

**FOS4222L/5225C
FOOD MICROBIOLOGY SYLLABUS
LABORATORY**

Spring 2022

SCHEDULE AND CLASS LOCATION

MW: 1:00-3:50 pm, FSHN 310

INSTRUCTOR

Dr. Naim Montazeri

Room 341A, FSHN Bldg, 572 Newell Dr.

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Email: nmontazeri@ufl.edu

Website: <https://fshn.ifas.ufl.edu/about/faculty-bio-pages/montazeri/>

Office Hours (via Zoom): Friday 1-3 pm (by appointment only)

TEACHING ASSISTANTS

TBD

Office Hours: TBD (by appointment only)

COURSE DESCRIPTION

This course equips students with practical skills in food microbiology. A wide range of methods in isolating, characterizing, and enumerating microorganisms will be applied to food and environmental samples. This is a stand-alone course and is offered along with Food Microbiology (FOS4222) and in conjunction with Principles in Food Microbiology (FOS5225C).

COURSE OBJECTIVES

1. Recognize the most common foodborne pathogens and differentiate their specific growth conditions
2. Assess the microbial spoilage of food products during storage
3. Detect, quantify, and characterize hazardous microorganisms in water and food
4. Identify desirable microorganisms and their effects in preservation and fermentation
5. Evaluate the efficacy of mitigation strategies against foodborne pathogens

FORMAT

Prior to the lab:

- Students are expected to review the assigned experiment. Each laboratory session starts with a quiz for that specific lab.

During the lab

- **Attend the class by 12:55 pm to settle and be prepared for the 1:00 pm quiz.**
- Follow the safety guideline regarding COVID-19. **Face-masking is strongly recommended to ensure the safety of the students and other personnel.**
- Leave all extra books and bags in the space provided in the back of the lab.

- Sanitize work area before and after you complete your work with a fresh 10% bleach solution or 70% ethanol.
- Take a 10-min quiz.
- Perform the laboratory work in an organized and careful manner. Record all data, calculations, and other relevant information in your notebook.
- It is mandatory that students always wear a lab coat, as well as safety glasses and mask when working with liquid material that could be aerosolized.
- You are working with living organisms. Treat all microbial cultures as they are human pathogens.
- Some lab exercises will require you to come in outside of the normal laboratory class hours to complete subsequent steps of an experiment and/or record results.
- In case of any incident or injury, immediately report it the teaching assistant and the instructor.

COURSE ANNOUNCEMENTS

All the course materials will be posted on Canvas prior to the class. All announcements will be made through Canvas. It is the student's responsibility to check the announcement. **Make sure to turn on the notifications for this course** (click [here](#) for a step-by-step guide). Students can reach out to the instructor and TAs through Canvas Inbox (preferred) or email.

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 is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the link they receive from GatorEvals (<https://ufl.bluera.com/ufl/>, also accessible here through Canvas course menu --> GatorEvals).

Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

TESTS AND GRADING

Final grade for FOS5225C is based on combined grades from the FOS 4222 lecture (70%) and FOS 4222L lab (30%). You cannot drop a test.

Quizzes: Pre-lab quizzes are closed book and must be completed before each lab. They will consist of 4 or 5 short answer questions.

	Lab Quizzes	Lab Midterm	Lab Final	Lab report	Presentation
FOS 4222L	10%	25%	25%	20%	20% (oral)
FOS 5225C	10%	25%	25%	20%	10% (oral) + 10% (written)

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.

PRESENTATIONS

FOS4222L: Undergrad oral presentations will be delivered for 10-15 min as a group using power point slide show (an example will be provided). Topics need to be approved by instructor. The purpose of

this exercise is to pick an interesting, controversial issue related to Food Microbiology and RESEARCH the pros and cons related to that issue. You will be graded based on the following criteria:

- Selection of topic (10 pts): Is the topic sufficiently interesting, controversial, and relevant to Food Microbiology?
- Quality of supporting data (20 pts): Do your reference citations provide sufficient data to describe the topic? Please cite at least 3 references from recent peer-reviewed journals.
- Overall presentation and graphics (40 pts): Your presentation should include 3 sections: 1) Introduction, 2) supporting data, and 3) discussion and conclusion. Is your presentation visually attractive and “eye-catching”?
- Validity of conclusions (20 pts): Did you critically evaluate supporting data?
- Peer review: participants within groups will grade each other

FOS5225C. Grad students will deliver an *oral presentation* and a *written report* for a more in-depth overview of their presentation topic. The written report should be about 5 pages (excluding references) with 11 pt Arial font, single-spaced, and include min of 10 references (a template will be provided).

E-LABORATORY REPORTS

Laboratory data are the backbone of science, and your records should be accurate and precise. Your notes help you to comprehend what, why and how you did something. Data should be recorded in such a way that you (or anyone else) would be able to repeat the experiment from the description in your notebook. You are required to record your data in standard, bound notebook, but your submission will be through Canvas as a completed lab report of the assignment. Even though you will be working in groups, each person is expected to keep their own notebook. E-lab reports will be due within one week of the assignment. If reports are not appropriate, they will be returned, and you will have an additional week to complete. You will include the following for **every** lab exercise (Word template will be provided):

- **Purpose: Briefly describe the purpose of each lab.** Give a brief overview of the background material and concepts for the lab(s). Include the relevance of the concepts to food safety and the food industry. Briefly describe the purpose of the experiment(s) (i.e. the objectives that were to be accomplished).
- **Methods (brief): Briefly describe your method.** If any deviation from the protocol was performed, describe the changes to the protocol in detail. (Example: We serially diluted a bacterial broth cultures in PBS as described in the lab manual on page X. Then 100 ul was spread plated from the -4, -5 and -6 dilutions onto three selective media: EMB, XLT4 and TCBS.)
- **Results:** Your submission to canvas will be a report on the raw data. Use tables, graphs, diagrams or pictures of the data collected during the experiment. Tables and figures should be labeled as you would see in a journal presentation. Also include a narrative of your description of data that is contained in these figures and tables. If any calculations were made, you must show sample calculations in this section. Also include any observations that were made during the experiment but are not represented in a figure or table. This section is simply for presentation of the data.
- **Discussion:** Explain your results and discuss your interpretation of results. In this section discuss your results and draw conclusion based on your data. This is your opportunity to show you understand the concepts involved in doing the experiment. It is important that you interpret and explain your results, especially any deviations from what you expected. There is no need to discuss all the plausible reasons for error. If you believe an error was committed, explain the reason and what might have occurred.

- **Literature Cited:** In your lab reports, you are encouraged to find references to support your conclusions. References will be required for some lab write ups. These online references should be from journal or from credible websites, such as the FDA, CDC, or USDA. We encourage you to use **EndNote Basic/Online** (free online platform, available through <https://endnote.com/product-details/basic/>) for reference management. Tutorials: can be found here:
 - https://clarivate.libguides.com/endnote_training/endnote_online
 - <http://guides.uflib.ufl.edu/c.php?g=147493&p=966730>

The proposed format for the reference section is that of the ASM. Examples of this format are as follows:

Porto-Fett, A.C. S., J.E. Call, and J.B. Luchansky. 2008. Validation of a commercial process for inactivation of *Escherichia coli* O157:H7, *Salmonella Typhimurium*, and *Listeria monocytogenes* on the surface of whole muscle beef jerky. *J. Food Prot.* 71:918-926.

COVID-RELATED PRACTICES

- PLEASE DO NOT COME TO THE CLASS IF FEELING UNWELL OR SICK.
- In-person attendance requires COVID "clearance" status.
- Face masking is strongly recommended for the safety of class attendees.
- Please maintain physical distancing (6 feet between individuals) or at least maintain appropriate spacing between students, wherever possible.
- Sanitizing supplies may be available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
- 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.

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 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) 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.

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

**FOS 4222L/5225C
FOOD MICROBIOLOGY (LAB)
SPRING 2022
(SUBJECT TO CHANGE)**

Date	Lab Activity	Assignments
Jan 5-Jan 10	No Lab	
Jan 12	No Lab	Online lab safety training
Jan 17	Introduction	General lab intro quiz
Jan 19	1) Bacterial count and identification techniques - 1	Lab 1 quiz
Jan 24	1) Bacterial count and identification techniques - 1	
Jan 26	2) Bacterial staining and microscopy use	Lab 2 quiz/Lab 1 report due
Jan 31	3) Shelf-life assessment – 1 (total count)	Lab 3 quiz/Lab 2 report due
Feb 02	3) Shelf-life assessment – 2 (total count)	
Feb 07	4) MPN - 1	Lab 4 quiz/Lab 3 report due
Feb 09	4) MPN - 2	
Feb 14	5) Antimicrobial - 1	Lab 5 quiz/Lab 4 report due
Feb 16	5) Antimicrobial - 2	
Feb 21	6) Fermentation - 1 (prep and day 0 sampling)	Lab 6 quiz/Lab 5 report due
Feb 23	6) Fermentation - 2 (day 2 sampling)	
Feb 28	6) Fermentation - 3 (day 7 sampling)	Presentation topics due
Mar 02	6) Fermentation - 4 (data analysis)	Presentation topics discussion
Mar 07	Mid-term exam review	
Mar 09	Mid-term Exam	
Mar 14	7) <i>Salmonella enterica</i> - 1 & Overview of presentations	Lab 7 quiz/Lab 6 report due
Mar 16	7) <i>Salmonella enterica</i> - 2	
Mar 21	8) <i>Vibrio</i> spp. - 1	Lab 8 quiz/Lab 7 report due
Mar 23	8) <i>Vibrio</i> spp. - 1	Presentation summary due
Mar 28	9) Rapid methods - 1	Lab 9 quiz
Mar 30	9) Rapid methods - 2	Lab 8 report due
Apr 04	10) PCR - 1	Lab 10 quiz/Lab 9 report due
Apr 06	10) PCR - 2	
Apr 11	11) Bacteriophage plaque assay - 1	Lab 11 quiz/Lab 10 report due
Apr 13	11) Bacteriophage plaque assay - 2	Presentation slides due
Apr 18	Students' presentation - 1	Lab 11 report due
Apr 20	Students' presentation - 2	
Apr 25	Lab final exam review	
Apr 27	Lab final (12:30 pm to 2:30 pm)	Grads written report due on 29 th