

FOS5225C PRINCIPLES IN FOOD MICROBIOLOGY SYLLABUS

LECTURE

Spring 2021

SCHEDULE AND CLASS LOCATION/FORMAT

MWF, 5th Period 11:45 am-12:35 pm, Bldg. CSE, Room E119 and Online (Zoom)

INSTRUCTOR

Dr. Naim Montazeri

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Website: <https://fshn.ifas.ufl.edu/about/staff/naim-montazeri/>

Office Hours: Tuesday/Thursday 10:00 am-11:00 pm (by appointment only)

TEACHING ASSISTANT

Mari Schroeder (Ph.D. student) mari.schroeder@ufl.edu

Office Hours: TBD (by appointment only)

COURSE DESCRIPTION

This course covers the fundamental aspects of food microbiology with particular focus on bacterial and viral pathogens; pre-harvest and post-harvest contamination; control strategies; processing; storage; fermentation; spoilage; pathogenesis; microbial detection; and risk-assessment strategies.

COURSE OBJECTIVES

1. Perform accurate measurement of growth, survival, and death of microbes in food and water.
2. Delineate the metabolic basis for food preservation and fermentation.
3. Identify the symptoms, epidemiology, and pathogenesis of foodborne infections.
4. Critically evaluate methods for detection, enumeration, and control of foodborne pathogens.
5. Describe the basic tenets behind risk assessment and policies applicable to the 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 (REQUIRED)

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 available free of charge to the UF students through Knovel.com (use your UF email address to sign up).

COURSE ANNOUNCEMENTS

All the course materials will be posted on Canvas prior to the class. All announcements will be made through Canvas (make sure to turn on the notifications in Canvas, available under your profile). It is the student's responsibility to check the announcement. Students can reach out to the instructor and TAs via email or through Canvas Inbox.

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

Exams: There will be three mid-term exams and one final. You cannot drop a test. Final grade for FOS5225C is based on combined grades from the FOS4222 lecture (70%) and FOS4222L lab (30%).

Quizzes: Quizzes will be used to gauge progress throughout the semester and will be graded. In-class (online) pop quizzes through IClicker or Zoom will have bonus points toward your next exam.

FOS4222 Final grade (see below) You cannot drop a test.

Activity	Grade percentage
Assignments	25%
Quizzes	5%
Mid-term exams	40%
Final Exam	30%

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.

COVID-RELATED PRACTICES

- In-person attendance requires COVID "clearance" status. Any violation will result in dismissal from the class and report to the Dean.

- No student will be allowed in the classroom unless they are signed up for the in-person section and have been cleared for attendance.

In response to COVID-19, the following policies and requirements are in place to maintain your learning environment and to enhance the safety of our in-classroom interactions.

- You are required to wear approved face coverings at all times during class and within buildings. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to a report to the Office of Student Conduct and Conflict Resolution.
- This course has been assigned a physical classroom with enough capacity to maintain physical distancing (6 feet between individuals) requirements. Please utilize designated seats and maintain appropriate spacing between students. Please do not move desks or stations.
- Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
- Follow your instructor's guidance on how to enter and exit the classroom. Practice physical distancing to the extent possible when entering and exiting the classroom.
- If you are experiencing COVID-19 symptoms (guidance from the CDC on symptoms of coronavirus.), please use the UF Health screening system and follow the instructions on whether you are able to attend class. Find more information in the UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms..
- Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work. Find more information in the university attendance policies.

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 unmute 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.

MINIMUM TECHNICAL SKILLS/REQUIREMENTS

To complete your tasks in this course, you will need a basic understanding of how to operate a computer, how to use Zoom, how to use iClicker, and how to use word processing 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)
- 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.

HONORLOCK

Honorlock is an online proctoring service that allows students to take exams on-demand 24/7. There are no scheduling requirements or fees. You will need a laptop or desktop computer with a webcam, a microphone, and a photo ID. The webcam and microphone can be either integrated or external USB devices. Honorlock requires that you use the [Google Chrome](#) browser; furthermore, the Honorlock extension must be added to Chrome. For further information, FAQs, and technical support, please visit [Honorlock](#).

ZOOM

Zoom is an easy-to-use video conferencing service available to all UF students, faculty, and staff that allows for meetings of up to 100 participants. You can find resources and help using Zoom at <https://ufl.zoom.us/>.

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. 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.
- 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/
- 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.
- Be on time. If you join the class session remotely, try and join the session at least 5 minutes before the class starts. Before your very first class session, try joining about 10-15 minutes to make sure that everything works.

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 (<http://www.dso.ufl.edu/sccr/process/student-conduct-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.

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.

GETTING 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

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 Resource Center, First Floor JWRU, 352-392-1601, www.crc.ufl.edu/
- Complaints: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf
- Online Course: <http://www.distance.ufl.edu/student-complaint-process>
- Library Support: Various ways to receive assistance with respect to using the libraries or finding resources. cms.uflib.ufl.edu/ask
- Teaching Center: 352-392-2010 General study skills and tutoring: teachingcenter.ufl.edu/

Last update: Jan 25, 2021

- Writing Studio: 352-846-1138. Help brainstorming, formatting, and writing papers: writing.ufl.edu/writing-studio/

FOS4222 FOOD MICROBIOLOGY SCHEDULE (SUBJECT TO CHANGE)**SPRING 2021**

Session	Date	LECTURE TOPICS	Guest lecturer	Activity
<i>Module 1: Intro, Growth, and Indicators</i>				
1	Jan 11	Introduction		
2	Jan 13	Microbial growth		
3	Jan 15	Indicators		
<i>Module 2: Food Spoilage</i>				
-	Jan 18	Martin Luther King Jr. Day (UF Closed)		
4	Jan 20	Food spoilage		On-line quiz 1
5	Jan 22	Microbial spoilage and safety: meat/seafood		
6	Jan 25	Microbial spoilage and safety: milk		
7	Jan 27	Microbial spoilage and safety: fresh produce		
<i>Module 3: Food Preservation</i>				
8	Jan 29	Preservation: Physical		On-line quiz 2
9	Feb 1	Preservation: Chemical		
<i>Module 4: Food Fermentation</i>				
10	Feb 3	Fermentation	Dr. Witrick	
11	Feb 5	Beer and wine	Dr. Witrick	
<i>Module 5: Review and Exam 1</i>				
12	Feb 8	Review for Exam 1		
13	Feb 10	Exam 1		
<i>Module 6: Gram-Positives Spore formers</i>				
14	Feb 12	Bacterial pathogenesis		
15	Feb 15	Sporulation		Assignment 1 due
16	Feb 17	<i>Bacillus</i> spp.		
17	Feb 19	<i>Clostridium</i> spp.		
<i>Module 7: Gram-Positives Non-spore formers</i>				
18	Feb 22	<i>Listeria monocytogenes</i>		On-line quiz 3
19	Feb 24	<i>Staphylococcus aureus</i>		
<i>Module 8: Review and Exam 2</i>				
20	Feb 26	Review for Exam 2		
21	Mar 01	Exam 2		
<i>Module 9: Gram-Negatives, part 1</i>				
22	Mar 03	<i>Escherichia</i> and <i>Shigella</i> spp.		
23	Mar 05	<i>Vibrio</i> spp.		
<i>Module 10: Gram-Negatives, part 2</i>				
24	Mar 08	<i>Campylobacter</i> spp.		
25	Mar 10	<i>Cronobacter</i> / <i>Yersinia</i>		
26	Mar 12	<i>Salmonella enterica</i>		On-line quiz 4
<i>Module 11: Viruses</i>				

27	Mar 15	Virology - principles		
28	Mar 17	Enteric viruses - hepatitis viruses		
29	Mar 19	Enteric viruses - human norovirus		
30	Mar 22	Bacteriophages		
31	Mar 24	TBD		
32	Mar 26	Virus inactivation strategies		
<i>Module 12: Review and Exam 3</i>				
33	Mar 29	Review for Exam 3		
34	Mar 31	Exam 3		
<i>Module 13: Microbial Isolation and Detection</i>				
35	Apr 02	Isolation		
36	Apr 05	Detection		Assignment 2 due
37	Apr 07	Molecular typing and genomics	Dr. Shuipys	
<i>Module 14: Emerging issues and risk-assessment</i>				
38	Apr 09	Antibiotic resistance		
39	Apr 12	TBD		On-line quiz 5
40	Apr 14	Risk assessment	Dr. Danyluk	
41	Apr 16	Implementing food safety regulations	Dr. Schneider	
<i>Module 15: Reviews, Final Exam</i>				
42	Apr 19	Review for Final Exam		
43	Apr 21	TBD		
44	Apr 30	Final exam – (selected modules)		

FOS4222L FOOD MICROBIOLOGY (LAB)
SCHEDULE
SPRING SEMESTER, 2021

Date	Lab Assignment	Assignments
Jan 11	No lab	
Jan 13	No lab	
Jan 18	Martin Luther King Jr. Day (UF Closed)	
Jan 20	Introduction (online)	Online lab safety training/Quiz
Jan 25	1) Media preparation	Lab 1-2 quiz
Jan 27	2) Handling bacterial cultures	
Feb 01	3) Plate count - 1	Lab 3 quiz/Lab 1-2 reports due
Feb 03	3) Plate count - 2	
Feb 08	4) MPN - 1	Lab quiz/Lab 3 report due
Feb 10	4) MPN - 2	
Feb 15	5) Antimicrobial - 1	Lab quiz/Lab 4 report due
Feb 17	5) Antimicrobial - 2	
Feb 22	6) Fermentation - 1	Lab quiz/Lab 5 report due
Feb 24	6) Fermentation - 2	
Mar 01	Overview of students' presentation (online)	

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Mar 03	Lab Mid-term Exam Review	
Mar 08	Lab Mid-term Exam	
Mar 10	6) Fermentation - 3	
Mar 15	7) <i>Salmonella</i> enterica - 1	Lab quiz/Lab 6 report due
Mar 17	7) <i>Salmonella</i> enterica - 2	
Mar 22	8) <i>Vibrio</i> spp. - 1	Lab quiz/Lab 7 report due
Mar 24	8) <i>Vibrio</i> spp. - 1	
Mar 29	9) Rapid methods - 1	Lab quiz/Lab 8 report due
Mar 31	9) Rapid methods - 2	
Apr 05	10) PCR - 1	Lab quiz/Lab 9 report due
Apr 07	10) PCR - 2	
Apr 12	11) Bacteriophage plaque assay - 1	Lab quiz/Lab 10 report due
Apr 14	11) Bacteriophage plaque assay - 2	
Apr 19	Undergrad students' presentation - 1	Lab 11 report due
Apr 21	Undergrad students' presentation - 2	
Apr 26	Grad students' presentation	
Apr 28	Lab final review	
Apr 05	Lab final	