BIOLOGY 485

PRINCIPLES OF CELLULAR AND MOLECULAR IMMUNOLOGY

COURSE SYLLABUS

San Diego State University
Spring 2014

Tuesday and Thursday 2:00 PM – 3:15 PM

Room HH-214

Professor: Constantine D. Tsoukas, Ph.D.
Office: North LS 406
Telephone: 594-5764
E-mail: ctsoukas@mail.sdsu.edu

Office Hours: Most questions can be resolved via e-mail. However, if you need to meet with me you will need to make an appointment (via e-mail) on Tuesday or Thursday 3:30 PM - 5:30 PM. In your e-mail please explain the nature of the appointment. Please do not just drop by because I might have other commitments if there is no appointment made.

Purpose of the course

This course will introduce the student to the principles of modern Immunology, both at the molecular and cellular levels. The course is designed for students who take immunology for the first time. Discussions on experimental and technical details will be minimized for the benefit of emphasizing the overall concepts under study. The topics to be discussed along with assigned readings are listed on the last page of this syllabus.

There will be extensive use of BB for communicating with the class and posting classroom material (announcements, lecture slides, extra reading, sample tests etc). Please familiarize yourself with its use. The instructor makes extensive use of visual displays in the lectures. For this purpose, the lecture slides have color and as a result, you will need to have a good computer and color printer to take full advantage of the lecture material. You can get access to computers and printers in the library. To facilitate downloading of files, I convert lecture slides to PDF files. To open these files, you will need Adobe Acrobat Reader (preferably version 10 or later) that can be downloaded free of charge.

Prerequisites

The prerequisite for this course is a good understanding of basic concepts of biochemistry, as well as cellular and molecular biology. Examples of such concepts can be found on the first page of the ‘Study Guide’ (see course website in BB). Because these concepts are fundamental to understanding principles of immunology, students must have taken the SDSU prerequisite courses; Biol. 203, 203L, Chem. 365, Biol. 366 (can be taken concurrently). Recommended: Biol. 350 and Biol. 567. Equivalent courses taken at other Universities/Colleges are acceptable.

As university students at the junior or senior level, you should be able to determine yourselves whether you meet these prerequisites. I will not ask for proof and I will rely on your personal judgment that the prerequisites are met. Failure to meet the prerequisites often leads to a failing grade in Immunology due to lack of understanding basic concepts in Cellular/Molecular Biology and Biochemistry.
Expected learning outcomes

The expected learning outcomes of this course is to attain a working knowledge of current immunological principles as they relate to the cells and molecules of the immune system, how they interact in defending the body against invading microorganisms, how they develop and acquire the ability to recognize antigens, and finally how they malfunction in autoimmune diseases and how they become inadequate in immune deficiency states.

Textbook

"The Immune System" Third Edition by Peter Parham, will be the textbook utilized in this class. Required reading assignments are listed on the last page of the syllabus.

Exams and Quizzes

There will be two midterms and one final examination. The exams will be in the form of multiple choice questions, but the instructor reserves the option to change the format at any time. Questions in the exams will be derived from material covered in the lectures and in the reading assignments, the latter regardless whether they were discussed in class or not. The provided ‘Study Guide’ includes general questions on the material that many exam questions are derived from. There will be also study guides posted on BB with more specific questions related to each midterm and the final. These will be posted a few days before each exam.

The first midterm will include the material covered up to the time of the exam. The second midterm will include the material covered after the first midterm. The final exam will include all material covered in the course. As mentioned above, summary of topics covered in each exam, as well as sample questions with correct answers will be posted on BB before each midterm and final exams. Therefore, to help you study and prepare for each exam you will have the ‘Study Guide’, sample questions (with answers) and topics posted on BB before each exam, as well as the Questions listed at the end of each chapter of your textbook. Keep in mind these are only guides and keeping up with reading the assigned pages, attending class regularly, and studying your notes is of the utmost importance. Past experience indicates that cramming does not work for this course. Following each midterm exam the questions will be reviewed in the session following the exam. The purpose of this is instructional and it is not meant for memorizing the question and the answer. There is no value in memorizing the questions and the answers. Of importance is good understanding of the reasoning behind the answer to each question. For this purpose, exams are not returned or posted. If you like to review your own exam please see the process for reviewing your exam listed on BB.

Exam Dates: 1st midterm on February 25 and second midterm on March 25. Midterm exams will be given at the regular class session. The final exam will be on May 13 from 1:00 PM to 3:00 PM. Same classroom.

No make up exams will be given. Situations beyond an individual’s control (critical illness, emergencies etc) will be dealt with on an individual basis. It is the student's responsibility to justify such situations. Having to take more than one midterm on the same day or having an interview or an appointment of a non-emergency nature does not constitute justifiable reasons. Please arrange such commitment so they do not coincide with the midterm dates. The final will not be given earlier or later than its scheduled day unless there is a very important reason (critical illness, family emergency etc).

Pop Quizzes. There will be approximately 13-15 pop quizzes (depending on available time) at 1 point each that will be given unannounced throughout the semester. Pop Quizzes cannot be made up, if missed. I will drop the two lowest-point pop quizzes. So, you may miss up to two without affecting your grade on this part of the course. Please note that Pop Quizzes will be done on a plain piece of paper.
Please do not use scraps or half-pages, as those may be easily misplaced or lost and a grade will not be given for a quiz where the paper has been lost.

**Bonus Points:** During the final exam, you will have the opportunity to earn up to 25 points in extra credit as bonus. This is equivalent to about 8-9% of the total points in the course. This gives you the opportunity to improve your final grade by up to one grade level. Extra credit does not mean 'free points'. See the ‘Bonus Points” link in BB to find out how you can earn this extra credit.

**Grading**

The following will be an approximate grade distribution: First midterm ~20%, second midterm ~30%, final exam ~45%, Pop Quizzes ~5%. The actual distribution may vary. Letter grading will be assigned as follows:

- A = 93-100%
- B+ = 87-89%
- C+ = 77-79%
- D = 60-69%
- A- = 90-92%
- B = 83-86%
- C = 73-76%
- F < 60%
- B- = 80-82%
- C- = 70-72%

If you (a) earn at least 15 of the bonus points (total 25) mentioned above or (b) show linear improvement of your performance from 1st to 2nd midterms to final, I will bump you up to the next grade level (e.g. from B to B+ etc). If you do both (a) and (b), I will bump you up two grade levels.

**Course Policies**

**Personal classroom conduct:** I expect every student to be quiet and refrain from talking to others during lectures, as this is disruptive to others. If you want to ask a question you may interrupt me by raising your hand. Importantly, NO CELL PHONES are allowed. I request that all cell phones be turned off during class.

**Tardiness:** It is important that you arrive in class on time. Lectures will start promptly and I will not repeat something you missed due to tardiness. It is disruptive and disrespectful to others to enter the classroom when the lecture is in session. If, for any reason, you are late please enter quietly from the rear of the room.

**Conduct during exams and quizzes:** The use of textbooks, notes, cell phones, ipads and other equipment of this sort are not allowed. Their use during an exam/quiz will be regarded as cheating and an 'F' will be assigned to the exam/quiz. Also, looking at somebody else's paper during an exam/quiz is considered cheating. Cheating will not be tolerated. **Special note regarding pop-quizzes:** When you turn in your paper after an exam/quiz, you are required to turn in only your own paper and not anyone else's. So, please do not try to facilitate the process by collecting a bunch of papers from several of your classmates for turning them in. It will not be allowed and there will be a penalty.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Required Reading (pgs)</th>
<th>Approximate # of Lectures</th>
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<tbody>
<tr>
<td>Course Business Matters</td>
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<tr>
<td>Cells and Organs of the Immune System</td>
<td>1-8, 12-23</td>
<td>2</td>
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<td>Innate and Adaptive Immunity</td>
<td>8-11, 23-26, 31-45, 71-75</td>
<td>2</td>
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<td>Antibody Structure and Antigens</td>
<td>95-102, 263-272,</td>
<td>2</td>
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<tr>
<td>1st Midterm</td>
<td>Pages above and lectures</td>
<td><strong>February 25</strong></td>
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<tr>
<td>MHC and Antigen Processing/Presentation</td>
<td>76-81, 125-126, 132-154, 336</td>
<td>2.5</td>
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<td>T Cell Development and Activation</td>
<td>81-83, 129-131, 187-203, 219-224</td>
<td>3</td>
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<tr>
<td>B cells Development and Activation</td>
<td>83-90, 159-168, 174-180, 249-262, 502-503</td>
<td>2</td>
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<tr>
<td>2nd Midterm</td>
<td>Pages after 1st midterm and lecture notes</td>
<td><strong>March 25</strong></td>
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<td>Cytokines</td>
<td>49-53, 62-64, 224-228, 231-234</td>
<td>1.5</td>
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<td>Genetic Basis of Antigen Recognition</td>
<td>105-116, 126-129</td>
<td>3</td>
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<td>Hypersensitivity Reactions; Autoimmunity</td>
<td>309-310, 365-394, 403-416</td>
<td>1.5</td>
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<td>Acquired Immunological Deficiencies</td>
<td>351-360</td>
<td>1.5</td>
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<tr>
<td>Final Exam</td>
<td>All pages above and lecture notes</td>
<td><strong>May 13; 1:00 PM to 3:00 PM</strong></td>
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Additional, extra credit reading assignments from the textbook can be found on BB under the "Bonus Points" link.