BIOL 3044 Immunology  
Spring 2017 Semester

Instructor: Dr. George Brown  
Section # and CRN: P01 21054  
Office Location: 430F, New Science Building  
Office Phone: 936-261-3161  
Email Address: gebrown@pvamu.edu  
Office Hours: 9:30 a.m. to 10:30 a.m. MWF in room 106 New Science Building  
4:00 p.m. to 5:00 p.m. TR in room 106 New Science Building

Mode of Instruction: Face to face discussion type classes that requires student participation in discussion of class topics and demonstrations. Students are provided opportunities to raise questions, respond to questions asked by the instructor, and solve problems by using either audiovisual or oral presentations to the class.

Course Location: Room 106 New Science Building  
Class Days & Times: MWF 12:00 noon to 12:50 p.m.  
TR section P01 12:00 noon to 1:50 p.m.  
TR section P02 2:00 p.m. to 3:50 p.m.

Catalog Description: BIOL 3044, Immunology, (3-1) Credit 4 semester hours. Fundamentals aspects of immunology, antigenic systems, hypersensitivity, and serology

Prerequisites: BIOL 1015 General Biology; BIOL 1025 General Biology; BIOL 2054 Genetics;  
Co-requisites: BIOL 3044 P01 or BIOL 3044 P02

Required Texts: JANEWAY’S IMMUNO BIOLOGY, 9th Edition, by Kenneth Murphy and Casey Weaver  
Publisher: Garland Science, Taylor & Francis Group, LLC  
ISBN: 987-0-8153-4551-0 (paperback)  
Student Resources are available on the Janeway’s Immunobiology Student Website, located at students.garlandscience.com

Answers to End-of-Chapter Questions for self-testing

Animations and Videos of over 40 narrated movies, covering immunology topics, which review key concepts and illuminate the experimental process.

Flashcards are built into the student website, that allows students to review term from the text.

The Comprehensive Glossary of key terms from the book is online and can be searched or browsed.

Recommended Texts:
# Student Learning Outcomes:

Upon successful completion of this course, students will be able to:

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<tr>
<th>Program Learning Outcome #</th>
<th>Core Curriculum Alignment</th>
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[NOTE: BEGIN each outcome with a VERB]:

### 1
Demonstrate an understanding of the basic concepts of immunology.

1. Explain the basic concepts of immunology
2. Describe the origins of vertebrate immune cells.
3. Explain how the cells of the immune system develop from precursor adult stem cells in the human bone marrow.
4. Explain the cellular, tissue, and organ components of the immune system and their functions.
5. Explain the principles of innate immunity.
6. Describe how the immune system recognizes infection and induce protective responses.
7. Describe the principles of adaptive immunity.
8. Explain the effector mechanisms of immunity.
9. Explain how specific antigens are recognized by the immune system how it determines and regulates which specific effector mechanisms of adaptive immunity are produced to protect the body from the specific antigens.

### 2
Demonstrate knowledge of innate immunity which provides the first lines defense against infection.

1. Describe the anatomic barriers and initial chemical defenses of innate immunity.
2. Explain the front line of host defense that provides barriers to infection.
3. Explain how phagocytes function in the innate immune system pattern recognition of pathogens and how they recruit cells of the adaptive immune system by membrane signaling to attack specific pathogens.
4. Explain how the various cytokines and chemokines that are produce in response to pathogen recognition induce the innate immune response.
5. Describe how the complement system recognizes features of microbial surfaces and initiate pathways that mark them for destruction by phagocytes.
6. Explain the function of the components of the complement systems how the three complement cascades are induced to lyse cellular pathogens.

### 3
Demonstrate knowledge of the induced responses of innate immunity.

1. Explain how cells of the innate immune system conduct pattern recognition pathogens
2. Describe how many pathogens are recognized by phagocytes, ingested, and killed by them.
3. Describe the induced innate responses to infections.
4. Explain how ligand binding to a receptor on phagocytes activates signal transductions that induce expression of genes for inflammatory cytokines and type I interferons that mediate a variety of local and distant effects.
5. Describe how the cytokines released by macrophages and dendritic cells recruit effector cells to sites of infection, and activate the liver to initiate the acute phase response, and activate natural Killer (NK) cells to initiate apoptosis in virus infected cells.
### Demonstrate an understanding of how antigens are recognized by cells of the immune system.

- a. Describe antigen recognition by B-cell receptors.
- b. Describe antigen recognition by T-cell receptors.
- c. Explain the structure of a typical antibody molecule.
- d. Explain the interactions of the antibody molecule with specific antigen.
- e. Demonstrate knowledge of the various antibody molecules (B-cell receptors) and how their hypervariable amino acid sequences recognize antigen.
- f. Describe how the various domains of antibody polypeptides contribute to function of the various classes of antibodies.
- g. Explain antigen recognition by T-cells.
- h. Explain how the structure of a T-cell receptor molecule is similar to a Fab fragment of an immunoglobulin.
- i. Describe how a T cell receptor recognize antigen in the form of a complex of a foreign peptide bound to an MHC molecule.
- j. Describe the molecular structures and functions of both types of major histocompatibility complex protein receptors (MHC class I and MHC class II).

### Demonstrate knowledge of the generation of lymphocyte antigen receptors (B-cell receptors and T-cell receptors).

- a. Describe the primary immunoglobulin gene rearrangement.
- b. Describe the T-cell receptor gene rearrangement.
- c. Explain how the inherited germ line DNA of progenitor lymphocytes is rearranged by splicing out segments of genes while bonding the remaining DNA segments by Junctional diversity to encode pre-mRNA for their antigen receptor (antibody polypeptide chains or T-cell receptor polypeptide chains).
- d. Describe the involvement of DNA modifying enzymes in somatic recombination during lymphocyte development to produce a diversity of immunoglobulin repertoire.
- e. Explain the four main processes that generate a diversity of immunoglobulin repertoire.
- f. Describe how multiple inherited gene segments (V, D, and J) are rearranged in different combinations.
- g. Explain how variable addition and removal of nucleotides at the junction between gene segments (V, D, and J) contributes to the diversity of the third hypervariable region.
- h. Explain how billions of unique clones of B-cells and T-cells, each of which only possesses recognition of one specific antigen, are produced with rearranged genes, that encode pre-mRNA for their antigen receptor.
- i. Explain how the central dogma flow of genetic information during gene expression in developing lymphocytes results in post transcriptional and post translational modifications of antibodies and T-cell receptors.
- j. Explain the role of somatic hyper-mutation during B-cell maturity.
- k. Describe the structural variation in immunoglobulin constant amino acid sequence regions and how it confers functional specification on the different classes of antibodies.
- l. Understand that mature naïve B cells express both IgM and
IgD antigen receptors on their plasma membrane surfaces.

m. Describe the process of class switching of the antibody repertoire and how it enables the same assembled \( V_H \) exon to be bonded to different \( C_H \) genes in the course of an immune response.

n. Understand that transmembrane and secreted forms of the different classes of immunoglobulins are generated by from alternative heavy chain transcripts (pre-mRNA).

o. Understand the evolution of the adapted immune response from invertebrates, through Aganthans (jawless cartilaginous fish), sharks, reptiles, birds and mammals.

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<tr>
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<th>1. Demonstrate knowledge of antigen presentation to T Lymphocytes.</th>
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<tr>
<td>a.</td>
<td>Explain the generation of ( \alpha \beta ) T-cell receptor ligands.</td>
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<td>b.</td>
<td>Demonstrate knowledge of the major histocompatibility complex and its function</td>
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<td>c.</td>
<td>Describe how tissue cells with a nucleus, transport short peptides of 8 to 10 amino acids produced in the cytosol to the lumen of the rough ER and bind short peptides of 8 to 10 amino acids antigens to the ends of newly synthesized MHC class I before they transported by transport vesicles to the ( cis ) phase of golgi for modification before being transported by transport vesicles from the golgi’s ( trans ) phase to the plasma membrane where they are expressed on the surface as normal self exposed ligands that prevent activation of a T cell response against the cells.</td>
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<td>d.</td>
<td>Understand how virus infected tissue cells with a nucleus or those that have become transformed into cancer cells, transport viral or abnormal short peptides of 8 to 10 amino acids produced in the cytosol to the lumen of the rough ER and bind short peptides of 8 to 10 amino acids antigens to the ends of newly synthesized MHC class I before they transported by transport vesicles to the ( cis ) phase of golgi for modification before being transported by transport vesicles from the golgi’s ( trans ) phase to the plasma membrane where they are expressed on the surface as abnormal self exposed ligands that bind specific T cell receptors on CD 8 T lymphocytes to initiate membrane signal transductions in specific CD 8 T cells which cause them to become activated to propagate, secrete cytokines, and differentiate into effector T-cells responses against the infected or abnormal cells.</td>
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<td>e.</td>
<td>Demonstrate knowledge of the generation of ligands for unconventional T-cell subsets.</td>
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<th>Demonstrate knowledge of the development of the mature lymphocyte receptor repertoires.</th>
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<td>a.</td>
<td>Demonstrate an understanding of lymphocyte receptor signaling.</td>
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<td>b.</td>
<td>Explain the general principles of signal transduction and propagation.</td>
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<td>c.</td>
<td>Describe antigen receptor signaling and lymphocyte activation.</td>
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<td>d.</td>
<td>Explain co-stimulatory and inhibitory receptors modulate antigen receptor signaling in T and B lymphocytes.</td>
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<th>Demonstrate an understanding of the development of B and T lymphocytes.</th>
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<td>a.</td>
<td>Describe the development of B lymphocytes.</td>
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<td>b.</td>
<td>Explain the development of T lymphocytes</td>
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<td>9</td>
<td>Demonstrate knowledge of the adaptive immune response.</td>
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<td>a. Demonstrate an understanding of T-cell mediated immunity.</td>
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<td>b. Explain the development and function of secondary lymphoid organs-sites for the initiation of adaptive immune responses.</td>
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<td>c. Describe the priming of naïve T cells by pathogen activated dendritic cells.</td>
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<td>d. Explain the general properties of effector T cells and their cytokines.</td>
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<td>e. Describe T-cell-mediated cytotoxicity</td>
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<td>Demonstrate an understanding of the humoral immune response.</td>
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<td>a. Describe B-cell activation by antigen and helper T cells.</td>
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<td>b. Explain the distributions and functions of immunoglobulin classes.</td>
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<td>c. Describe the destruction of antibody-coated pathogens via Fc receptors.</td>
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<td>11</td>
<td>Demonstrate knowledge of the integrated dynamics of innate and adaptive immunity.</td>
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<td>a. Describe the integration of innate and adaptive immunity in response to specific types of pathogens.</td>
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<td>b. Explain the distinct phases that occur during the course of the infection.</td>
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<td>c. Describe how the effector mechanisms that are recruited to clear the infection depend on the infectious agent.</td>
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<td>d. Explain how effector T cells augment the effector functions of innate immune cells</td>
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<td>e. Describe immunological memory</td>
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<td>Demonstrate knowledge of the Mucosal Immune System.</td>
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<td>a. Describe the nature and structure of the mucosal immune system</td>
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<td>b. Explain the mucosal response to infection and regulation of mucosal immune responses</td>
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<td>13</td>
<td>Demonstrate knowledge of the immune system in health and disease.</td>
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<td>a. Explain the failures of the host defense mechanisms.</td>
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<td>b. Describe the immunodeficiency diseases.</td>
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<td></td>
<td>c. Explain how various pathogens evade and subvert the immune defenses</td>
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<td></td>
<td>d. Demonstrate knowledge of acquired immune deficiency syndrome HIV-AIDS).</td>
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<td>14</td>
<td>Demonstrate knowledge of allergy and allergic diseases.</td>
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<td></td>
<td>a. Explain IgE and IgE-mediated allergic diseases.</td>
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<td>b. Describe effector mechanisms in IgE-mediated allergic reactions.</td>
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<td></td>
<td>c. Explain non-IgE-mediated allergic diseases</td>
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<td></td>
<td>d. Explain the various types of allergic responses and hypersensitivity responses.</td>
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<td>15</td>
<td>Demonstrate knowledge of autoimmunity and tissue transplantation rejection and tolerance.</td>
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<td>a. Describe the making and breaking of self-tolerance.</td>
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<td>b. Explain autoimmune diseases and pathogenic mechanisms.</td>
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</table>
c. Describe the genetic and environmental basis of autoimmunity.

d. Explain the responses to alloantigens and transplant rejection.

e. Explain how pharmacological molecules are used to block tissue transplant rejection.

### 1. Demonstrate knowledge of how immune responses are manipulated.

| a. Explain how unwanted immune responses can be treated. |
| b. Describe the use of immune responses to attack tumors. |
| c. Explain how vaccination fights infectious diseases. |
| d. Describe protective immunity can be induced by DNA-based vaccination. |
Major Course Requirements

1. To study a historical perspective of Immunology.

2. To study the latest developments in innate sensing mechanisms and new findings in innate lymphoid cells and the concept of “immune effector modules”.

3. To develop an understanding of innate and adaptive immune responses to pathogens around the effector module concept and the function of tissue-resident memory T cells.

4. To develop an understanding of the many new techniques, including the CRISPR/Cas9 system and mass spectrometry/proteomics.

5. To enhance knowledge of the chemokine networks.

6. To study the new findings for γδ T cell recognition and for the targeting of activation-induced cytidine deaminase (AID) class switch recombination.

7. To learn new knowledge on integrin activation, cytoskeletal reorganization, and Akt and mTOP signaling.

8. To understand the quickly advancing field of mucosal immunity.

9. To develop an understanding of CD4 T cell subsets including follicular helper T cells that regulate class switching and affinity maturation.

10. To develop knowledge of primary and secondary immune-deficiencies to include new treatment of immune evasion by pathogens and HIV/AIDS.

11. To learn about allergy and allergic diseases.

12. To develop an understanding of autoimmunity and tissue transplantation.

13. To learn of new breakthroughs in cancer immunotherapy, including “checkpoint blockade” and chimeric antigen receptor (CAR) T-cell therapies.

14. To develop an understanding of the fundamental concepts and principles of immunology and the contributions of Prairie View A & M faculty and graduates to establishing these concepts.

15. To develop an understanding for the scientific method and its applications to problem solving in clinical immunology case studies.

16. To inspire students to enhance their critical thinking skills through the study and discussion of clinical immunological case studies.

17. To stimulate students of immunology to become intellectually self-reliant.

18. To develop an understanding of important concepts of the mammalian immune response.

19. To enhance the understanding of how immune responses can either provide protection from infections and cancer or result in a range of disorders.

20. To develop an understanding the cells and molecules of the immune system and how they work together in providing defenses against invading microorganisms.

21. To develop knowledge of the different types of cells, organs, and microenvironments that make up the immune
system and the functions they perform.

22. To develop an understanding of the structure and functions of receptors and signaling in the immune response.

23. To develop an understanding of the principles of innate immunity.

24. To develop knowledge of how antigens are recognized by cells and molecules of the immune system.

25. To develop an understanding of the repertoire development for an immune response.

26. To develop an understanding of other cells that provide both the front line defenses of innate immunity and inflammation necessary to stimulate B and T lymphocytes such as macrophages, dendritic cells, granulocytes, mast cells, and natural killer cells.

27. To develop an understanding of the principles of adaptive immunity.

28. To learn how T-Cells and B-Cells develop.

29. To develop an understanding of how innate and adaptive immunity work together to battle common types of infection.

30. To develop an understanding of how cells adapt to infection and provide long lasting protective immunity.

31. To develop an understanding of how the activation, differentiation, and generation of memory occurs in T lymphocytes and B lymphocytes and the effector function of B and T lymphocytes.

32. To develop knowledge of the organization and expression of lymphocyte receptor genes.

33. To develop an understanding of the organization, inheritance and expression of the Major Histocompatibility Complex (MHC) genes into MHC proteins and their role in antigen presentation.

34. To develop knowledge of tolerance, autoimmunity, and tissue transplantation and how some diseases arise from inadequacies of the immune system.

35. To develop an understanding of situations where infections fail to be controlled because the pathogens actively evades, exploits, or subverts the immune responses.

36. To develop an understanding of the various cellular molecules and mechanisms that function in immunology to protect humans and other mammals from infection by prokaryotes, viruses, protozoa, fungi, toxins, and the onset of cancer.

37. To develop an understanding of conditions in which the immune system overreacts to innocuous substances in the environment and causes chronic-inflammatory diseases such as allergies and asthma.

38. To develop knowledge of the autoimmune diseases, such as Graves’ disease, insulin-dependent diabetes, rheumatoid arthritis, etc. in which the immune system attacks healthy cells and causes tissue damage and loss of function.

39. To develop an understanding of how the immune system can be manipulated to improve human health, vaccination and transplantation as well as the emerging field of cancer immunology.

40. To acquaint students with applications and principles of immunological laboratory techniques used in research, to detect, measure, and characterize biological molecules.

Method of Determining Final Course Grade
Course Grade Requirement | Value | Total
---|---|---
1) Exam 1 | 5% | 5
2) Exam 2 | 5% | 5
3) Exam 3 | 5% | 5
4) Exam 4 | 5% | 5
5) Exam 5 | 5% | 5
6) Exam 6 | 5% | 5
7) Exam 7 | 5% | 5
8) Exam 8 | 5% | 5
9) Exam 9 | 5% | 5
10) Discussion Section Grade | 50% | 50
**SUBTOTAL** | **50%** | **50**

**FINAL EXAM** | **50%** | **50**

**Total:** | **100%** | **100**

**Grading Criteria and Conversion:** [Insert points or percentages]
- A = 90% – 100%
- B = 80% - 89%
- C = 70% - 79%
- D = 60% - 69%
- F = 00% - 59%

**Detailed Description of Major Assignments:**

**Assignment Title or Grade Requirement** | **Description**
---|---
Basic Immunology | Demonstrate on exams; knowledge of the basic concepts of immunology covered in the 16 chapters of the required textbook.
Immunology Discussion Section Artifact | Prepare and present either a power point of typed paper of a selected topic covering modern manipulation the immune response to treat or cure cancer, autoimmune diseases, allergies, transplant tissue rejection, or failures of the immune system.

**Course Procedures or Additional Instructor Policies**

**Taskstream**

In order to be successful in this course a student must conceptualize immunology by during the following:

1. Read the assigned immunology textbook chapters before they are taught by the instructor. Students should be prepared to discuss lecture topics in class and ask intelligent questions in order to gain a
better understanding of immunology. Students are encouraged to ask questions at the beginning of class about concepts that they studied but they need a clearer understanding.

2. Attach and organize all graded exams and class hand-outs into a note book which should be studied each day in order to perform well on each scheduled exam. When students meet with the instructor they must bring their immunology textbook and course notebook. These items are essential for enhanced learning. Otherwise the conference will be a waste of time.

3. Ask relevant questions during the class discussion

I. Course Evaluation Methods:

All scheduled lecture exams will be cumulative in terms of topics covered on the test. Each lecture exam covers all chapters taught from the first day of class to the last topic taught before the exam. The average of all quizzes, reports and presentations will constitute one semester exam. The semester average of all semester exams will constitute fifty percent (50%) of the final semester grade. The cumulative final exam will constitute the remaining 50% of the final semester grade.

The goal is to give at least nine cumulative lecture exams during the semester. The date for each lecture exam will be announced in class at least one week prior to the administration of the exam.

The mid-term exam is scheduled for Thursday, March 9, 2017. The final exam for this course is scheduled for Friday, May 5, 2017, 10:30a.m., in room 121 of the Harrington Science Building. Arrange your schedule to take the final exam at this official time. We cannot give the exam before or after this set time. Please do not request to take your final exam at a different time.

MAKE-UP EXAMS: Students are strongly advised to take exams at the announced scheduled time. Analysis of over 42 years of make-up exams results have demonstrated that students score higher grades when they took Dr. Brown’s regular exams at the scheduled time. However over 99% of those that took make-up exams failed them. The make-up exam requires students to demonstrate their knowledge in more specific terms because they would have had access to the regular test results. It is recommended that students take exams at the scheduled times.

II. Conduct That Is Not Allowed In Class:

The following are not allowed in any component of this course:

1. Students are not allowed to use cellular phones, I-pods, I-pads, lab-top computers, cameras and other high technological communication instruments during exams because they can be used to cheat with. Do not bring these instruments to the exam. If they are brought to the exam, the student must report it to the instructor and those instruments must be turned off and locked away in the student’s book bags so that they cannot be seen or used. Therefore, students caught with any of those instruments, or in view, or in use during lectures or exams will be charged with cheating and assigned a failing grade.

2. Cheating is not allowed on exams, quizzes, tests, or assignments. Failing grades are assigned to students caught cheating.

3. Smoking is not allowed in classrooms. Do not bring food or beverages into the classrooms for this course. Food and beverages may be consumed in the snack bar lounge on the first floor the New Science Building.
**Semester Calendar**

**Week One:**
**Topic Description**
Readings:
- **T** Read Chapter 1 Basic Concepts of Immunology
- **W** Read principles of innate immunity
- **R** Read Principles of adaptive immunity
- **F** Read effector mechanisms in chapter 1

**Assignment (s):**
- **T** Prepare questions to ask instructor about immunology
- **W** Study chapter 1 power point figures and prepare notes of readings
- **R** Sturdy end of chapter questions and answers on textbook web site
- **F** Organize and study class notes. Access the textbook web site and e-course

**Week Two:**
**Topic Description**
Readings:
- **M** Read chapter 2 Innate Immunity
- **T** Read chapter 2 anatomical barriers
- **W** Read chemical defenses in chapter 2 and prepare for exam 1 on Thursday
- **R** Read about the complement system role in innate immunity
- **F** Read complement classical pathway

**Assignment (s):**
- **M** Prepare to participate in class discussions of chapter 2
- **T** Study for exam 1
- **W** Study for exam 1 and then participate in your study group review for exam 1
- **R** Bring a Scantron form 884 and a number 2 pencil to take exam 1
- **F** Bring prepared questions and notes about chapters 1 and 2 for class discussion

**Week Three:**
**Topic Description**
Readings:
- **M** Read chapter 3 the induced responses of innate immunity
- **T** Read chapter 3 about pattern recognition by cells of the innate immune system
- **W** Read chapter 3 the types of receptors expressed by cells of the innate system
- **R** Read about the induced innate responses to infection
- **F** Read about the role of NK cells in responses to infection

**Assignment (s):**
- **M** Prepare for and participate in class discussion of chapter 3
- **T** Participate in class discussion about pattern recognition of pathogens by cells
- **W** Study chapter 3 power point figures and prepare notes of readings
- **R** Study chapter questions and on textbook web site
- **F** Organize and study notes. Practice for exam 2 by using web site resources

**Week Four:**
**Topic Description**
Readings:
- **M** Read chapter 4 antigen recognition by B cells
- **T** Read about structure and functions of antibodies
- **W** Read about antigen recognition by T cells
- **R** Read about the structure and function of MHC molecules in chapter 4
- **F** Read Chapter 5 the generation of lymphocyte antigen receptors

**Assignment (s):**
- **M** Study for exam 2
- **T** Bring a Scantron form 884 and a number 2 pencil to take exam 2
- **W** Study primary immunoglobulin gene rearrangements in chapter 5
- **R** Study T cell receptor gene rearrangement in chapter 5
- **F** Study structural variations in immunoglobulin constant regions

**Week Five:**
**Topic Description**
Readings:
- **M** Read chapter 6
- **T** Read about T cell development in chapter 5
- **W** Read about the major histocompatibility complex and its function
- **R** Read the generation of ligands for unconventional T cell subclasses
F  Prepare for exam 3 and read chapter 7
Assignment (s):
M  Participate in class discussion of chapter 6
T  Participate in class discussion about T cell development
W  Study the MHC and its function
R  Participate in class presentation about unconventional T cell subclasses
F  Study for exam 3 and read chapter 7

Week Six:
Topic Description
Readings:
M  Read about the development of mature lymphocytes in chapter 7
T  Read about lymphocyte receptor signaling
W  Read about general principles of signal transduction and propagation
R  Read about antigen receptor signaling and lymphocyte activation
F  Read about Co-stimulatory and inhibitory receptor signaling and read chapter 8
Assignment (s):
M  Study for exam 3
T  Bring a number 2 pencil and a Scantron form 884 to take exam 3
W  Participate in class discussion of chapter 7
R  Participate in class discussion of chapter 7
F  Participate in class discussion of chapter 7 and read chapter 8

Week Seven:
Topic Description
Readings:
M  Read about development of 8 lymphocytes in chapter 8
T  Read about development of T cells
W  Read chapter 8 about positive and negative selection of T cells in thymus
R  Read chapter 9 about T cell mediated immunity
F  Read chapter 9 about secondary lymphoid organs and the role of dendritic cells
Assignment (s):
M  Participate in class and study for exam 4
T  Bring pencil and Scantron form to take exam 4
W  Participate in class discussion of chapter 8
R  Participate in class discussion of chapter 9
F  Participate in class and study chapter 9

Week Eight:
Topic Description
Readings:
M  Read chapter 9
T  Read chapter 9
W  Read and study for the mid-term exam (exam 5)
R  Read chapter 10
F  Read chapters 10 and Start preparation for term artifact presentation
Assignment (s):
M  Participate in class discussion of chapter 9
T  Participate in class study of chapter 9
W  Participate in class and study for exam 5
R  Bring pencil and Scantron form 884 to take exam 5
F  Participate in class discussion of chapter 10

Week Nine:
Topic Description
Readings:
M  Read chapter 10
T  Read chapter 10
W  Read chapter 10
R  Read chapter 11
F  Read chapter 11
Assignment (s):
M  Participate in class discussion of chapter 10
T  Participate in class discussion of chapter 10
W  Participate in class discussion of chapter 10
R  Bring pencil and Scantron form to take exam 6
F  Participate in class discussion of chapter 11
**Week Ten:**

**Topic Description**

**Readings:**
- **M** Read chapter 11
- **T** Read chapter 11
- **W** Read chapter 11
- **R** Read chapter 12
- **F** Read chapter 12

**Assignment (s):**
- **M** Participate in class on chapter 11
- **T** Participate in class on chapter 11
- **W** Participate in class on chapter 11
- **R** Bring pencil and Scantron to take exam 7
- **F** Participate in class discussion of chapter 12

**Week Eleven:**

**Topic Description**

**Readings:**
- **M** Read chapter 12
- **T** Read chapter 12
- **W** Read chapter 12
- **R** Read chapter 13
- **F** Read chapter 13

**Assignment (s):**
- **M** Participate in class discussion of chapter 12
- **T** Participate in class discussion of chapter 12
- **W** Participate in class discussion of chapter 12
- **R** Participate class discussion of chapter 13
- **F** Participate in discussion of chapter 13

**Week Twelve:**

**Topic Description**

**Readings:**
- **M** Read chapter 13
- **T** Read chapter 13
- **W** Read chapter 13 and study for exam 8
- **R** Read chapter 14
- **F** Read chapter 14

**Assignment (s):**
- **M** Participate in class discussion of chapter 13
- **T** Participate in class discussion of chapter 13
- **W** Participate in class discussion of chapter 13 and study for exam 8
- **R** Bring a pencil and Scantron form 884 to take exam 8
- **F** Study chapter 14
Week Thirteen:
Topic Description
Readings:
  M  Read chapter 14
  T  Read chapter 14
  W  Read chapter 14
  R  Read chapter 15
  F  Read chapter 15
Assignment (s):
  M  Participate in class discussion of chapter 14
  T  Participate in class discussion of chapter 14
  W  Participate in class discussion of chapter 14
  R  Bring pencil and Scantron form 884 to take exam 9
  F  Participate in class discussion of chapter 15. Complete Artifact assignment

Week Fourteen:
Topic Description
Readings:
  M  Read chapters 15 and chapter 16
  T  Read chapter 16
  W  Read chapter 16
  R  Read chapter 16
  F  Read chapter 16
Assignment (s):
  M  Participate in class discussion of chapter 15
  T  Participate in class discussion of chapter 16
  W  Participate in discussion of chapter 16
  R  Participate in discussion of chapter 16
  F  Complete term artifact requirement for submission to instructor on Monday May 1

Week Fifteen:
Topic Description
Readings:
  M  Turn-in term artifact assignment Semester Review
  T  Semester Review
  W  Start of Final Exams
Assignment (s):
  M  Participate in class review
  T  Participate in class review
  W  
  R  
  F  Bring a Scantron form 884 and a number 2 pencil to take the final exam.

Student Support and Success

John B. Coleman Library
The library and its partners have as their mission to provide resources and instructional material in support of the evolving curriculum, as a partner in Prairie View A&M University's mission of teaching, research, and service and to support the University's core values of access and quality, diversity, leadership, relevance, and social responsibility through emphasis on ten key areas of service. It maintains library collections and access both on campus, online, and through local agreements to further the educational goals of students and faculty.
https://www.pvamu.edu/library/  Phone: 936-261-1500

The Learning Curve (Center for Academic Support)
The Learning Curve offers Tutoring via peer tutoring. The services include workshops (i.e., Save My Semester, Recalculate Your Route), seminars (i.e., Tools You Can Use: TI-84), group review sessions (i.e., College Algebra Topic Reviews, GRE Preparation), group study opportunities (i.e., TSIA, HESI, Study Break, Exam Cram), and test-taking strategies (How to take Notes, Study Buddy, 5 Day Study Guide). The Learning Curve is a nationally certified
tutoring program through the National Tutoring Association. The peer tutors are trained and certified by the coordinator each semester. Location: J.B. Coleman Library Rm. 207F. Phone: 936-261-1561

**The Center for the Oversight and Management of Personalized Academic Student Success (COMPASS)**
The Center for the Oversight and Management of Personalized Academic Student Success (COMPASS) is designed to help Prairie View students in their second year and beyond navigate towards graduation by providing the following services: Academic Advisement, Targeted Tutorials for Personalized Learning, Campus-Wide Referrals, and Academic & Social Workshops. Location: J.B. Coleman Library Rm. 306. Phone: 936-261-1040

**Writing Center**
The Writing Center provides student consultants on all aspects of the writing process and a variety of writing assignments. Writing Center consultations assist students in such areas as prewriting, brainstorming, audience awareness, organization, research, and citation. Students taking on-line courses or courses at the Northwest Houston Center or College of Nursing may consult remotely or by email. Location: Hilliard Hall Rm. 121. Phone: 936-261-3724.

**Student Counseling Services**
The Student Counseling Services unit offers a range of services and programs to assist students in maximizing their potential for success: short-term individual, couples, and group counseling, as well as crisis intervention, outreach, consultation, and referral services. The staff is licensed by the State of Texas and provides assistance to students who are dealing with academic skills concerns, situational crises, adjustment problems, and emotional difficulties. Information shared with the staff is treated confidentially and in accordance with Texas State Law. Location: Owens-Franklin Health Center Rm. 226. Phone: 936-261-3564

**Testing**
The Department of Testing administers College Board CLEP examinations, the HESI A2 for pre-nursing majors, LSAT for law school applicants and MPRE for second-year law students, the Experiential Learning Portfolio option, the Texas Success Initiative (TSI) Assessment, which determines college readiness in the state, and exam proctoring, among other service such as SAT and ACT for high school students. Location: Delco Rm. 141. Phone: 936-261-4286

**Office of Diagnostic Testing and Disability Services**
As a federally-mandated educational support unit, the Office of Disability Services serves as the repository for confidential disability files for faculty, staff, and students. For persons with a disability, the Office develops individualized ADA letters of request for accommodations. Other services include: learning style inventories, awareness workshops, accessibility pathways, webinars, computer laboratory with adapted hard and software, adapted furniture, proctoring of non-standardized test administrations, ASL interpreters, ALDs, digital recorders, livescribe, Kurzweil, and a comprehensive referral network across campus and the broader community. Location: Evans Hall Rm. 317. Phone: 936-261-3585

**Veteran Affairs**
Veterans Services works with student veterans, current military and military dependents to support their transition to the college environment and continued persistence to graduation. The Office coordinates and certifies benefits for both the G.I. Bill and the Texas Hazlewood Act. Location: Evans Hall Rm. 323. Phone: 936-261-3563

**Office for Student Engagement**
The Office for Student Engagement delivers comprehensive programs and services designed to meet the co-curricular needs of students. The Office implements inclusive and accessible programs and services that enhance student development through exposure to and participation in diverse and relevant social, cultural, intellectual, recreational, community service, leadership development and campus governance. Location: Memorial Student Center Rm. 221. Phone: 936-261-1340

**Career Services**
Career Services supports students through professional development, career readiness, and placement and employment assistance. The Office provides one-on-one career coaching, interview preparation, resume and letter writing, and career exploration workshops and seminars. Services are provided for students at the Northwest Houston Center and College of Nursing in the Medical Center twice a month or on a requested basis. Distance
Learning students are encouraged to visit the Career Services website for information regarding services provided. Location: Evans Hall Rm. 217. Phone: 936-261-3570

University Rules and Procedures

Disability Statement (Also See Student Handbook): The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Evans Hall, Room 317, or call 936-261-3585/3.

Academic Misconduct (See Student Handbook): You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of Academic Dishonesty:
1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.

2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.

3. Fabrication: use of invented information or falsified research.

4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else’s words, ideas, or data as one’s own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one’s own work also constitutes plagiarism.

Nonacademic Misconduct (See Student Handbook) The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor’s ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

Sexual Misconduct (See Student Handbook): Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

Title IX Statement Prairie View A&M University (PVAMU) is committed to supporting students and complying with the Texas A&M University System non-discrimination policy. It seeks to establish an environment that is free of bias, discrimination, and harassment. If you experience an incident of sex- or gender-based discrimination, including sexual harassment, sexual assault or attempted sexual assault, we encourage you to report it. While you may talk to a faculty member about an incident of misconduct, the faculty member must report the basic facts of your experience to Ms. Alexia Taylor, PVAMU’s Title IX Coordinator. If you would like to speak with someone who may be able to afford you privacy or confidentiality, there are individuals who can meet with you. The Title IX Coordinator is designated to handle inquiries regarding non-discrimination policies and can assist you with understanding your options and connect you with on- and off-campus resources. The Title IX Coordinator can be reached by phone at 936-261-2123 or in Suite 013 in the A.I. Thomas Administration Building.

Class Attendance Policy (See Catalog for Full Attendance Policy)
Prairie View A&M University requires regular class attendance. Attending all classes supports full academic development of each learner whether classes are taught with the instructor physically present or via distance learning technologies such as interactive video and/or internet.

Excessive absenteeism, whether excused or unexcused, may result in a student’s course grade being reduced or in assignment of a grade of “F”. Absences are accumulated beginning with the first day of class during regular semesters and summer terms. Each faculty member will include the University’s attendance policy in each course syllabus.

**Student Academic Appeals Process**
Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor’s assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

**TECHNICAL CONSIDERATIONS**

**Minimum Recommended Hardware and Software:**
- Intel PC or Laptop with Windows 7; Mac with OS X; Smartphone or iPad/Tablet with Wi-Fi
- High speed Internet access
- 8 GB Memory
- Hard drive with 320 GB storage space
- 15” monitor, 800x600, color or 16 bit
- Sound card w/speakers
- Microphone and recording software
- Keyboard & mouse
- Most current version of Google Chrome, Safari, Internet Explorer or Firefox

**Note:** Be sure to enable Java & pop-ups in the Web browser preferences

**Participants should have a basic proficiency of the following computer skills:**
- Sending and receiving email
- A working knowledge of the Internet
- Proficiency in Microsoft Word (or a program convertible to Word)
- Proficiency in the Acrobat PDF Reader
- Basic knowledge of Windows or Mac O.S.

**Netiquette (online etiquette):**
Students are expected to participate in all discussions and virtual classroom chats as directed. Students are to be respectful and courteous to others on discussions boards. Foul or abusive language will not be tolerated.

**Technical Support:**
Students should go to [https://mypassword.pvamu.edu/](https://mypassword.pvamu.edu/) if they have password issues. The page will provide instructions for resetting passwords and contact information if login issues persist. For other technical questions regarding eCourses, call the Office of Distance Learning at 936-261-3283

**Communication Expectations and Standards:**
Emails or discussion postings will receive a response from the instructor, usually in less than 48 hours. Urgent emails should be marked as such. Check regularly for responses.

**Discussion Requirement:**
Online courses often require minimal to no face-to-face meetings. However, conversations about the readings, lectures, materials, and other aspects of the course can take place in a seminar fashion. This will be accomplished by the use of the discussion board. The exact use of discussion will be determined by the instructor.

**It is strongly suggested** that students type their discussion postings in a word processing application and
save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it/they should be copied and pasted to the discussion board.

III. Prairie View A & M University Final Exam Schedule for Spring 2017.
It is the responsibility of students to arrange personal activities so that they are prepared and present for the final exam. Because we have many graduating seniors that are required to take final exams early the final exam for this course is scheduled for **Friday, May 5, 2017, 10:30a.m. in room 121 of the Harrington Science Building.** Arrange your schedule to be present for this exam.

IV. Semester Calendar:
The Academic Calendar for Spring 2017 is published in the University's web site and Registration Bulletin which can be accessed by students.

1. Instruction begins for this class and Late Registration and Drop/Add Ends for Undergraduate Students: on Tuesday, January 17, 2017

2. Saturday, January 21, 2017 is the last day to Add or drop Courses.

3. Thursday, January 26, 2017 General Student Assembly 10:00 a.m. (All Students are required to attend)

4. Wednesday, February 1, 2017 is the last day to withdraw from a course without academic record.

5. Mid-term Exam Period occurs between March 9 and March 11. The mid-term exam for this course is scheduled for **Friday, March 10, 2017.**

6. **Spring Break** is scheduled for March 11 to March 19, 2017.

7. **Class instruction resumes on Monday, March 20, 2017.**

8. **Prairie View Spring Athletics Week-End, March 24, 25 and 26, 2017.** The return of the Prairie View Relays, Tennis Tournament, Baseball vs Texas Southern, Softball vs a SWAC team.

9. **Founders Day/Honors Convocation** to recognize students and their Honor Societies that earned a place on either the 2016 spring or Fall Semester PVAMU Academic Honor Roll occurs on **Wednesday, March 29, 2017 in the Baby Dome from 9:00a.m. To 11:30a.m. Students being recognized should dress for success, and wear appropriate honor society stoles, and invite their parents to attend.** The regular immunology lecture starts at 12:00 noon.

10. Monday, April 3, 2017 is the last day to withdraw from a class with academic record ("W") ends.

11. Tuesday, April 11, 2017 Priority Registration begins for summer and fall 2017

12. Good Friday, April 14, 2017 is a University holiday.

13. Monday, May 1 and Tuesday, May 2 are course review days. They are last class days.

14. **Prairie View A & M University Final Exam Period occurs between Wednesday, May 3 and Tuesday, May 9, 2017.** Final exams are required to be given only at the times and dates listed in the Spring 2017 Final Exam Schedule. It is the responsibility of students to arrange personal activities so that they are prepared and present for **the final exam in this class on Friday, May 5, 2017, 10:30a.m., room 121, Harrington Science Building.** The cumulative final exam will constitute the remaining 50% of the final semester grade. It will test all topics covered during the semester. Arrange your schedule to take the final exam on this time. Remember that the difficulty of make-up exams increases because they are not taken with the class.