



Course Syllabus

FOOD AND ENVIRONMENTAL VIROLOGY FOS 6224

Fall 2022

SCHEDULE AND CLASS LOCATION

When: T, R | 2nd Period (8:30am-9:20am)

Where: RNK Hall, 0210 (click [here](#) for more info)

INSTRUCTOR

Dr. Naim Montazeri, Assistant Professor
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: WF, 1-2 pm (by appointment only)

COURSE DESCRIPTION

Food virology is an emerging topic within the field of food microbiology. This course explores the ecology of viruses, their role in human illnesses; transmission to human through food, water, and contact surfaces; risk assessment; and prevention strategies. Through this course, students develop a competency framework within their discipline.

COURSE OBJECTIVES

1. Discuss the role viruses play in the ecosystem, their impact on bacterial populations, and human illnesses
2. Critically relate and illustrate mechanisms under which viruses evolve and persist in the environment
3. Demonstrate methods for the isolation, purification, and detection of viruses in environmental samples
4. Assess and critically analyze potential routes for the transmission of viruses to human through food, water, and contact surfaces
5. Delineate mitigation strategies to prevent transmission of pathogenic viruses to human

COURSE PREREQUISITES

Basic familiarity with microbiology or biochemistry.

RELEVANT COURSES

- FOS 4222/4222L/5225C: Food Microbiology
- FOS 6215: Principles of Food Safety
- MCB 4271/4271L/5270: Antimicrobial Resistance
- MCB 4503/5505: Virology
- ANS 6637: Quantitative Microbial Risk Assessment of Pathogens in Food Systems

COURSE STRUCTURE

This course is designed for upper-level undergraduate and graduate students. According to the Bloom's taxonomy, the content of this course is intended to help students understand, apply, and analyze (draw connection among ideas) the issues in food and environmental virology as its relevance to food-borne and

water-borne illnesses. Class materials are composed of lecture slides, handouts, reading materials, and videos. Further reading materials such as book chapters will be provided for a deeper understanding of the core concepts. All the further reading materials will be included in the exams. The students will present one assignment on approved topics selected by the instructor or proposed by students. There will be three mid-term exams and one final exam.

REQUIREMENTS FOR THE GRADUATE STUDENTS

- 1) Assignment: Graduate students are expected to deliver the assignments with higher rigor by,
 - a. Providing sufficient depth with a greater degree of critical thinking.
 - b. Using minimum of 10 peer-reviewed research articles.
 - c. Minimum of 5-page (not considering title, abstract, references), single spaced, 11 font size, 1 inch margin.
- 2) Extra reading materials: selected peer-reviewed articles, including but not limited to the following titles. The extra reading materials will be included in the final exam. Extra questions will be provided to graduate students. Questions will carry different points for graduate and undergraduate students to compensate for the extra questions for the graduate students (see grading scheme).
 - Santiana *et al.* 2018. Vesicle-cloaked virus clusters are optimal units for inter-organismal viral transmission. *Cell Host Microbe*, 24(2): 208-220.
 - Chmielewski and Swayne. 2011. Avian influenza: public health and food safety concerns. *Annu Rev Food Sci Technol.* 2:37-57.
 - Torres-Barceló *et al.* 2016. Evolutionary Rationale for Phages as Complements of Antibiotics. *Trends Microbiol.* 24(4): 249-256.
 - Wigginton and Kon. 2012. Virus disinfection mechanisms: the role of virus composition, structure, and function. *Curr Opin Virol.* 2: 84-89.
 - Graaf *et al.* 2016. Human norovirus transmission and evolution in a changing world. *Nat Rev Microbiol.* 14: 421-433.

DELIVERY OF LECTURES

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 un-mute 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.

REQUIRED READING MATERIALS

- Cook N. 2013. *Viruses in Food and Water - Risks, Surveillance and Control*. Woodhead Publishing, England (freely available through UF Knovel App.: <https://app.knovel.com/s.v?cv58h0Mj>)
- All other reading materials will be provided by the instructor and will be shared in Canvas.

RECOMMENDED READING MATERIALS

- Koopmans M. *et al.* 2008. *Food-Borne Viruses - Progress and Challenges*. American Society for Microbiology Press, Washington, DC, USA
- Knipe D. M. & Howley P. M. 2007. *Fields Virology*. 5th Edition. Lippincott Williams & Wilkins. Philadelphia, PA, USA

- Carter J. & Saunders V. 2013. *Virology: Principles & Applications*. 2nd Edition. John Wiley & Sons Ltd. England
- Peer-reviewed articles published in prestigious journals such as the Journal of Virology, Food and Environmental Virology, Food and Environmental Microbiology, and Journal of Food Protection
- University of Florida libraries and online sources such as e-books, ILL, and Knovel App.

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 ALL 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 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 two **mandatory** mid-terms and one final. The average of mid-term with highest grade will be considered for grading. The final will be accumulative covering last two modules.

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
Assignment	25%
Quizzes	25%
Mid-terms	30%
Final	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. For further information on UF's Grading Policy, consult: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

COVID-RELATED PRACTICES

- PLEASE DO NOT COME TO THE CLASS IF FEELING UNWELL OR SICK.
- If not vaccinated yet, 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.
- Please follow UF Health guidance on what to do if you have been exposed to or are experiencing COVID-19 symptoms.

MINIMUM TECHNICAL SKILLS/REQUIREMENTS

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.

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/
- **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.**
- Lecture material and information are the property of the University of Florida and the course instructor and may not be used for any commercial purpose. Students found in violation may be subject to disciplinary action under the University's Student Conduct Code. Only students formally registered for the course are permitted to attend lectures and get involved in course-related activities.

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.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

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/

<ul style="list-style-type: none"> • Food and Environmental Virology • Class Schedule (subject to change) <ul style="list-style-type: none"> • FOS 4223 & 6224 					
Week	Session	Day	Date	Topics	activity
<i>Module 1: Intro to virology</i>					
1	1	R	Aug 25	Pre-assessment and intro	Pre-assessment (5 bonus point)
2	2	T	Aug 30	Ecology of viruses	
	3	R	Sep 1	Basic virology – 1	
3	4	T	Sep 6	Basic virology – 2	
<i>Module 2: Infectious diseases and global health</i>					
	5	R	Sep 8	Infection, nutrition, and microbiome	
4	6	T	Sep 13	Foodborne viruses and global health 1	Take-home quiz 1 (Module 1)

	7	R	Sep 15	Foodborne viruses and global health 2	
<i>Module 3: Exam 1</i>					
5	8	T	Sep 20	Review for the exam 1	
	9	R	Sep 22	Exam 1 (modules 1 and 2)	
<i>Module 4: Foodborne/waterborne viruses</i>					
6	10	T	Sep 27	Enteric viruses - hepatitis viruses	
	11	R	Sep 29	Enteric viruses - human norovirus	
7	12	T	Oct 4	Enteroviruses and emerging viruses	
<i>Module 5: Environmental reservoirs for foodborne viruses</i>					
	13	R	Oct 6	Domestic sewage/wastewater	
8	14	T	Oct 11	Environmental water, soil, and sediment	Take-home quiz 2 (module 4)
	15	R	Oct 13	Meat and seafood	
9	16	T	Oct 18	Fresh produce	
<i>Module 6: Exam 2</i>					
	20	R	Oct 20	Review for the exam 2	
10	21	T	Oct 25	Exam 2 (modules 4-5)	
<i>Module 7: Bacteriophages and their applications</i>					
	17	R	Oct 27	Bacteriophages	
11	18	T	Nov 1	Applications of bacteriophages	Take-home quiz 3 (module 5)
<i>Module 8: Isolation and detection of viruses</i>					
	22	R	Nov 3	Isolation and purification of viruses	
12	23	T	Nov 8	Detection and quantification of viruses	Assignment
	24	R	Nov 10	Utilization of surrogates	
13	25	T	Nov 15	Food virology lab demo	
<i>Module 9: Inactivation of viruses in food and on contact surfaces</i>					
	26	R	Nov 17	Virus inactivation - principles and practices	
14	27	T	Nov 22	Virus inactivation - surface decontamination	Take-home quiz 4 (module 8)
	28	R	Nov 24	No class (Thanksgiving, Nov 24-25)	
<i>Module 10: Special topic</i>					
16	29	T	Nov 29	Careers readiness for virologists	
<i>Module 11: Final</i>					
17	30	R	Dec 1	Review for final	
	31	T	Dec 16	Final exam, modules 7-9 (7:30-9:30 am)	