

Fayetteville State University
Basic of Basic and Applied Sciences
Department of Biological Sciences
BTCH 310 Immunology
Fall 2011

I. Locator Information:

Instructor: Muhammad Lodhi

Course # and Name: BTCH 310

Semester Credit Hours: 3-0-0

Day and Time Class Meets: MW 10:00-11:20 AM

Class Location: LSA 127

Office Location: LSA 320; Lab – LSA 240

Office hours: : MW (8:00 – 10:00 AM), TR (1:00 – 3:00 PM) & F (2:30 – 3:30 PM) OR by appointment

Office Phone: 910-672-1658

Email address: mlodhi@uncfsu.edu

Webpage: <http://faculty.uncfsu.edu/mlodhi>

FSU Policy on Electronic Mail: Fayetteville State University provides to each student, free of charge, an electronic mail account (username@uncfsu.edu) that is easily accessible via the Internet. The university has established FSU email as the primary mode of correspondence between university officials and enrolled students. Inquiries and requests from students pertaining to academic records, grades, bills, financial aid, and other matters of a confidential nature must be submitted via FSU email. Inquiries or requests from personal email accounts are not assured a response. The university maintains open-use computer laboratories throughout the campus that can be used to access electronic mail.

Rules and regulations governing the use of FSU email may be found at

<http://www.uncfsu.edu/PDFs/EmailPolicyFinal.pdf>

II. Course Description: Examines the components of the immune systems, immune responses, immune effectors, and immune diseases. Methods used in experimental studies of immunology are also introduced.

III. Disabled Student Services: In accordance with Section 504 of the 1973 Rehabilitation Act and the Americans with Disabilities Act (ACA) of 1990, if you have a disability or think you have a disability to please contact the Center for Personal Development in the Spaulding Building, Room 155 (1st Floor); 910-672-1203.

IV. Textbook: Kuby Immunology, 6th edition, 2007. TJ Kindt, RA Goldsby and BA Osborne.

V. Student Learning Outcomes: Upon completion of this course, students will be able to;

- Understand the basic concepts of immunology as evidenced through quizzes and exams
- Analyze the differences between innate and adaptive immune systems as assessed through quizzes, exam and assignments
- Differentiate various cell types involved in immunology as well as antigens and antibodies as determined by online quizzes, exam and home assignments
- Communicate the complement system and its function in controlling pathogens as demonstrated by quizzes and exams
- Explain the nature and maturation process of B cells and T cells as established by quizzes and exam
- Recognize different types of cell-mediated cytotoxic responses as evidenced by quizzes, exam and assignments
- Communicate about different types of hypersensitivity reactions as determined by quizzes and exam
- Describe the role of active and passive immunization and their role in disease control in assessment done with quizzes, exams and assignments
- Discuss immune systems related to health and diseases such as AIDS and cancers evidenced by quizzes, exams and assignments

VI. Course Requirements and Evaluation Criteria: Pre requisite is BIOL 200

a. Grading Scale – Following standard FSU grading scale will be used

Percent of Points	Grade
91 – 100	A
82 – 90	B
73 – 81	C
65 – 72	D

<65	F
Excessive Absences	EA
Incomplete	I
No Show	X

b. Final grade will be based on the following evaluation components

	Item	Number of Items	Points/Item	Total points	%age
1a	Class Exams	3	40	160	42
1b	Final Exam	1	20	20	5
2	Research Paper	1	40	40	10
3	Assignments	3	15	45	12
4	Quizzes	14	10	120	31
	Total			385	100

1. **Class Exams:** Four exams will consist of the material covered in the lectures and any additional information provide till the day of the exam. These four exams will not contain any questions from the previous exam (s). The fourth exam will be comprehensive and will cover the topics and chapters covered in the entire semester. **These exams will be given in the class. There will be no make-up exams except for medical emergency, that too with a doctor's verification of your situation.**

2. **Research Paper:** Topics for the research papers will be limited to the application of molecular biology or biotechnology to immunology. Topics will be distributed in the class. Length of the paper will be a minimum of 4 pages, 1.5 line spacing and not more than 12 font size. It will be due on or before November 25. More detail regarding the content of the paper will be covered in the class. However it should contain a good introduction, literature review, experimental strategies, results and bibliography. **Papers submitted one day late will be considered only for 80% of the grade.** No paper will be accepted if they are late by more than one day. Rubrics will also be provided as a guide for writing and assessment.

3. **Assignments:** These will vary regarding the length and topics. Due dates for each assignment is mentioned in the schedule. Each assignment will be 2-3 pages long. No hand written assignments will be acceptable unless instructed otherwise. **Assignments submitted one week late will be considered only for 80% grade of that assignment.** Any assignment submitted after a week of the due date will not be accepted.

4. **Quizzes:** Each week one quiz will be given either in class or through Blackboard. Each quiz will cover material from the previous week (2-3 classes). Online quizzes will be available from 9:00 AM on Monday till 5:00 PM on Tuesdays. All quizzes are open notes and open book but time limited. Best way to do well on quizzes is to read your notes and the book chapter before taking the quiz. Even though there are 14 quizzes in all, only top 12 will be used for grading (2 lowest grades will be dropped).

c. **Attendance Requirements – Each student is expected to attend all the classes. Missing classes will affect grade. In excessive cases I may lower the grade by a letter grade. Similarly coming late to the class is also very unprofessional. Thee tardy days will be equivalent to one absence. Absences due to medical or family emergencies will be excused. Routine medical or dental check-up is NOT considered a medical emergency.**

Please note: If these evaluation criteria must be revised because of extraordinary circumstances, the instructor will distribute a written amendment to the syllabus.

Student Behavior Expectations: The *Code of the University of North Carolina* (of which FSU is a constituent institution) and the *FSU Code of Student Conduct* affirm that all students have the right to receive instruction without interference from other students who disrupt classes.

FSU Core Curriculum Learning Outcome under Ethics and Civic Engagement (6.03): All students will “prepare themselves for responsible citizenship by fulfilling roles and responsibilities associated with membership in various organizations.” Each classroom is a mini-community. Students learn and demonstrate responsible citizenship by abiding by the rules of classroom behavior and respecting the rights all members of the class.

The FSU Policy on Disruptive Behavior (see FSU website for complete policy) identifies the following behaviors as disruptive:

1. Failure to respect the rights of other students to express their viewpoints by behaviors such as repeatedly interrupting others while they speak, using profanity and/or disrespectful names or labels for others, ridiculing others for their viewpoints, and other similar behaviors;
2. Excessive talking to other students while the faculty member or other students are presenting information or expressing their viewpoints.
3. **Use of cell phones and other electronic devices**
4. Overt inattentiveness (sleeping, reading newspapers)
5. Eating in class (except as permitted by the faculty member)
6. Threats or statements that jeopardize the safety of the student and others
7. Failure to follow reasonable requests of faculty members
8. Entering class late or leaving class early on regular basis
9. No cell phone or text messaging devices will be allowed to be used in the class. A student using cell phone/text message may be asked to leave the class.

Consequences for Failing to Meet Behavioral Expectations: *The instructor may take the following actions in response to disruptive behavior. Students should recognize that refusing to comply with reasonable requests from the faculty member is another incidence of disruptive behavior.*

1. Direct student to cease disruptive behavior.
2. Direct student to change seating locations.
3. Require student to have individual conference with faculty member. At his meeting the faculty member will explain the consequences of continued disruptive behavior.
4. Dismiss class for the remainder of the period. (Must be reported to department chair.)
5. Lower the student’s final exam by a maximum of one-letter grade.
6. File a complaint with the Dean of Students for more severe disciplinary action.

Students who believe the faculty member has unfairly applied the policy to them may make an appeal with the faculty member’s department chair.

VII. Academic Support Resources – Students who are earning less than a “C” average will be encouraged to attend tutorial sessions provided free by various units and centers below.

<http://www.uncfsu.edu/univcoll/services.asp>

<http://www.uncfsu.edu/learningcenter/>

<http://www.uncfsu.edu/sss/>

<http://www.uncfsu.edu/cpser/tutorialservices.htm>

Online tutoring is also available through Smarthinking: <http://www.uncfsu.edu/fsuretention/smarthinkingflyer.pdf>

VIII. Course Outline and Assignment Schedule
Provided separately as Course Schedule

IX. Teaching Strategies

Power Point lectures will be delivered in the class and the same lectures will be posted on Blackboard. Internet resources will be utilized where appropriate to aid in the learning of new concepts. Students will be encouraged to ask questions and take part in discussions. Also, students will be given assignments and asked to write research a paper to independently learn or enhance their understanding of the subject.

X. References

1. Publisher's Site (www.freeman.com/immunology6e)
2. Centers for Disease Control and Prevention (www.cdc.gov/)
3. National Institute for Allergy and Infectious Diseases (www3.niaid.nih.gov)
4. The American Academy of Allergy, Asthma and Immunology (www.aaaai.org)
5. (The American Association of Immunologists (www.aai.org))
6. Students should also go to the library and read articles in publications such as Nature Immunology, Nature Genetics, Science, American Scientific, the Journal of Immunology, Immunology journal and books.
7. <http://immuno.bme.nwu.edu>
The Kabat Database of Sequences of Proteins of Immunological Interest: This site has the amino acid and DNA sequences of many antibodies and other proteins that play important roles in immunology.
8. <http://www.biochem.ucl.ac.uk/~martin/abs>
Antibodies-Structure and Sequence: This web site summarizes useful information on antibody structure and sequence. It provides general information on antibodies and crystal structures and links to other antibody-related information.
9. <http://www.ncbi.nlm.nih.gov>
National center for Biotechnology Information (NCBI): A unique and comprehensive resource of computerized databases of bibliographic information, nucleic acid sequences, protein sequences, and sequence analysis tools created and maintained by the National Library of Science.
10. <http://www.ncbi.nlm.nih.gov/Structure/>
The Molecular Modeling Database (MMDB) contains 3-dimensional structures determined by X-ray crystallography and NMR spectroscopy. The data for MMDB are obtained from the Protein Data Bank (PDB). The National Center for Biotechnology Information (NCBI) has cross-linked structural data to bibliographic information, to the databases of protein and nucleic acid sequences, and to the NCBI animal taxonomy database. The NCBI has developed a 3D structure viewer, Cn3D, for easy interactive visualization of molecular structures from within Entrez Med.
11. <http://pathlabsofark.com/flowcyttests.html> Pathology Laboratories of Arkansas is a place to see just what kinds of samples are taken from patients and what markers are used to evaluate lymphocyte populations by flow cytometry.
12. <http://jcsmr.anu.edu.au/facsclab/AFCG/standards.html> At the highly informative Australian Flow Cytometry Group Web site, one can find a carefully detailed and illustrated guide to the interpretation of flow cytometric analyses of clinical samples.
13. <http://www.kpl.com/support/immun/pds/50datasht/54-12-10.html>, which allows one to follow a step-by-step procedure for using a chemiluminescent substrate in a sensitive immunoassay.
14. <http://www.bioscience.org/knockout/b2micrgl.htm> for beta-2 microglobulin KO
15. <http://www.bioscience.org/knockout/mhci.htm> for MHC class I KO
16. <http://www.bioscience.org/knockout/mhcii.htm> for KO of an MHC class II chain
17. <http://www.bioscience.org/knockout/mhc2inva.htm> for KO of the invariant chain This series of destinations in the Bioscience Web site provide updated information on studies of the consequences of targeted disruption of MHC molecules and other component molecules including b-2 microglobulin and the class II invariant chain.
18. <http://www.ncbi.nlm.nih.gov/Omim/>
The Online Mendelian Inheritance in Man Web site contains a sub-site that lists ten different inherited diseases that are associated with defects in the TCR complex or associated proteins. Any one of those listed may be studied in detail by following the links in this database.
19. <http://www.ultranet.com/~jkimball/BiologyPages/A/Apoptosis.html>
http://www.ultranet.com/~jkimball/BiologyPages/B/B_and_Tcells.html
These sub-sites of John Kimball's Biology Pages Web site provide a clear introduction to the bare fundamentals of T-cell biology and a good basic discussion of apoptosis.
20. <http://www.bioscience.org/knockout/knohome.htm>
Within the Frontiers in Bioscience Database of Gene Knockouts, one can find information on the effects of knockouts of many genes of significance to the development and function of cells of the T lineage.