MB 539 Infection and Immunity

Meeting Times and Location: This is an on-line course

Credits: 3

Prerequisites: A minimum of two years of science teaching and at least one college level course in either biology or microbiology.

Course Description
The fields of infectious disease and immunology have developed side-by-side, are closely intertwined, and are very active fields of research and practical medical application. Remarkable achievements in these fields have changed our lives. Some examples are the eradication of naturally acquired smallpox, the discovery and development of antimicrobial agents, and the development of vaccines that dramatically decrease the incidence of specific infectious diseases. But new challenges appear each year. We again worry about smallpox – now about the intentional release of this and other potential agents of bioterrorism. The emergence of drug-resistant microbes is an increasing problem. Previously undiscovered infectious agents are being described and associated with disease. The population of immune deficient humans is getting larger and the associated opportunistic infections are an increasingly important and difficult problem.

In this course, we will first address some basic aspects of microbiology as they relate to infectious disease. How are microbes different from each other and from humans, and why do these differences matter? How do antimicrobial agents kill or inhibit microbes without seriously harming humans? How do microbes acquire resistance to antimicrobial agents? Attention will then turn to the immune system, with emphasis on the roles of the immune system in infectious disease. Finally, and for about two-thirds of the course, we will examine important infectious diseases of humans: their causes, pathogenesis, epidemiology, diagnosis, treatment and prevention. In addition to assigned textbook and syllabus readings and online discussion, participants in the course will analyze scientific journal articles and solve case histories involving infectious disease and immunology. The goal of this course is to provide a rigorous examination of the topics for students in the Masters of Science in Science Education (MSSE) Program.

Text/Materials:
There is no text for this course. I will provide you with background reading (The Essentials Manual). Current literature including research and review articles will provide
the material for the course. In addition, students will be directed to a number of websites, such as the American Society of Microbiology and Centers for Disease Control.

**Grading policy**
Grading will be based on course participation and completion of assignments. The course will include the following: *(Red Font indicates those parts of the course for which you will receive an actual grade).*

**Reading assignments**: Reading assignments will be supplied by the instructor and may include other supplemental materials, such as recommended websites. These will vary according to the weekly topic.

**Assignments**: These are designed to ensure that you understand the topics as covered by the reading and supplemental materials. These will be graded according to content. For large assignments, you will be provided with a grading rubric. **Points per assignment will vary.**

**Discussions**: Weekly discussion topics will be posted in the discussion folder. These will be graded according to participation and content *(Please read the more detailed description of discussion grading below).* For full credit, you must post some "meaningful" contributions to the discussion folder (*"I agree" statements don't count!). **Points will vary according to the depth and length of the discussion.**

**Dropbox and Grades**
When I grade dropbox submissions I will make comments using “Track Changes”. Your paper with comments and a grade will be posted in your dropbox for your review. For this reason, it’s important that you submit your paper as a Word document not a pdf.

Two of my pet peeves:
Please make sure to italicize scientific names (genus and species). For example: *Pseudomonas aeruginosa* or *P. aeruginosa*

Please do a final spell check before you submit…this is a graduate level course. I will take off points.

For late assignments, I will take off some points. It’s only fair to those students who have submitted on time. However, I do realize that the nature of on-line courses is that life gets in the way. So I will be fair. However, do be careful about being chronically late with your submissions. The number of points taken off will increase from chronic lateness.

**Discussion Grading Outline**
Participation in the discussions is important. This is your opportunity to ask questions, posit ideas and hash through difficult subject matter. I will facilitate the discussions but I
will not respond to every single post. In most cases, I might share a related idea, jump in when the discussion goes off-track, or tie student comments together.

Guidelines for grading are as follows:

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<th></th>
<th>Satisfactory</th>
<th>Unsatisfactory</th>
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<tbody>
<tr>
<td><strong>Quantity of Posts</strong></td>
<td>Submits at least 3 posts per topic that are well thought out and help to generate discussion. “I agree statements don’t count”</td>
<td>Submits one or no posts during the discussion</td>
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<tr>
<td><strong>On-Time</strong></td>
<td>Submits posts early in the discussion session and within the allotted discussion time</td>
<td>Submits posts after the discussion is completed. You will receive some points for late posts but not full credit</td>
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<tr>
<td><strong>Spelling</strong></td>
<td>Submits posts that contain grammatically correct sentences without any spelling errors.</td>
<td>Submits posts that contain sentences which are grammatically incorrect and have greater than 2 spelling errors.</td>
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<td><strong>Promotes learning</strong></td>
<td>Submits posts which generate responses and reflections from fellow participants</td>
<td>Submits posts which do not build upon the ideas of other participants to take the discussion deeper.</td>
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<td><strong>Brings in outside examples, Cites sources</strong></td>
<td>Submits posts which contain information from other sources. Includes a citation (can be informal) which enables participants to find those sources.</td>
<td>Does not submit additional information from other sources or fails to cite those sources.</td>
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<td><strong>Respect</strong></td>
<td>Submits posts which respect participants</td>
<td>Submits posts which are disrespectful.</td>
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