MICR 8210 Syllabus

COURSE AND CONTACT INFORMATION
Course: MICR 8210 “Infection and Immunity”
Semester: Spring 2020
Time: Mondays and Wednesdays, 10:15 – 11:45 am, except for Tuesday on 1/21
(see attached schedule)
Location: Virtual via Blackboard Collaborate or Webex

Course Directors
Name: David Leitenberg, M.D., Ph.D
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COURSE DESCRIPTION
This is an introductory course that covers basic principles of the immune system, host defense to infectious disease and microbial pathogenesis. It is intended for Ph.D. students in the Institute for Biomedical Sciences (IBS), and M.S. students in the Public Health Microbiology and Emerging Infectious Disease program. Class sessions will be largely lecture format given by a GWU or guest faculty as well as sessions involving discussions of the primary literature.

LEARNING OUTCOMES:
As a result of completing this course, students will be able to:

- Differentiate the role(s) and regulation of immune system cells and molecules in human health and disease.
- Compare how the immune system functions in response to infections by bacteria, fungi, viruses, and eukaryotic parasites.
- Distinguish the molecules and mechanisms used by microbes (bacteria, fungi, viruses, and eukaryotic parasites) to interact with the host and how these impact the pathogenesis of disease.
- Demonstrate enhanced critical thinking and problem-solving skills.

TEXTS
None required.
Recommended to supplement session materials and as reference source:

“Cellular and Molecular Immunology”, Abbas, Lichtman, Pillai, 8th edition, Elsevier
Available on-line thru Himmelfarb e-book
https://www.clinicalkey.com/#!/browse/book/3-s2.0-C20130013230
Microbiology
Cornelissen, Cynthia Nau, author.; Hobbs, Marcia Metzgar, author.
2020

or
“Microbiology, An Introduction”, Tortora, Funke, Case, 11th edition, Benjamin Cummings

Review papers relevant to the class sessions will also be provided on blackboard.

### 2021 Lecture Schedule
(All classes sessions are 10:15-11:45 am)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>M January 11</td>
<td>Introduction to the Immune System and the Inflammatory Response</td>
<td>Leitenberg</td>
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<tr>
<td>W January 13</td>
<td>Innate Immune Response</td>
<td>Leitenberg</td>
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<td>M January 18</td>
<td>MLK Birthday – NO CLASS</td>
<td>Leitenberg</td>
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<tr>
<td>TBD</td>
<td>Antigen Recognition, Processing and Presentation</td>
<td>Leitenberg</td>
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<tr>
<td>M January 25</td>
<td>Lymphocyte Development</td>
<td>Leitenberg</td>
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<tr>
<td>W January 27</td>
<td>Lymphocyte activation and signal transduction</td>
<td>Bosque</td>
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<td>M February 1</td>
<td>T Cell Effector Function 1</td>
<td>Leitenberg</td>
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<tr>
<td>W February 3</td>
<td>T Cell Effector Function 2 (half session)</td>
<td>Leitenberg</td>
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<td></td>
<td>B cells and Humoral Immunity</td>
<td>Lynch</td>
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<tr>
<td>M February 8</td>
<td>B cells and Humoral Immunity</td>
<td>Lynch</td>
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<tr>
<td>W February 10</td>
<td>Immune Tolerance, Regulatory Mechanisms</td>
<td>Leitenberg</td>
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<td>M February 15</td>
<td>President’s Day - NO CLASS</td>
<td>Leitenberg</td>
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<td>W February 17</td>
<td>Immunological Memory and Biology of Vaccines</td>
<td>Leitenberg</td>
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<tr>
<td>M February 22</td>
<td>Hypersensitivity and Autoimmunity</td>
<td>Leitenberg</td>
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<tr>
<td>W February 24</td>
<td>Paper Discussion; TBD</td>
<td>Leitenberg/Ghosh</td>
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<tr>
<td>M March 1</td>
<td>Review Immunology Section</td>
<td>Leitenberg</td>
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<tr>
<td>W March 3</td>
<td><strong>Exam 1</strong></td>
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<td>M March 8</td>
<td>Bacterial classification and Pathogenesis 1</td>
<td>Hovel-Miner</td>
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<tr>
<td>W March 10</td>
<td>Bacterial Pathogenesis 2</td>
<td>Hovel-Miner</td>
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<tr>
<td>March 16-20</td>
<td>Spring Break NO CLASS</td>
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Course Requirements and Assessments

EXAMS*:
Immunology and Inflammation Exam*  35%
Microbiology and Infectious Disease Exam*  35%

*Exams may include combination of short answers, matching and multiple choice/multiple answer

Manuscript writing (take home)  20%

You will be provided with Figures and Methods sections from a published article. From these, you will synthesize an Abstract, Results, and a short Discussion section written in the format of a PubMed journal article. More details will be provided during class.

Paper Discussions  2x5%

Two sessions will discuss recent scientific articles selected by the instructor (total of 10% of your grade). Articles MUST be read before class. Instructor will create a power point presentation containing relevant sections/figures from the article. Students are expected to participate in the discussion as the slides are presented. Specifically, students should be able to identify the rationale for the study, hypothesis, describe the methods, and interpret the data. A brief (1 page maximum) summary of the paper (1.5 spacing, size 11 font) will be due from each individual the following week.
• Attendance is **strongly encouraged** at all classes and is **required** for sessions that involve a paper discussion unless a written request has been submitted and approved ahead of time by the course director.

• All religious holidays that require an absence from class will be honored, although students should notify the course director of their absence.

• It will be the student’s responsibility to make up any missed classes by copying notes from a classmate or downloading lecture notes from Blackboard.

• Students who turn in papers and/or exams late will be penalized, unless written permission is obtained from the course director.

**University policies:**

**University policy on observance of religious holidays**

In accordance with University policy, students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance. For details and policy, see: students.gwu.edu/accommodations-religious-holidays.

**Academic integrity code**

Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information. For details and complete code, see: studentconduct.gwu.edu/code-academic-integrity

**Safety and security**

In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter at a predetermined rendezvous location.

**Support for students outside the classroom**

**Disability Support Services (DSS)**

Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Rome Hall, Suite 102, to establish eligibility and to coordinate reasonable accommodations. For additional information see: disabilitysupport.gwu.edu/

**Mental Health Services 202-994-5300**

The University's Mental Health Services offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include: crisis and emergency mental health
consultations confidential assessment, counseling services (individual and small group), and referrals. For additional information see: counselingcenter.gwu.edu/