen) and wait to be called upon.

Privacy and Accessibility Policies

For information about the privacy policies of the tools used in this course, see the links below:

- Adobe
  - Adobe Privacy Policy
  - Adobe Accessibility
- Instructure (Canvas)
  - Instructure Privacy Policy
  - Instructure Accessibility
- Microsoft
  - Microsoft Privacy Policy
  - Microsoft Accessibility
- Perusall
  - Perusall Privacy Policy
  - Perusall Accessibility
- Enghouse Video (Mediasite Streaming Video Player)
  - Enghouse Video Privacy Policy
  - Enghouse Video Accessibility
- Honorlock
  - Honorlock Privacy Policy
  - Honorlock Accessibility
- Zoom
  - Zoom Privacy Policy
  - Zoom Accessibility

Course Schedule

Critical Dates

Quiz Deadlines

Quizzes are routinely due on Mondays, with **exception** of holidays.

Module	Quiz	Open
Module 1	Quiz 1	08/28-09/02 (R-T*) **(M holiday)**
Module 2	Quiz 2	09/04-09/08 (R-M)
Module 3	Quiz 3	09/11-09/15 (R-M)
Module 4	Quiz 4	09/18-09/22 (R-M)
Module 5	Quiz 5	09/25-09/29 (R-M)
Module 6	Quiz 6	10/02-10/06 (R-M)
Module 7	Quiz 7	10/09-10/13 (R-M)

Module 8	Quiz 8	10/16-10/20 (R-M)
Module 9	Quiz 9	10/23-10/27 (R-M)
Module 10	Quiz 10	10/30-11/03 (R-M)
Module 11	Quiz 11	11/06-11/10 (R-M)
Module 12	Quiz 12	11/13-11/17 (R-M)
Module 13	Quiz 13	11/20-12/03 (R-W)

Extra Credit Deadlines

Extra Credit (due F 11/14, available to all students) – plan ahead!!! **No exceptions to the deadline as the assignment is optional!!!**

Graduate Perusall Assignment Deadlines

Module	Assignment	Due Date
Module 1	Perusall Assignment 1	09/02
Module 2	Perusall Assignment 2	09/08
Module 3	Perusall Assignment 3	09/15
Module 4	Perusall Assignment 4	09/22
Module 5	Perusall Assignment 5	09/29
Module 6	Perusall Assignment 6	10/06
Module 7	Perusall Assignment 7	10/13
Module 8	Perusall Assignment 8	10/20
Module 9	Perusall Assignment 9	10/27
Module 10	Perusall Assignment 10	11/03
Module 11	Perusall Assignment 11	11/10
Module 12	Perusall Assignment 12	11/17
Module 13	Perusall Assignment 13	12/03

A Weekly Schedule of Topics and Assignments

Week	Topics and Assignments
Week 1	Introduction to course and meet the instructor Introduce yourself online and take non-graded syllabus quiz to unlock course Module 1: Prokaryotic Cell Evolution, Structure, and Function (start)
Week 2	Module 1: Prokaryotic Cell Evolution, Structure, and Function (continue) Quiz 1 – open 08/28 due 09/02 – all sections Perusall Assignment 1 due 09/02 – all graduate sections only
Week 3	Module 2: Cytoskeleton and Cell Division Quiz 2 – open 09/04 due 09/08 – all sections Perusall Assignment 2 due 09/08 – all graduate sections only
Week 4	Module 3: Membrane Bioenergetics and Electron Transport Quiz 3 – open 09/11 due 09/15 – all sections Perusall Assignment 3 due 09/15 – all graduate sections only
Week 5	Module 4: Photosynthesis Quiz 4 – open 09/18 due 09/22 – all sections Perusall Assignment 4 due 09/22 – all graduate sections only
Week 6	Module 5: Regulation Quiz 5 – open 09/25 due 09/29 – all sections Perusall Assignment 5 due 09/29 – all graduate sections only
Week 7	Module 6: Central Carbohydrate Metabolism Quiz 6 – open 10/02 due 10/06 – all sections Perusall Assignment 6 due 10/06 – all graduate sections only
Week 8	Module 7: Lipid, Nucleotide, Amino Acid and Hydrocarbon Metabolism Quiz 7 – open 10/09 due 10/13 – all sections Perusall Assignment 7 due 10/13 – all graduate sections only
Week 9	Module 8: Cell Wall and Capsule Biosynthesis Quiz 8 – open 10/16 due 10/20 – all sections Perusall Assignment 8 due 10/20 – all graduate sections only
Week 10	Module 9: Inorganic Metabolism

	Quiz 9 – open 10/23 due 10/27 – all sections Perusall Assignment 9 due 10/27 – all graduate sections only
Week 11	Module 10: Carbon 1 Metabolism Quiz 10 – open 10/30 due 11/03 – all sections Perusall Assignment 10 due 11/03 – all graduate sections only
Week 12	Module 11: Fermentation Quiz 11 – open 11/06 due 11/10 – all sections Perusall Assignment 11 due 11/10 – all graduate sections only
Week 13	Module 12: Cell Signaling Quiz 12 – open 11/13 due 11/17 – all sections Perusall Assignment 12 due 11/17 – all graduate sections only Optional Extra Credit – due 11/14 – no exceptions – plan ahead!!!
Week 14	Module 13: Solute and Protein Transport Quiz 13 – open 11/20 due 12/03 – all sections Perusall Assignment 13 due 12/03 – all graduate sections only Honors Presentation due 12/03 – MCB4403 honors sections only

Disclaimer: This syllabus represents current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity.