

**BIOL 101: Biology I**

Monday/Wednesday 4:00-5:15

TCES 215

Fall 2015

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Office hours: by appointment

Final Exam: Tuesday December 8<sup>th</sup>, 6:30-9:30pm

**Required Textbook:** Principles of Life, 2<sup>nd</sup> edition, by Hills, Sadava, Hill, & Price.  
ISBN 1464109478.

**Course Description:** A study of biological principles including life chemistry, cell structure, respiration, photosynthesis, Mendelian genetics, DNA structure and function, protein synthesis, and regulation of gene expression.

Upon completion of Biology I, students will

1. Understand and recall facts and concepts of basic biochemistry and metabolism, cell structure and function, Mendelian and molecular genetics well enough to be successful in upper division biology and environmental science courses.
2. Demonstrate ability to answer questions about biology like those on standardized exams (such as the GRE, MCAT, or senior exit exams).
3. Demonstrate skill at critical analysis, logic, and problem solving involving facts and concepts of molecular and cell biology and inheritance.
4. Decide whether or not they have enough interest in science topics/concepts to continue to pursue a rigorous science major.

**Course Structure:**

1. In class quizzes covering the main points of the reading assignment, prior to covering topics in class lecture
2. Assigned homework
3. In-class assignments
4. Written in-class, closed-book exams
5. Written in-class, closed-book, comprehensive final exam
6. Instructor observations of student participation

**Point distribution**

Quizzes – 19 best at 5 points each	95 points
Exams – 3 at 100 points each	300 points
Comprehensive Final Exam	300 points
Participation	50 points

**Quizzes:** Daily quizzes will cover material from reading assignments. These are designed to encourage you to read material before class, and will ask about general topics. These quizzes will be closed book, but you will be allowed one page of hand-written notes.

**Exams:** Three exams worth 100 points each will cover material since the previous exam, although students will be asked to apply concepts and information learned previously when these are related to exam chapter 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. Exam questions will ask students to apply concepts and facts. Students will have hard copy exams.

**Final Exam:** A comprehensive final exam with a format similar to the three exams will be given at the end of the semester. The final exam will include questions about genomes, which were not covered on previous exams, in addition to all previously tested material.

**Participation:** Students are expected to attend class, and will be asked to work on in-class assignments alone or in small groups. Attending class, participating, and submitting in-class assignments will be worth 2 points per day (excluding exam days), for a total of 50 points.

### **Grading**

A	94+ %	C	73+ %
A-	90+ %	C-	70+ %
B+	87+%	D+	67+%
B	83+ %	D	63+ %
B-	80+ %	D-	60+ %
C+	77+%	F	<60%

### **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.

#### **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 will not be accepted:**

Late homework assignments and extra credit will not be accepted. Work is due at the beginning of the class period on the due date and will not be accepted more than 10 minutes after the start of class. Students are welcome to turn in work early by email.

**4) You must arrive on time to take quizzes**

Quizzes will be distributed at the beginning of class and collected after 10 minutes. Students who arrive after 4:10 will receive a score of zero for that quiz. Missing more than three quizzes will negatively impact your grade.

**5) Extra credit:**

I will offer extra credit for additional work with instructional value regularly throughout the semester. A student may earn up to 43 extra credit points, ~5% of the total number of points possible for the class.

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

Biology I is a challenging class and there will be times that you wish it was easier. However, if you focus on how much you are learning and how it will help you succeed in future biology and environmental science courses, then you will find it easier to do the work. I have carefully selected reading or viewing assignments and class activities to teach you content and skills that you will need for a career in science, environmental policy, or a health field. I am glad to give you extra help if you need it, so please contact me to set up a meeting out of class. I am better at paying attention to email than to my phone, but you will usually get a response from me by text.

Please treat me, your classmates, and yourself with respect. We are all working toward the same goal, helping everyone in the class learn enough biology to be successful. You will learn more if you help each other out.

**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.

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, 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

### **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 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.

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

	What to do before class	Topics	Work due
Week 1: Mon 8/17	1. enroll in biology I on moodle 2. obtain textbook	Syllabus moodle Textbook Homework	None
Wed 8/19	Read 1.1, 1.2, 1.3	Big ideas in biology	Quiz 1
Week 2: Mon 8/24	Read article on scientists that influenced Darwin	Scientific advances are a group activity-Scientists that influenced Darwin	Quiz 2
Wed 8/26	Read 1.4 & 1.5, 15.1	Darwin's and Wallace's theory of natural selection	Quiz 3
Week 3: Mon 8/31	Watch: Myths and misconceptions about evolution (TedEd)	Evolution	Answer the 7 questions posed in TedED. Bring to class. (instead of a quiz)
Wed 9/2	Review for Exam 1	Review for Exam 1	
Week 4: Mon 9/7	Labor day		
Wed 9/9	No reading	<b>Exam 1:</b> Big ideas in biology, natural selection, evolution	
Week 5: Mon 9/14	Read 2.1 & 2.2	Atoms, elements, chemical bonds	Quiz 4
Wed 9/16	Read 2.3, 2.4, & 2.5	Functional groups, carbohydrates, lipids	Quiz 5
Week 6: Mon 9/21	Read 3.1, 3.2, & 3.3	Nucleic acids and proteins	Quiz 6

Wed 9/23	Read chapter 4 (all)	Cells and organelles	Quiz 7
Week 7: Mon 9/28	Chapter 5.1 & 5.2	Cell membranes, diffusion & osmosis	Quiz 8
Wed 9/30	5.3 & 5.4	Membrane transport & how proteins work	Quiz 9
Week 8: Mon 10/5	Midterm week	<b>Exam 2:</b> Chemistry of life, biological macromolecules, cells, membranes, and transport	
Wed 10/7	Read 5.5 & 5.6	Signal transduction: how cells respond to stimuli	Quiz 10
Week 9: Mon 10/12	Read 2.5, 3.4 & 6.1	ATP and energy, biochemical pathways, enzyme activators and inhibitors, feedback inhibitors and ATP synthesis	Quiz 11
Wed 10/14	Read 6.2 & 6.4	Energy from food (heterotrophy)	Quiz 12
Week 10: Mon 10/19	Read 6.3, 6.5, & 6.6	Fermentation, light reactions of photosynthesis	Quiz 13
Wed 10/21	Review for exam 3		
Week 11: Mon 10/26	No reading	<b>Exam 3:</b> cell signaling, enzymes, metabolism, respiration, and photosynthesis	
Wed 10/28	Read 7 (all)	Cell cycle, cell division, and	Quiz 14

		reproduction	
Week 12: Mon 11/2	Read 8.1 & 8.2	Mendel's laws of inheritance and phenotypes	Quiz 15
Wed 11/4	Read 8.3 & 8.4	Chromosomal basis of inheritance	Quiz 16
Week 13: Mon 11/9	Read 3.1, 9.1 & 9.2	DNA structure and DNA replication	Quiz 17
Wed 11/11	Veterans Day		
Week 14: Mon 11/16	Read 9.3, 10.1, & 10.3	Genetic code, inheritance, and mutations	Quiz 18
Wed 11/18	Read 10.2, 10.4 and 10.5	Transcription and translation	Quiz 19
Thanksgiving break			
Week 15: Mon 11/30	Read Ch 11 (all)	Regulation of gene expression	Quiz 20
Wed 12/2	Read chapter 12 (all)	Genomes	Quiz 21
Finals week Mon 12/7	Final exam Review		
<b>Tues 12/8</b>		<b>Final Exam: 6:30-9:30 PM</b>	