

**BIOL 101 (3 credits) and BIOL 105 (1 credit): Biology I and Lab
Fall Semester, 2009****Dr. Suzanne W. Gollery, Instructor****Office:** TCES 223**Office hours:** Tuesday and Thursday: 10:30-11:30 a.m.; Wednesday: 3:00-4:00 p.m.; Friday: Noon-1:00 p.m.**Contacts:** **Office:** 831-1314 ext. 7456 **Home:** 775-832-0747**E-mail:** sgollery@sierranevada.edu or suzanne.gollery@gmail.com**Class Meeting Time and Location:**

BIOL 101: MWF 4:00– 4:50 a.m., TCES 202

BIOL 105: F 1:00 – 3:45p.m., TCES 204 (Biology Lab)

Course Descriptions:

BIOL 101: Biology I (3) Corequisite: BIOL 105. A study of biological principles including life chemistry, cell structure, respiration, photosynthesis, Mendelian genetics, DNA structure and function, protein synthesis, population genetics, natural selection, evolution, speciation, and ecology.

BIOL 105: Biology I Lab (1) Corequisite: BIOL 101. Laboratory and field exercises to accompany Biology I.

Student Outcomes:

- Students mastering the material of Biology I will have sufficient understanding and recall of facts and concepts of basic biochemistry and metabolism, cell structure and function, Mendelian and molecular genetics, evolution by natural selection, and classification to be successful in upper division biology and environmental science courses.
- Students will demonstrate skill at reading and comprehending science texts.
- Students will demonstrate ability to answer questions about biology like those on standardized exams (such as the GRE, MCAT, or senior exit exams).
- Students will communicate about and critique scientific concepts in paragraph form.
- Students will demonstrate skill at critical analysis, logic, and problem solving involving facts and concepts of molecular and cell biology, inheritance, evolution by natural selection, and classification.
- Students will demonstrate competence in basic compound (brightfield) microscopy techniques.

Methods of Assessing Student Outcomes: Mastery of Biology I material, writing, and laboratory skills will be assessed through:

- Homework assignments coordinated with each topic
- Four exams, each covering about one quarter of the course material, in multiple choice, matching, true or false, and short answer format
- A comprehensive final exam in multiple choice, matching, true or false, and short answer format
- Written laboratory assignments
- Two laboratory practical exams, each covering half of the laboratory exercises.

Instructional Strategies: In order to communicate a body of knowledge, concepts, and skills in basic biology, Biology I and Lab will utilize:

- Lectures and lecture discussions
- Laboratory exercises coordinated with lecture topics
- Laboratory worksheets and reports
- Written homework assignments to encourage prompt and thorough reading of the text
- Students are encouraged to use the publisher's companion web site to accompany the text, including tutorials, quizzes, and links to related sites.
- Student study groups outside of class time are greatly encouraged!
- Course material and resources will be available on a Moodle page.

Required texts:

- 1) Neil A. Campbell, Jane B. Reece, Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, and Robert B. Jackson, Biology, 8th edition, Pearson/Benjamin Cummings, 2008, ISBN: 0321543254. Students are required to have access to both the text and the on-line materials at www.masteringbio.com. A cost-effective way to purchase both text and on-line materials is to purchase the eBook: ISBN: 0321662172.
- 2) Gollery, Suzanne, editor, Biology I Lab Manual, Sierra Nevada College, Pearson Custom Publishing, 2009, ISBN: 0-558-28265-2.

Supplemental Materials:

- 1) The course syllabus, handouts, and other material will be posted on a Moodle site at <http://sierranevada.mrooms.net/>. Students will learn how to access Moodle sites during the first lab period.
- 2) The publisher supports a companion Web site to the text at www.masteringbio.com. This well-designed resource includes animations, tutorials, activities, videos, and quizzes. A fast internet connection is recommended. Students will learn how to access the companion web site during the first class.
- 3) Students will be required to use a computer with internet access for course and lab assignments. A laptop computer that can be brought to class is recommended. Students can complete the coursework on computers available in the SNC Prim Library.
- 4) Current articles related to class topics from highly readable sources such as **Science News** or **Scientific American** will be assigned as supplemental reading. These will be distributed in class and posted on the course Moodle site.
- 5) This workbook is recommended for students who have NOT had AP or college chemistry: Sackheim, An Introduction to Chemistry for Biology Students, 9/e, Pearson/Benjamin Cummings, 2008. ISBN: 9780805395716. Students work through self-paced exercises designed to teach chemistry concepts that are important for understanding biology concepts. Students can earn extra credit for using the Sackheim workbook.

Attendance: Success in Biology I and Lab is largely dependent on faithful attendance at class and lab periods. Thus, laboratory reports and in-class assignments will be accepted only from students who have attended and performed the laboratory exercise or in-class assignment. Students MAY NOT be allowed to make up missed laboratory exercises, in-class assignments, and exams. Since life happens, students may seek to excuse an absence and have an opportunity to do make up work for missed points. Absences will be excused for documented illness (of the student or a dependent), military duty, a family bereavement, or at the instructor's discretion. Excused absences will NOT be granted for employment conflicting with class times or oversleeping. Students with more than two unexcused absences will be penalized by half grades according to this rubric:

- >2 unexcused absences → Half grade drop (for example, from earned B to B- or C+ to C)
- >3 unexcused absences → Full grade drop (for example, from B to C)
- >5 unexcused absences → Two full grade drop (for example, from B to D)
- >7 unexcused absences → Three full grade drop (for example, from A to D)
- >9 unexcused absences → F for the course

Academic Accommodations (ADA): 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 or go to the OASIS offices on the third floor of Prim Library within the first week of the semester.

Consequences for Violating the Faculty/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 consequences for 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 refraining from these and other forms of academic dishonesty. Violations of the honor code become part of a student's academic record.

SNC's Disciplinary Sanctions for Honor Code Violations:

- 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.

Class Requirements and Grading Policy: Since BIOL 101 and 105 are co-requisites, and the material of each is so integral to the other, assignments from each will contribute to one point total and the same letter grade will be awarded to both courses. The grading curve is based on a 1200-point scale, with 75% of points from BIOL 101 and 25% of points from BIOL 105. 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%	1080–1200 points
B	80 – 89 %	960–1079 points
C	65 – 79%	780–959 points
D	50 – 65%	600–779 points
F	<50%	<600 points

Students may earn points in the following ways:

BIOL 101 (75%):

Homework – 20 at 15 points each	300 points
Exams – 4 at 100 points each	400 points
Final Exam	200 points

BIOL 105 (24.7%):

Lab Reports – 10 at 20 points each	200 points
Lab Exams – 2 at 50 points each	100 points

Total 1200 points

Homework: Students are assigned homework to encourage prompt reading of the text and review of class material, and to provide feedback about students' understanding of important concepts before the exams. Homework questions are found on the "Homework" pages of the syllabus package, and due dates are posted on the "Homework" page and on the running schedule of classes. The "Homework" page is also posted on the class Moodle site. A student's 20 best homework scores will count toward the grade. Homework is worth 25% of the available points.

Quizzes: Four quizzes will be given about one week before each exam over material covered to that point since the previous exam. Quizzes WILL NOT COUNT toward a student's grade, HOWEVER, if a student's cumulative quiz score is better than an exam score, then the cumulative quiz score will REPLACE the lower exam score. The purpose of the quizzes is to give students practice and feedback before the exam covering that material, so even if the cumulative quiz score is not substituted for a lower exam score, it will help students to do their best on quizzes.

Exams: Four exams will cover material from the previous quarter of the semester. Exams include multiple choice questions, since this is the format used on standardized exams, such the GRE and MCAT. Other questions may include short answer, matching, genetics problems, or true-false formats. Make-up exams will not be given without an excused absence.

Final Exam: A comprehensive final exam will be given **Monday, December 7, 6:30 - 9:30 p.m.**

Lab Reports: Students will answer questions and analyze data on handouts provided for most laboratory exercises. A few lab reports will take the format of short scientific papers. The 10 best lab report scores will count toward the student's grade. A student must complete the lab exercise in order to turn in a lab report.

Lab practical exams: Two lab practical exams will test students' laboratory skills, familiarity with the experiments done, data interpretation, observational skills, and the main concepts presented in lab exercises. Students will be held accountable for all lab exercises, whether or not they have turned in corresponding lab reports.

Due dates and late work:

- Assignments are due at the BEGINNING of the class period assigned as the due date or earlier. Work turned in after class on the due date will be considered one day late.
- Due dates are listed on the running schedule of classes for BIOL 101 and 105 and on any handouts describing the assignments. The running schedule and all assignment handouts are posted on the class Moodle site.
- Late work will be accepted, HOWEVER, 10% of the possible points will be deducted for each CALENDAR day that the work is late. (Work handed in at the end of the class period will be considered late by one calendar day.)
- Work that is more than seven calendar days late will NOT be accepted.
- If a student is absent on a date that work is due, it is the student's responsibility to get the work to the instructor on or before the due date.
- Extra credit will NOT be accepted late after Friday, November 20 (the Friday before Thanksgiving Recess).
- Students may submit work as hardcopy or by e-mail, and are encouraged to use e-mail in order to avoid penalties for late work. E-mails lacking a subject line are less likely to penetrate the SNC spam filter. The instructor will acknowledge all work received by e-mail; it is the student's responsibility to ensure that e-mailed work has been received by the instructor if a reply is not forthcoming.

- Early or late work may be handed in during class, sent to class with another student, placed on the instructor's office chair or under the office door, placed in her mail tray (shared with Dr. Chuck Levitan), or e-mailed.

Midterm grades: Midterm grades will be calculated using all work received through Monday, October 5.

Extra credit: The content of extra credit assignments is designed to provide additional information related to course topics. Extra credit assignments may be used to make up points lost due to absences and to supplement a student's point total to earn the next higher grade. Students may earn up to 60 points in extra credit (5% of total points possible). There are several options for earning extra credit, with point values assigned commensurate with the amount of work involved. These are listed on the Extra Credit handout in the syllabus packet, which is also posted on the class Moodle site. If more than 60 points of extra credit are accrued, the maximum of 60 points will be assigned to a student's score. CAUTION! Most regular assignments and exams are worth more points than most extra credit assignments, so time should be devoted first to preparing regular assignments. All extra credit is due by Friday, November 20, and will not be accepted as late work after that time.

Note: This syllabus 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, and learn how to access it on the course Moodle page. The instructor reserves the right to make announced changes to the syllabus and class schedule at her discretion if it is in the best interest of the students to do so.

Schedule of classes: The following schedule is the instructor's best estimate of which topics will be started on which dates, assignments due dates, and quiz and exam dates and coverage. The schedule is subject to change at the instructor's discretion. A most current schedule for two or three upcoming class periods will be posted on the whiteboard during each class. If the actual class schedule will deviate permanently from the published one, the instructor will post and distribute a revised class schedule for the remainder of the semester.

Date	Day	Reading	Class Topic	Work Due	Lab Topic
17-Aug	M	Syllabus pp. vi-viii, xiv-xxi	What to expect in Biology I and Lab Accessing Moodle		
19-Aug	W	pp. 1-11	Biology Concepts Pre-test Majors concepts/themes in biology		
21-Aug	F	pp. 12-27, Ch 22, Darwin articles	Darwin's Theory of Evolution by Natural Selection		Lab Safety Microscopes and Cells Measuring Volumes
24-Aug	M	Chapter 2	The Chemistry of Life	Chapter 1 homework	
26-Aug	W		More on the Chemistry of Life	Chapter 22 homework	
28-Aug	F	Chapter 3	Water allows Life	Chapter 2 homework; Microscopes and Cells/Volumes	Library Research and Scientific Investigation
31-Aug	M	Chapter 4	Quiz: Chapters 1 – 3 and 22 Carbon Chemistry and Functional Groups	Chapter 3 homework	
2-Sep	W	pp. 68-77, 86-91	Carbohydrates, Lipids, and Nucleic Acids	Chapter 4 homework	
4-Sep	F	pp. 77-86	Proteins and How They Work	Library/Sci Investigation Due	Biologically Important Molecules in Foods
7-Sep	M		Labor Day Holiday		
9-Sep	W		Exam 1: Chapters 1 – 5 and 22	Chapter 5 homework	
11-Sep	F	pp. 92-93, Ch 6	Prokaryotic and Eukaryotic Cells	Biol Molecules in Foods Lab	Diffusion and Osmosis
14-Sep	M	Chapter 6	Organelles, Extracellular Structures, Cell Junctions		
16-Sep	W	pp. 125-131	Membrane Structure and Selective Permeability	Chapter 6 homework	
18- 20	F-		Lassen Volcanic National Park Field Trip (Optional, but		Lassen Field Trip

Sep	Su	<i>encouraged!!)</i>			
Date	Day	Reading	Class Topic	Work Due	Lab Topic
21-Sep	M	pp. 132-141	Transport Across Membranes	Diffusion & Osmosis Lab	
23-Sep	W	Chapter 8	Metabolism and How Enzymes Work	Chapter 7 homework	
25-Sep	F	Chapters 8 & 9	More Metabolism and How ATP Synthase Works		Respiration and Fermentation
28-Sep	M	Chapter 9	Cellular Respiration and Fermentation	Chapter 8 homework	
30-Sep	W	Chapter 10	Quiz: Chapters 6-9 Photosynthesis	Chapter 9 homework	
2-Oct	F	Chapter 10	More on photosynthesis		Lab Practical Exam 1
5-Oct	M		Exam 2: Chapters 6-10	Chapter 10 homework	
7-Oct	W	Chapter 11	Cell Communication		
9-Oct	F	Chapter 11	More on Cell Communication	Respiration Fermentation Lab	Photosynthesis Lab
12-Oct	M	Chapter 12	The Cell Cycle and Mitosis <i>Midterm grades due to registrar</i>	Chapter 11 homework	
14-Oct	W	Chapter 13	Meiosis and Sexual Life Cycles	Chapter 12 homework	
16-Oct	F	pp. 262-271	Mendelian Inheritance	Photosynthesis Lab	Mitosis and Meiosis
19-Oct	M	pp. 271-285	Things got Complicated after Mendel	Chapter 13 homework	
21-Oct	W	Chapter 15	Sex Linkage, Chromosomal Mutations, Epigenetics	Chapter 14 homework	
23-Oct	F	Chapter 15, especially 15.3	Linkage and Gene Mapping <i>Last day to withdraw from any SNC class</i>	Mitosis and Meiosis Lab	Inheritance
26-Oct	M	pp. 305-310	DNA is the Genetic Material <i>Advising for Spring 2010 semester begins</i>	Chapter 15 homework	
28-Oct	W	pp. 311-324	DNA Replication and Repair		
30-Oct	F		<i>Nevada Day Holiday</i>		
2-Nov	M		Exam 3: Chapters 11 – 16 <i>Junior English Proficiency Exams this week</i>	Chapter 16 homework; Inheritance Lab	
4-Nov	W	pp. 325-336	Genetic Code and Transcription		
6-Nov	F	pp. 337-350	Translation and Point Mutations		Molecular Biology; Secrets of the Rainforest
9-Nov	M	pp. 351-373	Regulation of Gene Expression <i>Register for Spring 10 classes; Grad petitions due</i>	Chapter 17 homework	
11-Nov	W	pp. 373-380; Cancer articles	Cancer		
13-Nov	F	Chapter 19	Viruses	Ch 18 + Cancer homework	Molecular Biology; Secrets of the Rainforest
16-Nov	M	Chapter 20	Biotechnology	Chapter 19 homework	
18-Nov	W	Chapter 20	More Biotechnology	Molecular Biology Lab	
20-Nov	F	Chapter 21	Genomes and their Evolution	All Extra Credit Due; Chapter 20 homework	Webcutter (Bioinformatics)
Nov 23 -	27		<i>Thanksgiving Holiday (all week)</i>		
30-Nov	M		Review for exams	Secrets of the Rain Forest Lab	
2-Dec	W		Exam 4: Chapter 17 – 21	Chapter 21 homework	
4-Dec	F		Open lab and exam review	Webcutter Lab	Lab Practical Exam 2

Dec 7	M	6:30 - 9:30 pm	Final Exam - comprehensive		
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