

Biology 1: General Biology

Course Syllabus (details may change); Mt. San Antonio College, Fall 2019

WELCOME TO BIOLOGY! When you have questions, please do not hesitate to ask. I would like everyone to be a successful biologist this term. We will cover a wealth of material, and time is scarce. Your active participation in learning both in and out of class is essential.

Instructor Information: Chris Briggs *Office:* Bldg. 60, Room 2104, or I will be nearby.
Email: cbriggs5@mtsac.edu *Phone:* 909-274-5808
 If I am contacted after Thursday afternoon, I may not reply until Monday morning.

Website: Canvas page, and <http://faculty.mtsac.edu/cbriggs>

Student Hours: Tu: 9:30 – 11am, W: 10 – 11am, Th: 9:30 – 11am. I reserve these times just for you, so please feel free to stop by my desk. Other times are also available by appointment.

Class Meetings: **Lecture:** M & W 11:30 am – 12:55 pm, Room 11-2402 **Lab:** M (course #21485) or W (#21486) 1:15 – 4:25 pm, Room 7-1108

Week	Date	Lecture Topics	Assessment / Due Dates	Supplemental Reading	Lab	Lab Due Dates	
1	Aug 26	Intro., Values, Methods, Authority, Memory	---	"What is 'Good Science'?"; "Evaluating scientific claims"; "The Introduction"			
	Aug 28	Reliability, Sources, Conflicts of interest, Observation, Naming	Syllabus assignment due	"What is a Good Study?"; "Ebbinghaus curve on forgetting"; "I must change..."; "Sir Francis..."	1: Methods	---	
2	Sep 02	Holiday -- No classes					
	Sep 04	Word roots, Biological themes, Unifying theories	Field Obs. due	"The Really Hard Science"; "Unifying Principles of Biology"	2: Macromolecules, Digestive System	Lab 1 due	
3	Sep 09	Water, Molecules		"Cargo cult science"			
	Sep 11	Scientific questions, Logical fallacies, Pseudoscience	Cell assignment due	"Drawing the line..."; "What is science? What is pseudoscience?"	3: The Cell, Metric System	Lab 2 due	
4	Sep 16	Types of energy		"Snake oil salesmen"; "The importance of stupidity"	4: Diffusion, Osmosis	Lab 3 due	
	Sep 18	Electron transport chain	Make-up Field Obs. due				
5	Sep 23	Phylogenetics, Taxonomy	Rev. Qs due; Critique (part 1) due		5: Cellular Respiration	Lab 4 due	
	Sep 25	Exam 1	Lecture Exam 1				
6	Sep 30	DNA, Protein Synthesis		"Science Isn't Broken"	6: Photosynthesis	Lab 5 due	
	Oct 02	Mitosis / Cancer		"Graphing Data for Decision-Making"			
7	Oct 07	Meiosis			7: Biodiversity, Taxonomy	Lab 6 due	
	Oct 09	Genetics	Critique (part 2) due	Nature paper on DNA	<i>Note: Dress for outdoors</i>		
8	Oct 14	Microevolution			Lab Midterm (on labs 1-7),	Lab 7 due	
	Oct 16	Macroevolution		Horned lizard article	AND 8: Protein Synthesis		
9	Oct 21	Survey of Life			9: Genetics	Lab 8 due	
	Oct 23	Population Ecology					
10	Oct 28	Population Ecology		"How do we use what we know?"	10: Macroevolution	Lab 9 due	
	Oct 30	Catch-up and Review	Rev. Qs due				
11	Nov 04	Exam 2	Lecture Exam 2		11: Microevolution	Lab 10 due	
	Nov 06	Communities and Ecosystems	Critique resubmission due	"Global Consumer Spending"			
12	Nov 11	Holiday -- No classes			12: Population Growth	Lab 11 due	
	Nov 13	Human Impacts	Response (part 1) due				
13	Nov 18	Respiratory & Circ. Systems			13: Resp., Circulation, Heart Dissection	Lab 12 due	
	Nov 20	Homeostasis & Endocrine Syst.					
14	Nov 25	Immune & Nervous Systems			14: Human Senses, Eye Dissection	Lab 13 due	
	Nov 27	Digestive System	Response (part 2) due				
15	Dec 02	Reproductive System	Extra-credit due		Lab 15: Ecology. <i>Note:</i>	Lab 14 due,	
	Dec 04	Catch-up and Review	Rev. Qs due		<i>Dress for outdoors</i>	+ in-lab work	
16	Dec 09	Lec. Final Exam (10:30-1:00)	Lecture final exam (comprehensive)		Lab final exam on labs 1-15, M / W 1:30-4:00	-----	
	Dec 11	---	---				
	Later	Continue applying these ideas. Come back, visit, and share your successes!					

Schedule and readings are subject to change. Please prepare for our meetings by reading the introductory material for each day before you come to class.

Required Materials

- 1) Time, energy, and dedication.
- 2) Textbook: You have several good options. All of these are available for purchase online, many for less than \$20:
Free online textbook: [Concepts of Biology](http://openstaxcollege.org/textbooks/concepts-of-biology). openstaxcollege.org/textbooks/concepts-of-biology (External link.) -OR-
Krogh, David. [Biology: A Guide to the Natural World](#). Any edition. -OR-
Phelan, Jay. [What is Life? A Guide to Biology with Physiology](#). Any edition. -OR-
Simon, Reece, Dickey. [Campbell Essential Biology](#). Any edition. -OR-
Many different authors. [Campbell Biology](#). Any edition. -OR-
Or, come see me. I may have additional suggestions, or a book to lend you.
- 3) No lab manual is necessary. Lab handouts will be distributed in lab.

Some Important Dates and Holidays

Sep 6 – Last day to add a class; last day to drop with a refund.
Sep 8 – Last day to drop without a “W.”
Sep 2 – Labor Day Holiday.

Nov 1 – Last day to drop with a “W.”
Nov 11 – Veteran’s Day Holiday.
Nov 28-29 – Thanksgiving Holiday.

Course Description and Objectives

I love wondering at the natural world and searching for our place in it, and I enjoy exploring this realm with others. Biology is the scientific study of life, and I believe that you will find this course fascinating and applicable to your daily activities. For example, you will learn to be a better advocate for a loved one when dealing with a medical situation, you will develop tools to critically evaluate news relating to scientific or environmental issues, and you will also develop an understanding of basic chemistry to facilitate better decisions regarding the foods you eat, the amount of exercise you get, and

the environmental regulations you support or reject at the voting booth. This class will even enable you to make better decisions as a juror if you are on a case where DNA evidence is used.

In terms of topics, this course will cover basic principles of biology. As an endeavor, biology requires some skills, which we will practice. These include the skills necessary to produce new information, to analyze existing information, and to communicate effectively with others.

Additionally, we will explore how plant cells capture solar energy, and how that energy is transferred from plants, to animals, and through ecosystems. You will also learn about genetics, and the importance of genetic variation to the long term survival of a species. You will be given the opportunity to visually experience biodiversity and ecosystems in various regions of the world; and the threats to both as a result of an exploding human population and a changing climate. You will also develop an understanding of the process of evolution.

Official course student learning outcomes: <http://www.mtsac.edu/instruction/outcomes/sloinfo.html>

Catalog Description: Major principles and concepts, including cellular biology, energy relationships, biological systems, heredity, evolution, and ecology for non-science majors. 4 units. Degree applicable, CSU, UC. Prerequisite: ENGL 67.

Grading

Please make all score verification requests either by email or at my office desk. You will receive one overall grade for lecture and lab combined. Your lab score will make up approximately one-third of your final grade.

Lecture:	Syllabus assignment		= 10 pts	
	Field observation		= 15	
	Cell assignment		= 10	
	Article critique		= 40	
	Response paper		= 40	
	Review questions	3 x 5 pts	= 15	
	Lecture exams	2 x 50 pts	= 100	
	<u>Lecture final exam (comprehensive)</u>		<u>= 125</u>	
	Lecture total		= 355 pts	
Lab:	Lab assignments (on paper)	15 x 10 pts	= 150	
	Lab quizzes (online, on Canvas)	15 x 5 pts	= 75	
	Participation in lab	15 x 3 pts	= 45	
	Lab midterm		= 25	
	<u>Lab final exam</u>		<u>= 35</u>	
	Lab total		= 330 pts	
	Course total		= 685 pts	

Grading Scale:

A ≥ 90%
B ≥ 80 %
C ≥ 70 %
D ≥ 60 %
F < 60 %

Extra credit (maximum possible) = 30 pts *See Canvas for details.*

Student Learning Outcomes:

Students will be able to analyze data and construct a graph of their results in a scientifically appropriate manner. General Education Outcome: Students will evaluate the impact of science on their daily lives.

Course Measurable Outcomes:

1. Classify the molecules of living systems and apply basic principles of chemistry to their interaction.
2. Relate cell structure and physiology.
3. Compare and contrast the processes of photosynthesis and cellular respiration in terms of energy transformation in cells.
4. Evaluate how life forms duplicate, maintain control, and exhibit hereditary patterns.
5. Summarize the various types of evidence used to examine evolutionary principles.
6. Assess how population and community dynamics are affected by ecological interactions.
7. Describe how the systems of the human body interact to maintain homeostasis.
8. Explain why evolution is the most all-encompassing scientific explanation for the history of life and the similarities in biochemistry and physiological processes among living things.

Lecture

We will use lecture time to introduce ideas and to discuss challenging topics. One benefit of being gathered together is the opportunity to learn from each other. We will be open to new ideas, and our discussion may drift into very interesting territory. Some students get frustrated by what seem like “off-topic” digressions, but I encourage you to keep an open mind, since the scope of our class can reasonably encompass a broad swath of inquiry, from economics to art to sociology. I will do my best to guide our discussions in useful directions while responding to your valuable input. I hope that you will recognize the benefits of what otherwise might seem like tangents and “off-topic” explorations. Note: Sometimes we use the whiteboard as a brain-storming tool, without verifying first that things written there are true. Keep discerning!

Lab

The laboratory portion is intended to teach you how science is done. You will learn to carry out a variety of observations and measurements. You will learn to use some lab tools and instruments. The focus will be on empirical science as a way of learning about the real world, including observations, testable questions, hypotheses, experimental design, and hypothesis testing. There will be a series of class exercises and written assignments intended to develop some of these skills.

For labs that fall on holidays: You will not be held responsible for this material. You may still choose to get the hands-on experience by attending a different lab section.

Assignments

Turning in: Please turn in all assignments on Canvas. (You are welcome to submit images of any handwritten work.) Additional options are to leave your work in the mail slot (labeled in building 60, on second floor), slip it under my office door, or email me an electronic copy or photograph. Canvas is best.

Pre-lecture Assignments: These are meant to prepare you for our discussions that day. They include take-home

quizzes, worksheets, written work, and other class preparation.

Review Questions: Before exams I ask you to choose five numbered items from our study guide, and submit your answers to them. You will discuss your responses together in class. The turned-in work will not be returned to you.

Scientific Article Critique, Response Paper, Field

Observations: Links to these assignments are on our webpage.

Lab and Lecture Quizzes

We will take lab quizzes on Canvas (online), every week before the beginning of lab. They are short and meant to help encourage you to review regularly. Each quiz will be comprehensive, meaning that you will benefit from reviewing all lab material up to that point. The lecture quizzes will be more focused on particular readings or topics. My goal is to have you learn as much as you can, and regular, spaced review is known to be a very efficient learning method that will save you time in the long-term.

Lecture and Lab Exams

These assess your grasp of large sets of material. Review early and often. Lecture and lab exams are a combination of objective questions (matching, multiple-choice), short-answer questions, and diagrams to complete. If you need to leave the classroom during an exam, plan to ask and leave your phone with me.

Lab Participation

To foster an atmosphere of persistence, I award points for participation in lab. I ask you to arrive on time, stay for the entire lab period, and make an honest effort to complete all lab activities. Part of your responsibility is to participate, help your table-mates, and then to help the rest of the class to complete the lab. Participation points are an encouragement, and are otherwise forfeited. Be sure to sign out when you leave.

My Expectations

Attendance: The most successful students come to class. Please save yourself from distraction and keep everyone safe by leaving children elsewhere.

Enrollment Policy: Be sure to attend consistently in the first two weeks. If you miss a class in the first two weeks, please tell me if you intend to stay in the class, since I will drop absent students to make room for those on the waitlist. Otherwise, if you intend to drop the course, please do it officially. Use any add codes within 24 hours, or your spot will be given away.

Considerate Behavior: Please help maintain our positive learning environment by arriving on time, limiting unrelated conversations, and minimizing your use of cell phones. Cell phones may not be used during exams or other forms of assessment such as quizzes or in class assignments. If you touch your cell phone during any in-class graded assignment, I must assume that you are cheating, take the exam from you, and give you a grade of zero.

Accommodations: If you have a disability that may prevent you from succeeding in this class, please contact the ACCESS Center. The Center is located in the Student Services Building (9B). 909-274-4290. <http://www.mtsac.edu/access/> Please tell me if there is anything I can do to better accommodate you.

Late Assignments: All assignments are due by the beginning of lecture on the due date. I try to strictly enforce this because we often work from your completed assignment in class. Work on your assignment early enough so that if problems arise, you have time to deal with them. See below for my policy on late assignments.

- On time: Turned in by the beginning of class
100% maximum possible, such as +10/10.
- Turned in within 48 hours of when due
90% maximum possible, such as +9/10.
- Turned in after 48 hours have passed
50% maximum possible, such as +5/10.
- Turned in after graded assignments are returned
No score, but I can still give you feedback.

You may compensate for two low or missing assignment scores by doing extra credit activities. See our website for extra credit activities: <http://faculty.mtsac.edu/cbriigg>

Make-up exams: I do not give make-up exams. If you are ill, or have some kind of emergency, and will miss an exam as a result, call me as soon as you are able and leave a message (before class meets, if possible). I am at 909-274-5808. I will then use your final exam score to replace the missed exam score. You will be able to make up one exam in this manner, but not the final.

Please note: Many students find the final exam especially challenging because of the amount of material it covers. I would like to see you do well in this class, so I recommend taking exams as they occur, getting your feedback, and improving as you go.

Cheating, Plagiarism, and Academic Integrity: Cheating and plagiarizing are dishonest, unfair, and devalue your degree. As a result, the college and the biology department have regulations that carry serious penalties, including failing this course. These regulations are detailed in the College Catalog and in our lab manual, and part of my job is to enforce them.

A Typical Day in Biology Lab

After any preliminary discussion of the previous lab, I will introduce any new equipment you will need. I will then set you free to complete the lab experiments with your group. We may have a formal break part-way through lab. In the last half hour of our session we will discuss your results, and I will help you with some of the more difficult review questions. You will be expected to be in the lab the entire lab period except for taking short breaks to use the restroom or make a phone call. I also expect you to

complete most of your laboratory work during the lab period. I think you will find the lab an enjoyable experience. Most of my past students have said that they liked the labs and the laboratory helped them understand the lecture material.

Expectations in the Lab

- Food and drink are prohibited in lab, due to the presence of hazardous materials that are dangerous if ingested. This prohibition will be strictly enforced. You can store your food in your bags, on shelves, or outside the lab room, and enjoy your refreshments on your break.
- Cell phones can be useful as calculators and timers. Recreational use of cell phones, however, is not allowed in lab. If you need to use your cell phone in other ways, take a break and use the phone outside the lab room.
- Be on time. To succeed in this course you must attend class regularly, study often, utilize your time in lab productively, and ask questions if you are confused.

Help and Resources

If you are feeling lost or overwhelmed...

- Talk to me: See me during my office hours, or make an appointment to see me if you cannot come to my office hours.
- Visit the STEM Center: The STEM Center is in building 61 room 3318. The person at the front desk is either a science student or professor. Most of the time they are willing to answer a few quick questions for you. The Center is also a great place to meet if you decide to start or join a study group.
- Introduce yourself to your classmates. Working with a group of inquisitive friends is a great way to identify material that you do not understand.
- Study your notes the same day at home or the following day. We remember a very small percentage of what we hear, but if we review what we have heard, early and often, then we are more likely to remember it.
- Ask questions: If you do not understand the material, please ask me, or write your question down and ask me later. Since I love teaching, I am happy to help you understand the material. Asking questions if you don't understand is one of the most powerful things you can do to learn.

Study Techniques

- Make a list. Break items up into small pieces. Rank items by priority. Finally, do the hardest stuff first.
- Look at your deadline and work backwards.
- Divide the total work by the number of days remaining, and do that amount each day.
- Take breaks. Mix up your study habits. Work with others.
- Write as you read. Start your reading with the pictures and diagrams.

Mt. San Antonio College, Biological Sciences Department Policy on Student Cheating

POLICY:

1. No dictionaries, reference materials, notes, or programmable calculators may be used during any exam or quiz unless authorized by the professor.
2. No electronic devices, of any type, may be used during any exam or quiz unless authorized by the professor. Electronic devices include, but are not limited to: cell phones, PDAs (personal digital assistants), earphones, cameras, MP3 players, translation devices, and electronic dictionaries.
3. No talking, signaling, sharing of note cards, calculators or other materials is allowed during any exam or quiz, unless authorized by the professor.
4. Only the materials required or authorized for an exam or quiz should be taken out of your notebook, backpack, pocket, or purse. All other materials should be put away as instructed, including electronic devices.
5. Students may not leave the classroom during an exam or quiz unless authorized by the professor. If a student leaves the room without permission, the test or quiz will be forfeited at that time.
6. This policy will be strictly enforced by all professors in all classes taught in the Department.

CONSEQUENCES:

7. A single act of cheating or academic dishonesty in any form may result in receiving a 0 on that test, quiz or assignment.
8. Action taken by the professor will be consistent with the college policy on cheating and academic dishonesty. In addition, a report regarding the violation will be submitted to the Director of Student Life for further action, which may also result in further disciplinary action, including, but not limited to suspension or expulsion from the college.

WHAT IS CHEATING?

Some examples of cheating include, but are not limited to:

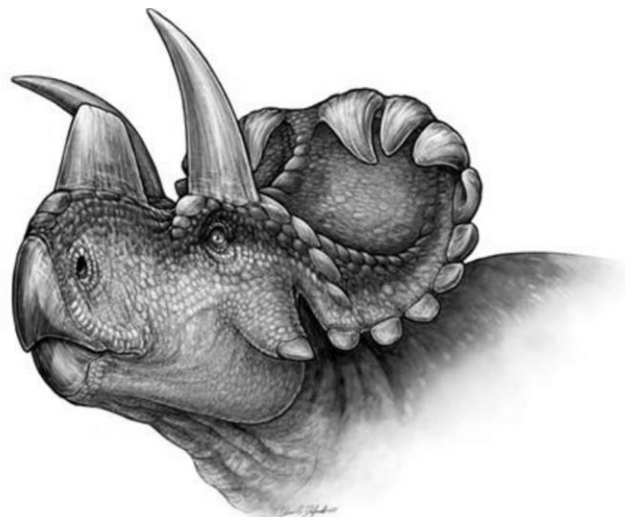
- a. Plagiarism, which is the use of materials authored by

- another person or obtained from a commercial source or the use of passages without proper acknowledgment.
- b. Having or using unauthorized materials during any exam or quiz
- c. Notes concealed in or written on clothing, hats, or skin (as examples).
- d. Looking at another student's work during any exam or quiz.
- e. Changing answers on a returned exam in order to claim there had been a grading error.
- f. Sharing any content of exams or quizzes with individuals who have not yet taken it.
- g. Removing an exam or quiz from the classroom without the professor's approval.
- h. Taking photos of exams, quizzes, completed ScanTrons®, or exam keys.
- i. Turning in work that was generated by other individuals or by the same individual but in a prior semester, including but not limited to: lab report data, lab report or homework questions, homework assignments, and extra credit assignments.
- j. Working together on a lab experiment when told to work individually.
- k. Falsifying lab data.
- l. Allowing another student to look at your exam or quiz, or allowing another student to copy your homework, lab reports, or other assignments. (If that work is duplicated you may also receive the same penalties listed above for violation of the Biology Department Policy on Cheating, and the college policy on cheating and academic dishonesty.)
- m. Falsifying documents, including signatures.

If you are unclear about what constitutes cheating in your class or for a particular assignment, please contact your instructor for clarification before the assignment is due. Keep this policy for your records. Updated Feb 22, 2013.



Regaliceratops peterhewsi. Julius T. Csotonyi. 2015. Royal Tyrrell Museum. Accessed Feb 2016.



Wendiceratops pinhornensis. Danielle Dufault. 2015. cmnh.org. Accessed Feb 2017.