

University of Florida
College of Public Health & Health Professions Syllabus
PHC 6037: Public Health Virology (3 credit hours)
Fall 2021
Delivery Format: On Campus, (Tues. 1-hour & Thurs. 2-hours)

Instructor Name: John A. Lednicky, PhD
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Email Address: jlednicky@phhp.ufl.edu
Office Hours: M 11:00 am – 12:00 pm

Preferred Course Communications: The “Inbox” in Canvas will be used for all email correspondence. Instructor will not be responsible for emails sent to “UFL” email address.

Prerequisites Two semesters of General Biology (i.e. BSC 2005) and/or microbiology (i.e. MCB 3023). Email the instructor for evaluation of prerequisite coursework.

PURPOSE AND OUTCOME

Course Overview: Students will learn and explore key concepts of animal virology with a focus on viruses that have worldwide public health importance. Topics include understanding, analyzing, and applying knowledge gained about virus genomes and structure, mechanisms of pathophysiology, transmission and risk factors, vaccine development and efficacy, and mitigation strategies.

Relation to Program Outcomes

Competencies primarily gained in this course:

1. Ability to describe key content knowledge to specific communities or general populations the hazards posed by human viruses, how virus infections are transmitted/acquired, and methods used to prevent their spread.
2. Development of testable hypotheses and models to evaluate contagion and prevention methods, such as vaccination.
3. Communicate effectively with constituencies in oral and written forms on key concepts, essential knowledge, and applied strategies related to animal virology.

Specific EGH Competencies gained in this course include:

- Describe to specific communities or general populations the direct and indirect human and ecological effects of major environmental agents
- Understand and explore genetic, physiological and psychosocial factors that affect susceptibility to adverse health outcomes following environmental exposure(s)
- Explain general mechanisms of toxicity associated with environmental toxicants, and associated health outcomes to various populations
- Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and the environment
- Explore the interconnectedness of human, environment, and animal systems while developing a greater understanding of public health actions and interventions

- Demonstrate expected professional behavior, cultural sensitivity, teamwork and appropriate communication when criticizing or defending scientific research

Course Objectives and/or Goals

At the end of this course the student will be able to:

- Analyze and appreciate the importance of contemporary viruses to public health. Viruses are agents of both infectious and non-infectious diseases, and some cancers, and thus drastically affect human dynamics. Students will learn about viruses such as influenza, dengue, AIDS, ebola, SARS-CoV-2, and others, their pathophysiology and impacts on society.
- Examine and analyze concepts of animal virus taxonomy and associated biological properties. By understanding how viruses are grouped ('classified') according to their evolutionary relationships, one is better prepared to tackle outbreaks caused by new viruses, since viruses from a given group typically have similar biological properties.
- Differentiate biochemical, clinical, molecular, and serological methods used for diagnosing viral infections. This information is crucial for clinical diagnostics and helps public health practitioners develop best-practices for rapid and effective outbreak investigations.
- Design, assess, critique interventions that can predict and prevent illnesses resulting from viral infections.

Instructional Methods

1. Lectures: Students are responsible for all the material presented in the course and assigned readings. This will be the main source of content in this course.
2. Readings and Resources: In addition to the required text, supplementary readings and resources that cover contemporary virus outbreaks and related material will be posted in the course page on Canvas or handed out in class.
3. Assessments: The primary assessments will be class participation, assignments, and three exams.

What is expected of you?

You are expected to actively engage in the course throughout the semester. You must come to class prepared by completing all out-of-class assignments. This preparation gives you the knowledge or practice needed to engage in higher levels of learning during the live class sessions. If you are not prepared for the face-to-face sessions, you may struggle to keep pace with the activities occurring in the live sessions, and it is unlikely that you will reach the higher learning goals of the course. Similarly, you are expected to actively participate in the live class. Your participation fosters a rich course experience for you and your peers that facilitates overall mastery of the course objectives.

DESCRIPTION OF COURSE CONTENT

This course is taught as a series of relevant topics and concepts, each covering one specific aspect of virology. Each area of focus may contain lectures, external links, videos, discussions and required readings as well as assignments. You are responsible for all course content regardless of the format. The topical Outline/Course Schedule below details the dates of content and assignments. Assignments and exams are also listed.

Topical Outline/Course Schedule

Week	Date(s)	Topic(s)	Readings
1	Aug. 24	What is a virus?	Flint Vol 1 Chapter 1
	Aug. 26	Virus infections, transmission, and the infectious cycle and implications for public health	Flint Vol 1 Chapter 2
2	Aug. 31	Virus genomes and the Baltimore Classification Scheme	Flint Vol 1 Chapter 3
	Sept. 2	Virus particle structure and determination thereof. Introduction to COVID-19.	Flint Vol 1 Chapter 4
3	Sept. 7	Attachment and entry of virus particles into cells	Flint Vol 1 Chapter 5
	Sept. 9	RNA directed RNA synthesis by RNA viruses. SARS-CoV-2, part-1. Graded assignment 1: (Analysis of journal article).	Flint Vol 1 Chapter 6. Journal article 1.
4	Sept. 14	Transcription and RNA processing. SARS-CoV-2 part 2.	Flint Vol 1 Chapter 8 through p227 and Chapter 10 through p364
	Sept. 16	Virus DNA replication schemes. SARS-CoV-3.	Flint Vol 1 Chapter 9/Journal article Assignment 1 Due
5	Sept. 21	Retroviruses, reverse transcription, and integration	Flint Vol 1 Chapter 7
	Sept. 23	Exam 1	Exam 1 Due
6	Sept. 28	Assembly of virus particles. Influenza A viruses.	Flint Vol 1 Chapter 12 and 13
	Sept. 30	The infected cell. Influenza B, C, and D viruses.	Flint Vol 1 Chapter 14
7	Oct. 5	Virus infections: general principles. Influenza virus - wrap-up.	Flint Vol 2 Chapter 1 and 2
	Oct. 7	Intrinsic and innate host defenses against viruses. Herpes viruses.	Flint Vol 2 Chapter 3
8	Oct. 12	Host adaptive immunity. Chickenpox.	Flint Vol 2 Chapter 4
	Oct. 14	Mechanisms of virus pathogenicity. Cytomegalo- and roseolaviruses.	Flint Vol 2 Chapter 5, pp. 122 – 129.
9	Oct. 19	Acute virus infections. Enteroviruses.	Flint Vol 2 Chapter 5, pp. 129 – 146.
	Oct. 21	Persistent virus infections. Enteroviruses.	Flint Vol 2 Chapter 5, pp. 146 – 154.
10	Oct. 26	Viruses and cancer (oncogenic viruses). Coronaviruses.	Flint Vol 2 Chapter 6
	Oct. 28	Exam 2	Exam 2 due
11	Nov. 2	Vaccines. Arthropod-borne viruses – 1.	Flint Vol 2 Chapter 8
	Nov. 4	Antivirals. Arthropod-borne viruses-2.	Flint Vol 2 Chapter 9
12	Nov. 9	Virus evolution. Arthropod-borne viruses-3. CDC ZIKV presentation.	Flint Vol 2 Chapter 10, 11
	Nov. 11	Holiday	
13	Nov. 16	Emerging and re-emerging viruses. Alphaviruses-1.	Flint Vol 2 Chapter 11. Journal article 2.
	Nov. 18	Graded assignment no. 2 (Analysis of journal article). Alphaviruses-2.	Journal article Assignment 2 Due
14	Nov. 23	Flaviviruses	
	Nov. 25	No class – Thanksgiving Day.	

Week	Date(s)	Topic(s)	Readings
15	Nov. 30	HIV, AIDS, HTLV and Human endogenous retroviruses. Prions.	Flint Vol 2 Chapter 6
16	Dec. 2	Current topics in Public Health Virology.	New articles.
17	Dec. 7	SARS-CoV-2.	Latest developments.
	Dec. 9	Reading Day	
18	Dec. 10	Exam 3 (Final Examination)	Exam 3 due

Course Materials and Technology:

Required textbooks: Principles of Virology. Vol I: Molecular Biology, Vol. II: Pathogenesis and Control (S.J. Flint et al., Third Edition, ASM Press 2015).

For technical support for this class, please contact the UF Help Desk at:

- helpdesk@ufl.edu
- (352) 392-HELP - select option 2
- <https://helpdesk.ufl.edu/>

e-Learning in Canvas site:

There will be an online site for this course in Canvas, the learning management system supported by the University. Log in at <https://elearning.ufl.edu/> and go to course site for PHC6XXX: Public Health Virology, Fall XXXX.

Here, I will post the syllabus, lecture slides, assignments and allow for communication between the students and course instructors. You will also turn in assignments through this site. Once the course begins, all communication related to course content will take place through the e-Learning in Canvas site. It will be your responsibility to check the site on a routine basis to keep up with announcements, emails, and course modifications.

Getting Started

1. Visit <http://elearning.ufl.edu> and login to e-Learning in Canvas using your Gatorlink ID and password.
2. Find our course website. It will be listed as PHC6XXX: Public Health Virology, Fall XXXX
3. Complete the "Getting Started" Module under the Modules Tool (left menu). This will prompt you to download and review the syllabus, review the materials on plagiarism, and complete the syllabus quiz.

Additional Academic Resources

[Career Connections Center](#): Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

[Library Support](#): Various ways to receive assistance with respect to using the libraries or finding resources.

[Teaching Center](#): Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

[Writing Studio](#): 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: [Visit the Student Honor Code and Student Conduct Code webpage for more information.](#)

On-Line Students Complaints: [View the Distance Learning Student Complaint Process.](#)

ACADEMIC REQUIREMENTS AND GRADING

General information

Assignments are to be turned in as a Word document or PowerPoint file as directed, unless otherwise indicated. They will be returned to you with feedback and comments, as appropriate. If you have unexpected issues with Canvas, you may email the assignment to the course instructor directly. Assignments are normally intended as individual projects unless otherwise directed. Shared work may be treated as a form of plagiarism. Assignments may be required to be submitted via Turnitin in this course (this will be done automatically in the Canvas Assignment). This tool will pick up any passages in students' work that come from another source. Be sure to adequately cite your sources/references for these assignments to avoid plagiarism (see format below). Also please confirm that your work is not overtly plagiarized, the Turnitin system will give you a report. Some similarity is expected and unavoidable, however if large portions are copied from other sources, this will be as considered plagiarism. Students should review any feedback reports, address any potential issues, and resubmit to Canvas in advance of any deadlines, as needed.

It is a student's responsibility to verify that they turn in assignments on time and that they turn in the CORRECT assignment attachment. Please take a few moments to open your submitted attachment and verify that you have submitted the correct file.

You will be graded in the course through the use of written assignments, class participation and exams.

Assignments (20%, 200 points, 100 each, Due Sept 12 and Nov 14)

Supplementary assigned reading materials regarding new virus outbreaks will be posted in Canvas or handed out in class. These may be news articles related to contemporary virus outbreaks, recent journal articles relevant to the lecture material for a given class, or articles that detail discovery of a new virus. Each student will be assigned an article related to a viral pathogen of great public health consequence and the student will study its past (origins and context), current status and propose management strategies. You will be required to provide a critique of the article and present a written 2.0 page report. In addition, the report should use graphics and other visual formats (e.g. pictures, diagrams, infographics, etcetera). Graphics and the reference list do not count towards the total 2.0 page limit. All assignments will be submitted through Canvas by the due dates. Assignments will be graded based on identifying and justifying the public health significance, description of the virus and its importance and in the proper citation of references.

Exams (75%, 250 points each, Sept 19, Oct 24, Dec 10)

There will be three in-class closed Book exams, each worth 25% of the final grade. The exams will test your knowledge of the material covered in lectures and assigned readings.

Class Participation (5%, ongoing, 50 points)

Class participation is important for several reasons, foremost of which is that the level of participation is a gauge of subject matter comprehension. Moreover, this is a graduate-level class where students are encouraged to actively think through problems, offer solutions, and it is important to hear viewpoints from colleagues with different academic backgrounds and life experiences. Class participation will be considered

appropriate when for each lecture, each student provides at least one commentary or leads a discussion relevant to the subject matter. Other participation criteria include attending each session, demonstrating that they prepared for lectures (through reading assigned text, interacting with the lecturers, and actively participating in group exercises). The instructor will maintain a tally (yes/no) and moderate the discussion so each student is given ample opportunity to participate in each lecture.

Grading

Students will be graded on a standard letter scale. Students will be evaluated by the 3 regular examination scores (25% each), the submitted 2 written assignments (10% each X 2) and their class participation (5%). Students who fully participate and attend every session will earn the full class participation points. However, the University policy will be followed for students with excused absences.

Requirement	Due date	Points	% of final grade
Class participation	On-going evaluation	50	5%
Graded assignment 1	September, 12 th	100	10%
Graded assignment 2	November, 14 th	100	10%
Exam I	September, 19 th	250	25%
Exam II	October, 24 th	250	25%
Final Exam	December, 10 th	250	25%

Points Earned	930-1000	929-900	899-870	869-830	829-800	799-770	769-730	729-700	699-670	669-630	629-600	<600
% of Points earned	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	Below 60
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E

Please be aware that a C- is not an acceptable grade for graduate students. The GPA for graduate students must be 3.0 in all 5000 level courses and above to graduate. A grade of C counts toward a graduate degree only if a sufficient number of credits in courses numbered 5000 or higher have been earned with a B+ or higher.

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	WF	I	NG	S-U
Grade Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0	0.0	0.0	0.0	0.0

More information on UF grading policy may be found at:

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

Exam Policy

All exams will be proctored by the instructor and designee (e.g. TA's). All exams will be closed book. Detailed guidelines for taking the exams will be provided on course Canvas website several days before the exam.

Policy Related to Make up Exams or Other Work

The expectation of this course is that you will attend lectures, complete reading assignments and other activities according to the syllabus schedule. Personal issues with respect to class participation or fulfillment of course requirements will be handled on an individual basis.

Please refer to UF examination policy <https://catalog.ufl.edu/UGRD/academic-regulations/examination-policies-reading-days/#excusedabsencestext>

Please note: Any requests for make-ups due to technical issues MUST be accompanied by the UF Computing help desk (<http://helpdesk.ufl.edu/>) correspondence. You MUST e-mail me within 24 hours of the technical difficulty if you wish to request a make-up.

Policy Related to Required Class Attendance

Attendance is mandatory and will be monitored by the instructor for each class.

Please note all faculty are bound by the UF policy for excused absences. For information regarding the UF Attendance Policy see the Registrar website for additional details:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

If students fail to attend class without permission, they will lose 2 points towards the participation grade for each class missed.

Excused absences must be consistent with university policies in the Graduate Catalog

(<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>). Additional information can be found here: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

STUDENT EXPECTATIONS, ROLES, AND OPPORTUNITIES FOR INPUT

Expectations Regarding Course Behavior

Students are expected to arrive in class ready to learn before the class begins. The use of cell phones, pagers or laptop computers (except for class assignments) is not permitted in class!

Communication Guidelines

You are required to contact the professor by email using the "Inbox" in Canvas for clarification and assistance with the course material and the assignments, and for special issues that may arise. Weekday daytime (US Eastern Time) emails have the best chances of being answered quickly. Please only use the Canvas "Inbox" to communicate with the course instructor and/or TA. While the instructors and TAs will check their UFL email regularly, they will not be held responsible for email sent directly to their UFL addresses.

Academic Integrity

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit 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.”

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

<http://gradschool.ufl.edu/students/introduction.html>

Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

Online Faculty Course Evaluation Process

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/>.

On Campus Face-to-Face

We will have face-to-face instructional sessions to accomplish the student learning objectives of this course. 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 (<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>), please use the UF Health screening system

(<https://coronavirus.uflhealth.org/screen-test-protect/covid-19-exposure-and-symptoms-who-do-i-call-if/>) and follow the instructions on whether you are able to attend class.

- 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 (<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>).

Policy Related to Guests Attending Class:

Only registered students are permitted to attend class. However, we recognize that students who are caretakers may face occasional unexpected challenges creating attendance barriers. Therefore, by exception, a department chair or his or her designee (e.g., instructors) may grant a student permission to bring a guest(s) for a total of two class sessions per semester. This is two sessions total across all courses. No further extensions will be granted. Please note that guests are **not** permitted to attend either cadaver or wet labs. Students are responsible for course material regardless of attendance. For additional information, please review the Classroom Guests of Students policy in its entirety. Link to full policy: <http://facstaff.php.ufl.edu/services/resourceguide/getstarted.htm>

SUPPORT SERVICES

Accommodations for Students with Disabilities

If you require classroom accommodation because of a disability, it is strongly recommended you register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class or as soon as you believe you might be eligible for accommodations. The Dean of Students Office will provide documentation of accommodations to you, which you must then give to me as the instructor of the course to receive accommodations. Please do this as soon as possible after you receive the letter. Students with disabilities should follow this procedure as early as possible in the semester. The College is committed to providing reasonable accommodations to assist students in their coursework.

Counseling and Student Health

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The **Counseling and Wellness Center** 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.
- **U Matter We Care** website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.
- The **Student Health Care Center** at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>
- Crisis intervention is always available 24/7 from: Alachua County Crisis Center: (352) 264-6789 <http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

- **University Police Department:** [Visit UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).
- **UF Health Shands Emergency Room / Trauma Center:** For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website](#).

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

Inclusive Learning Environment

Public health and health professions are based on the belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. We embrace The University of Florida's Non-Discrimination Policy, which reads, "The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act." If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office of Multicultural & Diversity Affairs website: www.multicultural.ufl.edu

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or police.ufl.edu.

Academic Resources

[E-learning technical support](#), 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.

[Career Resource Center](#), Reitz Union, 392-1601. Career assistance and counseling.

[Library Support](#), Various ways to receive assistance with respect to using the libraries or finding resources.

[Teaching Center](#), Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

[Writing Studio](#), 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

[Student Complaints Campus](#)

[On-Line Students Complaints](#)