Immunology (Biol 3413.010)
Fall 2019

Instructor: Dr. Laurel Fohn, MD, PhD
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Office Hours: Posted on office door and on first day of class
Attendance: Roll is taken at each class meeting & factors into your grade as described below

Course Information

Course Description/ Goals
The goals of this course are to: [1] provide students with factual knowledge about the field of immunology; to introduce fundamental principles of the field. These represent progress points 1 & 2 on the IDEA course evaluation form to be filled out at the end of the semester.

Student Learning Objective
For departmental, university, state and accreditation purposes this course will assess learning objective: BIOLG2 which states that the student will "demonstrate comprehensive, specialized knowledge in the biological sciences". This course imparts specialized knowledge in the field of immunology

Student Learning Outcomes
Upon completion of this course, students should be able to:

- name the important cells of the immune system and be able to describe and/or recognize their role in immunity
- distinguish the differences in innate and adaptive immunity
- distinguish between the cell mediated adaptive response and the humoral mediated adaptive response
- distinguish/understand the clinical consequences of a normal and an abnormally functioning immune system
- understand how an immune reaction is initiated, perpetuated and terminated
- understand the similarities & differences in the self/non-self model of immunity as compared to the danger model
Course Delivery/ Format
Classic lecture style supplemented with transparencies/figures/ powerpoints. Students will be assigned textbook readings as well as supplemental reading material. The format of the laboratory accompanying the lecture is described below. This course is designed for upper level science majors particularly those with health professions interests.

Texts, Materials and Technology Requirements


Technology/Communications: Students will need to utilize and check their Angelo State University email account when signing up with Kuby Launchpad and for all email communications with the instructor and for course announcements. Additionally, students should maintain the ability to utilize Blackboard to access grades, reading assignments, and other course material.

Assessment/ Grading/Assignment and Activity Descriptions:
Students will be assessed on the above objectives through exams and quizzes as detailed below

Laboratory component of the course: (see schedule next page)
There will be videotape sessions consisting of video programs that are either specific lectures presented by immunologists and/or other health professionals or they are public television type programs discussing immunological history and/or current updates in the field. Most viewings will be 50-75 minutes long. You are encouraged to take written notes during the programs (voice/visual recordings are not permitted). Immediately following the video, the instructor will solicit and/or answer questions. A quiz covering the information presented in the video will conclude the lab. During the quiz, you can use any handwritten notes taken while viewing the video and/or during the question and answer session. Each quiz is composed of 20 multiple choice questions worth 0.5 points each (i.e. 10 pts total). Maximum possible points = 60 (6 quizzes X 10 pts).

Four "hands-on" lab exercises are scheduled. Handouts will give you the background, the experimental procedures and a set of questions to answer after completing each exercise. Each exercise will require that you report your results and answer the handout questions. The instructor will announce the due date for reports. Each report is worth 10 points maximum: with 3 points for complete results and 7 points for quality of answers to handout questions. Maximum possible points = 40 (4 write-ups X 10 pts max for each).

If you miss a lab, there will be one extra, optional lab quiz on Dec. 4 worth 10 points that may be used to replace one missed lab quiz. Missing more than one lab will lead to a zero for that day's exercise. There will be no additional lab make-up opportunities. Therefore, attendance is imperative.
LAB SCHEDULE:

Aug 28 Videotape #1; Lab Safety Courses in Bb assigned - per university policy, must be complete by next week to participate in lab and avoid missing points.
Sept 4 Videotape #2
Sept 11 Videotape #3

Sept 18 Lecture exam #1
Sept 25 Videotape #4
Oct 2 Videotape #5
Oct 9 Videotape #6

Oct 16 Lecture exam #2
Oct 23 Hands-on lab: Primary Literature Discussion
Oct 30 Hands-on lab: Antigens and Antibodies

Nov 6 Hands-on lab: ELISA
Nov 13 Lecture exam #3
Nov 20 Hands-on lab: RPLA and latex agglutination
Nov 27 Thanksgiving holiday
Dec 4 Lecture 2-3:50 + make-up quiz
Dec 12 Final Exam (10:30-12:30 Thursday)

Lecture Schedule:

Week one: Course introduction; comparison of natural & acquired immunity (humoral vs cell mediated)
Week two: Characteristics of an antigen (epitopes, immunogenicity, cryptic, sequestered, haptens)
Week three: MHC (genetics and natural functions)
Week four: MHC (practical aspects including transplants, role in autoimmunity, tissue typing)
Week five: MHC (practical aspects continued)
Week six: Cells of the immune system (interactions; TLRs & PAMPS, first and second signal)
Week seven: Cells of the immune system (properties of antigen presenting cells, lymphocytes, NK cells)
Week eight: Tissues of the immune system / Positive and negative selection
Week nine: Tissues of the immune system (continued)
Week ten: Antigen receptors (Abs & TCRS); Complement fixation
Week eleven: Primary & secondary immune response; vaccines; monoclonal antibodies
Week twelve: Cytokine role in the immune response (tolerance, autoimmunity, Th1 & Th2 responses, sepsis)
Week thirteen: The immune system: applications in cancer and medicine-
Week fourteen: Hypersensitivities (Type II and III)
Week fifteen: Hypersensitivities (Type I and IV)

Exams: On exam days, bring blank paper & a pen or pencil. No electronic devices, including calculators, are permitted on desktops during exams. Four (4) exams are scheduled including the final. The low score of the first three exams will be dropped. Each regular exam is scheduled from 2-3:50 PM on lab day (see lab schedule above). The regular exams are not comprehensive (but you are expected to know the terminology and apply the information presented earlier in the semester). Regular exams cover lecture material, assigned readings & hands-on lab material (but nothing directly from videotape labs). No make-up exams will be administered. Therefore, attendance is imperative and if an exam is missed, it will become a 0. This should then be the lowest of the first 3 exams, and the drop score. Each exam is worth 100 pts. Maximum possible points = 200 (2 exams X 100 pts).

The final exam will include questions (but not necessarily the same questions) from the three previous exams & new information covered since exam #3 including relevant hands-on experiments & reading assignments. There will also be 1-2 questions testing your grasp of the student learning objectives. The final exam is worth 100 points, is mandatory & counts towards the final grade. Maximum possible points = 100 pts.
**Grading System**

Course grades will be dependent upon completing course requirements listed above and meeting the student learning outcomes. The following grading scale is in use for this course:

- A = 360 (+) pts
- B = 320-359
- C = 280-319
- D = 200-279
- F = less than 200

**General Policies Related to This Course**

All students are required to follow the policies and procedures presented in these documents:

- Angelo State University Student Handbook
- Angelo State University Catalog

**Academic Integrity**

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university’s Statement of Academic Integrity.

**Accommodations for Students with Disabilities**

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student's responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the Student Disability Services website. All paperwork associated with this request needs to be submitted at least one week prior to accommodation implementation. Therefore, if you need accommodations, please confer with the Student Life Office as soon as possible.

The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford
Director of Student Disability Services
Office of Student Affairs- Houston Harte University Center, Room 112
325-942-2047
dallas.swafford@angelo.edu
Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.

Student Absence for Observance of Religious Holy Days

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day for more information.

Title IX at Angelo State University

Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Boone, J.D. You may submit reports in the following manner:

Online: www.angelo.edu/incident-form
Face to face: Mayer Administration Building, Room 210
Phone: 325-942-2022
Email:michelle.boone@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center (325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).
For more information about resources related to sexual misconduct, Title IX, or Angelo State’s policy please visit: www.angelo.edu/title-ix.

1 https://www.angelo.edu/student-handbook/
2 https://www.angelo.edu/catalogs/
3 https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
4 https://www.angelo.edu/services/disability-services/
5 https://www.angelo.edu/content/files/14197-op-1011-grading-procedures
6 https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of