

MCB 6670C

The Microbiome

Spring 2026

Course Format Online Asynchronous, 3 Credits

Instructors

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Zoom or in-person office hours, by request via e-mail or phone. Office hours are difficult to schedule since our students have such varied schedules. We will always be available to answer questions by email or set up an individual phone or Zoom conversation. Just contact us to arrange it.

Teaching Assistant

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Zoom or in-person office hours, by request via e-mail or phone.

Course Description

This course is designed to bolster scientific literacy while exploring your own interests in the microbiome. Students will apply concepts from course lectures, exploring how theoretical knowledge is applied in practical scenarios. At the end of the course, students will develop a foundational understanding of how to interpret findings in the scientific literature and acquire a versatile set of skills that can be applied across various fields, including microbiome data analysis, which is increasingly important in science, academia, and industry.

Course Learning Objectives

At the end of this course, each student will be able to:

1. Understand what the microbiome is and the principles that drive microbial life in different niches.
2. Be introduced to how microbial omics data is used to understand the human microbiome and its role in human health.
3. Be introduced to the modern technologies used in microbiome research. By understanding the technologies, the students can learn which biological questions can be asked and answered, given today's tools.

4. Learn how to analyze and interpret microbiome data.

Course Overview and Purpose

The course is structured into 12 lessons or modules, one per week of the semester. Each week will cover a different topic. The topics build upon each other, so to understand a topic in week 6, for example, it is necessary that you understand the material from week 1. The first 4 weeks of the course lay the foundation for the remaining weeks.

Each week begins on Tuesday, which is the day by which a new week's worth of material will be posted. Every effort on our part will be made to post material prior to Tuesdays, but that may not always happen.

For each week's lesson, there may be several items to complete. Keep the learning objectives in mind as you learn the week's material. After reading the learning objectives, please go through the week's material in the order presented. After you have gone through the material in the presented order, you are always free to return and revisit any of the content.

Students are expected to check Canvas regularly and are encouraged to log in to Canvas every Tuesday evening (EST) so they can stay ahead with the weekly material and, at a minimum, understand what is required of them that week. As there are no exams, students can expect scaffolding assignments. Although deadlines will be posted using the Canvas calendar tool, it is each student's responsibility to keep track of assignments on a personal calendar, so they fulfill the course requirements.

Course Prerequisites

This course has introductory microbiology (MCB 3020, MCB 3023, or equivalent) as a prerequisite with a minimum grade of C. It will be taught at the senior level, with its primary objective being to increase knowledge and appreciation of the microbiome.

Textbooks, Learning Materials, and Supply Fees

There is no required text for the course. Online readings will be provided for each learning topic.

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

Weekly Course Schedule

Week	Dates	Topic	Assessment	Due Dates
1	Jan/13	Course Orientation History Microbiome Research		
2	Jan/20	The great plate anomaly and scientific literacy Next generation sequencing (different platforms and uses)	Quiz 1 (content from weeks 1 and 2)	Jan/27
3	Jan/27	Amplicon survey ASV vs OTUs Quality control		
4	Feb/3	16S databases Barcodes	Quiz 2 (weeks 3 and 4)	Feb/10

Week	Dates	Topic	Assessment	Due Dates
		Metadata Contingency table		
5	Feb/10	Practical analysis of 16S: from sequences to biological information.	Quiz 3 (weeks 5 and 6)	Feb/24
6	Feb/17	Practical analysis of 16S: from sequences to biological information.	Assignment 1 Sequence processing	Mar/3
7	Feb/24	Metagenome and metatranscriptome Approaches to detection of genes (databases and software)	Quiz 4 (week 7)	Mar/3
8	Mar/3	Alpha diversity - principles and analysis	Assignment 2 Comparing treatments	Mar/31
9	Mar/10	Beta diversity - principles and analysis	Quiz 5 (weeks 8 and 9)	Mar/24
10	Mar/24	Differential abundance - principles and analysis		
11	Mar/31	Introduction to metaproteomics. Introduction to mass spec platforms and how they are used in the context of metaproteomics.	Quiz 6 (weeks 10 and 11)	Apr/7
12	Apr/7	Metaproteome data analysis.	Assignment 3 DIANN data analysis	Apr/14

Grading Policy

Course grading is consistent with [UF grading policies](#).

Course Grading Structure

Assignments (5 total; drop the one with the lowest score)

The lowest score of the five project assignments will be dropped. You will be notified in Canvas when each assignment is open.

Quizzes (5 Quizzes; drop the one with the lowest score)

The lowest score of the four quizzes will be dropped.

Assignment Type	Point Value	Percent of Final Grade
Assignments	100	80%
Quizzes (the 5 highest scores)	100	20%

Grading Scale

Grade	Points	Percentage
A	90-100	90-100
A-	87-89.9	87-89.9
B+	84-86.9	84-86.9

Grade	Points	Percentage
B	80-83.9	80-83.9
B-	77-79.9	77-79.9
C+	74-76.9	74-76.9
C	70-73.9	70-73.9
C-	67-69.9	67-69.9
D+	64-66.9	64-66.9
D	60-63.9	60-63.9
D-	57-59.9	57-59.9
S	<=56.9	<=56.9

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.

Software Use

All faculty, staff, and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Privacy and Accessibility Policies

- Instructure (Canvas)
 - [Instructure Privacy Policy](#)
 - [Instructure Accessibility](#)
- Zoom
 - [Zoom Privacy Policy](#)
 - [Zoom Accessibility](#)