**Introductory Virology**

**POPH/MIBO/IDIS 4650/6650**

**Fall Semester 2021, Tuesday and Thursday 11-12:15**

**Room Vet Med H203**

**Course Coordinators: García & Brindley**

**COURSE OBJECTIVES OR EXPECTED LEARNING OUTCOMES** The objective of this course is to have students understand the basic principles of virology as an integrative discipline. Students will learn fundamental concepts of the viral replication cycle, as well as learn about pioneering advances in the field of virology, how to control viral infections, and the dynamic evolution of viruses.

**REVIEW PAPER AND RESEARCH PROPOSAL** Undergraduate students will be required to write a review paper on a virology concept discussed in class for a particular viral family or specific virus. Graduate students will be required to write a Research proposal addressing a virology question. We will provide Guidelines with specifics on Papers and Proposal formats. Review papers and proposals are due December 7.

**ADDITIONAL REQUIREMENTS FOR COURSE**

Throughout the semester there will be 4 class periods in which we will discuss primary literature related to the topics we are covering. Groups of graduate students (4 to 5) will be responsible for leading the discussion of an assigned paper in a journal club format. Graduate student groups will be responsible to meet and organize the presentation, but all students need to attend and participate in the discussion. Each exam will include questions on the paper discussed, special attention will be given to the methods, so it is important for both undergraduate and graduate students to participate in the discussions of this primary literature.

**GRADING SYSTEM**

Grade Scale: A 100-93, A- 92-90, B+ 89-87, B 86-83, B- 82-80, C+ 79-77, C 76-73, C- 72-70, D+ 69-67, D 66-63, D- 62-60, F <60. Note: grades ending in >0.5 round up to the next whole number, e.g. 92.6 rounds to 93, but 92.5 counts as 92.

**Undergraduates** 4 exams = 75%

Review PAPER = 15%

\*Class participation, quizzes, homework and attendance = 10%

**Graduates** 4 exams = 65%

Research PROPOSAL = 15%

Journal Club Presentation= 10%

\*Class participation, quizzes, homework and attendance= 10%

If you miss an exam (unexcused), it will be scored as a zero. Make-up exams for excused absences must be arranged with the professor giving the exam (see syllabus) well in advance for University-approved absences or the day of return from an illness (Doctor’s excuse is required for **full period of absence**). Exams may have a mix of short answer, short discussion, multiple choice, and fill-in the blanks. You must use a pen to answer the exams or you cannot request a re-grade. ***There will be no individual extra credit to improve grades. \**** Notice that there is material and exercises covered during lecture that is necessary to fully understand and participation in class is highly encouraged. Therefore, it is **essential that you attend lectures**, **turn-in homework and participate in class this would be 10% of your grade**.

**FLIP THE CLASS**

There will be four class periods where the lecture format will be flip. On these days, you will need to read assigned chapter, read the eLC lecture and watch Dr. Racaniello lecture on You Tube or his blog **before attending class**. In order to have high participation, a short five questions quiz will be given in the first few minutes of the flip the class periods. These quizzes are designed to determine if you watched the lecture and are not designed to be difficult or tricky. In addition, there are several *Virus Watch* videos assigned when videos are relevant to the lecture topic. These are short, less than 10 min, videos that will introduce a particular virology topic. Please watch them before class. Note\* test questions may relate to the videos.

**READING**

Reading assignments from required text-book **FLINT PRINCIPLES OF VIROLOGY 4th or 5th edition**. Any assigned research article will be posted on the e-Learning Commons site for the course. For additional assigned material visit the Virology blogs by Vincent Racaniello ([WWW.virology.ws](http://WWW.virology.ws)) ([WWW.twiv.tv](http://WWW.twiv.tv)). Power-point slides for each lecture will be posted to the e-Learning Commons (<http://elc.uga.edu/>).

**NOTES ON HOW TO BE SUCCESSFUL STUDENTS**

Virology is a complicated topic, especially because there are so many different types of viruses that replicate in different ways. Viruses “live” inside cells, so having a good understanding of basic cell biology will increase your success rate in the class. In previous years, the students that received A’s in the class have noted that they read the chapters before lecture and frequently would watch Dr. Racaniello’s lecture’s for additional information or listen to TWIV (This week in Virology). Reading, listening, and watching the material in a variety of ways from different sources enabled them to understand the material and perform well on the tests.

Teaching assistant: Jiachen Huang [jiachenh@uga.edu](mailto:jiachenh@uga.edu) will be managing any questions students have regarding lecture schedules, absences, posting of grades, exams on elc and exam dates.

There are no designated office hours for the Instructors; you may set up appointments with the Faculty by e-mail (Please do not just drop by our offices!)

Dr. Maricarmen García [mcgarcia@uga.edu](mailto:mcgarcia@uga.edu) & Dr. Melinda Brindley mbrindle@uga.edu

All academic work must meet the standards contained in "A Culture of Honesty." Students are responsible for informing themselves about those standards before performing any academic work.

http://www.uga.edu/ovpi/academic\_honesty/academic\_honesty.htm

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

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| **Dates** | **Lectures and Exams** | **Material to prepare before class** | **Assignments** | **Text Book \*\*** | **Instructor** |
| 8/19 | What is a virus? | *Virus Watch*: Are viruses alive? |  | Chapter 1 (volume 1) | Rajao |
| 8/24 | Virus infectious Cycle | *Virus Watch*: Counting Viruses | Homework | Chp 2 (v1) | Rajao |
| 8/26 | Viral Genomes | Watch online lecture | Flip the class Quiz | Chp 3 (v1) | Rajao |
| 8/31 | Viral Structures | *Virus Watch* Building Zika | Flip the class Quiz | Chp 4 (v1) | Brindley |
| 9/2 | Viral Attachment and Entry |  |  | Chp 5 (v1) | Brindley |
| 9/7 | **Paper Discussion** | Read assigned Paper | Paper summary |  | Brindley |
| 9/9 | Vaccines |  | **Turn in** - Virus trading cards genome, structure, entry | Chp 7 (v2) | Brindley |
| 9/14 | **Exam I** |  |  |  |  |
| 9/16 | RNA directed RNA synthesis |  |  | Chp 6 (v1) | Brindley |
| 9/21 | DNA directed RNA synthesis, Replication of DNA genomes |  |  | Chps 7 & 9 (v1) | García |
| 9/23 | Protein Translation and Assembly |  |  | Chps 11-13 (v1) | Brindley |
| 9/28 | Viral Transmission | *Virus Watch*: How mosquitoes spread viruses |  |  | Brindley |
| 9/30 | Antivirals | Watch online lecture | Flip the class Quiz | Chp 8 (v2) | Brindley |
| 10/5 | **Paper Discussion** | Read assigned Paper | Paper summary |  | Brindley |
| 10/7 | Viral gene Therapy |  | **Turn in** - Virus trading cards transcription, genome replication, budding | Chp 9 (v2) | Brindley |
| 10/12 | **Exam II** |  |  |  | Brindley |
| 10/14 | Intrinsic and Innate Responses | Turn-in Topic Review or Proposal |  | Chps 3 (v2) | Tompkins |
| 10/19 | Adaptive Responses |  |  | Chp 4 (v2) | Tompkins |
| 10/21 | Influenza |  |  |  | Rajao |
| 10/26 | Viral Evolution |  |  | Chp 10 (v2) | Brindley |
| 10/28 | Emerging viruses | Covid-19 (Coronavirus) |  | Invite Lecture | Hogan |
| 11/2 | **Paper Discussion** | Read assigned paper | Paper summary |  | Rajao |
| 11/4 | **Exam III** |  |  |  | Brindley |
| 11/9 | Acute Infections |  |  | Chp 5 (v2) | Brindley |
| 11/11 | Persistence infections |  |  | Chp 5 (v2) | García |
| 11/16 | Herpesviruses |  |  |  | García |
| 11/18 | Reverse transcriptase and Lentiviruses |  |  | Chp 10 (v1) & Chp 12 (V2) | García |
| 11/23 | Human immunodeficiency virus (HIV) |  |  | Chp 12 (V2) | Norris |
| 11/30 | Viral Oncogenesis |  |  | Chp 6 (v2) | García |
| 12/2 | **Paper Discussion** | Read assigned paper | Paper summary |  | García |
| 12/7 | Discuss Homework | **Turn In review or proposal** |  |  | García |
| 12/9 | **Exam IV** | 12:00 to 3:00 |  |  | Garcia |

\*\* Chapters from Principle of Virology 5th edition.