IMMUNOLOGY: BIOL 5406
Department of Life Sciences
Spring 2017 v2

A. COURSE INFORMATION
Course number/section:  BIOL 5406.001
Class meeting time:    TR 12:30-1:45 (Lecture)
Class location:        CS101 Lecture/ EN 301 Labs
Course Website:        http://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION
Instructor:        Gregory W. Buck, Ph.D., Associate Professor
Office location:   Center for the Sciences 251
Office hours:      MW 10:00-11:15; TR 2:30-3:45
Telephone:         (361) 825-3717
e-mail:            Gregory.Buck@tamucc.edu
Appointments:      Preferred method is by e-mail

C. COURSE DESCRIPTION
Catalog Course Description
“An in-depth study of immunology. Emphasizes function and interaction of specific cells, cytokines, lymphokines, antibodies and molecules that are the essential components of the immune system. The course includes up-to-date coverage of both innate and adaptive immunity, and the immune system in health and disease.”

Extended Course Description
This course provides an overview of immunology, the branch of biology that describes how organisms recognize, attack and destroy foreign invaders, and how the organism distinguishes between self and non-self. This course emphasizes the specific components that comprise both innate and adaptive immunity, and the interactions between both branches. The laboratory section is designed to demonstrate some of the basic principles involved in immunology. The course is offered to give graduate students a detailed and exhaustive survey of this subject. Also, the course also gives graduate students the opportunity to read primary journal articles that focus on aspects of current research, and to develop the ability to teach current information in immunology to undergraduate students.

D. PREREQUISITES AND COREQUISITES
Prerequisites
Biol 2421 (Microbiology) mandatory; BIOL 3410 (Cell Biol.) or 3345 (Cell Physiology) recommended.
Co-requisites
SMTE 0092—will be taken on-line. See lab schedule for details.
You cannot do any other Lab Safety course as a substitute!!

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

A textbook is required! You may choose among these recommended options—you only need to have one of these texts:


Other books (not in bookstore):

Supplies: Lab coats, lab notebooks, and safety goggles.

Citation format: Please use Council of Science Editors format. A useful link on this format is available at this URL: http://writing.wisc.edu/Handbook/DocCSE.html

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below.

By the end of this course, students should be able to:
1. Compare and contrast innate versus adaptive immunity;
2. Assess the role of mononuclear phagocyte in immunity and inflammation;
3. Describe the three branches of complement and describe the roles of their components in immunity and inflammation;
4. Summarize antigen processing and the role of the major histocompatibility complex in immunity;
5. Evaluate the roles of cytokines and other soluble factors in immunity;
6. Describe the roles of cells and soluble factors in the regulation of immune responses;
7. Compare and contrast the types of hypersensitivity reactions;
8. Describe genetic basis of diversity in antigen recognition by B- and T-cells
9. List scientists who have made substantial contributions to immunology.
10. Produce a scientifically-accurate, current, classroom presentation on a topic in immunology to upper-level undergraduates.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

My instrumental methods include lecturing but also active learning strategies (Socratic Method, “flipping,” problem-based learning, peer instruction, cooperative learning), and to question you, including sending you to the board, but you have plenty of “lifelines”!

H. MAJOR COURSE REQUIREMENTS AND GRADING

Three written exams will mostly consist of multiple-multiple choice (Type K), but may also include a mixture of these plus short answer, essay, multiple choice, multiple-multiple matching, descriptive T/F.

Power Point presentation—Graduate students will research a current topic related to current topics in immunology (but NOT discussed in class or presented in lecture), and using a minimum of at least three primary journal articles and one review, present a 15-20 min Power Point lecture on the topic. They will also design at least eight (8) multiple choice questions and one short answer question for possible use on a test. The basis for evaluation will be a rubric with 50% of the grade determined by the instructor, and 50% determined by the undergraduate and other graduate students. The rubric (see below) will allow grading of the presentation based on format, scientific content, and oral presentation. The instructor will grade the proposed exam questions.

Quizzes will be given at the beginning of class—there are no make-ups for the quizzes. Quiz points can be made up by doing any assigned extra credit.

Lecture
<table>
<thead>
<tr>
<th>Total</th>
<th>750 pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>50 pts</td>
</tr>
<tr>
<td>Quizzes (5 or 10 pts each)</td>
<td>50 pts No make-ups</td>
</tr>
<tr>
<td>3 class exams @ 100 pts. each</td>
<td>300 pts</td>
</tr>
<tr>
<td>Cumulative final exam</td>
<td>200 pts</td>
</tr>
<tr>
<td>Power Point Presentation</td>
<td>100 pts</td>
</tr>
<tr>
<td>Questions from Power Point</td>
<td>50 pts</td>
</tr>
<tr>
<td>Extra credit assignments</td>
<td>~40 pts.—To be announced</td>
</tr>
<tr>
<td>(given at prerogative of instructor)</td>
<td></td>
</tr>
<tr>
<td>Lecture is 66.7% of total grade</td>
<td></td>
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</tbody>
</table>

Lab
<table>
<thead>
<tr>
<th>Total</th>
<th>600 pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes (5 or 10 pts each)</td>
<td>Extra credit No make-ups for quizzes</td>
</tr>
<tr>
<td>Lab Practical Exam</td>
<td>200 pts</td>
</tr>
<tr>
<td>Lab Worksheets (50 pts each)</td>
<td>200 pts</td>
</tr>
</tbody>
</table>
Oral Lab presentation = 200 pts

Lab is 33.3% of total grade

Grading scale: A ≥ 90%  B = 80-89.9%  C = 70-79.9%  D = 60-69%  F < 60%

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams</td>
<td>44.5</td>
</tr>
<tr>
<td>Quizzes (lecture &amp; lab)</td>
<td>4.5</td>
</tr>
<tr>
<td>Homework</td>
<td>Extra credit</td>
</tr>
<tr>
<td>Presentations (in lab)</td>
<td>11.0</td>
</tr>
<tr>
<td>Lab Reports ( worksheets)</td>
<td>11.1</td>
</tr>
<tr>
<td>Power Point Presentation + Questions</td>
<td>13.3</td>
</tr>
<tr>
<td>Lab Practical Exam</td>
<td>11.1</td>
</tr>
<tr>
<td>Lecture Attendance</td>
<td>4.5</td>
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</tbody>
</table>

I. COURSE CONTENT/SCHEDULE  

<table>
<thead>
<tr>
<th>DATE (BY DAY OR WEEK)</th>
<th>TOPIC</th>
<th>CHAPTER(S)</th>
<th>ASSIGNMENTS (Optional reading)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 19</td>
<td>Intro: Cells &amp; Organs I</td>
<td>P: Ch. 1</td>
<td>K: Ch. 1, 2</td>
</tr>
<tr>
<td>Jan 24, 26</td>
<td>Intro to Immunology: Cells &amp; Organs II</td>
<td>P: Ch. 1</td>
<td>K: Ch. 1, 2</td>
</tr>
<tr>
<td>Jan 31</td>
<td>Innate Immunity I</td>
<td>P: Ch. 2</td>
<td>K: Ch. 4</td>
</tr>
<tr>
<td>Feb 2</td>
<td>Innate Immunity II</td>
<td>P: Ch. 3</td>
<td>K: Ch. 4</td>
</tr>
<tr>
<td>Feb 9</td>
<td>Methods in Immunology -- This may be “flipped”</td>
<td>K: Ch 20</td>
<td></td>
</tr>
<tr>
<td>Feb 14</td>
<td>Exam I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb 16</td>
<td>Adaptive Immunity I: Ab structure</td>
<td>P: Ch. 4, 9</td>
<td>K: Ch. 3, 7</td>
</tr>
<tr>
<td>Feb 21</td>
<td>Adaptive Immunity II: Ab function</td>
<td>P: Ch. 4, 6, 9</td>
<td></td>
</tr>
<tr>
<td>Feb 23</td>
<td>Adaptive Immunity III: B cell developpment</td>
<td>P: Ch. 6</td>
<td></td>
</tr>
<tr>
<td>Feb 28</td>
<td>Adaptive Immunity IV: B cell activatn</td>
<td>P: Ch. 6, 9</td>
<td></td>
</tr>
<tr>
<td>Mar 2</td>
<td>Adaptive Immunity V: Memory B</td>
<td>P: Ch. 9</td>
<td></td>
</tr>
<tr>
<td>Mar 7</td>
<td>Exam II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar 9</td>
<td>T cell med immunity I: Receptors</td>
<td>P: Ch. 4, 9</td>
<td>A: Ch. 7</td>
</tr>
<tr>
<td>Mar 13-17</td>
<td>Spring Break</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mar 21 | T cell med Immunity II: Ag presentatn | P; Ch. 5, 7, 8
---|---|---
Mar 23 | T cell Med Immun III: T cell developmt | P; Ch. 7
Mar 28 | T cell Immun IV: Activn & Differen | P; Ch. 8
Mar 30 | T cell med Immun V | P; Ch. 7, 8
Apr 4 | Hypersensitivity I | P; Ch. 14 | A: Ch. 19
Apr 6 | Hypersensitivity II --This may be “flipped” | P; Ch 14 | A: Ch. 20
Apr 11 | Immune Resp. to Infectn | P; Ch. 10
Apr 13 | Autoimmune I | P; Ch 13, 16 | A: Ch. 15
Apr 18 | Autoimmune II | P; Ch 13, 16 | A: Ch. 15
Apr 20 | Vaccines | P; Ch. 11
Apr 25 | Exam III | |
Apr 27 | Graduate Student presentations | |
May 2 | Immunodeficiencies | P; Ch. 13 | A: Ch 21
May 4 | Final Exam 11:00 am-1:30 pm | |

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

**Important dates:** T Feb 14—Exam I; T Mar 7—Exam II; T Apr 25—Exam III; R May 4—Final Exam 11:00 am-1:30 pm; Grad Student presentations (If any) - R Apr 27

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Rubric for Graduate Presentations

Power Point Presentations BIOL 5406 Spring 2017 Professor edition

Name of presenter ___________________________   Start time______ End time ______

Directions: Score as follows:0= Missing   1= Poor   1.5= Suboptimal   2=Fair   3= Good   4=Very Good   4.5= Excellent   5=Flawless

Format
1. Student has 20-25 slides with consistent format, background, and color scheme _____
2. Narrative slides are legible and do not have too many words/facts on a single slide ______
3. Narrative slides contain tables, figures, and graphs that help to tell the story ______
4. Graphs/tables are clear, concise and accurate with correctly-labeled axes, labels______
5. Order of presentation tells a clear, logical story of the information presented. ______

Content
1. Student had sufficient knowledge about area of presentation. ______
2. Student understood area well enough to explain content. ______
3. Student presented scientific content in a coherent fashion. ______
4. Student cited/acknowledged work done by others. ______
5. Student can integrate immunological topic with previous science learned.
Oral Presentation of Power Point Presentation
1. Presenter spoke in 20-25 minutes. ____
2. Presenter gave presentation in IMRAD form____
3. Presenter clearly articulated major points of the work.____
4. Presenter gave a talk that was concise in describing work presented. ____
5. Presenter gave a talk that was relatively free of grammatical errors. ____
6. Presenter adequately handled questions at the end of the presentation. _____
7. Presenter spoke without many pauses, giggles, “uhhs,” “you knows,” and “likes.” ____
8. Presenter exhibited professionalism in making presentation. ____
9. Presenter gestured to words/graphics.____
10. Presenter talked to audience, not to wall, slides, or inanimate objects. ____

Final score given by instructor ______
Average number of points from peers_______
Average of two scores ____________
(Score avg/100)= ______________ Final Grade

J. COURSE POLICIES

Attendance/Tardiness
Students are expected to attend every scheduled class and laboratory meeting. It is the responsibility of the student to obtain any material missed during an absence from his/her classmates. Power Points may be placed on Blackboard, but this is not guaranteed. For labs, the instructor should be notified PRIOR to lab if the student will be absent (except in emergency situations). Students must attend the laboratory section for which they originally registered. “Make-up” by attending other lab sections is NOT permitted except in emergencies, only with a signed green permission slip from Dr. Buck.

There are points for attendance (50 pts) for the lecture of this class. Missed extra credit assignments cannot be made up for unexcused absences; approved University absences may be given alternative extra credit work which may NOT be identical to the missed assignment. Two unexcused absences are allowed for this class. You will get 10 points subtracted for the first unexcused absence (receive 40), 20 for the second (receive 30), and 50 pts for the third (receive zero). Three unexcused tardies equals one unexcused absence. Please note that instructor determines what is not excused. I define excused absences as emergency visits to the ER or physician or dentist; job, graduate and professional school interviews; death of close family members (siblings, in-laws, parents, step-parents, grandparents or great-grandparents, first cousins), or University-approved absences as described in the Catalogue and Student Handbook.

Late Work
Students will be given a Late Assignment Penalty for tardy work: 10% assignment grade deduction per class day late. However, after the 3rd day, late assignments will not be accepted. In-class late assignments are defined by being turned in after 12:35 pm. Please
note that class assignments may be sent to me by e-mail or slid under my office door; tardiness is determined by the time noted on the instructor’s Inbox, but allowances can be made for server problems. Files contaminated by viruses, spyware, and worms will not be accepted. DO NOT ASK THE CUSTODIANS to let you into my office to place an assignment on my desk.

**Extra Credit**
A minimum of 40 pt extra credit is assured as pre- and post-test assessments. **No make-ups** are given for pre- and post-tests. **Individual assignments for extra credit will not be given, so please do not ask!** Other extra credit assignments may be given at instructor or lab TA’s prerogative. Instructor or TA is **not obligated** to give make-up assignments for extra credit opportunities, whether excused or unexcused. The **ONLY possible exception** is for students with a university-approved scheduled absence. The make-up (if given) may not be the exact same assignment given to the class.

**Cell Phone Use**
DO NOT USE CAMERA PHONES IN LECTURE. DO NOT SEND TEXT MESSAGES DURING CLASS. Please turn off all cell phones, beepers, Bluetooth devices, Black Berrys, etc., before entering the classroom, or at least place them on silent mode. **I would prefer that earpieces not be worn in lecture.** DO NOT TAKE PHOTOS of Power Point slides or videos with your cell phone camera unless **otherwise instructed.** Recording of lectures with recorders can only be done with permission of instructor—please see me privately.

**Laptop Use**
I have no problems with any student using a laptop in class, as long as they are not looking at pornography, anime, videos, etc.

**Food in Class**
I prefer that you not eat or drink in class, but I will not throw you out or ask you to leave.

**Missed Exams and Quizzes**
Students have two choices for making up exams due to **excused absences.** They can do an all-essay make-up exam, or the percentage grade of the questions from that section on the final exam can be used. There is no make-up for missed quizzes in lecture or lab, nor for missed exams due to **unexcused absences.** Missed extra credit opportunities may or may not be given make-up assignments, depending upon the nature of the assignment.

**Participation**
Since I use Socratic Method as an active learning strategy, I will not give points for class participation, but I do consider it for letters of recommendation and evaluation.

**K. COLLEGE AND UNIVERSITY POLICIES**
• **Academic Integrity (University)**

University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

• **Classroom/Professional Behavior**

Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

• **Statement of Civility**

Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

• **Deadline for Dropping a Course with a Grade of W (University)**

The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation **WILL NOT** automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar ([http://www.tamucc.edu/academics/calendar/](http://www.tamucc.edu/academics/calendar/)) for the last day to drop a course, which is Friday, April 7, 2017.

• **Grade Appeals (College of Science and Engineering)**

As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to
demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute (ADA of 1990, including the ADA Amendments from 2008 (PL 110-325), 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 call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

  This act also includes **returning veterans** who may be experiencing cognitive and/or physical access issues in the classroom or on campus. If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

  [http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)

  If you need disability accommodations in this class, please contact the instructor as soon as possible. If you have mobility problems, are pregnant, or you may have a history of seizures, please notify the instructor PRIVATELY so that assistance can be given in case of fire drills or emergencies. Please have your Faculty Notification Letter from the Disabilities Service Office when you talk with Dr. Buck.

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi, this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.
If class is cancelled due to a pending hurricane, that information is sent via your islander.tamucc.edu account. It is strongly suggested that students have a functioning islander.tamucc.edu account!! I will also try to send it within Blackboard 9.1, as stated above. I will not send out personal information regarding grades through other types of e-mail servers, only through islander.tamucc.edu. Please make sure this account is working.

Disruption of Exams
If an exam is ever disrupted by situations such as weather, power outages, fire drills, or any event requiring evacuation in the middle of an exam, those persons who have finished their exam before the disruption will not be allowed to do a make-up exam. Those persons who did not finish their exam will have to take an exam the first day of class that faculty, staff and students are allowed to return to the building. The format of this exam may use Type K, short answer, essay, fill-in-the–blank, multiple matching, or all of the above. The score from the previous interrupted exam will not be counted. Students taking their exam with Disability Services do not have this option unless their exam is interrupted in the building where they took their exam.

L. OTHER INFORMATION

- Academic Advising
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

  If you are a graduate student in the College of Education or in Nursing & Health Sciences, please see that respective college’s academic advisors.

- List-serve
  All students are on the Blackboard list serve for the course, and to a second opportunities-list serve.

  To subscribe, send a separate e-mail to opportunities-list-request@listserv.tamucc.edu.
  Make sure that your e-mail appears in the “From” heading. In the subject heading, type “subscribe,” then send the e-mail. Next, you will receive a second message with a long set of letters and numbers in the subject line. You must also reply to that message in order to be subscribed to the list-serve.
After the initial message to subscribe, to send items on the list-serve, just type opportunities-list@listserv.tamucc.edu (do NOT add –request after list). You may not receive the messages from the list-serve if your Internet service provider (Yahoo, Hotmail, Excite, Roadrunner, Grande, etc.) keep these messages from being placed in junk-mail. **The University administration prefers that you use the islander.tamucc.edu accounts.**

At the end of the course, send an e-mail that contains your e-mail address in the “From” heading to opportunities-list@listserve.tamucc.edu. In the subject heading, type the word “unsubscribe,” then send the e-mail. I hope that students will continue to subscribe to opportunities-list@listserve.tamucc.edu!

**How to succeed in Immunology**
First, read the syllabus. Second, re-read the syllabus. Third, read the syllabus again.

Next, read the assigned text chapters. You need to re and re-read the text in conjunction with the notes taken from class Power Points. Immunology requires learning a different language, and thinking in a different context, which explains the difficulty of the subject matter. The material constantly gets updated and changed from findings in basic science research.

I would suggest having study groups, and go over the material before you meet with your study group.

**GENERAL DISCLAIMER**
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods, and also on Blackboard.