

Course Code & No. - Section:	BIOL 101/105 - Sections 1 and 2
Course Title (Credits):	Biology I (3) and Lab (1)
Term & Year:	Fall / 2014
Course Ref. No. (CRN):	80011 (101) and 80012 (105-1) or 80013 (105-2)
Instructor:	Dr. Suzanne Gollery
Phone(s):	Office: 775-831-1314 ext7456 or Cell: 775-813-4215 (8 a.m. – 9 p.m.)
Email:	sgollery@sierranevada.edu
Office:	TCES, room 223
Office Hours:	M 10:00 – 11:15 a.m., W 2:30 – 3:45 p.m., and F 11:30 a.m. – 12:45 p.m. or by appointment
Class Meeting Time:	MW 4:00 – 5:15 p.m. and (Lab, section 1) R 10:00 a.m. – 12:45 p.m. or (Lab, section 2) R 2:30 – 5:15 p.m.
Location:	Prim Library 320 (BIOL 101) and TCES 204 (BIOL 105)
Prerequisites:	None
Corequisites:	BIOL 101 and BIOL 105 are co-requisites

Course Descriptions:

BIOL 101: Biology I: 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.

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

Student Outcomes for BIOL 101/105: Upon completion of Biology I and Lab, 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. For example, compare and contrast real examples demonstrating the relationship between structure and function of proteins.
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. Class preparation assignment for assigned reading prepared before that material is covered in class
2. One-minute essays on the murkiest or most significant points at the close of each class
3. Laboratory assignments (lab notes, short answer questions or problems, 2 research posters, 2 lab reports)
4. Written in-class, closed-book exams
5. Written in-class, closed-book, comprehensive final exam
6. Instructor observations of student participation

Instructional Strategies

Biology I 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. This class will use the flipped classroom approach. This means that I will ask you to learn much of the easier content outside of class by reading the text or other articles posted on Moodle, viewing mini-lectures, or accessing assigned websites for information, and completing or reviewing in-class work after class. Class preparation assignments (CPAs) will prompt you to make time for learning easy material before class, preparing you to apply the concepts and learn the most difficult information with the help of your instructor in class. Most important, if you understand what parts of the CPA are confusing for you, you will be able to direct class discussions toward topics that you most need help with. If you make a good faith effort to prepare for class, then you will have no trouble learning enough content to pass the class, but if you ignore the responsibility to prepare for class, you will find that you cannot understand the in-class activities or get enough from class alone to be successful on in-class exams. You will get a lot out of this class if you work on the assignments that I have prepared to help you learn. I will not just lecture, in other words, tell you everything you need to know in class.

Required Texts and Materials:

1. Choose either the Hillis text or Thinkwell videos, or both. You only need to purchase one of these, but you can get both if you have the money and want to have more resources to help you learn.
 - a. Text option: Hillis DM, Sadava D, Hill RW, and Price MV. (2014) *Principles of Life, 2nd edition*, Sunderland, MA: MacMillan/WHFreeman/Sinauer Associates. ISBN-13: 9781464189838. This is a hardbound text with access to online materials that can help students learn the material. You may also purchase the loose-leaf version (so you can bring only chapters that you need to class) or the eText version (which will give you the online materials, but only lasts for two years).
 - b. Video option: Purchase the Thinkwell Biology video lectures, then enroll yourself in the SNC Biology I course. This series of mini lectures has very similar content to a general biology text. If you know you won't read the text, but you do like to watch tv or movies, this may be the right text for you. Professor George Wolfe gives amusing mini-lectures and explains important biology concepts in simple language with understandable and accurate analogies.
2. One-subject spiral notebook to use as a lab notebook.
3. 3-ring binder (available at the bookstore) to hold notes, handouts and work returned with feedback plus paper.
4. A set of colored pencils, 8 or more colors.
5. Access to a computer (one that meets the published SNC Computer Requirements) and internet.

Attendance

Success in Biology I and Lab is significantly influenced by participation in class and lab activities. Although I will not take attendance, **YOU MUST BE IN CLASS TO TURN IN WORK**. Grades will be calculated based on the 20 best CPA scores and 10 best lab assignments, so missing two labs or three CPAs will not negatively impact your grade. 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 will not be accepted:

Late CPAs, lab 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, in person, or slipping it under Suzanne's office door.

4) E-mailed work:

All work may be submitted by e-mail or in hard copy. Students may e-mail digital work or work scanned to pdf files. Please include your name in the file name, as many students could send a file named "CPA 1". The instructor will reply to verify that e-mailed work was received. It is the student's responsibility to follow up if I do not reply about e-mailed work. If you suspect an emailing problem, please ask to submit work late.

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 generation¹. 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:

http://bcs.bedfordstmartins.com/resdoc5e/RES5e_ch11_s1-0003.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) Extra credit:

I will offer extra credit for additional work with instructional value regularly throughout the semester. A student may earn up to 60 extra credit points, 5% of the total number of points possible for the class. Students who have read this syllabus may e-mail the instructor and list the CPA options prior to the second class meeting on Wednesday, August 20, to receive 3 points extra credit as a reward for doing this important reading assignment. The last date to submit any extra credit is Monday, December 1, 2014.

6) Modifications to the BIOL 101/105 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. 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. 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.

7) 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 take advantage of office hours or ask for another time to meet with me if the office hours don't work in your schedule. 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. You will learn the most if you are a leader, more if you are a contributor, and enough if you are a participant. Observers and will not learn as much. I will ask detractors to leave the class that day and may drop students who detract repeatedly.

Leader –

does all that is asked
plus extra
plus helps someone else

Contributor –

does all that is asked
plus extra

Participant –

does all that is asked
nothing more

Observer –

does something,
but less than is asked

Detractor –

does less than is asked
keeps someone else from doing what they are supposed to do

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. 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, 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 evaluate 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, 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.

Grading Policy

Since BIOL 101 and 105 are corequisites, and the material of each is so integral to the other, assignments from each will contribute to an overall 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% 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 – 89.9 %	960 – 1079 points
C	68 – 79.9%	816 – 959 points
D	58 – 67.9%	696 – 815 points
F	<58%	<696 points

Students may earn points in the following ways:

BIOL 101 (75%):

CPAs – 20 best at 15 points each	300 points
Exams – 4 at 100 points each	400 points
Comprehensive Final Exam	200 points

BIOL 105 (25%):

Lab assignments – 10 best at 15 points each	150 points
2 lab reports – 1 st : 30 and 2 nd : 45 points	75 points
2 lab posters – 1 st : 30 and 2 nd : 45 points	<u>75 points</u>
Total	1200 points

Assignment details:Class preparation assignment:

Short description of the assignment: Students will complete a written assignment while reading or viewing assigned material prior to its being discussed in class, in order to prepare to USE the content during class activities.

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 about biology for a much longer time if they learn them by reading and writing about them, communicating about them with other people, and applying them to solve problems in different contexts, than if the same students come to class and passively listen to an instructor lecture about the facts and concepts while taking notes. The class preparation assignments give biology students a chance to learn actively by reading a text or viewing video lectures and summarizing or answering questions related to the reading/viewing assignment. Students are encouraged to write questions asking for clarification of confusing material from the reading assignment and submit them to the instructor by noon on class days. Class activities will provide time to address student questions and murkiest points (see one-minute essays, below), work in pairs or small groups to communicate about course content, and apply challenging and important concepts and facts to new situations. Students will gain much more from class activities if they come to class prepared. Students will be confused about what they need to know if they do not complete the CPAs, because I will not tell you everything that you need to learn to pass the exams in class.

How to do the assignment: Because people learn in different ways, there are a few options for the class preparation assignment. Students may do any of the options for any CPAs. For example, a student may outline the Thinkwell videos for CPA 1, answer CPA questions for CPA 2, and write his questions and research their answers for CPA 3. However, all students are responsible for being able to answer the CPA and CHECKpoint questions by exam time. Students who turn in hard copies should have a second copy (file or hard copy) on which to take additional notes during class and study sessions with team members. Students should expect to spend up to twice as much time outside of class on reading or viewing assignments and CPAs as they spend in class. Due dates are given on the schedule of classes (right hand column) and CPA assignment handout.

Option 1: Answer CPA Questions – read the assigned Hillis pages or view the assigned Thinkwell video lectures and then answer Suzanne’s CPA questions in your own words. The CPA questions are in a separate handout posted on Moodle.

Option 2: Answer CHECKpoint questions at the end of Hillis Concepts assigned for that date. You can only use the option when Hillis pages are assigned for the date that the CPA is due. Suzanne will post the CHECKpoint questions on Moodle, so this option is also available for students viewing Thinkwell lectures. There are no CHECKpoint questions for Hillis Chapter 1.

Option 3: Do the Hillis Launchpad LearningCurve assignment for the chapter from which reading is assigned. The LearningCurve assignment covers the whole chapter, whereas the reading assignment may only cover part of the chapter. Thus, this option may not be ideal for some CPA due dates, but will be a good way to check your understanding when we are finishing a chapter. This option is only available to students who purchased Hillis Principles of Life, 2e, with Launchpad. Hillis Chapter 1 does have a LearningCurve assignment.

Option 4: Outline the Hillis reading assignment or Thinkwell video lecture IN YOUR OWN WORDS. No credit will be given for outlines that plagiarize the notes that you can download from Thinkwell or just restate subtopic headings in the Hillis reading assignment.

Option 5: Write down questions that you have about the Hillis reading assignment or Thinkwell lectures. Then do some research to try to answer your questions and record where you looked for information. Answer your questions if possible. If you are still confused after trying to learn more, this is ok, just try to explain what part of the material you don’t understand.

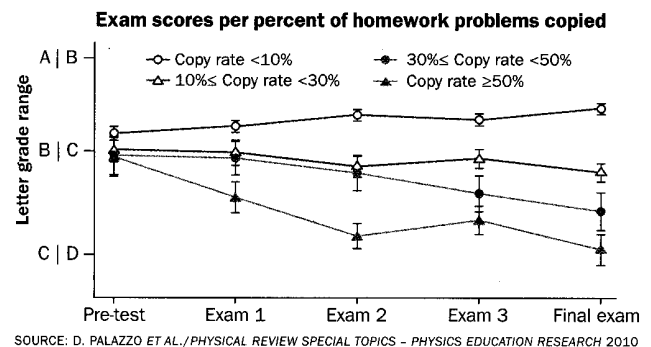
Collaboration and individual work: Students are encouraged to work with their teams to understand the concepts and facts presented in reading assignments in order to provide thoughtful answers to CPA or CHECKpoint questions.

However, each student must write answers to questions in his/her own words. Students with CPA prose that is identical to or paraphrased from other students work, the text, Wikipedia, or other published or internet sources will receive a ZERO GRADE for the assignment and consequences for violating the academic honesty policy may apply. Cheaters never learn!

Scoring and feedback from the assignment: CPAs will be scored for completeness (effort), that is, students will receive full credit for making a good attempt to answer all questions, regardless of whether or not they are ideal answers. The instructor will give students written feedback on some answers, but not all. Students are responsible for working with their teams to make sure that all team members eventually have complete answers that can be effective resources for class activities, lab exercises, and study for exams. Students should keep their evolving CPA answers in their text binders.

Science Stats | CHEATERS NEVER LEARN

A study of MIT students found that those who copied others' homework more frequently did worse on exams over the course of a semester.



4 | SCIENCE NEWS | May 8, 2010

Student questions:

While completing assigned reading, CPAs, or other assignments, students are encouraged to write questions for clarification of confusing or difficult concepts or facts and e-mail these questions to the instructor by noon on the day of class. Please use a subject heading for your e-mail that states it is a question for class. Questions may be submitted prior to any class, not just classes with CPA or other assignment due dates. Questions and murkiest points will be addressed in class. Your questions will also help direct the class activities to help you understand what you find most difficult.

One-minute essays: In the last couple of minutes of each class, students will have time to write one-minute essays in which they will briefly state, in a complete sentence or two, either:

1. The murkiest point, that is, one concept or bit of content information that they found the least understandable (most confusing) during that class period.
2. Or, if a student understood everything clearly, the most important concept or bit of content information covered in that class period.

The instructor will read the one-minute essays carefully prior to the next class period and structure the class activities to clear up the murkiest points. One-minute essays will also be used to take attendance; students who are present, but do not turn in one-minute essays, will be counted as absent.

Exams: Four exams worth 100 points each will cover material from 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 as 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 Biology I final exam is scheduled for Tuesday, December 9, 6:30-9:30 p.m. The final exam will include questions about genomes and cancer, which were not covered on previous exams, in addition to all previously-tested material.

Lab Assignments: All lab activities will have associated assignments. Lab assignments will vary significantly in format, so individual instructions will be given for each assignment and can be downloaded from Moodle. Some lab assignments will be turned in at the end of the lab period. Others will require additional time and will be due at the beginning of lab

class on the due date listed on the schedule of classes. Lab assignment due dates are given on the schedule of classes. All students will turn separate lab assignments written in their own words, even when lab work is done as a team.

Lab Reports: Each student is responsible for writing two lab reports as described in a handout posted on Moodle. The first lab report is worth less than the second so that students are not penalized too much as they learn what is expected. Students who are not happy with their lab report scores may rewrite the lab report for up to 90% credit.

Lab Posters: Each student is responsible for designing two lab posters as described in a handout posted on Moodle. The first poster is worth less than the second so that students are not penalized too much as they learn what is expected. Students who are not happy with their lab poster scores may revise the poster for up to 90% credit.

Midterm grades: Midterm grades will be calculated using all work due through Monday, October 6, 2014. There will not be a midterm exam, per se, although Exam 2 is scheduled for Monday, October 6.

Biology I and Lab Schedule – Fall 2014

The schedule of classes, including assigned reading or viewing and due dates begins at the top of the next page.

Week and dates	Reading assignment	Class topics	Work due
<p>Week 1: Mon 8/18</p> <p>Wed 8/20</p> <p>Thurs Lab</p>	<p>Obtain these things and bring to class the first day:</p> <ol style="list-style-type: none"> 1. Either the Hillis text or Thinkwell Biology videos 2. A three-ring binder to keep handouts and notes 3. A laptop or tablet that can connect to the internet <p>1. Read syllabus & learning goals</p> <p>2. Read Hillis chapter 1 or view Thinkwell subchapters 1.1.1, 1.2.1, & 1.2.2</p> <p>Wear sturdy shoes to hike off-trail, sun screen, and bring a water bottle, your lab notebook (a spiral 1-subject notebook), and pen or pencil. There is no handout for this lab.</p>	<p>How to succeed in Biology I :</p> <ul style="list-style-type: none"> • Syllabus • Learning teams • CPAs • Student questions • How to read the text • Thinkwell Biology • One-minute essays <p>Big ideas in Biology:</p> <ul style="list-style-type: none"> • Energy & organization • Structure & function • Response to stimuli • Reproduction • Inheritance & evolution • Interactions in systems <p>Scientific thinking – posing questions that you can test</p>	<p>CPA 1</p> <p>Lab notebooks at end of class</p>
<p>Week 2: Mon 8/25</p> <p>Wed 8/27</p> <p>Thurs Lab</p>	<p>1. Read Comparative Anatomy through Natural Selection: Darwin and Wallace and Theories Hypotheses and Laws through Darwin and Wallace or view Thinkwell subchapters 1.2.3, 1.2.4, and all subchapters of 1.3</p> <p>1. Read Hillis Concepts 1.4 & 15.1 or view Thinkwell 1.4 (all subchs)</p> <p>2. All students read “The Man Who Wasn’t Darwin” (also on Moodle)</p> <p>Read this online assignment before lab</p>	<p>Scientific advances are a group activity – Scientists who influenced Darwin</p> <p>Darwin’s and Wallace’s theory of evolution by natural selection</p> <p>Mystery boxes – uncertainty and human nature in science</p>	<p>CPA 2</p> <p>CPA 3</p> <p>Lab notebooks at end of class</p>
<p>Week 3: Mon 9/1</p> <p>Wed 9/3</p> <p>Thurs Lab</p>	<p>Go to Myths and Misconceptions about Evolution (TedEd) and watch the video. Answer the seven questions. Dig deeper: read and click on the link “Browse the lists” and read 20 links that interest you.</p> <p>Download and read lab handout for weeks 3 and 4 before class.</p>	<p><i>Labor Day Holiday – no class</i></p> <p>Myths and misconceptions about evolution</p> <p>Microscopy – survey of aquatic microbes – planning a comparative scientific investigation</p>	<p>CPA 4</p> <p>Lab notebooks at end of class</p>

Week and dates	What to do before class	Class topics	Assignments due
Week 4: Mon 9/8 Wed 9/10 Thurs Lab	Submit exam questions using question stems by NOON on Monday, 9/8 for extra credit. Collect pond water samples for 9/11 lab within 24 hours of class. Put in lab with lids ajar to let in O ₂ .	Review for Exam 1 with study teams Exam 1: Biology's big ideas, evolution and scientific thinking Conduct aquatic microbe investigation	Lab notebooks at end of class
Week 5: Mon 9/15 Wed 9/17 Thurs Lab	Read Hillis Concepts 2.1 & 2.2 or view Thinkwell subchapters 2.1, 2.2, & 2.3 Read Hillis Figure 2.7, Conc. 2.3, 2.4, & 2.5 or view Thinkwell 2.4, 2.5, 2.6.1, 2.6.2, & 2.6.3 Download and read lab handout before class.	Atoms, elements, and chemical bonds Functional groups, carbohydrates, and lipids Molecular structures and water	CPA 5 CPA 6 Lab handouts at end of class
Week 6: Mon 9/22 Wed 9/24 Thurs Lab <i>Sept 25 and 26</i>	Read Hillis Conc. 3.1, 3.2, & 3.3 or view Thinkwell 2.6.4, 2.7 (all), 2.8 (all), & 2.9.1 Read Hillis Ch 4 or view Thinkwell 3.1, 3.2, & 3.3 Download and read handout on effective peer review. <i>Make arrangements to miss class if needed to take JEP Exam</i>	Nucleic acids and proteins Cells and organelles – Cells Jeopardy Reporting scientific studies: peer review of pond microbe lab reports <i>Junior English Proficiency Exam</i>	CPA 7 CPA 8 Pond water microbe lab reports and peer review
Week 7: Mon 9/29 Wed 10/1 Thurs Lab	Read Hillis Conc. 5.1 & 5.2 or view Thinkwell 3.4, 3.5.1, & 3.5.2 Read Hillis Conc. 5.3 & 5.4 or view Thinkwell 3.5 (all) Download and read lab handout for weeks 7 and 8 before class.	Cell membranes, diffusion, and osmosis Membrane transport: how proteins work Water balance in cells (osmosis)	CPA 9 CPA 10 Revised lab reports due; Lab notebooks at end of class
Week 8: Mon 10/6 Wed 10/8 Thurs Lab	<i>Midterm week</i> Read Hillis Conc. 5.5 & 5.6 or view Thinkwell 12.11.1 and two more animations: one and two	Exam 2: Chemistry of life, biological macromolecules, cells, membranes, and transport Signal transduction: how cells respond to stimuli Water balance wrap-up: reporting scientific investigations in posters	CPA 11 Water balance posters

Week and dates	What to do before class	Class topics	Assignments due
Week 9: Mon 10/13	Read Hillis Conc. 2.5, 3.4, & 6.1 or view Thinkwell 2.9 (all), 4.1.1, 4.1.2, & 4.1.4 All students view this animation	ATP and energy, biochemical pathways, enzyme activators and inhibitors, feedback inhibition, and ATP synthesis at membranes	CPA 12
Wed 10/15	Read Hillis Conc. 6.2 & 6.4 or view Thinkwell 4.1.3, 4.1.5, 4.1.6, 4.2.1, 4.2.2, 4.3 (all), 4.4.1, & 4.4.2	Energy from foods (heterotrophy)	CPA 13
Thurs Lab	Download and read lab handout for weeks 10 and 11 before class	Respiration: Energy from foods: planning a scientific investigation	Lab notebook at end of class
Week 10: Mon 10/20	Read Hillis Conc. 6.3, 6.5, & 6.6 or view Thinkwell 4.2.3, 4.4.4, & all of 5.2, 5.3, & 5.4	Fermentation Light reactions of photosynthesis	CPA 14
Wed 10/22		Review for Exam 3	
Thurs Lab		Conduct respiration investigation (lab report assigned)	Lab notebook at end of class
Week 11: Mon 10/27	<i>Make an appointment to see your advisor about spring 2015 classes</i>	<i>Advising begins for spring 2015</i> <i>Last day to withdraw</i>	
Mon 10/27		Exam 3: Cell signaling, enzymes, metabolism, respiration, & photosynthesis	
Wed 10/29	Read Hillis Ch 7 (all) or view Thinkwell 8.1.1, 8.1.2, 8.2 (all), 8.3.1, 8.3.2, 8.3.3, & 8.4 (all)	Cell cycle, cell division, and reproduction	CPA 15
Thurs Lab	Download lab handout and read. Read Hillis Figures 7.1 & 7.2, and Conc. 7.4 or view Thinkwell 8.1.3, 8.1.4, 8.3.3, 8.3.4, & 8.3.5	Mitosis, rates of cell division, and meiosis	Respiration reports; Lab notebooks at end of class
Fri 10/31		<i>Nevada Day Holiday</i>	
Week 12: Mon 11/3	Read Hillis Conc. 8.1 & 8.2 or view Thinkwell 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, & 9.7	Mendel's laws and inheritance of phenotypes	CPA 16
Wed 11/5	Read Hillis Conc. 8.3 & 8.4 or view Thinkwell 9.8, 9.9, & 9.10	Chromosomal basis of inheritance	CPA 17
Thurs Lab	Download and print lab handout before class.	Solving inheritance problems	Inheritance problems

Week and dates	What to do before class	Class topics	Assignments due
Week 13: Mon 11/10 Tue 11/11 Wed 11/12 Wed 11/12 Thurs Lab	Read Hillis Conc. 3.1, 9.1, & 9.2 or view Thinkwell 6.1.1, 6.1.4, 6.1.5, & all of 6.2, 6.3, & 6.4 Read Hillis Conc. 9.3, 10.1 & 10.3 or view Thinkwell 6.5.1 & 9.11 (all)	DNA structure and DNA replication <i>Veteran's Day Holiday</i> <i>Registration begins for spring 2015 classes</i> The genetic code, inheritance, and mutations Jack-o-lantern inheritance	CPA 18 CPA 19 Lab notebooks at end of class
Week 14: Mon 11/17 Wed 11/19 Thurs Lab	Read Hillis Conc. 10.2, 10.4, & 10.5 or view Thinkwell all of 6.5, 6.6, & 6.7, plus 6.10.3 Read Hillis Ch 11 (all) or view Thinkwell 6.8 (all), 6.10.1, & 6.10.2	From gene to protein: transcription and translation Regulation of gene expression Exam 4: Inheritance, genes, and gene expression	CPA 20 CPA 21
Nov 24 – 28		<i>Thanksgiving break</i>	
Week 15: Mon 12/1 Wed 12/2 Thurs Lab	Read Hillis Ch 12 (all) or view Thinkwell 6.9 (all), 7.2.3, 7.2.4, & 7.4 (all) Read ____ or view Thinkwell 8.2 (all) and this video	Genomes Genes and Cancer Poster session (your favorite inquiry lab)	CPA 22 CPA 23 Poster due
Final exam week: Mon 12/8 Tues 12/9	Reading Day 6:30 to 9:30 p.m.	Final exam review at regular class time (optional) BIOL 101 Final Exam – comprehensive (material from four exams plus genomes and cancer)	
Wed 12/17	<i>Course grades posted on SNCSIS</i>		
January term: Mon 1/5	<i>January intersession courses begin</i>		