

<b>Course Code &amp; No. - Section:</b>	BIOL 105 - Sections 1
<b>Course Title (Credits):</b>	Biology I Lab (1)
<b>Term &amp; Year:</b>	Fall / 2015
<b>Course Ref. No. (CRN):</b>	80093
<b>Instructor:</b>	Dr. Brielle Bjorke
<b>Email:</b>	<a href="mailto:bbjorke@sierranevada.edu">bbjorke@sierranevada.edu</a>
<b>Office Hours:</b>	by appointment
<b>Class Meeting Time:</b>	Friday 10:00am -12:45pm
<b>Location:</b>	TCES 204 (BIOL 105)
<b>Prerequisites:</b>	None
<b>Corequisites:</b>	BIOL 101

**Course Descriptions:**

**BIOL 105: Biology Lab I** Laboratory and field exercises to accompany BIOL 101

**Student Outcomes for BIOL 101/105:** Upon completion of Biology I Lab, students be able to:

1. Develop testable questions to investigate biological problems.
2. Design experiments to investigate a biological question.
3. Present experimental data in written and visual forms.
4. Demonstrate competence in basic compound (brightfield) microscopy techniques: 1) prepare a wet mount or stained specimen slide for viewing, 2) locate a specimen and focus on it using the objective specified, 3) clean the microscope, carry, and store it properly.
5. Decide whether or not they have enough interest in science topics/concepts to continue to pursue a rigorous science major.

**Methods of Assessing Student Outcomes**

Student outcomes will be assessed using the following:

1. Comprehension will be assessed by graded laboratory assignments and questions documented in a lab notebook (including pre- and post-lab questions).
2. Ability to present experimental design and results will be assessed by a graded lab report.
3. Ability to present experimental data in a visual manner will be assessed by graded poster presentation.

**Instructional Strategies**

Directed investigation will be employed to allow each student the opportunity to experience the scientific process that produced our basic knowledge of biological systems. Each laboratory class will outline a specific learning goal, but will not teach the student how to complete the goal. Instead, students will be challenged to critically think about how to ask testable questions, how to best design an experiment, and how to interpret and present scientific results. Biology I Lab accompanies Biology I lecture, and several labs are designed to help students visualize and interact with complex ideas and theories presented during lecture. Each lab session will require reading and answering questions in a pre-lab assignment outlined on Moodle. Pre-labs are designed to queue thinking toward the learning goal. Lab assignments will be assigned during the lab that will assess whether the student was able to complete the learning goal.

**Required Texts and Materials:**

1. Access to a computer (one that meets the published SNC Computer Requirements) and internet.
2. A notebook or electronic device of your choosing to take notes in (that will be transferred to your online lab notebook).

**Attendance**

Success in Biology I Lab is significantly influenced by participation in class and lab activities. Although I will not take attendance, pre-lab questions (a significant part of your grade) will only be accepted if you are in class. Furthermore, class assignments are based entirely on in-class activities. Therefore, attending every class is required to succeed. If you are ill for more than a week, are competing with an SNC sport team, or have a family emergency or military duty that takes you away from campus, I may elect to excuse your absence and allow you to turn in work. However, I will not excuse absences because you overslept, had to work, gave someone a ride, went on an SNC-sponsored extracurricular trip, or missed less than a week because of illness.

**Course policies:****1) Food and drinks:**

Food and beverages, even drinking water, are FORBIDDEN by state and federal safety regulations in TCES 204, the biology lab. Students must leave food and beverages outside of the lab room. Students may discretely consume food or beverages in PL 320. Please clean up after yourself!

**2) Electronic devices:**

Students are not permitted to use MP3 players in class at any time, including during exams. Cell phones, tablets, and laptops may be used to access online resources or take notes in class. Phones, MP3 players, tablets, or laptops that are used for non-class purposes will be confiscated until the end of class. If you must text or call someone during class time in an emergency, please leave the room.

**3) Late work:**

Pre-lab questions are due at the beginning of the class period and will not be accepted afterward. Pre-lab questions prepare you for the activity and are therefore necessary to complete prior to lab. Lab reports are due at 10pm on the due date. Late lab reports will be accepted, but will be marked down 50%, and will not be accepted after 1 week. The poster is due on the due date, and time will be set aside for you to present your poster to your classmates. Therefore, posters will not be accepted after the due date.

**4) E-mailed work:**

All work will be submitted via the online lab notebook. If the online lab notebook is not functioning, you may email me the assignment/ lab report. In the event that online access at SNC is down, you may bring the assignment to class. However, the option to hand in a paper copy of your assignment may only occur if internet access is unavailable. This aims to reduce our environmental impact.

**Citing sources:**

Cite sources using the CSE citation sequence (number) system. Scientists routinely cite original sources for factual information that is not widely known. For example, one would not have to cite a source when one states that mutations introduce new genetic variability into the human genome, but one would cite a source when stating that mutations accumulate in human DNA at an average rate of 175 mutations per diploid genome per generation<sup>1</sup>. When you are writing a scientific argument in response to a CPA question or as part of a lab or class assignment, get in the habit of citing facts when you find them in a source. This web site has information about citing sources using CSE (Council of Science Educators) style, which is similar to that used by most scientific journals:

[https://writing.wisc.edu/Handbook/DocCSE\\_CitationSystems.html](https://writing.wisc.edu/Handbook/DocCSE_CitationSystems.html) . You can find out about on-line citation tools that set up your bibliography using a given citation style on the "Citation Guides" tab at the Prim Library website.

1. Nachman M W, Crowell S L. Estimate of the mutation rate per nucleotide in humans. *Genetics* 2000; 156: 297-304

**5) Modifications to the BIOL 105 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. You should keep and refer to the syllabus regularly, and learn how to access it on the course Moodle page. I reserve the right to make announced changes to the syllabus and class schedule at my discretion if it is in the best interest of the students to do so. Major changes, such as changes to exam dates or coverage and permanent changes to the schedule, will be posted on the Moodle site and students will be e-mailed about such postings.

**6) How to learn the most and feel the best about this class:**

Biology I lab will challenge you to think, write and communicate as a scientist. This involves a dramatic shift in your thinking and in your approach to learning and solving problems. At times this will be frustrating. However, incorporating a scientific mindset in your everyday life will allow you to see the world and all that we know (and don't know) in a new light. This is exciting! Focus on and appreciate this shift in thinking.

Class assignments and lab work are designed to teach you skills that will be required for a career in science, environmental policy, or a health field. The greatest skill that I hope to instill is thought—to critically think about how to explore the field of biology. Along this line, I am excited and willing to give you extra help if you need it. Email is the best way to reach me, and we can find a time that works with both our schedules.

Everyone in the class is here to learn and become a scientific thinker. This process will occur in different ways and at a different pace for each of us. Please be respectful of this process. This means that I expect you to be respectful of your classmates, me and you. You will learn more if you help each other out. You will learn the most if you are a leader, more if you are a contributor, and enough if you are a participant. Observers will not learn as much. I will ask detractors to leave the class that day and may drop students who detract repeatedly.

**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.

Prim Library Resources for BIOL 101 and BIOL 105: Biology and Lab 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. 7<sup>th</sup> 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, 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). 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.

### 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](mailto:hconover@sierranevada.edu), office in Prim Library: PL-304.

### 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**

**Professional Preparedness**

**Entrepreneurial Thinking**

**Sustainability**

## **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.

- 1<sup>st</sup> 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.
- 2<sup>nd</sup> 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.
- 3<sup>rd</sup> Offense: Student is expelled.

Cutting and pasting or copying phrases or sentences from internet sources, books, articles, or other students is a violation of the student honor code. If you consistently write using your own words, you will avoid plagiarizing or cheating.

### **Grading Policy**

The grading curve is based on a 1000-point scale. I will utilize half grades in the event that it helps the student.

**Grading Curve**

- A 900 – 1000 points
- A- 890 – 899 points
- B 800 – 890 points
- B- 790 – 799 points
- C 700 – 800 points
- C- 690 – 699 points
- D 600 – 700 points
- F <600 points

Points are awarded for graded assignments, pre-labs, lab reports and a poster presentation.

pre-labs	100
lab assignments	500
lab report	250
poster	<u>150 points</u>
<b>Total</b>	1000 points