Course Description:

Number and Title:
BIOL 5700 (CRN 50208)
Advanced Immunology

Credit Hours:
3.0 semester credit hours

Catalog Description:
This course will include a comprehensive overview of the immune system and its functions within the context of cell to cell interaction and communication.

Course Prerequisites and corequisites: Admission to the Secondary Education Program

Computer Requirement:
Each CSU student is required to have ready access throughout the semester to a notebook computer that meets faculty-approved hardware and software requirements for the student's academic program. Students will sign a statement attesting to such access. For further information on CSU's Official Notebook Computer Policy, please go to http://itpchoice.clayton.edu/policy.htm.

Computer Skill Prerequisites:
- Able to use the Windows™ operating system
- Able to use Microsoft Word™
Able to send and receive e-mail from their CSU mail account.
Able to attach and retrieve attached files via email
Able to use a Web browser.
Able to use the student tutorial CD that accompanies the text.
Able to use Desire2Learn

You can gain access to Desire2Learn by signing into the SWAN portal and selecting “GAVIEW” on the top right side. If you experience any difficulties with Desire2Learn, please email or call The HUB at TheHub@mail.clayton.edu or (678) 466-HELP.

Students who do not have the required skills should go to the HUB and/or Student Software Support Services for training and help. Your instructor is not able to provide this training. Assignments may require use of your computer and inability to complete an assignment due to the lack of above (or other general computer issues) will not be an acceptable excuse.

In-class Use of Student Notebook Computers:

- Student notebook computers may occasionally be used in the classroom in this lecture course. In addition, the student will be expected to use their notebook computer to complete classroom assignments, to obtain notes for the class and to communicate with the instructor via email.

Student learning outcomes and other associated outcomes of the program

The Teacher Education Unit Outcomes and Candidate Proficiencies enumerated below come from the knowledge base that was written to address what candidates should know and be able to do upon completion of the program. During the program of study, the following teacher education outcomes are addressed. These outcomes are aligned with the conceptual framework descriptors and to INTASC Principles.

Graduates will be able to:

1. Plan for Student Learning - The candidate integrates knowledge of content discipline, of the nature of diverse learners, of learning theories, of instructional strategies and of professional standards and state/local curriculum guides to plan instruction.

   a. Use student input and information from diagnosis of student learning needs in developing learning goals and objectives.
   b. Plan for use of a variety of instructional strategies to address learners with diverse learning styles and special needs.
c. Evaluate teaching resources and curriculum materials, including educational technology for effectiveness, completeness and accuracy and plans for their appropriate use.
d. Plan equitable teaching/learning processes to address learners from diverse cultural backgrounds and with exceptionalities.
e. Plan lessons which incorporate authentic situations, previous learning and inter-disciplinary content.
f. Reflect on planning for student learning.

2. Facilitate Student Learning- The candidate implements instructional plans with flexibility and is guided by knowledge of discipline content, of the nature of all learners, of learning theories and of instructional strategies.

a. Employ effective classroom management techniques.
b. Use individual and group motivation techniques for encouraging positive social interaction and self-involvement.
c. Encourage individual participation while directing group activity.
d. Use multiple resources (human, media, and technology) effectively for instruction.

3. Demonstrate Appropriate Knowledge- The candidate has general knowledge in the liberal arts and sciences and possesses discipline specific knowledge at a level appropriate for the chosen teaching field.

a. Communicate effectively, incorporating the use of technology when appropriate.
b. Demonstrate discipline knowledge appropriate to the chosen teaching field.
c. Integrate knowledge across disciplines, including multicultural and global perspectives.
d. Access knowledge to stay current in one’s field.
e. Reflect on one’s strength and weaknesses as a learner.

4. Foster Student Well-being to Support Learning- The candidate interacts with diverse students, school colleagues, parents, and agencies in the larger community to foster student well being and learning.

a. Identify socio-cultural factors beyond the school that hamper student learning and use resources within the school and community to mitigate these factors.
b. Communicate with parents or guardians as an essential activity in promoting student well-being and learning.
c. Reflect on use of community resources and interactions with parents and school colleagues to improve the well-being of all learners.

5. Assume the Role of Professional Teacher- The candidate acts in accordance with the structure, standards and responsibilities of the profession and recognizes the role of the school in supporting a democratic society.
a. Demonstrate an awareness of the political, legal, and ethical issues that impact on professional practices.
b. Work collaboratively with colleagues as a professional.
c. Value using technology as a professional resource and a management tool.
d. Reflect on professional development as an on-going process.
e. Exhibit the professional dispositions of a teacher:
   · maintain a professional appearance
   · maintain regular attendance
   · maintain positive attitude and character
   · be collaborative and participatory
   · demonstrate a strong work ethic
   · show respect for the profession

**NSTA Standards for Science Teacher Preparation**

The M.A.T. degree program at Clayton State University will fully embrace the standards for science teacher preparation promulgated by the National Science Teachers Association. Graduates of this program will be prepared to lead students in the (a) Core Competencies (b) Advanced Competencies and (c) Supporting Competencies enumerated in Appendix B.

**Georgia Performance Standards**

Graduates of the M.A.T. program at Clayton State University will be able to prepare and implement instructional activities correlated with the Georgia Performance Standards (GPS).

**Graduates will be able to:**

(a) Analyze the nature of the relationships between structures and functions in living cells (GPS-SB1);
(b) Analyze how biological traits are passed on to successive generations (GPS-SB2);
(c) Derive the relationship between single-celled and multi-celled organisms and the increasing complexity of systems (GPS-SB3);
(d) Assess the dependence of all organisms on one another and the flow of energy and matter within their ecosystems (GPS-SB4);
(e) Evaluate the role of natural selection in the development of the theory of evolution (GPS-SB5)

**Conceptual Framework:**

The mission of the Teacher Education Unit is to prepare professional educators who engage in *reflective practice* and who are competent, caring, committed, *collaborative*, *culturally responsive*, and prepared to teach diverse learners in an
ever-changing society. For the complete CSU Teacher Education Unit Conceptual Framework go to http://www.clayton.edu/teachered/Standards-Outcomes.

Course objectives:

- To develop an awareness of experimental design and scientific method.
- To acquire a working vocabulary in immunology.
- To understand and discuss the development and evolution of the immune system.
- To gain an understanding of the key cells involved in the immune response.
- To understand the relationship of antigen, antibody, and antigen receptor molecules.
- To gain a basic knowledge of the generation of diversity involved in antibodies and T-cell antigen receptors.
- To distinguish and understand the humoral and cell-mediated immune responses.
- To gain a basic understanding of the current theories on the regulation of the immune response.
- To discuss the host’s ability to mount an immune response to invading microorganisms.
- To gain a basic understanding of tumor immunology, immunodeficiency, autoimmunity, hypersensitivities, and transplantation rejection.

Term:
Summer Semester 2015

<table>
<thead>
<tr>
<th>Instructor Information:</th>
<th>Class Meetings:</th>
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<tbody>
<tr>
<td>CRN 50208</td>
<td>6:00 p.m. – 8:20 p.m., Monday, Wednesday in Room Lab 107</td>
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<tr>
<td>Dr. Fran Norflus</td>
<td></td>
</tr>
<tr>
<td>Office: NBS building, Room 153</td>
<td></td>
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<tr>
<td>Phone: 678-466-4852</td>
<td></td>
</tr>
<tr>
<td>e-mail: <a href="mailto:FrancineNorflus@clayton.edu">FrancineNorflus@clayton.edu</a></td>
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</tbody>
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Internet: faculty.clayton.edu/fnorflus/
Office hours: Mondays: 5:00 PM – 5:45 PM
Wednesday: 5:00 PM – 5:45 PM
Office hours will be held in NBS153, 138 or 120

Textbook Information:
Required:

You will also need access to the ImmunoPortal. NOTE: The code for the IMMUNOPORTAL accompanies the book or purchase the e-book/BIOPORTAL from the link below. (WH Freeman Web site) http://courses.bfwpub.com/immunology7e.php

The online portion of our course is open for student registration. Follow these steps to get started. If you need additional guidance, consult the student Get Started guide, especially the system requirements which list the recommended browsers.

To register for the course go to:
http://www.macmillanhighered.com/launchpad/immunology7e/1736916

PLEASE bookmark the page to make it easy to return to.

You have three options to enroll in the course: you can purchase direct access, you can buy an access code, or you can get free 21 day access while deciding. Your registration options are explained here.
To navigate and start using LaunchPad please consult the Get Started guide and/or view this video.

If you have problems registering, purchasing, or logging in, please contact Customer Support. You can reach a representative 24 hours a day, 7 days a week:

- through the online form
- by chat

Or from 9 a.m. to 3 a.m. EST, 7 days a week:

- by phone at (800) 936-6899

**Recommended:**

**Evaluation:**

<table>
<thead>
<tr>
<th>Grading Scheme</th>
<th>Points</th>
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<tbody>
<tr>
<td>Midterm exam</td>
<td>100</td>
</tr>
<tr>
<td>Protein data base presentation</td>
<td>50</td>
</tr>
<tr>
<td>Case study 1 presentation</td>
<td>50</td>
</tr>
<tr>
<td>Case study 2 presentation</td>
<td>50</td>
</tr>
<tr>
<td>Set up supplies for Western Blot</td>
<td>25</td>
</tr>
<tr>
<td>Western Blot and other protein techniques presentation</td>
<td>50</td>
</tr>
<tr>
<td>1 Cumulative Final Exam</td>
<td>100</td>
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<tr>
<td>Total</td>
<td>425</td>
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Mid-term Progress Report
The mid-term grade in this course will be issued by Friday, June 25, 2015. Based on this grade, students may choose to withdraw from the course and receive a grade of "W." Students pursuing this option must fill out an official withdrawal form, available in the Office of the Registrar, by mid-term, before June 25, 2015.

The Course Schedule will be posted on a separate page.

Consult your Desire2Learn page for any notes on the material or modifications of the course schedule. Because this class has not been taught before, there may be modifications to this schedule.

Presentations

There will be 4 presentations in this class.

For the data bases presentation, each student will be assigned a protein molecule. The presentation will need to cover an explanation of the following topics. It is encouraged that you get the undergraduate students to work on their computers and follow along with you as you explore the different sites.

1. Function of your molecule (10 points)
2. Different subunits of your molecule (10 points)
3. Protein sequence (10 points)
4. DNA sequence (10 points)
5. Secondary structure – α-helix, β-sheets and disulfide bonds (10 points)

Dr. Norflus will provide some PowerPoint pictures from the book as background material.

There will be two different case study presentations. Dr. Norflus will assign and give each student materials on the case study. There may be some outside reading required.

The presentation of the case study should include the following:
1. Background information on the topic (10 points)
2. Specifics of the case (10 points)
3. Questions on the case to be discussed in class (10 points)
4. 2 Potential exam questions written at the level for an upper level undergraduate (10 points)
5. Presentation style (10 points)

The last presentation will be based on the Western Blot experiment. The graduate students should help the undergraduates with the experiment (as possible). The rest of the presentation will be a group project. During the second lab period, there is a bit of incubating time. During this time period, students should talk about Western Blots and other protein techniques including (but not limited to) immunoprecipitation, basics of protein electrophoresis, 2D electrophoresis, fluorescent antibody staining and direct and indirect antibody staining.

Each student will need to help set up for the Western Blot presentation. This will take place over three different days. If you are not present on either of these days, your grade will be receive a % of the 25 points.

Course Policies:

Students must abide by policies in the Clayton State University Student Resource Handbook, and the Basic Undergraduate Student Responsibilities.

University Attendance Policy

Students are expected to attend and participate in every class meeting. Instructors establish specific policies relating to absences in their courses and communicate these policies to the students through the course syllabi. Individual instructors, based upon the nature of the course, determine what effect excused and unexcused absences have in determining grades and upon students' ability to remain enrolled in their courses. The university reserves the right to determine that excessive absences, whether justified or not, are sufficient cause for institutional withdrawals or failing grades.

Course Attendance Policy

Attendance is expected for all class periods. Attendance is required for examination periods. Any absence must be accompanied by a written excuse from a doctor or other competent authority.

No form of disruptive behavior will be tolerated in this class. While a variety of behaviors can be disruptive in a classroom setting, more serious examples include belligerent, abusive, profane, and/or threatening behavior. A student who fails to respond to reasonable faculty direction regarding classroom behavior and/or is found to be repeatedly disruptive
while participating in classroom activities may be dismissed from class. A student who is dismissed is entitled to due process and will be afforded such rights as soon as possible following dismissal. If found in violation, a student may be administratively withdrawn and may receive a grade of WF. For more information, please refer to: http://www.clayton.edu/Portals/5/DisruptiveClassroomBehavior.pdf

Common examples of disruptive behavior include, but are not limited to:

a. Monopolizing classroom discussions
b. Failing to respect the rights of other students to express their viewpoints
c. Talking when the instructors or other students are speaking
d. Constant questions or interruptions which interfere with the instructor’s presentation
e. Overt inattentiveness (e.g. sleeping or surfing the internet)
f. Creating excessive noise
g. Entering the class late or leaving the class early
h. Use of cell phones or pagers in class
i. Inordinate or inappropriate demands for time or attention
j. Poor personal hygiene (e.g. noticeably offensive body odor)
k. Refusal to comply with faculty direction

Students exhibiting these types of behaviors can expect a warning from the instructor or dismissal for the lesson in which the behavior occurs. Failure to correct such behaviors can result in dismissal from the course.

More extreme examples of disruptive behavior include, but are not limited to:

a. Use of profanity or pejorative language
b. Intoxication
c. Verbal abuse of instructor or other students (e.g. taunting, badgering, intimidation)
d. Harassment of instructor or other students
e. Threats to harm oneself or others
f. Physical violence

Students exhibiting these more extreme examples of disruptive behavior may be dismissed from the lesson or the entire course.

Students dismissed from a lesson will leave the classroom immediately or may be subject to additional penalties. Dismissed students are responsible for any course material or assignments missed.

Students dismissed from a course have the right to appeal the dismissal to the
department head responsible for the course. Appeals beyond the department head may also be pursued. If no appeal is made or the appeal is unsuccessful, the student will receive a grade of WF (withdrawal – failing) regardless of the current grade in the course.

Conditions attributed to physical or psychological disabilities are not considered as a legitimate excuse for disruptive behavior.

The description of disruptive behavior and listings of examples of disruptive behavior are taken from the Web sites of James Madison University, the University of Delaware and Virginia Tech.

**Videotaping of lectures and recording audio**

The material posted in the D2L classroom is to be used for students in this class to learn the material. Do not transfer any of the written materials, videos or audios to any other websites. You are not allowed to videotape any of the lectures given in class. You cannot post any material obtained in class on any outside websites. For example, you cannot post videos of Dr. Norflus giving lectures or reproduce any other videos or audios supplied for the learning in this class.

However, if you would like to record any lectures, you can make an audio recording and use it for your own studying purposes but it cannot be transferred to any other web sites.

Violators will be referred to the Office of Community Standards for disciplinary action.

- **No form of academic dishonesty will be tolerated in this course.** The most common forms are cheating and plagiarism, but any type of activity that is considered dishonest by reasonable standards will constitute academic dishonesty. The minimum penalty is a grade of zero on the work involved. The maximum penalty is expulsion from the university. Be aware that students found in violation of the university’s academic dishonesty code have lost scholarships, athletic eligibility, and/or their U.S. student visa (if an international student). All forms of academic dishonesty will be reported to the Office of Student Affairs for investigation. Judicial procedures are described at [http://adminservices.clayton.edu/judicial/](http://adminservices.clayton.edu/judicial/).

[http://www.clayton.edu/Portals/47/docs/discipline.pdf](http://www.clayton.edu/Portals/47/docs/discipline.pdf)


- Specific examples of academic dishonesty:
- Copying a classmate's work on exams or assignments (even if you change a couple of words).
- Copying things directly out of the book, a website, an article (even if you change a couple of words). Copying a person's thoughts is dishonest EVEN if you include a citation. Putting quotes around the thought does not make it OKAY. Paraphrase it! Quotes are only suitable if the actual statement (written word for word) is necessary to get a specific point across. Please consult your instructor if you are uncertain.
- Turning somebody else's work in as your own work.
- Using electronic devices (examples: cell phones, computers, tablets, programmed calculators) or notes that are not approved by the instructor on exams or quizzes.

**Testing policy**

Each student must turn off all cell phones before class begins, especially before an exam. Only pencils and pens will be allowed on the desk while taking a test.

If you are caught with a cell phone or other electronic device during an exam or quiz, you will be given a grade of 0.

All exams begin at the beginning of class. If you come to class 1-10 minutes after the exam begins, you will have 10 points deducted from your exam. If you come more than 10 minutes late, you will not be allowed to take the exam and will be assigned a grade of 0.

**Missing assignments**

If you are unable to attend an exam, you must have a legitimate excuse. These excuses include that you were sick, had a court date, had a family member sick who you needed to attend to or had to attend a funeral. Other excuses will be evaluated by the instructor who will determine if they are legitimate. Even if you have a legitimate excuse, you must provide the instructor with a note documenting your excuse **within one week of returning to class**.

If you miss an exam and you have a legitimate excuse and provide a note documenting it within 7 days, the final exam will count twice in calculating your grade.

If you miss an exam and you have a legitimate excuse but do not provide a note documenting it, you will receive a grade of zero for it. If you try to provide a note,
weeks after the absence, you will still be given a grade of zero. It is YOUR responsibility to contact the instructor and provide a note.

No makeup exams will be given for the in class exams in this class. However, if you miss the final exam with a documented excuse, a makeup final exam will be given. The final exam must be taken by all students.

If you know in advance that you will need to miss an exam, it is best to contact the instructor in advance.

All assignments will be due at the dates specified by your instructor. No late assignments will be accepted. However, if you miss a presentation and have a valid excuse, you will be allowed to make up your presentation, if you provided appropriate documentation within one week of returning to school. If you do not have a valid excuse or did not provide documentation within one week, you will receive a grade of 0 on the assignment.

If you miss the day of preparation of supplies for the Western Blot and have a legitimate excuse with documentation, an alternate assignment will be given.

**Miscellaneous Items**

**ALL CELLPHONES MUST BE TURNED OFF (NOT EVEN ON SILENT MODE)!!** This means during class lectures, assignments and exams.

**Writing Assistance**
The Writers’ Studio 224 is located in the A&S building, room 224. There you can talk with trained writing consultants about your writing projects. They are available to work with you at any stage of your paper, from generating ideas to organizing your paper to understanding how to format it correctly. The service is free; you may drop in and wait for a consultant or sign up for a regular appointment. But remember: you, not your consultant, are ultimately responsible for the quality and content of the papers you submit.

Aside from meeting with consultants one-with-one, you can also participate in writing workshops. In these workshops, faculty and consultants will guide you in discussions and activities important to academic writing topics. You will be identify, analyze, integrate, and synthesize writing principles through a series of writing exercises. Remember that we are here to collaborate with you as you develop your own experiences as a student-writer.

Visit our website for more information: [http://clayton.edu/writersstudio](http://clayton.edu/writersstudio).

There you will find a link to register for appointments online: [http://clayton.mywconline.com](http://clayton.mywconline.com)

You will need to do a one-time registration. Simply click on the “Click here to register” link once at MYWCONLINE.
Last update: 5/18/2015