

MBIO 604 General Virology

Course Director	Kevin Sokoloski, Ph.D.	Phone	502-852-2149
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Office Hours	2:30pm – 3:30pm Wednesdays, or by appointment	Class Location & Time	CTRB Rm 601 : 1:30-2:30PM, Wednesdays

Co-Director	Donghoon Chung, Ph.D.	Phone	502-852-5522
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Course Textbook:

There is no official required text for this course; however, suggested readings may be indicated during each lecture / instructional session.

Suggested Textbooks / References:

Principles of Virology 5th Edition by Flint, Racaniello, Rall, Hatziioannou, and Skalka. ASM Press

Fields Virology Vol. 4, 7th Edition by . Wolters Kluwer

Description:

This course focuses on building basic virology concepts with the goal of enabling each student to appreciate scientific information presented in seminars and papers related to virology.

The class will proceed stepwise in a logical fashion through common steps of the viral lifecycle, including viral structure and assembly, attachment, entry, trafficking, gene expression, replication, and egress. After the establishment of these fundamental principles, the class will continue to discuss mechanisms of viral pathogenesis, the innate and adaptive immune responses to viral infections, and strategies that viruses use to overcome the host response. Finally, the utility of viruses as molecular tools to understand the biological world, the genetic / molecular factors leading to emergence of new viruses, and the development of antiviral therapies and safe efficacious vaccines will be discussed.

Throughout the course general and specific examples will be used to reinforce key concepts, and whenever possible gold-standard and state-of-the-art virological practices will be presented alongside the information gained from their application.

At the completion of the course, students will- i) Understand the basic principles of viral biology, including being able to compare and contrast different viral lifecycles; ii) Appreciate the host / pathogen interactions required by viral infections, and how these interactions contribute to infection and disease; iii) Recognize how viruses have played an essential role in understanding the host system; and iv) Know what factors lead to viral emergence and what tools we are equipped with to mitigate viral diseases / outbreaks.

Course Schedule:

<u>Week</u>	<u>Meeting Date</u>	<u>Topic</u>	<u>Instructor</u>
1	Aug 23 2023	Introduction- What is a virus, and how are viruses classified?	Sokoloski
2	Aug 30 2023	Virus Structure and Assembly	Sokoloski
3	Sept 6 2023	Virus Attachment, Entry, and Trafficking	Sokoloski
4	Sept 13 2023	Viral Gene Expression and Replication I- DNA viruses	Diamond
5	Sept 20 2023	Viral Gene Expression and Replication II- RNA viruses	Sokoloski
6	Sept 27 2023	Virus Egress / Exit	Sokoloski
<i>Midterm Exam Received 9/27/23, Due by Noon Oct 4 2023</i>			
7	Oct 4 2023	Viral Pathogenesis	Chung
8	Oct 11 2023	Viruses as Molecular Tools and Therapies	Nair
9	Oct 18 2023	Viruses, Transformation, and Cancer	Sokoloski
10	Oct 25 2023	Innate and Adaptive Immune Responses to Viral Infection	Casella
11	Nov 1 2023	Evasion of Immune Responses by Viruses	Casella
12	Nov 8 2023	Viral Emergence and Evolution	Jian
13	Nov 15 2023	Vaccines and Antiviral Treatments	Chung
14	Nov 22 2023	THANKSGIVING BREAK	---
15	Nov 29 2023	Student-led Discussions	Students
16	<i>Final Exam Received 12/6/23, Due by Noon Dec 8th</i>		---

** Due to unforeseen circumstances the class schedule may be altered. If such an instance arises the class will be notified as soon as possible and arrangements will be made to ensure course continuity.

Evaluation:

- In-class Participation / Presentation- 27pts
- After Class Quizzes (via Blackboard)- 33pts, 11 @ 3 pts each, after each class lecture exclusive of exam / presentations.
- Attendance- 15pts
- Midterm Exam- 50pts
- Final Exam: 50pts

The course total is 175 points, and graded will be assigned on a standard scale of-

> 90% = A; > 80% = B; > 70% = C; > 60% = D; < 60% = F

Goals for in-class participation:

As a graduate student you are expected to attend class on time and ready to engage with the instructor and your peers to enhance the instructional quality of the subject matter- ask questions!

Goals for Midterm and final Exams:

Exams are an opportunity to demonstrate subject mastery, critical thinking skills, and scientific creativity. Each exam will focus primarily on the preceding information / course lectures; however, the Final Exam may be considered comprehensive as core concepts from earlier lectures may be incorporated into the test questions.

Both exams will be take-home exams in format, with the specific expectation that all work turned in by a student is original and independent (these are not group assignments).

Expectations:

1. Active participation in class as defined by:
 - a. Being present, not working on materials concerning outside coursework, and actively responding to questions and participating in class discussions.
2. Quizzes and Exams:
 - a. Understanding of basic concepts of virus replication.
 - b. Understanding of fundamental replication strategies of different virus classes.
 - c. Understanding of how virus spread and cause disease.
 - d. Understanding of state-of-art strategy of controlling viral diseases.

Title IX/Clery Act Notification

Sexual misconduct (including sexual harassment, sexual assault, and any other nonconsensual behavior of a sexual nature) and sex discrimination violate University policies. Students experiencing such behavior may obtain confidential support from the PEACC Program (852-2663), Counseling Center (852-6585), and Campus Health Services (852-6479). To report sexual misconduct or sex discrimination, contact the Dean of Students (852-5787) or University of Louisville Police (852-6111).

Disclosure to University faculty or instructors of sexual misconduct, domestic violence, dating violence, or sex discrimination occurring on campus, in a University-sponsored program, or involving a campus visitor or University student or employee (whether current or former) is not confidential under Title IX. Faculty and instructors must forward such reports, including names and circumstances, to the University's Title IX officer.

For more information, see the [Sexual Misconduct Resource Guide](#)

Sexual Harassment

The University of Louisville strives to maintain the campus free of all forms of illegal discrimination as a place of work and study for faculty, staff, and students. Sexual harassment is unacceptable and unlawful conduct and will not be tolerated in the workplace and the educational environment. Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment, even when carried out through computers or other electronic communications systems.

Students and Instructors are protected from Sexual Harassment according to the [Affirmative Action policy](#), the [Student Code of Conduct](#), and the UofL [Computer Account Usage Agreement](#).

Anyone experiencing Sexual Harassment should refer to the links above and/or contact the PEACC Program at 852.2663 and an advocate will explain your choices. This is a free and confidential service.

Anyone who would like to receive more information or provide training to a classroom can contact a PEACC representative at 852.2663 and may use the educational modules provided by the [PEACC Program](#).

Students with Disabilities

The University of Louisville is committed to providing access to programs and services for qualified students with disabilities. If you are a student with a disability and require accommodation to participate and complete

requirements for this class, notify me immediately and contact the Disability Resource Center (Stevenson Hall, 502.852.6938) for verification of eligibility and determination of specific accommodations.

Academic Dishonesty

Academic dishonesty is prohibited at the University of Louisville. It is a serious offense because it diminishes the quality of scholarship, makes accurate evaluation of student progress impossible, and defrauds those in society who must ultimately depend upon the knowledge and integrity of the institution and its students and faculty.

Religious Holy Days and Observances

Federal law and university policy prohibit discrimination on the basis of religious belief. It is the policy of the University of Louisville to accommodate students, faculty, and staff who observe religious work-restricted holy days.

Students: Students who observe work-restricted religious holy days must be allowed to do so without jeopardizing their academic standing in any course. Faculty are obliged to accommodate students' request(s) for adjustments in course work on the grounds of religious observance, provided that the student(s) make such request(s) in writing during the first two (2) weeks of term.

Deans and department chairs must investigate and resolve student complaints arising from alleged faculty failure to make reasonable accommodations under these guidelines.

For more information, view the [Calendar and Policy on Religious Holy Days and Observances](#).

Statement on Diversity

The University of Louisville strives to foster and sustain an environment of inclusiveness that empowers us all to achieve our highest potential without fear of prejudice or bias.

We commit ourselves to building an exemplary educational community that offers a nurturing and challenging intellectual climate, a respect for the spectrum of human diversity, and a genuine understanding of the many differences-including race, ethnicity, gender, gender identity/expression, sexual orientation, age, socioeconomic status, disability, religion, national origin or military status-that enrich a vibrant metropolitan research university.

We expect every member of our academic family to embrace the underlying values of this vision and to demonstrate a strong commitment to attracting, retaining and supporting students, faculty and staff who reflect the diversity of our larger society.

Basic Needs Support

Doing well in classes (and in life, for that matter) means getting a good night's sleep, having enough to eat, and being able to get to where you need to go. If you are having any difficulties with these basic necessities, remember that UofL has resources to assist you. These challenges are unfortunately more common than we would wish. Please reach out to me or to one of these great resources if you find yourself in need at any time during this course or after.

- Food (fresh and non-perishable), household and toiletry items: Cardinal Cupboard (SAC W312)

- Clothing, shoes, household items and office/art supplies: UofL Free Store (SAC 303C)
- If you're experiencing any academic, financial, or personal difficulties, a Student Success Coordinator in UofL's Student Success Center can work with you individually to provide guidance and support as well as connect you to relevant resources.
- The UofL Concern Center can help you find and connect with relevant resources: <https://louisville.concerncenter.com/>
- You can also reach out to the Dean of Students Office at 502.852.5787 or <http://louisville.edu/dos>

Counseling Center

If you notice you are having a difficult time or generally feel stuck, it may be helpful to work with a trained therapist at the Counseling Center in an individual or group setting. People come into the Counseling Center to discuss a range of topics, including relationships, family, identities, grief and loss, depression, stress, and many more experiences and concerns. The Counseling Center provides short term individual, group, and couples counseling, crisis intervention, and psychological testing. Clients seek services for a variety of areas of concern, including psychological, personal/social, academic, and career issues. To schedule an appointment, please contact the Counseling Center at 502-852-6585 or stop by the office in the Student Activities Center Room W-204. More info: <http://louisville.edu/counseling/>

HSC Counseling Services

The University of Louisville Campus Health Services Counseling Office offers short-term individual counseling, group counseling, and psychological assessment. Students seek support through counseling for a variety of reasons, including psychological, personal/social, academic, and/or career concerns. If you are experiencing any of these concerns and/or would like to connect with a counselor, please call Campus Health Services at 502-852-6446 to set up an appointment.

These services are offered to students in the following schools and programs:

- School of Medicine
- School of Dentistry
- School of Nursing
- School of Public Health and Informational Sciences
- Resident Physicians and Dental Fellows
- IPIBS/Graduate students on the HSC Campus, including post-doctorate students who are not classified as employees under U of L Human Resources.
- Students in the audiology program and the speech and language pathology program

The HSC Counseling Office also provides consultation with faculty and staff regarding student concerns, outreach, training, and advocacy to the University of Louisville community.

Important details-

- Services are FREE for all University of Louisville HSC students.
- Access to service is VOLUNTARY. Some administration policies will allow faculty and staff to recommend strongly that a student meet with an HSC counselor or physician, but each student can discuss with a dean's representative his or her choice to refuse the referral.
- HSC students are allowed to directly contact a psychiatrist without a prior referral from a counselor or therapist.

Continuity of Instruction

- *Campus Closure:*

If the university administration announces a cancelation of classes and closed offices (holidays or severe weather events), instructors may not require virtual interaction from students. Information about any changes in this course (i.e., revised due dates, rescheduled exams, alternative assignments, etc.) will be communicated as soon as possible by email. Students should make a habit of checking email regularly to stay current on any announcements. Absent other communications, students are encouraged to continue the readings and other assignments as outlined in this syllabus.

- *Temporary Absence of an Individual Instructor:*

In the event that the instructor needs to be absent from class, you will be contacted prior to class via email. The class will either be cancelled or conducted virtually at the regular class meeting time. Students are strongly encouraged to prepare ahead of time any additional materials or hardware, as well as dedicated space for participating in class virtually, that will be necessary to proceed with contingency plans without interruption.

Continuity of Learning

- *Unplanned Student Absence:*

Students who miss class due to illness, death of a member of the student's household, or significant emergency should contact the instructor as soon as possible. Students missing any graded work due to an excused unplanned absence bear the responsibility of informing the instructor about their excused absence within 3 working days following the period of the excused absence, and of making up the missed work. The Instructor will give the student an opportunity to make up the work and/or the exams missed due to an excused absence within 7 working days of the absence.

- *Planned Student Absences:*

Excused absence for university-sanctioned events. Please see qualifying events, guidelines, and instructions here: <https://louisville.edu/provost/policies/classroom>

Work restricted religious holidays. A student's request for adjustments in course work on the grounds of religious observance will be accommodated, provided that the student make such request in writing during the first two (2) weeks of term. Please see guidelines and instructions here: <https://louisville.edu/calendars/work-restricted-religious-holy-days-pdf> [PDF]