Course Code & No. - Section:	BIOL 380 - Section 1
Course Title (Credits):	Special Topics: Immunology (3)
Term & Year:	Spring / 2014
Course Ref. No. (CRN):	

Instructor:	Dr. Suzanne Gollery
Phone(s):	775-831-1314 ext7456 or 775-813-4215 (8 a.m. – 9 p.m.)
Email:	sgollery@sierranevada.edu
Office:	TCES, room 223

Office Hours:	M 2:30 – 3:45 p.m., F 11:30 a.m. – 12:45 p.m. or by appointment
Class Meeting Time:	To be arranged – once per week
Location:	TCES 223
Prerequisites:	BIOL 101 and 102
Corequisites:	None

Course Descriptions:

BIOL 380: Special Topics: Immunology (3) [OC] Prerequisites: BIOL 101, BIOL 102.
Varying topics on significant areas including historical developments, recent developments, and critical and theoretical issues associated with biological research. This course will summarize concepts and foundational knowledge of immunology.

Required Texts

1. Sompayrac, L, How the Immune System Works, 4e, Wiley/Blackwell, 2012. ISBN-13: 978-0470657294. Paperback, about $37 new, $32 used, $18 to rent, $25 for Kindle
2. Delves, Martin, Burton, and Roitt, Roitt's Essential Immunology, 12e, Wiley, 2011. ISBN-13: 978-1405196833. Paperback, about $47 new, $33 used, $25 to rent

Student Outcomes for BIOL 380: ST Immunology Upon completion of Immunology, students will

1. demonstrate sufficient understanding and recall of concepts and facts of immunology to be successful in graduate level biology and health science courses.
2. demonstrate ability to answer questions about immunology like those on standardized exams (such as the GRE, MCAT, or senior exit exams).
3. understand and appreciate the interactions between the immune system, other body structures, and microbes present in the body and the surrounding environment.
4. demonstrate skill at critical analysis, logic, and problem solving relating to immunology.
5. demonstrate competence at researching a science topic using library and internet sources, evaluating information obtained, and organizing the research into a written term paper with referenced sources.

Methods of Assessing Student Outcomes: Student outcomes will be assessed using the following:

1. Homework sets will assess student comprehension of reading assignments and discussions.
2. Three unit exams and one final exam will assess the ability of students to remember, apply, and synthesize key facts and concepts of course content.
3. A term paper and related assignments will assess the ability of students to research a science topic, evaluate information, write, and revise a research paper.

Instructional Strategies

Students will read assigned materials (text chapters and additional articles) and write answers to questions from a text chapter and/or provided by the instructor. Student-instructor weekly meetings will be spent on 1) clarifying questions about reading or questions, and 2) some lectures to help explain particularly dense concepts. Students will spend additional time outside of class writing and revising a term paper on an immunology topic of particular interest that has been approved by the instructor.

Course policies:

1) **E-mailed work:**
All work may be submitted by e-mail or in hard copy. Students may e-mail files generated on a computer or hardcopy work scanned to pdf files. Please include your name or initials in the file name. The instructor will reply to verify that e-mailed work was received. It is the student's responsibility to follow up if the instructor does not reply about e-mailed work. Mac users are advised to save work to pdf files before submitting it electronically, as formatting and visuals may be lost otherwise.

2) **Citing sources:**
Cite sources using the CSE *citation-sequence* (number) system, which is similar to that used by most scientific journals, as specified here: ***http://bcs.bedfordstmartins.com/resdoc5e/RES5e_ch11_s1-0003.html*****.** Scientists routinely cite original sources for factual information that is not widely known. For example, one would not have to cite a source when stating that bacteria live in the human gut, but one would cite a source when stating that gut microbiota varies between obese and normal weight individuals [1]. When you are writing a scientific argument in response to a homework question or as part of a lab or class assignment, get in the habit of citing facts when you find them in a source.

   1. Ley RE, Turnbaugh PJ, Klein Sm Gordon JI. Microbial ecology: human gut microbes associated with obesity. Nature; 2006, 444(7122):1022-1023.

3) **Keeping on schedule:**
It is tempting to postpone working on an independent study course when coursework, employment, and other life events crowd one's schedule. However, this invariably leads to students getting behind and having difficulty catching up before the end of the semester. Therefore, treating the listed due dates and exam dates as firm dates that cannot be modified except in extraordinary circumstances is the best way to achieve successful completion of the independent study course.

4) **Modifications to the BIOL 380: ST: Immunology course syllabus:**
This syllabus and schedule is intended to provide students with a clear and accurate outline of course content, student outcomes, class topics, assignments and due dates, and exam dates. Students should keep and refer to the syllabus regularly. The instructor reserves the right to make announced changes to the syllabus and schedule at her discretion if it is in the best interest of the students to do so.

ADA Accommodations

In accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, students with a documented disability are eligible for support services and accommodations. If a student wishes to request an accommodation, please contact the Director of Academic Support Services, Henry Conover, at (775) 831-1314 x7534, hconover@sierranevada.edu, office in Prim Library: PL-304.

Prim Library Resources

Using the library's resources effectively (not just internet resources) contributes to developing each of SNC's core themes by exposing students to high quality academic resources, diverse opinions, new ideas, and a future that includes building on a liberal arts education. In this course, you will be expected to utilize the library's resources (either on-site or remotely) as you complete your assignments. SNC students are also eligible (with verification of current registration) to check out books and use electronic resources from the Washoe County Library, Incline Branch, on Alder Ave and at http://www.washoecounty.us/library/.

Prim Library Resources for Immunology include, but are not limited to:

1. Books (can be checked out):
    a. In general, books related to biology have Library of Congress Classification numbers ranging from QH through RC. Books about biotechnology have LCC numbers beginning with TP. However, you will find books related to our course with other LCC numbers, so search the Prim Library Catalog using key words related to the topic that you are researching.
    b. Pechenik JA. A short guide to writing about biology. 7th ed. New York: Longman; 2010. LCC number QH 304. P43 2010
    c. Lipson C. Cite Right: a Quick Guide to Citation Styles. Chicago: University of Chicago Press; 2006. LCC number PN171. F56L55 2006. Includes a section on CSE style.
2. Electronic databases (for peer-reviewed primary source research articles, secondary source reviews, newspaper magazine articles, and online books): Electronic databases most likely to include articles on biology topics are EBSCO: Academic Search Premier, Annual Reviews, Environment Complete, General Science Collection, GreenFILE, Health Source, Newspaper Source, and TOPICsearch; BioOne; and GREENR.
3. Hardcopy periodicals: Prim Library has current subscriptions for Science, New Scientist, Science News, Scientific American, and National Geographic Magazine. Any of these are likely to have secondary source articles about biology topics written for educated people who are not necessarily scientists. You will find these easy to read and articles will include references to primary source articles. Full-text articles from many more periodicals are available through the electronic databases.
4. Lib Guides: http://Libguides.sierranevada.edu These web pages contain instructions about how to use resources available at Prim Library, Prim Library resources for biology topics, how to evaluation the appropriateness of information from the internet for a research paper, how to cite sources, and other topics related to finding and using information.

The SNC Email System

The SNC email system is the official communication vehicle among students, faculty members and administrative staff and is designed to protect the confidentiality of student information as required by the Family Educational Rights and Privacy Act of 1974 Act (FERPA). Students should check their college email accounts daily during the school year.

Students have a right to forward their SNC e-mail to another e-mail account, for example, @hotmail or @gmail (instructions here). However, confidentiality of student information protected by FERPA cannot be guaranteed for SNC e-mail forwarded to an outside vendor. Having email redirected does not absolve a student from the responsibilities associated with official communication sent to his or her SNC email account.

The Sierra Nevada College Mission Statement:

Sierra Nevada College graduates will be educated to be scholars of and contributors to a sustainable world. Sierra Nevada College combines the liberal arts and professional preparedness through an interdisciplinary curriculum that emphasizes entrepreneurial thinking and environmental, social, economic and educational sustainability.

The Core Themes: Four core themes from the SNC mission are woven through all courses and the life of the community at SNC.

Liberal Arts	Sustainability
Entrepreneurial Thinking	Professional Preparedness

Sanctions for Cheating and/or Plagiarism

The Honor Code

The faculty of SNC believes students must be held to high standards of integrity in all aspects of college life in order to promote the educational mission of the College and to encourage respect for the rights of others. Each student brings to the SNC community unique skills, talents, values and experiences which, when expressed within the community, contribute to the quality of the educational environment and the growth and development of the individual. Students share with members of the faculty, administration and staff the responsibility for creating and maintaining an environment conducive to learning and personal development, where actions are guided by mutual respect, integrity, responsibility and trust. The faculty and students alike must make diligent efforts to ensure high standards are upheld by their colleagues and peers as well as themselves. Therefore faculty and students accept responsibility for maintaining these standards at Sierra Nevada College and are obligated to comply with its regulations and procedures, which they are expected to read and understand.

Consequences of Violating the Student Honor Code

SNC students and faculty share the responsibility for maintaining an environment of academic honesty. Thus, all are responsible for knowing and abiding by the SNC Faculty/Student Honor Code published in the current SNC Catalog. Faculty are responsible for presenting the Honor Code and the consequences of violating it to students at the start of their classes AND for reporting all incidences of academic dishonesty to the Provost. Students are responsible for knowing what constitutes CHEATING, PLAGIARISM and FABRICATION and for refraining from these and other forms of academic dishonesty. Violations of the Honor Code become part of a student's academic record.

1st Offense: Student receives a zero for assignment/exam and counseling with faculty on the honor code, consequences for violating the honor code, and the value of academic honesty in learning.

2nd Offense: Student fails course and receives counseling with faculty on the honor code, consequences for violating the honor code, and the value of academic honesty in learning.

3rd Offense: Student is expelled.

Cutting and pasting or copying phrases or sentences from internet sources, books, or articles is a violation of the student honor code. If you consistently write using your own words, you will avoid plagiarizing or cheating. (You will also learn and remember more course content.)

Grading Policy

The grading curve is based on a 700-point scale, with 29% of points from homework questions, 57% from exams, and 14% from the term paper assignments. Sierra Nevada College awards half grades (e.g., A– or B+), so a student with a point total within 1.5% of the cutoff for the letter grade will earn the appropriate half grade.

Grading Curve

A	90 – 100%	630 – 700 points
B	80 – 89.9 %	560 – 629 points
C	68 – 79.9%	476 – 559 points
D	58 – 67.9%	406 – 475 points
F	<58%	<406 points

Students may earn points in the following ways:

Homework – 8 sets at 25 points each	200 points
Immunology term paper:	
Annotated bibliography	20 points
Draft/Peer review	30 points
Final paper	50 points
Exams – 3 at 80 points each	240 points
Comprehensive Final Exam	160 points
Total	700 points

Assignment details:

Homework: Students will answer several questions while reading assigned materials prior to its being discussed with the instructor. Students have an opportunity to revise their answers after material is discussed at the weekly meeting.

Learning goals for the assignment: Scientific studies on how people learn have shown repeatedly that we learn and remember more when we are active learners. This means that students will remember and be able to apply more facts and concepts of immunology for a much longer time if they learn them by reading and writing about them, applying them to solve problems (some questions are problems) and communicating about them with the instructor than just reading about them or listening to the instructor explain them. The homework assignments give immunology students a chance to learn actively by reading and answering questions related to the reading. Students are also encouraged to write other questions asking for clarification of confusing material from the reading assignment and bring them up at the weekly meetings.

Exams: Three exams worth 80 points each will cover material since the previous exam or start of class, although students will be asked to apply concepts assessed on previous exams when these are related to current content. Exams include multiple choice questions, since this format is used on standardized exams, such the GRE and MCAT. Other questions may include short answer, essay, or true-false formats. Many exam questions will ask students to apply concepts and facts to solve problems or analyze a scenario. Students will have hard copy exams in the presence of the instructor.

Midterm Grades: Midterm grades will be calculated using all work due through Wednesday, March 12, 2014. There will not be a comprehensive midterm exam.

Final Exam: A comprehensive final exam with a format similar to the four exams will be given at the end of the semester during final exam week at a time that is agreeable to both the students and instructor.

Schedule of classes for Special Topics Immunology

Week/dates	Reading assignments	Topic	Assignments
Week 1 Jan 21 – 26	Read through the pages preceding the first chapters of the texts and skim appendices to familiarize yourself with text resources		Registration for class Obtain required texts
Week 2 Jan 27 – Feb 2	Read Sompayrac Lectures 1 - 10. Read straight through without trying to understand every detail.	An overview of the immune system	Prepare draft answers to homework set 1 questions for instructor meeting.
Week 3 Feb 3 – 9	Read Sompayrac Lectures2 and Roitt Chapter 1	Innate immunity Discussion of term paper topic ideas	HW set 1 due Prepare draft answers to homework set 2 questions for instructor meeting.
Week 4 Feb 10 – 16	Read Sompayrac Lectures 3 and 10 and Roitt Chapters 2 and 3. You may want to consult parts of Sompayrac lectures 4 – 6 for help with the end of Roitt Ch 2	Specific (acquired) immunity, B-cells, and antibodies	HW set 2 due Prepare draft answers to homework set 3 questions for instructor meeting.
Week 5 Feb 17 – 23	Read Sompayrac Lecture 4 and Roitt Chapters 4 and 5	Membrane antigen receptors and how the specific immune response is triggered	HW set 3 due Prepare questions for the instructor about exam topics
Week 6 Feb 24 – Mar 2	**Study for Exam 1** After exam, start reading for next week (there is a lot of it)	**Exam 1:** Innate immunity, B-cells and antibodies, receptors for antigen, how antigens trigger the specific immune response	
Week 7 Mar 3 – 9	Read Sompayrac Lectures 5 and 7 and Roitt Chapters 7 and 8	More details about activating the specific immune response and where it happens	Prepare draft answers to homework set 4 questions for instructor meeting
Week 8 Mar 10 – 14	Read Sompayrac Lecture 6 and Roitt Chapter 9	Effector cells of the specific immune response	HW set 4 due, also **Annotated bibliography** Prepare draft answers to homework set 5 questions for instructor meeting.
Mar 15 – 23	***Spring Break***	***Spring Break***	***Spring Break***

Week/dates	Reading assignments	Topic	Assignments
Week 9 Mar 24 – 30	Read Sompayrac Lectures 8 and 9 and Roitt Chapters 10 and 11	Development and control of the specific immune response	HW set 5 due
Week 10 Mar 31 – April 6	**Study for Exam 2** After exam 2, begin reading Roitt Chapter 6 (it's very long)	**Exam 2:** Locations, details, development, and control of specific immune response	
Week 11 April 7 – 13	Finish Roitt Chapter 6	Using tools made possible by specific immunity in biotechnology	Prepare draft answers to homework set 6 questions for instructor meeting.
Week 12 April 14 – 20	Read Sompayrac Lecture 11 and Roitt Chapters 12 and 13	The immune system and infectious disease (immunopathology)	HW set 6 due Prepare draft answers to homework set 7 questions for instructor meeting.
Week 13 April 21 – 27	Read Sompayrac Lecture 14 and Roitt Chapter 17	Cancer and the immune system	HW set 7 due, also **Draft term paper** Prepare draft answers to homework set 7 questions for instructor meeting
Week 14 April 28 – May 4	Read Sompayrac Lecture 12 and Roitt Chapters 15 and 18	Hypersensitivities (allergy) and autoimmune disease	HW set 7 due Prepare draft answers to homework set 8 questions for instructor meeting.
Week 15 May 5 & 6	Study for Exam 3	**Exam 3:** Immune tools of biotechnology, immunopathology, cancer immunity, allergy & autoimmunity	HW set 8 due **Final term paper due**
Final Exam Week May 9 – 14	Study for final exam	Final exam time set by student and instructor	