GMS 6121: INFECTIOUS DISEASES

3 CREDIT HOURS

COURSE DIRECTOR:
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COURSE WEBSITE: available through UF Canvas (https://ufl.instructure.com/)

COURSE COMMUNICATIONS: General course announcements will be posted as an “Announcement” by the course director or course instructors, will be emailed to all students, or will be delivered in the context of a lecture video. Specific questions for the course director or instructors are best asked by email, either directly or through the Canvas system. Questions that would benefit other students should be posted as a discussion page.

REQUIRED TEXT: General course materials and required reading will be available on the Canvas course website, accessible using your Gatorlink username and password.

Required text for the bacteriology section is:
• Schaechter’s Mechanisms of Microbial Diseases. 5th ed. (Lippincott William & Wilkins)
  NC Englebert, V Dirita, and TS Dermody.
Appropriate supplemental texts include:
• Bacterial Pathogenesis – A Molecular Approach. 2nd ed. AA Salyers & DD Whitt. (ASM Press)
• Cellular Microbiology. 2nd ed. P Cossart, P Boquet, S Normark, & R Rappuoli. (ASM Press)
• Fundamentals of Molecular Virology, 2nd ed. NH Acheson. (John Wiley & Sons)

COURSE DESCRIPTION: GMS 6121 is an entry level graduate course aimed at Microbiology and Cell Science MS students. The goal of this course is to provide a broad overview of infectious pathogens that cause human disease, with a particular emphasis on viral and bacterial pathogens. Furthermore, the course is designed to enable students to gain a fundamental understanding of the principles and mechanisms of microbial pathogenesis. In general, individual lectures will cover (a) general classification and common molecular features of a family of pathogens, and (b) specific mechanisms by which a representative pathogen or pathogens within the family cause disease. The course will be taught by three experienced microbiologists that run viral and bacterial pathogenesis laboratories.

PREREQUISITE KNOWLEDGE AND SKILLS: General biology, biochemistry, and cell biology.
COURSE GOALS AND/OR OBJECTIVES: The goal of this course is to provide a broad overview of infectious pathogens that cause human disease, with a particular emphasis on viral and bacterial pathogens. Furthermore, the course is designed to enable students to gain a fundamental understanding of the principles and mechanisms of microbial pathogenesis.

INSTRUCTIONAL METHODS: Lectures will be posted each Monday, Wednesday and Friday by 12:00 pm. Each lecture will be divided into 2 to 5 segments. Prior to lecture deadlines (typically Monday at 11:59 am for the prior weeks lectures), students will be expected to view the appropriate online segment, and then take a short, open-book quiz reviewing key objectives that were covered. Approximately 3 class periods will be devoted to current infectious disease “hot” topics and associated scientific papers. In these cases, it is expected that students read the appropriate papers and participate in online discussions as indicated for the specific lecture.

COURSE POLICIES

QUIZ/EXAM POLICY:
- **Quizzes:** Online quizzes are aimed at encouraging timely mastery of assigned course material, and therefore may be done during self-study using online resources and/or the text.
- **Exams:** Exams will be administered by ProctorU and are closed book.

MAKE-UP POLICY: If a student misses an assignment such as a homework or quiz, it may be made up according to University of Florida policy for allowable excused absences (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx).

ASSIGNMENT POLICY: Prior to each class meeting, students will be expected to view the appropriate online segment, and then take a short, open-book quiz reviewing key objectives that were covered. Prior to hot topics discussions, students will be expected to read scientific manuscripts assigned by the instructor.

UF POLICIES

UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES: Students requesting accommodation for disabilities must first register with the Dean of Students Office (http://www.dso.ufl.edu/drc/). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT: Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at http://www.dso.ufl.edu/students.php.

NETIQUETTE: COMMUNICATION COURTESY: All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats. http://teach.ufl.edu/docs/NetiquetteGuideforOnlineCourses.pdf
GETTING HELP

For issues with technical difficulties for E-learning in Canvas, please contact the UF Help Desk at:

- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- https://lss.at.ufl.edu/help.shtml

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at http://www.distance.ufl.edu/getting-help for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Should you have any complaints with your experience in this course please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.

GRADING POLICIES

GRADING: Students will take 4 closed-note exams, each covering approximately one quarter of the course material. Together, exams will account for 60% of the final grade. In addition, students will take open-book quizzes over online material prior to each class period. Quizzes will cumulatively account for 40% of the final grade. Quizzes taken late will not receive credit.

GRADING SCALE: The default grading scale for the class is: A ≥90, A- 87-89.9, B+ 84-86.9, B 80-83.9, B- 77-79.9, C+ 74-76.9, C 70-73.99, C- 67-69.9, D+ 64-66.9, D 60-63.99, D- 57-59.9, E ≤66.9. This scale has been shifted downward in the past, but it will never be shifted upwards. See the UF policy on grades at: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

COURSE SCHEDULE

1. Introduction and Pathogenesis Overview
2. Virology:
   - Virus Structure and Classification
   - Laboratory Virology and Viral Genetics
   - Picornaviruses, Calici- and Astroviruses
   - Toga- and Flaviviruses
   - Influenza virus
   - Discussion: Engineering Superviruses
   - Discussion: SARS and MERS coronaviruses
   - Mononegavirales, Reoviruses
Discussion: Ebola virus
Reverse-transcribing Viruses: Hepatitis B
HIV and Hep B, AIDS Pathogenesis
Papillomavirus, Polyomaviruses
Poxviruses, Herpesviruses

3. Bacteriology:
- Bacterial structure, physiology, and genetics
- Antibiotics and resistance
- Bacterial pathogenesis
- Enteric pathogens – toxin-mediated (Botulism, Staph food intoxication, V. cholerae, EHEC, C. difficile)
- Enteric pathogens - invasion (Salmonella and Shigella)
- Discussion: ETEC
- Upper respiratory tract Pathogens (S. pyogenes, Bordetella, C. diphtheriae)
- Lower respiratory tract Pathogens (S. pneumoniae, Legionella, tuberculosis)
- Skin and wound pathogens (Staphylococcus, Pseudomonas, tetanus)
- Bioterrorism and zoonotic pathogens (Anthrax, plague, Lyme disease)
- Discussion: Comparative infections
- Meningitis pathogens (Neisseria meningitis, Haemophilus, Listeria)
- Sexually Transmitted Diseases (T. pallidum, N. gonorrhoeae, Chlamydia)

4. Mycology (Epidermophyton and Trichophyton, Histoplasma, Candida)

5. Parasitology (Giardia, malaria, T. cruzi, hookworms, tapeworms, schistosomes, bed bug)