

BIOL 4550 / BIOL 6550: Immunology (Summer, 2022)

1. Course Information

- Course number and section: BIOL 4550 (CRN #: 52883), BIOL 6550 (CRN #: 52916)
- Hours of credit: 4
- Pre-requisites or co-requisites as listed in university catalogue: (BIOL 4550) (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; (BIOL 6550) Admission into the graduate program or permission of the instructor.
- Classroom location and room number:
Lecture: M-R 12:45 pm – 2:10 pm, BC 2202
Lab: MW 2:30 pm – 5:20 pm, BC 3018

2. Instructor Information

- Instructor name: Dr. Jonghoon Kang
- Instructor contact: BC 2217, 229-333-7140, jkang@valdosta.edu
- **Instructor office hours: Tue & Thur 2:30 pm – 3:30 pm**

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”**, 6th Edition, by Lauren M. Sompayrac” from Wiley. ISBN: 978-1-119-54212-4. You may need a **memory stick**.
- Required out-of-class activities: Reading lecture notes, presentation materials, the textbook, and any posted materials.

4. Standards, Goals, Objectives, or Outcomes

- Describe basic terminology in immunology.
- Describe the underlying physical and chemical principles in immunology.
- Demonstrate an understanding of basic computational techniques in immunology.
- Demonstrate literature analysis capability. Graduate students need to select papers to present in consultation with the instructor.
- Interpret clinical cases using basic principles of immunology.
- Demonstrate competency for the immunology part in standard tests such as MFT, GRE, MCAT, DAT, OAT, and PCAT.
- Perform research to publish (optional)

5. Assignments

- General description of the assignments: Students are required to read the textbook to be covered before and after class. Some additional materials will be posted on Blazeview and you need to study them before class. There will be two in-class tests, one lab test, 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 or labs!** And you will get a zero point for the missing part. Late assignments

will not be accepted. If you miss the lab more than three times for any reasons, you won't pass this course. So, make sure that you attend all lectures as well as labs.

6. Assessment Policy

Total Score (U) = 200 (In Class Exam) + 100 (Lab Practical) + 300 (Final) = 600

Total Score (G) = 200 (In Class Exam) + 100 (Lab Practical) + 100 (Term Paper) + 300 (Final) = 700

Total score (%)	Grade
>= 90%	A
>= 80%	B
>= 60%	C
>= 40%	D
< 40%	F

All exams are open-notebook exams. You can use your own handwritten notebooks. You are not allowed to use any other materials such as laptops or your phone during exam. In the lab exam, you can use anything including the internet, but no communications with other people.

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

Date	Class	Date	Lab
6/8 – 6/9	1 An Overview	6/8	Introduction
6/13 – 6/16	2 The Innate Immune System 3 B Cells and Antibodies	6/13	Documentary
		6/15	Mathematica
6/20 – 6/23	3 B Cells and Antibodies 4 The Magic of Antigen Presentation	6/20	Juneteenth Holiday
		6/22	Kinetics and Regression
6/27 – 6/30	5 T Cell Activation 6 T Cells at Work EXAM 1 (100 points) 6/30	6/27	Thermodynamics and Regression ImageJ
		6/29	ELISA
7/4 – 7/7	7 Secondary Lymphoid Organs and Lymphocyte Trafficking 8 Restraining the Immune System	7/4	Independence Day
		7/6	History of Immunology
7/11 – 7/14	9 Self Tolerance and MHC Restriction 10 Immunological Memory 11 The Intestinal Immune System	7/11	Bioinformatics for Immunology
		7/13	Statistics for Immunology
7/18 – 7/21	12 The Immune System Gone Wrong 13 Immunodeficiency 14 Vaccines 15 Cancer and the Immune System	7/18	PCA for Immunology
		7/20	Lab Exam (100 points)
7/25 – 7/26	EXAM 2 (100 points) 7/25 16 Immunotherapy	7/25	Graduate Defense Seminar
7/27	Open-Notebook Final Exam (12:45 - 2:45pm) (300 points) at 2202		

Mid-Term: July 5

References:

1. <https://www.wolfram.com/wolfram-u/catalog/gen005/>
2. <https://pubmed.ncbi.nlm.nih.gov/19564042/>
3. <https://www.ncbi.nlm.nih.gov/books/NBK6294/>
4. <https://www.immport.org/resources/cytokineRegistry>
5. <https://www.sciencedirect.com/science/article/pii/S0021925819887677?via%3Dihub>
6. <https://www.sciencedirect.com/science/article/pii/S004268220600290X>
7. <https://www.nature.com/articles/s41598-021-88630-9#Tab1>
8. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5763123/>
9. <http://www.cbs.dtu.dk/services/NetMHCpan/>
10. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7738742/>
11. <https://www.sciencedirect.com/science/article/pii/S016158902030403X?via%3Dihub>
12. <https://pubmed.ncbi.nlm.nih.gov/21674720/>
13. <http://tools.iedb.org/main/>

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.**”
- Lab Conduct: Arrive on time. Students who miss two labs without an excuse or three labs total cannot receive a lab grade above a “D”. So, do not be late to lab. In the event that a student misses a lab with an excuse, s/he should email the instructor within 24 hours of the missed lab. It is the instructor’s prerogative to accept the excuse or not. Absolutely no laboratories can be made up, and no work will be accepted late.
- 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.
- **Title IX Statement**
- Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University's Title IX Coordinator: the Director of the Office of Social Equity, titleix@valdosta.edu, 1208 N. Patterson St., Valdosta State University, Valdosta, Georgia 31698, 229-333-5463.

9. Additional Information

- Expectations for competencies such as writing, technology skills, or performance: Students should be able to describe biological phenomena at the molecular or cellular levels in terms of physics and chemistry.
- Instructional philosophy: I believe reading one book ten times is better than reading ten books one time. 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 immunology in this course. Therefore, your intellectual enhancement from this course will depend on both of us. Would you have any other ideas?***