

Course Code & No. – Section (CRN):	BIOL 102-1 (10400) and BIOL 106-1 (10401)
Course Title (Credits):	Biology II (3 credits) and Biology II Lab (1 credit)
Term & Year:	Spring 2020
Instructor:	Suzanne Gollery
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Office:	TCES 223
Office Hours:	Mon 4:00-5:00pm, Wed 10:30am-noon, Fri 2-3pm or by appointment
Class Meeting Time:	BIOL 102: MWF 9:00-10:15am; BIOL 106: W 1:00-4:45pm
Locations:	TCES 204 (BLAB – Biology Lab)
Prerequisites:	BIOL 101 or instructor approval
Corequisites:	BIOL 102 and BIOL 106 are corequisites

### Course Descriptions

**BIOL 102: Biology II (3)** Prerequisite: BIOL 101. Corequisite: BIOL 106. A study of the diversity of life, including topics on bacteria, protists, fungi, plants, and animals. An emphasis is placed on ecological and evolutionary processes that have given rise to the immense diversity of organisms. Topics on vertebrate body structure and function are also covered.

**BIOL 106: Biology Lab II (1)** Prerequisites: BIOL 101. Corequisite: BIOL 102. Laboratory and field exercises to accompany BIOL 102.

### Required text and materials:

- Clark, Choi, and Douglas, *Biology, 2e*, OpenStax (Houston, Texas), 2018. ISBN 978-1-947172-52-4 Available for free (digital, pdf, or Kindle) here: <https://openstax.org/details/books/biology-2e>. I recommend that you download the free pdf or Kindle version to your computer, so that you can also read your text when you don't have Internet access. Otherwise, online text access gives you the most features.
- Laptop or Tablet that meets SNC requirements. You should have Adobe Reader installed for pdf files.
- Expert TA** BIOL 102 course accessed through the BIOL 102 Canvas Course. Expert TA costs about \$35.
- BIOL 102 Canvas Course (For simplicity, both BIOL 102 and BIOL 106 materials and assignments will be administered through the BIOL 102 Canvas Course.)

**Course Grades and Grading Scale:** Biology II and Lab are corequisite courses and the material from each is integral to the other, so you will earn the same grade for both courses. Lab work is worth 25% of your Biology II and Lab grade (1 credit) and other classwork is worth 75% of your Biology II and Lab grade (3 credits).

### Grading scale:

92% to 100%	A
90% - 92%	A-
88% - 90%	B+
82% - 88%	B
80% - 82%	B-
77% - 80%	C+
67% - 77%	C
65% - 67%	C-
63% - 65%	D+
53% - 63%	D
50% - 53%	D-
Below 50%	F

### Assignments and Percent of grade (weighting):

Lab assignments (9)	25%
Chapter outlines (14)	15%
Chapter homework (Expert TA) (14)	10%
Essays (2) and Presentations (2)	10%
Exams (4)	40%

**Brief assignment descriptions:** (More complete instructions are provided on Canvas and in class.)

**Lab assignments:** (25% of grade) Lab assignment handouts will be posted on Canvas. It is your responsibility to download and sometimes print these before lab class. Lab assignments will be completed during the lab period and are almost always due at the end of class. Lab assignments submitted after they are due will earn half credit. I will score lab assignments for accuracy as well as completion, which means you can lose some points if your answers are wildly incorrect or your work of poor quality. The purpose of lab assignments and scoring for accuracy is to encourage students to think carefully about and learn concepts presented in lab class activities. Completing lab assignments is another form of active learning. The class will take an optional weekend fieldtrip to Monterey Bay Aquarium on the weekend of April 3-5. Students who attend will earn an additional lab score to replace a missing or lower lab assignment score. The trip is paid for by student lab fees (no additional cost to attend) and I hope that you all come – it's a lot of fun.

**Chapter outlines:** (15% of grade) Students will outline (take notes on) text reading assignments. The purpose of chapter outlines is to encourage students to read the text and learn concepts presented there. Writing notes is a form of active learning. Science shows us that people learn more when they take notes on a reading assignment than when they merely read or read and highlight. Your outlines should be at least ½ page (typed) or 1 page handwritten per chapter section for full credit. Students who submit notes prior to the Exam over that chapter will earn full credit (+2 points). Students can earn extra credit (+3 points) for completing chapter notes by the due date posted on Canvas, which is the start of class on last day that we discuss the chapter in class. Students will earn (+1) point (half credit) for notes submitted after the Exam over that chapter. All notes are due by midnight on Friday, April 24, one week after our last day of class.

**Chapter homework (Expert TA):** (10% of grade) Students will complete an online chapter homework assignment through Expert TA shortly after we have completed that chapter in class. Assignments are accessed through the BIOL 102 Canvas Course. Chapter HW questions are scored for accuracy, but you may make multiple attempts to answer questions without significant loss of credit. The purpose of Chapter HW is to give students another chance to practice chapter facts and concepts prior to studying for exams. Science shows us that people learn more when they practice (review) what they are learning several times and sleep between practice sessions. Students who complete a Chapter HW assignment after the due date will earn half credit. Your Expert TA scores should sync automatically with Canvas. Please let me know if they aren't, because I can retrieve your scores directly from Expert TA.

**Essays and Presentations:** (10% of grade) Students will write 2 one-page essays and give 2 team oral presentations on biology II topics. Essays will be scored for grammatical correctness, organization, and word choice as well as content, and presentations will be scored for slide design, effective use of visuals, and effective presentation as well as content. The purpose of these assignments is to give students opportunities to learn and practice effective writing and oral presentation skills, which are critical for professional success in any discipline.

**Exams:** (40% of grade) Students will take four in-class written exams, each covering about one quarter of course content. Exams are scored for content accuracy. The purpose of exams is to assess how well students can recall and understand Biology II facts and concepts. If anxiety makes it hard for you succeed on exams, keep in mind that 60% of your course grade depends on completing assignments that are NOT exams, so that it is possible to pass Biology II and Lab with a C grade by averaging 30% on exams. Of course, this assumes that you do other course assignments on time and well. Make-up exam policy: I will give one comprehensive make-up exam at the end of the semester. Students may replace a missed exam or lower exam score with the make-up exam score. Athletes who must miss an exam for competition or sports travel can take the regular exam proctored by their coach (or by me for home competitions).

**Class policies:**

1. **No food or drinks in TCES 204:** It is against Federal and State law for people to eat and drink (including water) in TCES 204. This is to protect us all from chemical and biological hazards used in the room. Please hydrate before and after class. You are welcome to step out of the room to hydrate during lab activities. You may store food and drinks INSIDE your backpack or on the table just outside the TCES 204 door.
2. **Laboratory safety:** You will get lab safety training at the start of the semester. It is important to cooperate with lab safety procedures and **pay attention when the I am giving lab activity instructions.** Everyone is **REQUIRED BY LAW to wear long pants, closed shoes (heels and toes covered, hard soles), and pull back long hair during lab activities.**
3. **Attendance:** Success in Biology II and Lab is significantly influenced by participation in class and lab activities. You cheat yourself if you skip class without a really good reason! Please email me to explain why you have missed class. **You must do laboratory activities to get credit for lab assignments.** Athletes and other students who miss lab class **for a good reason** will be able to make up labs on their own time.
4. Consistent with a growth mindset, **do your own work and write answers in your own words.** It is cheating to copy from sources (including cutting and pasting from the Internet) or other students. You must really understand a concept to write about it in your own words, so this is an important step in learning. Transcribing the correct answer won't help you learn and remember it!
5. **Turning in work:**
  - a. Lab assignments are usually due at the end of lab class and will be considered late afterward. You should NOT expect to regularly leave lab early and finish the assignment outside of class.
  - b. **Chapter outlines, essays, and presentation materials should be uploaded as pdf files to the BIOL 102 Canvas course.** Saving documents and slides as a pdf file will preserve your formatting and figures, whereas figures may "disappear" when you convert Google docs or pages files to docx (Word). If you do work by hand, scan your handwritten pages or take pictures and insert them into a single document that you save as a pdf file. Make sure your work is legible in the pictures.
  - c. If you have difficulty uploading work to Canvas, **you can email work to me to meet due dates and times.** If you email work, please follow up if I haven't replied that I got your work after a couple of days. I much prefer that you upload work to Canvas if possible.
  - d. You may turn in late work until midnight on Friday, April 24, one week after our last class. Late work is worth half credit (50%). I MAY excuse your lateness and give you full credit if I agree that you have a good reason for turning in work late, so please talk to me!
6. **Make-up exams:** I will not give make-up exams before or after every exam. Instead, **students who miss exams for any reason can take a comprehensive make-up exam at the end of the semester.** Students who did less well than usual on an exam may also take the make-up exam to replace a lower exam score. Athletes who must miss an exam for competition or sports travel can take the regular exam proctored by their coach (or by me for home competitions).
7. **SNC athletes** will miss some classes, labs, and even exams. **Athletes are excused from being in class, but are NOT excused from making up work missed due to competitions or sports travel.** Please let me know as early as possible when you will miss class. Schedule work for missed classes (chapter outlines, chapter HW, make-up labs) so that you have the work completed by the due dates and before we have the exam over that material. This may mean doing work before you travel or while you travel. Don't count on having internet while you travel – make sure you have downloaded and/or printed assignments and the text. Contact me if you cannot turn in work on time, so that I can work with you on due dates.
8. **Course communication:**
  - a. **This course syllabus is intended to provide you with a clear and accurate outline of course content, student outcomes, class policies, class topics, assignment due dates, and exam dates.**

You should keep and refer to the syllabus regularly, and learn how to access it on the Canvas course website. 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 my students to do so.

- b. I will make some important course announcements through Canvas and SNC email. You should check your SNC email regularly. You can forward your SNC email to some messaging service that you actually use and there are instructions on the IT Help page of the SNC website.
  - c. Although I have a rough outline of the course schedule on Canvas, I will regularly update with handouts and material used in class. You can find out a lot about what happened in class by going to Canvas afterward (but it's not a good substitute for attending class). Refresh your browser if you don't see something on Canvas that I say is there. Please contact me if you still can't find it.
  - d. I will post all course assignment and exam scores on Canvas. I do my best to score assignments and post scores within a week of the assignment due date.
  - e. Please reach out to me by email, Canvas comment, by phone, or coming to office hours if you want to discuss something with me. FYI, my cell phone doesn't have good coverage in my office, so if your call is dropped, try the office phone number. I do pay attention to texts and emails. I teach from 11:00 am to 7 pm on Tues and Thurs this semester, so I probably won't give you a rapid response on those days!
9. **Office hours** are for you to get individual help from me outside of class. Easy access to your professor is part of why many of you chose SNC. Please use this resource for individualized instruction, advising, or just to visit! I promise to be in my office Mondays 4:00-5:00 pm, Wednesdays 10:30 am-noon, and Fridays 2-3 pm. If these times don't work for you, please text or email to ask for an appointment.

**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.

**Student Outcomes for BIOL 102/106:** Upon completion of Biology II and Lab,

1. Students mastering the material of Biology II will have sufficient understanding and recall of facts and concepts of evolution, systematics, the diversity of living organisms, plant anatomy and physiology, vertebrate anatomy and physiology, and population ecology to be successful in upper division biology and environmental science courses.
2. Students will demonstrate ability to answer questions about biology like those on standardized exams (such as the GRE, MCAT, or senior exit exams).
3. Students will communicate about and critique scientific concepts in paragraph and essay form.
4. Students will demonstrate skill at critical analysis, logic, and problem solving involving facts and concepts of evolution, systematics, diversity of living organisms, plant anatomy and physiology, vertebrate anatomy and physiology, and population ecology.
5. Students will demonstrate competence in basic compound (brightfield) microscopy techniques.

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

1. Chapter outline assignments coordinated with assigned reading
2. Online Expert TA Chapter Homework assignments to help you review biology outside of class
3. Laboratory assignments (recording observations, short answer questions or problems)
4. Written in-class, closed-book exams
5. Essays and Oral Presentations about biology topics
6. Instructor observations of students in class

**Instructional Strategies:** Biology II and Lab is a foundational science course, which means that you will learn facts and concepts about a wide range of biology subjects to gain a basic overview of our current understanding of how living organisms “work”. There is a lot of content to remember, including a large amount of discipline-specific vocabulary. I will ask you to learn much of the easier content outside of class by reading the text, outlining chapters, and completing assignments. You will get a lot out of this class if you do your own work on assignments and try to really understand the material, rather than going through the motions to get assignments done.

### 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.

**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 Biology and Lab include, but are not limited to:

1. 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.
2. Books (can be checked out): 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.
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, how to evaluation the appropriateness of information from the internet, 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.

### **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**

**Class schedule and assignments for BIOL 102 and 106, Biology II and Lab, begin on the next page**

## Biology II and Lab Schedule of classes, reading assignments, and due dates:

Week	Date	Day	<sup>1</sup> Reading assignment	Class topics	<sup>2</sup> Work due
1	Jan 20	M		Martin Luther King Holiday – no class	
	Jan 22	W	Syllabus	BIOL 102; People who influenced Darwin	
		Lab	Essay instructions Lab handout	Lab 1: Evolution misconceptions	Lab 1 (end of class)
Jan 24	F	Ch 18: section 18.1	Evolution by natural selection		
2	Jan 27	M	Ch 18: section 18.2	Speciation	Ch 18 Outline
	Jan 29	W	Ch 19: section 19.1	Modeling evolution	Evolution essay
		Lab	Lab handout	Lab 2: Lizard Evolution	Lab 2 (end of class)
Jan 31	F	Ch 19: 19.2, 19.3	Evolution of populations	Ch 18 HW (Expert TA) Ch 19 Outline	
3	Feb 3	M	Ch 20: section 20.1	Classification	Ch 19 HW (Expert TA)
	Feb 5	W	Ch 20: section 20.2	Phylogenetic Trees	
		Lab	Lab handout	Lab 3: Classification and Evolution	Lab 3 (end of class)
Feb 7	F	Ch 20: section 20.3	Added complexity of phylogenetic modeling	Ch 20 Outline	
4	Feb 10	M		<b>Exam 1: Evolution – Chapters 18, 19, 20</b>	Ch 20 HW (Expert TA)
	Feb 12	W	Ch 22: 22.1, 22.4	Prokaryotic diversity, bacterial diseases	
		Lab	Lab handout; Virus presentation assignment	Lab 4: Prokaryotic Diversity	Lab 4 (end of class)
Feb 14	F	Ch 22: 22.2, 22.3	Prokaryotic structure and metabolism	Ch 22 Outline	
5	Feb 17	M		President's Day Holiday	
	Feb 19	W	Ch 21 (all)	Viruses	Ch 22 HW (Expert TA) Ch 21 Outline
		Lab	Virus presentation assignment	Lab 5: Student Virus Presentations	Virus presentation slides (start of class)
Feb 21	F	Ch 23: section 23.1	Origin of eukaryotes	Ch 21 HW (Expert TA)	
6	Feb 24	M	Ch 23: 23.2, 23.3	Protist Diversity	
	Feb 26	W	Ch 23: 23.4	Ecology of protists	Ch 23 Outline
		Lab	Lab handout	Lab 6: Protist Diversity	Lab 6 (end of class)
Feb 28	F	Ch 24: 24.1, 24.2	Characteristics and classification of Fungi	Ch 23 HW (Expert TA)	
7 (Mid-terms)	Mar 2	M	Ch 24: 24.2, 24.3	Classification and Ecology of Fungi	
	Mar 4	W	Ch 24: 24.4, 24.5	Fungi and Humans	Ch 24 Outline
		Lab	Lab handout	Lab 7: Fungal Diversity	Lab 7 (end of class)
Mar 6	F		<b>Exam 2: Microbial Diversity Chs 21, 22, 23, 24</b>	Ch 24 HW (Expert TA)	
<b>Spring Break: Saturday, March 7 through Sunday, March 15 (rest, play hard, come back ready to learn)</b>					

<sup>1</sup> Read BEFORE CLASS for the BEST learning opportunity. Read BEFORE THE EXAM to do well in the class.

<sup>2</sup> Assignments are DUE at the beginning of class on the due date unless otherwise indicated.

Week	Date	Day	Reading assignment	Class topics	Work Due
8	Mar 16	M	Ch 27: 27.1, 27.2	Animal characteristics	
	Mar 18	W	Ch 27: 27.3, 27.4	Animal phylogeny and evolutionary history	Ch 27 Outline
		Lab	<sup>3</sup> Ch 38 pages (see footnote 3)	Lab 8: Bone, muscle, and locomotion	Lab 8 (end of class)
	Mar 20	F	Ch 28: 28.1, 28.2, 28.3	Porifera, Cnidaria, and Lophotrochozoans	Ch 38 HW (Expert TA)
9	Mar 23	M	<i>Make an appointment with your advisor to plan Fall 2020 courses</i>		
			Ch 28: 28.4 thru 28.7	Ecdysozoans & non-vertebrate deuterostomes	Ch 27 HW (Expert TA)
	Mar 25	W	Ch 29 (about half)	Vertebrates	Ch 28 HW (Expert TA)
		Lab	Ch 35: 35.1, 35.2	Lab 9: Nervous tissue, neural neural impulses and animal nervous systems	Lab 9 (end of class)
Mar 27	F	Ch 29 (rest of Ch)	More vertebrates	Ch 35 HW (Expert TA) Ch 29 Outline	
10	Mar 30	M	Ch 41: 41.1 thru 41.4	Osmoregulation and Excretion	Ch 29 HW (Expert TA)
	April 1	W		<b>Exam 3: Animals – Chapters 27, 28, 29, and parts of Chapters 38, 35, and 41</b>	Ch 41 HW (Expert TA)
		Lab	Lab handout	Lab 10: Ecology of Monterey Bay Animals	Lab 10 (end of class)
	<b>Apr 3-5</b>	<b>Fri</b>	<b>through Sun</b>	<b>Monterey Bay Aquarium Fieldtrip</b>	
11	Apr 6	M	Ch 25 (all)	Seedless plants	
	Apr 8	W	Ch 26 (all)	Seed plants	Ch 25 Outline
		Lab	Lab handout; Plant presentation assignmt	Lab 11: Plant structure and diversity	Lab 11 (end of class)
Apr 10	F	Ch 30: 30.1 through 30.4	Plant body	Ch 25 HW (Expert TA) Ch 26 Outline	
12	Apr 13	M	Ch 30: 30.5	Plant transport	Ch 26 HW (Expert TA)
	Apr 15	W	Ch 30: 30.6	Plant sensory systems	Ch 30 Outline
		Lab	Plant presentation assignment	Lab 12: Plant Adaptation Presentations	Plant adaptation slides (start of class)
	Apr 17	F		<b>Exam 4: Plants – Chapters 25, 26, 30</b>	Ch 30 HW (Expert TA)
<b>SNC Senior Symposium Week – Attend these events for extra credit and because they're awesome!</b>					
	TBA			<b>BIOL 102 Comprehensive Make-up Exam</b>	
13	Apr 20	M	2 – 4 PM 6 – 9 PM	Psychology Research Fair Business Plan Competition	TCES 139/141
	Apr 21	T	1:30 – 4:30 PM 5:30 – 8:30 PM	Humanities & INTD Senior Projects SBRM Master Plan Competition	TCES 139/141
	Apr 22	W	4 – 7 PM	<b>Science Student Symposium</b>	TCES 139/141
	Apr 23	Th	5 – 7 PM	BFA Gallery Reception Trashion Show, Art Prom	Prim Library 320 Holman Garage Gallery
	Apr 24	F	4 – 6 PM 7 PM on	<b>SNC Student Symposium</b> Poetry Slam!	TCES 139/141 Patterson Cafeteria

<sup>3</sup> Lab 8 reading: Ch 38, Intro to p. 1182 top few lines; 1190 (EvolutionConnection) to 1195 (stop at Development...); and section 38.4