Immunology
BIOL 465 (3 units); CRN 34650

Course Syllabus

Jonathan Runstadler
University of Alaska Fairbanks
Spring Semester 2010

Classes: Monday/Wednesday/Friday 10:30-11:30, Bunnell 124

Adaptive immune response including its components and activation from cells to molecules, clonal selection, antigen recognition and discrimination between foreign and self. Concepts applied to the level of intact organisms addressing allergies, autoimmunity, transplantation, tumors and disease.

Version: 1/16/10
1. Course Information:

Immunology, BIOL 465 (3); CRN 33201
Meeting Times: Monday/Wednesday/Friday 10:30-11:30, Irving 201
Prerequisites: BIOL 115X; 116X and 310 or BIOL 111X and 112X; or permission of instructor.
Recommended: BIOL 362 (Genetics) and BIOL 342 (Microbiology) or co-enrollment

2. Instructor:  Jonathan Runstadler, M.S., D.V.M., Ph.D., Assistant Professor of Biology & Wildlife
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Research Lab: Arctic Health Research Building Room 153, 155
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Mailbox: Irving I Room 211
Office hours: Tuesday 2-4 pm or by appointment

3. Course Readings/Materials:


The 5th and 6th editions of this text are acceptable.

Blackboard Page: Students are expected to check the course webpage on Blackboard on a regular basis.
Login at http://classes.uaf.edu/webapps/login
Click “immunology”
Contact me by email if you are unable to access this site.

Email Notifications: On occasion, students will be contacted via email. I will assume that each student will check their university-assigned email address (username@alaska.edu) on a regular basis.

Journals in Immunology:
Immunological Investigations (Taylor & Francis)
Journal of Immunology
Developmental and Comparative Immunology (Elsevier)

4. Course Description:

Welcome to Immunology. The UAF Catalogue describes the topic of this course as follows: “Adaptive immune response including its components and activation from cells to molecules, clonal selection, antigen recognition and discrimination between foreign and self. Concepts applied to the level of intact organisms addressing allergies, autoimmunity, transplantation, tumors and disease (AIDS).”

The goal of this course is to provide a basic understanding of the immune system in vertebrates, by studying its component parts and their interactions in health and disease. This course is designed as the first encounter with immunology for students that have taken introductory biology courses. It will cover the fundamental facts and principles of immunology.
The vertebrate immune system is a highly complex and interactive system evolved to provide self defense against pathogens. Immunology (or Immunobiology) is the study of the biological basis and mechanisms that govern host defense against infection.

**Course Organization:** The course will consist of 5 major themes. We will spend 1 - 3 class periods on each topic. Questions and discussion throughout the course are encouraged and this syllabus should be considered flexible. We will begin with a general overview of the immune system and then study the major themes in more detail. These themes include the following:

1. Innate immunity
2. Diversity of immune response
3. Cellular immunity
4. Adaptive response to infection
5. Immune-related disease

An understanding of key concepts in immunology will be gained through pursuit of several course goals.

**5. Course Goals:**

1. To identify and understand the components of the immune system.
2. To describe innate mechanisms of immune protection.
3. To explain how the diversity of immune response is generated.
4. To describe antigen recognition and processing for immune presentation.
5. To understand the basis for interaction of innate and adaptive immunity.
6. To differentiate the functions of T cell and B cell subsets.
7. To explain the molecular and cellular basis for generating an immune response that is specific and different for different infections.
8. To see how immunological mechanisms result in disease.

We will achieve these goals by implementing a variety of instructional methods.

**6. Instructional Methods:**

1. **Lecture and Discussion:** I will lecture, and we will discuss the basic concepts of immunology. An important source for this information is from written material. The 5th edition of Janeway is free at [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=books](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=books); however, the interface is somewhat different than having the text on paper and the immunobiology interactive CD is not included. A personal computer running at least Windows 95 or Mac OS 7.5.3 is required to use the immunobiology interactive CD that is included with the textbook. The CD is a useful supplement, although there will be no assigned use of the CD.

   **Discussions of Scientific papers:** On occasion we will devote class time to the discussion of current or historically or seminal papers in the field of immunology. You will receive these at least two days in advance and are expected to thoroughly read and prepare for discussion of the material.

   You are expected to read the assigned textbook chapters and take part in the class learning environment...ask questions when you have them and provide your thoughts when I ask for them. The textbook and the lectures together define the material covered in the exams, although the focus of exams will be material covered in class.
**Class Participation** is required. If for any reason you are not able to attend a specific class meeting, you will be responsible for catching up with the material covered during the absence. I will make a subjective assessment of each student’s class participation, and assign a grade (15% of the final grade) during final evaluation. Tardiness, absenteeism, inattentiveness, and unfamiliarity with course material will all negatively impact this subjective assessment. If you are required to participate in either (a) military or (b) UAF-required activities that will cause you to miss class, you must notify me as soon as possible before your absence. Of course, these will not negatively impact the subjective assessment of class participation. Class participation will count towards 15% of your final grade.

2. **Blackboard Page.** Several learning resources will be available on the course Blackboard Page:
   a. The course Blackboard Page will contain links to other instructional and informative pages on immunology. Some of these will include practice quizzes and short movie clips, which are especially good learning aids.
   b. A copy of this syllabus and the schedule will be posted on Blackboard.

3. **Midterms.** There will be two “midterm” exams during the semester. The midterms will test your knowledge of the lecture subjects to the depth covered in the text and class. You need access to the text material. Each midterm will count towards 20% of the final grade. One full lecture period will be allotted for the midterm exam.

4. **Journal discussions.** We will spend several class sessions discussing reading of scientific papers and reviews. Those discussions will be led by students and will count towards 15% of the final grade.

5. **Final Exam.** The final exam will be held from 8-10 am. The final exam will be a cumulative test of your knowledge in immunology. It will count toward 30% of the final grade.
7. Course Policies

As a UAF student, you are subject to the Student Code of Conduct. In accordance with Board of Regents' Policy 09.02.01, UAF will maintain an academic environment in which the freedom to teach, conduct research, learn, and administer the university is protected. Students will enjoy maximum benefit from this environment by accepting responsibilities commensurate with their role in the academic community. The principles of the Code are designed to facilitate communication, foster academic integrity, and defend freedoms of inquiry, discussion, and expression among members of the university community. You should become familiar with campus policies and regulations as published in the student handbook.

UAF requires students to conduct themselves honestly and responsibly, and to respect the rights of others. Conduct that unreasonably interferes with the learning environment or that violates the rights of others is prohibited. Students and student organizations will be responsible for ensuring that they and their guests comply with the Code while on property owned or controlled by the university or at activities authorized by the university.

Disciplinary action may be initiated by the university and disciplinary sanctions imposed against any student or student organization found responsible for committing, attempting to commit, or intentionally assisting in the commission of any of the following prohibited forms of conduct:
A. cheating, plagiarism, or other forms of academic dishonesty;
B. forgery, falsification, alteration, or misuse of documents, funds, or property;
C. damage or destruction of property;
D. theft of property or services;
E. harassment;
F. endangerment, assault, or infliction of physical harm;
G. disruptive or obstructive actions;
H. misuse of firearms, explosives, weapons, dangerous devices, or dangerous chemicals;
I. failure to comply with university directives;
J. misuse of alcohol or other intoxicants or drugs;
K. violation of published university policies, regulations, rules, or procedures; or
L. any other actions that result in unreasonable interference with the learning environment or the rights of others.

This list is not intended to define prohibited conduct in exhaustive terms, but rather to set forth examples to serve as guidelines for acceptable and unacceptable behavior.

Honesty is a primary responsibility of you and every other UAF student. The following are common guidelines regarding academic integrity:
1. Students will not collaborate on any quizzes, in-class exams, or take-home exams that will contribute to their grade in a course, unless permission is granted by the instructor of the course. Only those materials permitted by the instructor may be used to assist in quizzes and examinations.
2. Students will not represent the work of others as their own. A student will attribute the source of information not original with himself or herself (direct quotes or paraphrases) in compositions, theses and other reports.
3. No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors.

Alleged violations of the Code of Conduct will be reviewed in accordance with procedures specified in regent's policy, university regulations and UAF rules and procedures. For additional information and details about the
A Few Words on Plagiarism

In general, DO NOT present someone else’s ideas or data as your own: you are expected and required to give credit where credit is due. Plagiarism is a violation of the law and may lead to serious repercussions! Please follow the following guidelines: for any written assignments, if you use someone else’s ideas, data, or other information, write it in your own words and include the reference in parentheses directly following that information. Avoid copying someone else’s text. If, however, you feel you have to include an exact copy of that text, put it in quotation marks followed by the reference in parentheses. Of course, include all cited references in the Literature Cited section. During oral presentations, please acknowledge the sources by mentioning their name(s) and year of publication or by printing them on overheads, slides, or handouts. Also be aware that you need to cite earlier work by yourself. Any substantial use of any written or other materials that was used for another course or that was generated in any other circumstances will not be accepted for credit in this course. Only minor contributions from earlier work with appropriate citation(s) will be accepted.

9. Evaluation:

The class will be graded on a straight percentage basis with +/-: 90-100% is an A, 80-89.9% is a B, 70-79.9% is a C, 60-69.9% is a D, and < 60% is an F. I will not grade on a curve. This means that in principle it will be possible for everyone to get an A in this course (but of course it will also be possible for everyone to get an F). Supplemental assignments may be provided at the discretion of the instructor.

Missed assignments and exams:

Times for assignments and exams will be designated well in advance. Completion of assignments and exams at the designated time will be the responsibility of the student. Accommodations will only be made for legitimate and documented contingencies. If you have a conflict with exam dates, please come talk to me at the beginning of the semester. During class sessions designated as “review”, I will not present an overview of the material on the exam, rather your questions will direct a class discussion of immunology.

9. Disabilities Services:

At UAF, the Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities.