FOS5225C

PRINCIPLES IN FOOD MICROBIOLOGY SYLLABUS

Spring 2024

SCHEDULE AND CLASS LOCATION/FORMAT

When: MWF, 5th Period 11:45 am-12:35 pm
Lecture: Williamson (WM) Hall 0100 (click here for the map)
Laboratory: FSHN 310

INSTRUCTOR

Dr. Naim Montazeri
Room 341A, FSHN Bldg, 572 Newell Dr.
Phone: (352) 294-3756
Email: nmontazeri@ufl.edu
Website: https://fshn.ifas.ufl.edu/about/faculty-bio-pages/montazeri/
Office Hours: Fridays 1-3 pm. Please make an appointment beforehand, as my availability may vary. Scheduling link with more availability options will be provided in Canvas.

TEACHING ASSISTANTS

Lecture:
Samantha Dicker (MSc student): Email: sdicker@ufl.edu

Laboratory:
Sherry Bensal (Ph.D. student): Email: sherry.bansal@ufl.edu
Razieh Mirmahdi (Ph.D. student): Email: rmirmahdi@ufl.edu

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 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.

RELEVANT COURSES

- FOS6226C Advanced Food Microbiology
- FOS4223/6224 Food and Environmental Virology
- FOS6936 Food Safety Systems
- ANS6637 Quantitative Microbial Risk Assessment of Pathogens in Food Systems
- MCB5505 Virology

TEXTBOOK

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).

COURSE ANNOUNCEMENTS

Course materials and announcements will be on Canvas. Check regularly and enable notification (click here for a step-by-step guide). Contact instructors and TAs via Canvas for prompt responses.

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/.

TESTS AND GRADING

There will be four mid-term and one final exams. The guest lectures are included in the exams. Basic calculators are allowed on exams (no smart electronic device).

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.

FOS4222 Final grade (see below) You cannot drop a test. See below regarding makeup exams.

Activity	Grade percentage
Quizzes*	30%

Mid-terms	40%
Final Exam	30%

**Does not include pop quizzes.*

Grading Scale: **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), **E** (0 to <61). There will be no curving or readjustment based on class performance.

PUBLIC HEALTH PROTECTIONS

- Do not come to the class if you have a contagious illness or flu-related symptoms. In case of an illness, a doctor's note to be provided if missing a class activity.

MINIMUM TECHNICAL SKILLS/REQUIREMENTS

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. This will be communicated in advance.
- 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.

COURSE POLICIES

- *Attendance* is required. Please refrain from checking or sending e-mails, texts, etc during class or lab sessions. Students are expected to participate in class discussions.
- *Makeup exams* will only be given with the permission of the instructor if adequate notice and documentation (such as doctor's note) is provided in advance (at least 12 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.

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, https://disability.ufl.edu/) by providing appropriate documentation. Once registered, students will receive an accommodation letter that 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 (https://policy.ufl.edu/regulation/4-040/) specifies a number of behaviors that are in violation of this code and the possible sanctions.

Among the changes are inclusion of language on the use of generative **Artificial Intelligence and other related tools**. 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.

Netiquette and Communication Courtesy

All members of the class are expected to follow rules of common courtesy during, before, and after class, in all email messages, threaded discussions, and chats.

TECHNICAL HELP

Technical Difficulties

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

- http://helpdesk.ufl.edu
- (352) 392-HELP (4357)
- Walk-in: HUB 132

Any requests for make-ups due to technical issues should 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 should e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

CAMPUS HELPING RESOURCES

New! Whole Gator is an important app to all sorts of campus sources. It is also accessible under Campus Resources Tab in Canvas. https://studentlife.ufl.edu/wholegator/.

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/
- Counseling Services, Groups and Workshops, Outreach and Consultation, Self-Help Library, Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu/
- *Career Connections Center,* https://career.ufl.edu
- Complaints: https://hr.ufl.edu/manager-resources/employee-relations/
- Library Support**:** cms.uflib.ufl.edu/ask
- Teaching Center: teachingcenter.ufl.edu/
- Writing Studio: writing.ufl.edu/writing-studio/

FOS 5225C
PRINCIPLES IN FOOD MICROBIOLOGY
LECTURE SYLLABUS
SPRING 2024
(SUBJECT TO CHANGE)

Session	Date	LECTURE TOPICS	Guest lecturer	Activity
Module 1: Intro, Growth, and Enumeration Techniques				
1	Jan 8	Introduction		
2	Jan 10	Microbial growth kinetics		
3	Jan 12	Culture-based bacterial enumeration - 1		
-	Jan 15	***Martin Luther King Jr. Day - No Class***		
4	Jan 17	Culture-based bacterial enumeration - 2		
Module 2: Food Spoilage				
5	Jan 19	Food spoilage - introduction		
6	Jan 22	Spoilage of muscle foods and dairy		
7	Jan 24	Spoilage of fruits and vegetables		
Module 3: Food Preservation				
8	Jan 26	Chemical and biological preservation		
9	Jan 29	Physical preservation		

Module 4: Review and Exam 1				
10	Jan 31	Review for Exam 1		
11	Feb 2	**Exam 1**		
Module 5: Food Fermentation				
12	Feb 5	Yeasts and fermentation		
13	Feb 7	Lactic acid bacteria		
14	Feb 9	Microbiology of fermented beverages		Take home quiz 1
Module 6: Gram-Positives Spore Formers				
15	Feb 12	Bacterial pathogenesis		
16	Feb 14	Sporulation		
17	Feb 16	*Bacillus* spp.		
18	Feb 19	*Clostridium* spp.		
Module 7: Review and Exam 2				
19	Feb 21	Review for Exam 2		
20	Feb 23	**Exam 2**		
Module 8: Gram-Positives Non-spore Formers				
21	Feb 26	*Listeria monocytogenes*		
22	Mar 28	*Staphylococcus aureus*		
Module 9: Gram-Negatives, Part 1				
23	Mar 1	*Escherichia* and *Shigella* spp.		
24	Mar 4	*Vibrio* spp.		
25	Mar 6	*Campylobacter* spp.		
26	Mar 8	Cronobacter and Yersinia		Take home quiz 2
		Spring break - no class (Mar 9-16)		
27	Mar 18	*Salmonella enterica*		
Module 11: Review and Exam 3				
28	Mar 20	Review for Exam 3		
29	Mar 22	**Exam 3**		
Module 12: Foodborne viruses				
30	Mar 25	Virology - principles		
31	Mar 27	Enteric viruses		
32	Mar 29	Bacteriophages		
Module 13: Sampling and Microbial Detection				
33	Apr 1	Food and environmental sampling		
34	Apr 3	Microbial isolation and concentration		
35	Apr 5	Molecular detection methods		Take home quiz 3
36	Apr 8	Utilization of microbial indicators/surrogates		
Module 14: Review and Exam 4				
37	Apr 10	Review for Exam 4		
38	Apr 12	**Exam 4**		
Module 15: Predictive Microbiology and Microbial Risk Analysis				
39	Apr 15	Predictive Microbiology		
40	Apr 17	Principles of Quantitative Microbial Risk Assessment (QMRA)		

41	Apr 19	Case study		
42	Apr 22	Food Safety Risk Management		
Module 16: Reviews and Final Exam				
43	Apr 24	Review for Final Exam		
44	May 03	**Final exam** (modules 13 and 15) (7:30-9:30 am)		