IMMUNOLOGY
Biol 430                                     FALL 2017
Dr. Spilatro

Meeting time: T, Th 9:30 - 10:45, Bartlett 362
Text: Mak, Saunders and Jett, Primer to the Immune Response, 2014 ed.
There will also be other assigned readings

Tentative Schedule of Topics

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Assigned Reading</th>
<th>Quizzes</th>
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<tr>
<td>Aug 29</td>
<td>Course Introduction</td>
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<td>Aug 31 - Sept 26</td>
<td>Overview</td>
<td>Chapter 1</td>
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<td></td>
<td>Components of the Immune System</td>
<td>Chapter 2</td>
<td>Sept 7</td>
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<td></td>
<td>Innate Immunity</td>
<td>Chapter 3</td>
<td>Sept 21</td>
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<td>B-cell Receptor</td>
<td>Chapter 4</td>
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<td>Sept 28</td>
<td>First exam</td>
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<td>Oct 3 - Oct 26</td>
<td>Antigens and Technologies</td>
<td>Chapter 5</td>
<td>Oct 12</td>
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<td>B-Cell Development, etc</td>
<td>Chapter 5</td>
<td>Oct 26</td>
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<td>MHC and Antigen Processing</td>
<td>Chapters 6 &amp; 7</td>
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<td>T-Cell, Regulation &amp; Tolerance</td>
<td>Chapters 8 &amp; 9</td>
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<td>Nov 2</td>
<td>Second exam</td>
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<td>Oct 31 – Nov 30</td>
<td>Vaccination</td>
<td>Chapter 14</td>
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<td>Immunodeficiencies &amp; AIDS</td>
<td>Chapter 15</td>
<td>Nov 16</td>
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<td>Hypersensitivities</td>
<td>Chapter 18</td>
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<td>Transplantation</td>
<td>Chapter 17</td>
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<tr>
<td>Dec 5 &amp; Dec 7</td>
<td>Presentations on autoimmune diseases</td>
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Final Exam: Thur, Dec 14, 8:30 AM

On-line Resources
Some class resources, the Animations, Question Bank, PowerPoint files, MolnQuiry molecular modeling and research paper examples can be accessed from the Immunology Resources page (which also can be accessed through Moodle) at www.marietta.edu/~spilatrs/biol430/dwnlds/immdwnlds.html

Contact Information & Office Hours
Phone: 376-4748 email: spilatrs@marietta.edu Location: Bartlett Hall Rm 173, ext. 4748
Office Hours: Monday 11:00 AM & Thursday 1:00 PM; however, I make every effort to be accessible at other times; feel free to just “drop in”, if I'm busy, we can schedule another time at which we can meet.
Course Objectives
While highlighting clinical manifestations of immune function and pathologies, this course focuses
most directly on the cellular functions and mechanisms of the immune system. After completing this
course students should be able to discuss:
• roles, mechanisms and interactions of innate and acquired immune systems.
• the types and functions of the principal cells and organs of the immune system.
• roles of complement and other innate immune mechanisms.
• basic structure of antibodies, the functions of different classes, and the mechanisms for
generating antibody diversity.
• the principles and applications of different technologies to basic research and clinical
diagnoses.
• antigen dependent and independent developmental pathways for B-cells and T-cells.
• the genetics of MHC haplotype inheritance, functioning of MHC in antigen presentation, role
of MHC alleles in immune defense, transplant rejection, and immune pathologies.
• the production, advantages and limitations of, and potential adverse reactions to different
types of vaccines.
• types of immunodeficiencies; structure and replication of HIV, and clinical features of AIDS.
• four principal types of hypersensitivities and their underlying cellular mechanisms.
An oral report is also prepared in the form of a PowerPoint presentation on a selected autoimmune
disorder. After completing this assignment students will be able to:
• research a immune disorder (or other disease) in the scientific literature
• prepare an well organized and thorough oral presentation
• use PowerPoint effectively to enhance the presentation
• demonstrate sufficient knowledge of the selected disorder

Student Responsibilities
Students have responsibilities for achieving the course objectives. Learning is a process that
requires skills and strategies, and you must actively develop those that work best for you. The
document “Keys to Academic Success” describes many ways to improve your learning skills, and
you should read and look for new learning strategies that you can apply. In this course the
foundation of academic success includes:
• Attending class and Reading the assigned material
• Being an active participant in the learning process by coming prepared to class, bringing
  questions about concepts that you do not understand, and answering questions posed during the
  class period.
• Completing question banks and working with classmates to understand the concepts
• Using online resources including question banks, self-quizzes, animations, etc

Academic Dishonesty
Dishonesty within the academic community is a very serious matter, because dishonesty destroys the
basic trust necessary for a healthy educational environment. Academic dishonesty is any treatment or
representation of work as if one were fully responsible for it, when it is in fact the work of another
person. Academic dishonesty includes cheating, plagiarism, theft, or improper manipulation of
laboratory or research data or theft of services. A substantiated case of academic dishonesty may
result in disciplinary action, including a failing grade on the project, a failing grade in the course, or
expulsion from the College.
Grading and Engagement Policies

Some additional policies

- **Student final grades** will be determined as follows:
  
<table>
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<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Lecture exams</td>
<td>~250</td>
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<tr>
<td>Quizzes</td>
<td>~120</td>
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<tr>
<td>Oral presentation</td>
<td>100</td>
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<td>Final exam</td>
<td>~125</td>
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  **TOTAL** ~595

- **Classes missed** due to participation in college-sponsored co-curricular events or college-recognized religious observances are considered excused absences provided appropriate procedures are followed. The student must notify the instructor at the earliest possible time before the absence and arrange to make up missed work as defined by the instructor’s syllabus. The co-curricular activity must be a performance, professional meeting, or athletic contest to be considered an excused absence. The religious observance must appear on the College’s calendar of religious observances in order to be considered an excused absence. If it does not, an excused absence can be granted only if the student requests special permission from the Dean of the Faculty.

  An excused absence allows the student to make up exams or quizzes given during the absence, or to reschedule oral presentations. It is the responsibility of the student to get notes from the class and to compensate as much as possible for the absence. It is also the student’s responsibility to work with the instructor in determining an appropriate time for make-up assignments. Students must recognize that many classroom and laboratory activities cannot be replicated and that absences may be detrimental to their performance.

- **Notification:** I must be notified at least one week in advance if you must miss a class the day of an exam or quiz for an excused absence, at which time an alternative exam time will be arranged. You may not be allowed to makeup an exam if I receive "last minute" notification. Makeup exams and quizzes will not be allowed for unexcused absences.

- **Cell phones and laptop computers** should not be on during class periods.

- **Late assignments** will be penalized 10% per day and failure to turn in an assignment may result in a failing grade for the semester, at the instructor’s discretion.

- **Use of submitted materials:** All work produced in this course is considered “public” and is used for the purposes of teaching and evaluation. This includes the use of your work as a model for future students/courses and the submission of your work to an online plagiarism detection service.

- **Policies also** include guidelines in other documents provided for this course (e.g., manuals or handouts) and oral instructions given in class.

- **Extraordinary circumstances.** In the case of extraordinary circumstances, the instructor reserves the right to resolve grading issues on an individual basis.

Disabilities

Students who believe that they may need accommodations due to a documented disability should contact the Academic Resource Center (Andrews Hall, Third floor, 376-4700) and the instructor as soon as possible to ensure that such accommodations are implemented in a timely manner. You must meet with the ARC staff to verify your eligibility for any accommodation and for academic assistance.
Study Sessions
Weekly study sessions will be scheduled. These will be student-organized sessions to review end-of-chapter and question-bank questions. These are your best opportunity to review course materials and question bank questions before quizzes and exams. You are expected to have worked on question bank materials before coming to help sessions.

The oral presentation
Working with a partner you will make a 20 minute PowerPoint presentation (plus 5 minutes of questions) on an autoimmune disease selected from the choices listed below. Each group must make a presentation on a different disorder.

Topics to be covered in presentation
The presentation must cover the following topics:
- Symptoms
- Epidemiology
- Triggers, Risk factors, role of molecular mimicry
- Treatment
- References
- Study questions
- Focus should be on cellular and molecular pathophysiology and immunological mechanisms

Expectations
- Read Chapter 19 on Autoimmune Diseases as part of your preparation for this project.
- Apply principles of good ppt design described in the file “Preparing effective PowerPoint presentations” posted on the course website
- Must draw upon research of the secondary literature; web resources can be used only for images and graphics; ppt must include citations.
- Minimum of four 2º literature sources used
- Group members must equally share in research, preparation and presentation
- Study questions should include 4 multiple choice and one short essay question. Questions should cover fundamental topics (non-trivial details) about the disease.

Students should print copies of ppt slides before the class presentations for note-taking

Due dates
9/13 - Topic selected. Each group must present on a different disorder; first come, first serve.
11/1 - Last day to schedule a meeting with Dr. S to review presentation and study questions. Ppt presentation is expected to be ~90% complete for meeting. Group should bring laptop with ppt file, and copies (can be pdf files) of source literature used.
11/22 - completed ppt file emailed to me for posting; must be formatted two slides per page, and include the exam questions (and your answers) at end.

Autoimmune diseases
- Autoimmune hemolytic anemia
- Celiac disease (gluten sensitivity)
- Insulin dependent (Type-I) diabetes
- Goodpasture’s syndrome
- Graves disease
- Hashimoto’s disease
- Myasthenia gravis
- Multiple sclerosis
- Psoriasis
- Rheumatoid arthritis
- Scleroderma
- Systemic lupus erythematosus

Other AI diseases or diseases must be approved by the instructor

Grading
Grades will be based upon:
- Quality of presentation
- Accuracy of content and apparent understanding of topic
- Meeting of assignment due dates and expectations (10% deduction each, for failing to meet the deadlines)