

**FOS4222  
FOOD MICROBIOLOGY SYLLABUS  
LECTURE**

**Spring 2022**

**SCHEDULE AND CLASS LOCATION**

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When: MWF, 5<sup>th</sup> Period 11:45 am-12:35 pm  
Where: CSE E121 (click [here](#) for more info)

**INSTRUCTOR**

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**Dr. Naim Montazeri**

Room 341A, FSHN Bldg, 572 Newell Dr.

Phone: (352) 294-3756

Email: [nmontazeri@ufl.edu](mailto: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**

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**Amy Jones, Ph.D. candidate:** [ajone54@ufl.edu](mailto:ajone54@ufl.edu) (lead TA)

**Ashraf Amshaqn, Ph.D. student:** [aamshaqn@ufl.edu](mailto:aamshaqn@ufl.edu)

**Charles Bency Appolon, M.Sc. student:** [c.appolon@ufl.edu](mailto:c.appolon@ufl.edu)

Office Hours: by appointment only

**COURSE DESCRIPTION**

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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.

**COURSE OBJECTIVES**

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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**

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MCB2000, MCB3023, or permission of instructor.

## RELEVANT COURSES

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- 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)

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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

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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

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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

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**Exams:** There will be four mid-term exams and one final. The guest lectures are included in the exams.

**Quizzes:** Quizzes will be used to gauge progress throughout the semester and will be graded. In-class pop quizzes will have bonus points toward your next exam.

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

| Activity         | Grade percentage |
|------------------|------------------|
| Assignments      | 20%              |
| Quizzes*         | 10%              |
| Mid-term 1 and 2 | 20%              |
| Mid-term 3 and 4 | 30%              |
| Final Exam       | 20%              |

\*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.

## COVID-RELATED PRACTICES

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- PLEASE DO NOT COME TO THE CLASS IF FEELING UNWELL OR SICK.
- 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

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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.

## COURSE POLICIES

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- 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/](http://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

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### ***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

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### ***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

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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/](http://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/](http://www.umatter.ufl.edu/)
- Career Resource Center, First Floor JWRU, 352-392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)
- Complaints: [https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](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](http://cms.uflib.ufl.edu/ask)
- Teaching Center: 352-392-2010 General study skills and tutoring: [teachingcenter.ufl.edu/](http://teachingcenter.ufl.edu/)
- Writing Studio: 352-846-1138. Help brainstorming, formatting, and writing papers: [writing.ufl.edu/writing-studio/](http://writing.ufl.edu/writing-studio/)

**FOS4222**  
**FOOD MICROBIOLOGY (LECTURE)**  
**SPRING 2022**  
**(SUBJECT TO CHANGE)**

| Session  | Date   | LECTURE TOPICS                              | Guest lecturer | Activity         |
|--|--------|---|----------------|------------------|
| <i>Module 1: Intro, Growth, and Enumeration Techniques</i> |        |   |                |                  |
| 1  | Jan 5  | Introduction                                |                |                  |
| 2  | Jan 7  | Microbial growth kinetics                   |                |                  |
| 3  | Jan 10 | Culture-based bacterial enumeration         |                |                  |
| <i>Module 2: Food Spoilage</i>                             |        |   |                |                  |
| 4  | Jan 12 | Food spoilage - introduction                |                | Quiz 1           |
| 5  | Jan 14 | Spoilage in muscle foods                    | Dr. Farzad     |                  |
| 6  | Jan 17 | Spoilage in milk                            |                |                  |
| 7  | Jan 19 | Spoilage in fruits and vegetables           |                |                  |
| <i>Module 3: Review and Exam 1</i>                         |        |   |                |                  |
| 8  | Jan 21 | Review for Exam 1                           |                |                  |
| 9  | Jan 24 | <b>Exam 1</b>                               |                |                  |
| <i>Module 4: Food Preservation</i>                         |        |   |                |                  |
| 10   | Jan 26 | Physical preservation                       |                |                  |
| 11   | Jan 28 | Chemical and biological preservation        |                |                  |
| <i>Module 5: Food Fermentation</i>                         |        |   |                |                  |
| 12   | Jan 31 | Yeasts and fermentation                     |                | Quiz 2           |
| 13   | Feb 2  | Lactic acid bacteria                        |                |                  |
| 14   | Feb 4  | Microbiology of beer and wine               |                |                  |
| <i>Module 6: Review and Exam 2</i>                         |        |   |                |                  |
| 15   | Feb 7  | Review for Exam 2                           |                |                  |
| 16   | Feb 9  | <b>Exam 2</b>                               |                |                  |
| <i>Module 7: Gram-Positives Spore Formers</i>              |        |   |                |                  |
| 17   | Feb 11 | Bacterial pathogenesis                      |                |                  |
| 18   | Feb 14 | Sporulation                                 |                |                  |
| 19   | Feb 16 | <i>Bacillus</i> spp.                        |                | Assignment 1 due |
| 20   | Feb 18 | <i>Clostridium</i> spp.                     |                |                  |
| <i>Module 8: Gram-Positives Non-spore Formers</i>          |        |   |                |                  |
| 21   | Feb 21 | <i>Listeria monocytogenes</i>               |                | Quiz 3           |
| 22   | Feb 23 | <i>Staphylococcus aureus</i>                |                |                  |
| <i>Module 9: Gram-Negatives, Part 1</i>                    |        |   |                |                  |
| 23   | Feb 25 | <i>Escherichia</i> and <i>Shigella</i> spp. |                | Quiz 4           |
| 24   | Feb 28 | <i>Vibrio</i> spp.                          |                |                  |
| 25   | Mar 02 | <i>Campylobacter</i> spp.                   |                |                  |
| <i>Module 10: Review and Exam 3</i>                        |        |   |                |                  |
| 26   | Mar 04 | Review for Exam 3                           |                |                  |
| 27   | Mar 14 | <b>Exam 3</b>                               |                |                  |

|  |        |   |               |                  |
|--|--------|---|---------------|------------------|
| <i>Module 9: Gram-Negatives, Part 2</i>                  |        |   |               |                  |
| 28   | Mar 16 | Cronobacter and Yersinia                                    |               |                  |
| 29   | Mar 18 | Salmonella enterica   |               |                  |
| <i>Module 12: Viruses and Prions</i>                     |        |   |               |                  |
| 30   | Mar 21 | Virology - principles                                       |               |                  |
| 31   | Mar 23 | Enteric viruses   |               |                  |
| 32   | Mar 25 | Bacteriophages  |               | Quiz 5           |
| <i>Module 14: Microbial Isolation and Detection</i>      |        |   |               |                  |
| 33   | Mar 28 | Microbial isolation and concentration                       |               | Assignment 2 due |
| 34   | Mar 30 | Rapid detection methods                                     |               |                  |
| 35   | Apr 01 | Molecular typing  | Dr. Shuipys   |                  |
| <i>Module 13: Review and Exam 4</i>                      |        |   |               |                  |
| 36   | Apr 04 | Review for Exam 4   |               |                  |
| 37   | Apr 06 | <b>Exam 4</b>   |               |                  |
| <i>Module 15: Critical Issues in Food Safety Systems</i> |        |   |               |                  |
| 38   | Apr 08 | Food safety systems and utilization of microbial Indicators |               |                  |
| 39   | Apr 11 | Food safety risk analysis                                   | Dr. Danyluk   |                  |
| 40   | Apr 13 | New regulations, new microbiology                           | Dr. Schneider |                  |
| 41   | Apr 15 | COVID-19 and food industry                                  |               | Quiz 6           |
| <i>Module 16: Reviews and Final Exam</i>                 |        |   |               |                  |
| 42   | Apr 18 | Review for Final Exam                                       |               |                  |
| 43   | Apr 20 | Q&A - optional (viz Zoom)                                   |               |                  |
| 44   | Apr 28 | <b>Final exam</b> modules 14 and 15 (10am-12pm)             |               |                  |