FOS5225C PRINCIPLES IN FOOD MICROBIOLOGY

Spring, 2026

Course Format: In-person

MWF, 11:45 am-12:35 pm
Location: FLG0230

Instructor

Dr. Naim Montazeri

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Office Hours: **Tuesdays 1-2 pm**. Highly recommended to make an appointment in advance, as my availability may vary.

Teaching Assistant

Kelvin F. Ofori, FSHN, Ph.D. student.

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Office hours: Office hours by appointment only.

Course Description

This course covers basic and applied aspects of food microbiology with particular focus on microbial pathogens transmitted to humans through food and water; persistence in the environment and through the food supply chain; mitigation strategies; preservation and control strategies; fermentation; spoilage; pathogenesis; microbial detection; and risk-assessment. **Refer to FOS 4222L syllabus for further details regarding the laboratory session.**

Course Learning Objectives

1. Demonstrate microbial growth and survival in water and food under various environmental conditions.

2. Delineate the basis for food preservation and fermentation techniques.

3. Differentiate the pathogenesis of various foodborne and waterborne pathogens.

4. Critically elucidate methods for detection, enumeration, and control of pathogens.

5. Discuss the basic tenets behind risk assessment and policies applicable to food safety.

Course Prerequisites

MCB2000, MCB3023, or permission of instructor.

Textbooks, Learning Materials, and Supply Fees

Adams, Martin R. Moss, Maurice O. McClure, Peter J. (2016). *Food Microbiology (4th Edition).* Royal Society of Chemistry. https://app.knovel.com/hotlink/toc/id:kpFME00042/food-microbiology-4th/food-microbiology-4th. Full text is freely available to the UF students through Knovel.com (use your UF email address to sign up).

Technical skills

To complete your tasks in this course, you will need a basic understanding of how to operate a computer, and how to use basic software. The University of Florida expects students entering an online program to acquire computer hardware and software appropriate to his or her degree program. Most computers are capable of meeting the following general requirements. A student's computer configuration should include:

- Webcam; Microphone; Speakers or headphones; Broadband connection to the Internet and related equipment (Cable/DSL modem) for office hours.

- Your instructor might request that you obtain the iClicker Cloud (free for students) to respond to polls and in-class quizzes.

- Microsoft Office Suite installed (provided by the university)

Individual colleges may have additional requirements or recommendations, which students should review prior to the start of their program.

Communication Guidelines

- Course materials and announcements will be on Canvas. Check regularly and enable notifications (click here for a step-by-step guide).
- For communicating with the instructor, please use Canvas messages only. For instructions, click here.

Class Demeanor/Expectations

- Refrain from attending the class if you have a contagious illness or flu-related symptoms. In case of an illness, a doctor's note is to be provided if missing a class activity.
- Attendance and in-class participation together account for 10% of the final course grade. To be eligible for any attendance/participation credits. This allows for up to 10 absences without penalty. Attendance beyond the minimum threshold contributes proportionally to the attendance/participation score. Credit is based on both presence and active participation during class.
- Please refrain from checking or sending e-mails, texts, etc during class or lab sessions.
- Students are expected to participate in class discussions.
- Students anticipating an absence must notify the instructor at least 8 hours in advance and provide valid documentation (e.g., a medical note, military service notice, or university event notice) prior to the absence. In cases of emergencies, documentation must be submitted within 48 hours after the missed session.

- *Makeup exams* will only be given with the permission of the instructor if adequate notice and documentation (such as a doctor's note) are provided in advance (at least 8 hours prior to the exam). Requirements for make-up exams, assignments, and other work in this course are consistent with university policies that can be found at catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/
- Assignments must be submitted through Canvas as a text entry or Word/PDF file (no email submissions will be accepted)
- *Late assignment/report submittal*: A 10% pt penalty per day will be assigned for late assignments or reports turned in within two days after the due date. No submission will be accepted after two days past the due date.
- As a portion of class materials will be delivered online, you are responsible for observing all posted due dates and are encouraged to be self-directed and take responsibility for your learning.
- Our class sessions may be audio/visually recorded for educational purposes. **As in all courses, unauthorized sharing of class materials is prohibited.**
- Be on time.

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

Session	Date	Lecture Topics	Notes	Activity
Module 1: Introduction, Microbial Growth, and Enumeration Techniques				
1	Jan 12	Introduction		
2	Jan 14	Microbial growth kinetics		
3	Jan 16	Culture-based bacterial enumeration – Part 1		
-	Jan 19	***Martin Luther King Jr. Day - No Class***		
4	Jan 21	Culture-based bacterial enumeration – Part 2		
Module 2: Food Spoilage				
5	Jan 23	Introduction to food spoilage		
6	Jan 26	Spoilage of muscle foods		
7	Jan 28	Spoilage of fruits and vegetables		
Module 3: Food Preservation				
8	Jan 30	Spoilage in dairy		
9	Feb 2	*Special topic/case study*		Graded in-class activity
Exam 1				
10	Feb 4	Review for Exam 1		
11	Feb 6	**Exam 1**		
Module 4: Food Preservation				
12	Feb 9	Chemical and biological preservation		
13	Feb 11	Physical preservation		

Module 5: Food Fermentation				
14	Feb 13	Yeasts and fermentation		
15	Feb 16	Lactic acid bacteria		
16	Feb 18	Microbiology of fermented beverages		
Module 6: Gram-Positives – Part 1				
17	Feb 20	Bacterial pathogenesis		
18	Feb 23	*Bacillus* spp.		
Exam 2				
19	Feb 25	Review for Exam 2		
20	Feb 27	**Exam 2**		
Module 6: Gram-Positives – Part 2				
21	Mar 02	*Clostridium* spp.		
22	Mar 04	*Listeria monocytogenes*		
23	Mar 06	*Staphylococcus aureus*		
Module 7: Gram-Negatives				
24	Mar 09	*Escherichia* and *Shigella* spp.		
25	Mar 11	*Vibrio* spp.		
26	Mar 13	*Cronobacter and Campylobacter*		
Spring break - No Class (Mar 14-21)				
27	Mar 23	*Salmonella*		
Exam 3				
28	Mar 25	Review for Exam 3		
29	Mar 27	**Exam 3**		
Module 8: Foodborne Viruses				
30	Mar 30	Principles of virology		
31	Apr 1	Enteric viruses		
32	Apr 3	Bacteriophages		
Module 9: Sampling and Microbial Detection				
33	Apr 6	Food and environmental sampling		Assignment due
34	Apr 8	Microbial isolation and concentration		
35	Apr 10	Molecular detection methods		
Module 10: Predictive Microbiology and QMRA				
36	Apr 13	Predictive Microbiology		
37	Apr 15	Quantitative Microbial Risk Assessment (QMRA) – Part 1		
38	Apr 17	Quantitative Microbial Risk Assessment (QMRA) – Part 2		
Exam 4				
39	Apr 20	Review for Exam 4		
40	Apr 29	**Exam 4 (10-11:00 am)**		

Exam and Grading Policies

There will be four non-cumulative exams. The materials provided by guest lecturers are included in the exams. Calculators may be allowed on exams (please follow the instruction). No scratch paper is allowed.

Course Grading Structure

Assignment Type	Percent of Final Grade
Attendance	10
In-class activity	25
Assignment	25
Exams	40

Final grade for FOS5225C is based on combined grades from the FOS4222 lecture (70%) and FOS4222L lab (30%). Please refer to FOS4222L syllabus for further details.

Grading Scale

Course grading is consistent with UF grading policies. There will be no curving or readjustment based on class performance.

Grade	Points
A	94 to 100
A-	90 to <94
B+	87 to <90
B	84 to <87
B-	80 to <84
C+	77 to <80
C	74 to <77
C-	70 to <74
D+	67 to <70
D	64 to <67
D-	61 to <64
F	0 to <61

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

COURSE EVALUATIONS

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.