

BIOL 4550: Immunology (summer, 2012)

1. Course Information

- Course number and section: BIOL 4550 (A) (CRN #: 50106)
- Course name: Immunology
- Hours of credit: 4
- Pre-requisites or co-requisites as listed in university catalogue: (BIOL 1107K Minimum Grade: C or BIOL 2XM1 Minimum Grade: C and BIOL 2XML1 Minimum Grade: C) and (BIOL 1108K Minimum Grade: C or BIOL 2XM2 Minimum Grade: C and BIOL 2XML2 Minimum Grade: C) and BIOL 3100 Minimum Grade: C
- Classroom location and room number: BC 1025 (for the lecture, 12:45 pm - 2:10 pm, MTWR), BC 2071 (for the lab, 9:00 am - 11:50 am, MW)
- Department, College, University: Department of Biology, College of Arts and Sciences, Valdosta State University

2. Instructor Information

- Instructor name: Dr. Jonghoon Kang
- Instructor contact: #2217 (BSC), 229-333-7140, jkang@valdosta.edu
- Instructor office hours: T,R 9:00 am – 10:00 am

3. Course Description

- Introduction to basic concepts of immunology, including antigen and antibody structure, the generation of diversity, the nature of T cell and B cell receptors, cellular cooperation, and the down regulation of immune responses.
- Required texts, resources, and materials: “How the Immune System Works” by Lauren M. Sompayrac from Wiley-Blackwell; 4th edition (2012)
- Required out-of-class activities: Reading assigned lecture notes, presentation materials, and textbook. Performing assigned projects.

4. Standards, Goals, Objectives, or Outcomes

- outcomes:
The General Education Outcomes (<http://www.valdosta.edu/pers/gened.shtml>).
- 3. Students will use information and computer and information technology when appropriate.
- 5. Students will demonstrate knowledge of scientific and mathematical principles and proficiency in laboratory practices.
- 7. Students will demonstrate the ability to analyze, to evaluate, and to make inferences from oral, written, and visual materials.

The departmental educational outcomes (listed in the university catalogue).

1. Develop and test hypotheses, collect and analyze data, and present the results and conclusions in both written and oral formats used in peer-reviewed journals and at scientific meetings.
3. Demonstrate an understanding of the cellular basis of life.
4. Relate the structure and the function of DNA/RNA to the development of form and function of the organism and to heredity.

- Course objectives or outcomes:

- Describe basic terminology in immunology.
- Describe the underlying physical and chemical principles in immunology.
- Demonstrate an understanding of basic experimental and computational techniques in immunology.
- Demonstrate literature analysis capability.
- Interpret clinical cases using basic principles of immunology.
- Demonstrate competency for the immunology part in standard tests such as MFT, GRE, MCAT, and DAT.

5. Assignments (explicitly aligned with the goals, objectives, or outcomes)

- General description of the assignments: Students are required to read the textbook to be covered before coming to the class. Some additional materials will be posted on the Blazeview and you need to study them before class. There will be four in-class tests and one final test.
- Policies for missed assignments, make-up assignments, late assignments, and/or extra credit: If you miss any assignment due to medical or family-related emergency you can have make-up assignments as long as you prove the valid reason of your absence (doctor's notes). **Otherwise no make-up tests!** And you will get a zero point for the missing part.

6. Assessment or Evaluation Policy

- Explanation of how much each assignment contributes to the overall grade for the class:

$$\text{Total Score} = 400 \text{ (In Class Exam)} + 200 \text{ (Final)} + 200 \text{ (Lab)} = 800$$

- Explanation of how grades are assigned:

Total score (%)	Grade
$\geq 90\%$	A
$\geq 80\%$	B
$\geq 70\%$	C
$\geq 60\%$	D
$< 60\%$	F

7. Schedule of Activities or Assignments, including university -scheduled final exam time (all schedule is tentative and may be subject to change)

Date	Class	Lab
6/6	1, An Overview	Course Introduction
6/7	1, An Overview	
6/11	2, The Innate Immune System	Bioinformatics of CD Proteins Project (Protein structure, Membrane Proteins, Data collection): Computer Lab 3018
6/12	2, The Innate Immune System	
6/13	Exam I (100 points)	Bioinformatics of CD Proteins Project (Data analysis using PCA): Computer Lab 3018
6/14	3, B Cells and Antibodies	
6/18	3, B Cells and Antibodies	Computational Tools for Innate Immunity (CytoPred, AntiBP): Computer Lab 3018
6/19	4, The Magic of Antigen Presentation	
6/20	4, The Magic of Antigen Presentation	Thermodynamic Calculation of Immune Reactions: Computer Lab 3018
6/21	Exam II (100 points)	
6/25	5, T Cell Activation	Lab Practical: Computer Lab 3018 (100 points)
6/26	5, T Cell Activation	
6/27	6, T Cells at Work	Introduction to ELISA reactions
6/28 (mid-term)	6, T Cells at Work	
7/2	7, Secondary Lymphoid Organs	Quantitative ELISA Laboratory Activity
7/3	Exam III (100 points)	
7/4 (Holiday)	No Class	No Lab
7/5	8, Restraining the Immune System	
7/9	9, Tolerance Induction and MHC Restriction	Antigen-Antibody Interaction: The Ouchterlony Procedure

7/10	9, Tolerance Induction and MHC Restriction	
7/11	10, Immunological Memory	Affinity Chromatography of Glucose Binding Proteins
7/12	11, Vaccines	
7/16	Exam IV (100 points)	Vaccination Readiness
7/17	12, The Immune System Gone Wrong	
7/18	12, The Immune System Gone Wrong	Simulation of HIV detection by ELISA
7/19	13, Immunodeficiency	
7/23	14, Cancer and the Immune System	Lab Exam (100 points)
7/24	15, A Critique of the Immune System	
7/26	Final Exam (12:45 - 2:45pm) (200 points)	

8. Classroom Policies

- Attendance and tardiness: Any absence policy should conform to the university policy. University Attendance Policy from the VSU catalogue:
“The University expects that all students shall regularly attend all scheduled class meetings held for instruction or examination. When students are to be absent from class, they should immediately contact the instructor. ***A student who misses more than 20% of the scheduled classes of a course will be subject to receive a failing grade in the course.***”
- Accommodations Statement:
From VSU’s Access Office (<http://www.valdosta.edu/access/facresources.shtml>):
“Students requesting classroom accommodations or modifications due to a documented disability must contact the Access Office for Students with Disabilities located in Farber Hall. The phone numbers are 245-2498 (V/VP) and 219-1348 (TTY). “
- Academic Integrity: You know that cheating is a bad thing to do. Students caught cheating will receive a grade of F for the test in question and will be reported to the Dean of Students. You are expected to follow VSU’s Academic Integrity Code.
From VSU’s Academic Integrity Code (the full code is available at <http://www.valdosta.edu/academic/AcademicHonestyPoliciesandProcedures.shtml> :
“Academic integrity is the responsibility of all VSU faculty and students. Faculty members should promote academic integrity by including clear instruction on the components of academic integrity and clearly defining the penalties for cheating and plagiarism in their course syllabi. Students are responsible for knowing and abiding by the Academic Integrity Policy as set forth in the Student Code of Conduct and the faculty members’ syllabi. All students are expected to do their own work and to uphold a high standard of academic ethics. “
- Classroom demeanor or conduct: Every student should make the lecture a comfortable and enjoyable learning experience. Late entry to the class room or leaving early is bad behavior. Common sense should be practiced and expected.
- Communication: All VSU-related correspondence should be conducted via VSU email addresses for both student and instructor and via the Blazeview.

9. Additional Information (at instructor’s discretion)

- Expectations for competencies such as writing, technology skills, or performance: Students should be able to describe biological phenomena at the molecular or cellular level in terms of physics and chemistry.
- Instructional philosophy: I believe reading one book ten times is better than reading ten books one time each. This is the case for this course.
- Strategies used to support learning: Students should take advantage of my office hours. Studying as a group (study group) should be a good idea.
- I will teach and you will learn in this course. Therefore, your intellectual enhancement from this course will depend on both of us. Would you have any other ideas?