

Micro 5026 Microbial pathogenesis

Instructor: Peter Dube
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Location and Time of Class Meetings:
Room 444B
June 5-June 16 M-F 9am-11am.

Overview: This is an introductory active learning experience to increase your knowledge base in the area of Microbial Pathogenesis. You will be divided into random teams and assigned a topic. Student teams will research the topic, identify reviews or primary papers and prepare a presentation. All team members will present to the class and are expected to be actively involved in the development of the materials. Class will be condensed into couple of weeks at the end of the semester to allow teams to research materials, prepare lectures, slides, and quizzes. The course format will be similar to that of the INTD5000 course in that each week will consist of a combination of student-led lectures and presentations and discussions. Because this is a graduate course, you will be responsible for a significant amount of reading and preparation outside of the classroom so that class time can be most productively used for discussions and presentations of key concepts and of experimental methodologies literature.

Requirements: You must attend class, since the entire class is based on presentation and discussion it is not possible to make up the material. Student teams will meet outside of class to prepare their presentation to the class. One team member should be responsible for e-mailing me required materials. In addition to the presentation, you need to prepare a short quiz (5 questions, 5pts) that your classmates will take at the end of the class and that you will grade. The quiz can be any format but it must be completed in 10 minutes. This exercise will require considerable coordination and effort and should not be left for the last minute.

Please e-mail me the team number you chose and I will add it to the syllabus and send it around to everyone.

1 week before your presentation provide me with a review paper covering your topic as an URL that will be distributed to the class.

1 day before your presentation provide me with a PDF of your slide show and a copy of your quiz. The slide show will be made available to the class.

1 day after your presentation provide me with the quiz grades and handout quizzes at the next class meeting. You will give your classmates their quizzes back and provide me with the grades on an excel spreadsheet that I will provide you with prior to class.

The specific pathogens listed for some teams are examples of the type of pathogens that would be appropriate to discuss. You do not need to talk about all of them but you can if you want.

Presentations: All presentations must be on topic and focused around your topic. Material is to be presented at a graduate level and thus presenting basic aspects of biology is not required unless it is unusual. Discussion of irrelevant materials to fill time or for other reasons will have a negative impact on your presentation grade. For your presentations you should introduce the pathogens, diseases caused, and major mechanisms of virulence. If you are talking about a feature of biology, cell wall for example, you should introduce the topic, relate it to disease and pathogenesis. Teams should shoot for a 40 min presentation, we have up to 50 minutes for discussion and questions, and 10 minutes to take the quiz. I highly recommend you practice your final presentation as a team before presenting to the class

Grading: 40% of your grade will be determined by your quiz grade and 60% by your participation and presentation.

Professionalism: All work and images presented on slides should be properly attributed to their original source. It is important to note that in this course, there is no distinction between the students in the MS or Ph.D. programs. Expectations are the same and everyone is equal. Working on a team can be difficult and it is a critical skill to learn that will translate to every aspect of your work life. It is expected that all team members will participate and every team member must present. Team members must contribute intellectually to the presentation.

Date	Team	Topic
June 5	1	Gram negative cell wall structure and function in pathogenesis
June 6	2	Gram positive cell wall structure and function in pathogenesis
June 7	3	Secretion systems in Gram negative and positive pathogens, Types II, III, IV, VI
June 8	4	Pathogen adherence and invasion, MSCRAMMS
June 9	5	Bacterial toxins and superantigens
June 12	1	Intracellular pathogens, Mycobacteria, Salmonella, Listeria
June 13	2	Extracellular Pathogens, Pneumococcus, Klebsiella, enteropathogenic E. coli
June 14	3	Mechanisms of drug resistance and Staph, Enterococcus and Clostridium
June 15	4	“One Health” Zoonotic infections, Anthrax, Burkholderia, Brucellosis
June 16	5	Opportunistic infections, Legionella, Leptosporida,