

**BIOLOGY 435, IMMUNOLOGY**  
**3 CREDIT HOURS**  
**SPRING 2008**  
**8:00-9:20 AM, TR, LEE DRAIN BLD, RM 201**

**Course Instructor:** Todd P. Primm, Ph.D.  
Department of Biological Sciences  
Office in LDB 127, phone 294-3817, email tprimm@shsu.edu  
Office Hours are Mon and Wed 11am-1pm or by appointment  
Email is the surest way to reach me.

**About me:** I attended Atlanta High School in Atlanta, Texas, close to Texarkana. I received a Bachelor of Science in Biochemistry from Texas A&M University, then earned a Ph.D. in Biochemistry from Baylor College of Medicine in Houston. I did a three-year postdoctoral fellowship at the National Institutes of Health, in Bethesda, Maryland working on tuberculosis, then taught for 5 years at UTEP. My research is focused on antimicrobial drug development, physiology of mycobacteria, and mycobacterial immune modulation. This is my third year at Sam Houston State University.

**Course Description:** Humans encounter dozens of fungal and protozoan, hundreds of bacterial, and thousands of viral species daily, yet typically thrive. The immune system is a complex, integrated, remembering, defensive network that protects us from the myriad invaders. Even more impressively, while it recognizes millions of foreign antigens, it usually does not react against our own countless cell types (self vs non-self recognition). The immune system also is the primary barrier against cancer, identifying and destroying malignant cells. In this course we will explore the mechanisms of this amazing immune system, with a focus on host-pathogen interactions. We will also cover immunogenetics, cancer, and autoimmunity.

**Course objectives:**

1. learn the major terms and concepts of immunology
2. understand the major components in immunity, and how they function
3. gain a working understanding of how the immune system interacts with pathogens and cancerous cells

My approach in science education is concept-based learning, as opposed to memorizing a large volume of facts. There are several reasons for this. First, a number of those “facts” will be altered, eliminated, or replaced within the next decade. As new discoveries occur, it is the nature of science to alter our understanding. Thus, you are not learning exactly how immunity works, you are learning our current understanding of immunity works, which will inevitably change over time and be improved. Immunology is a fast-moving field, as you will see in class when we discuss topics which have already changed beyond what is in your textbook. Second, if you just memorize a bunch of details, you will forget most of it quickly unless you apply that knowledge somehow. Third, in the rapidly advancing field of immunology, you will encounter a large volume of new information in the future. If you have a strong grasp of the basic concepts of the field, then you can fit these new ideas into your web of knowledge. While a number of basic

facts and terms must be memorized, we will focus on learning and applying major concepts in this course. There is no lab component to this course.

**Required Course Text:** *Kuby Immunology*, 6<sup>th</sup> Ed., by Kindt, Goldsby, and Osborne, published by W. H. Freeman and Company. Also required (and should be packaged with the textbook) is the Scientific American Immunology Reader, 5<sup>th</sup> Ed, ISBN for the package of 1429203943. The third required adjunct text is “At War Within,” by William Clark, Oxford University Press, ISBN 0-19-511568-6. This is not in the bookstore, but sold new by Amazon.com or BarnesandNoble.com for about \$19, or used from BargainBookStores.com for ~\$4.00, or new from Buy.com for \$17.95. This small book is easy to read, should increase your interest in immunology, and allow you to see many of the applications of knowledge gained by study of the immune system.

**Attendance Policy:** As a University faculty member, I will provide my knowledge and expertise and try to develop a supportive educational environment. As University students, I expect you to behave professionally (cell phones off in class, prompt attendance, respect to other students, etc). Exam material is primarily from lectures and in-class discussions, thus if you miss class you will suffer. If something does cause you to miss class, then I expect you to be proactive and obtain lecture notes from a trusted colleague. If you miss an exam without notifying me in advance I do not provide a makeup. If you do notify me in advance (at least 24 hrs) and provide verification, and I accept your absence (official University activity or medical), then I reserve the right to give oral exams for makeup. I want you to learn and enjoy this course, however, that decision is up to you. The more you put in, the more you get out. Since this is a senior-level advanced elective course, attendance and participation is expected.

**Course evaluation:** There will be four equivalent essay written examinations taken during class time which each constitute 20% of your course grade, for a total of 80%. No grades are curved. However, the final exam is optional. There will be reading quizzes given at my discretion at the start of class on the assigned textbook readings. There will be 2-5 take home projects, given to enhance understanding of lecture topics. At least one of these is a major written report. Projects are graded on a 1-10 scale. The quizzes and projects combine for 20% of your total grade. Course grade is the typical breakdown of A (100-90%), B (89-80%), C (79-70%), D (69-60%), or F (59% and below).

For official University guidelines and policies related to students with disabilities, academic dishonesty, visitors in the classroom, and religious holidays, see <http://www.shsu.edu/syllabus/>

### **Course Calendar:**

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The course schedule will be on Blackboard, updated daily. The material listed on a date is the subject covered during that class period. Read the assigned material **before** the class (subject to quiz).

## Study Groups

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For some of the projects, group work is not only allowed but encouraged. Studying for exams is also often more effective in small group settings. List below the names, phone numbers, and email contact information for potential study partners.

NAME: \_\_\_\_\_

PHONE: \_\_\_\_\_

EMAIL: \_\_\_\_\_

NAME: \_\_\_\_\_

PHONE: \_\_\_\_\_

EMAIL: \_\_\_\_\_

NAME: \_\_\_\_\_

PHONE: \_\_\_\_\_

EMAIL: \_\_\_\_\_

### Advice for success:

- ✓ Listen carefully in class and take extensive notes. Organize the notes when you get home, that same day if possible when the material is fresh in your mind. If you have trouble listening, then record the lecture and listen again later.
- ✓ Whenever possible, ask questions in class. This class is small, so take advantage of that.
- ✓ Join a study group with other motivated students. You can teach each other and learn from each other. With different backgrounds, you can fill in the gaps in each other's knowledge.
- ✓ Read the textbook carefully, not like you read a newspaper. Make an outline of the chapter, note important terms, and summarize sections in your own words. This will not only prepare you for the quizzes, but dramatically enhance your learning from the textbook, which was specifically selected for students with little cell biology background.
- ✓ Study in advance with your group, don't cram. Even if you manage to obtain a decent grade, information crammed in at the last minute usually is lost fast from memory. Since the concepts in this course naturally are comprehensive and build on each other, that would be bad.