

COURSE: Introductory Biology - Biology 103 (3048 / 3049)

MEETS: CMS 005 Lecture: MW 5:20-6:45p (Sections 3048 & 3049)

CMS 110 Laboratory 6:50pm - 10:00pm M (Section 3048), W (Section 3049)

**PROFESSOR:** Christopher Olivera

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**DESCRIPTION:** Introductory course for non-majors emphasizing the scientific method in

investigating the origins, physiology, ecological roles, and comparative

characteristics of living organisms.

Biology 003 articulates with CSUN 101 and 101L; CSULA 155, 156, or 180. You

are encouraged to view articulation agreements at assist.org.

Professor's note: Biology 003 is an <u>intensive college level</u> introduction to the principles of chemistry, cellular and molecular biology (also designed to help students interested in allied health careers). Topics include the structure and function of biologically important molecules, cellular anatomy and physiology, cellular metabolism, genome replication and expression, and reproduction

Recommended (Advisory): English 028 or ESL 008: College-Level reading, writing and study skills.

TEXT: Campbell Biology: Concepts and Connections by Reece, Taylor, Simon &

Dickey, Pearson-Benjamin Cummings Publishing 7<sup>th</sup> Edition 2011 New:

\$140.60, Used: \$54 ISBN: 0321696484

LABORATORY TEXT: The Laboratory manual "Lab Pack" for Biology 003 is available in the bookstore

or as a free download at:

http://www.lamission.edu/lifesciences/Biology3Laboratories.aspx

Each student will need access to this PDF file each day containing all the

laboratory information necessary for this course.

CRITICAL CORE Apply principles of scientific reasoning to solve problems

COMPETENCIES FOR Defend a logical hypothesis to explain an observed phenomenon BIOLOGY 003:

Find and interpret information

Evaluate strength, weaknesses and fallacies of logic Application of learned information to new situations

Demonstrate creative thought through original expression

Employ biological sciences vocabulary

Work effectively in groups settings

STUDENT LEARNING

Students will demonstrate their ability to read, discuss, and critically evaluate biological information, to collect data via the scientific method and research by

biological information, to collect data via the scientific method and research by designing an experiment and accurately interpreting the results in

written/essay form.

Students will work together as a laboratory team to answer questions, in writing, on laboratory techniques learned in the course and will design a simple

experiment using those methods.

**COURSE OBJECTIVES:** After completing this course, students will be able to:

Collect scientific data using basic biological measurement tools

Manipulate and interpret biological data by organizing tables, calculating

averages, preparing graphs, and evaluating results

Identify, research, and evaluate broad topics in the biology field

COURSE WEB PAGE: Pertinent information will be released via email ONLY



# INSTRUCTOR REQUIREMENTS:

INSTRUCTOR REQUIREMENTS cont.

**GRADING:** 

- In addition to the course and laboratory, course materials will be made available via the campus web page. Access to the web, inclusive having a current, valid, email address, are <u>REQUIREMENTS</u> for this course. Several lectures and exams will take place online through blackboard.
- LAMC has issued you and email account and you have access to use the computers in the library to access your account. Much of the course materials will be provided to you by email in the form of a Word document or a PDF file. Also important class resources (old exams, etc.) will be made available only through the campus web page.
- There will be four, essay-style, lecture exams throughout the semester. There are no make-up exams. Any exam(s) you do not take, will receive a 0% grade. There are no exceptions. Please do not ask, nor bring excuses. If you are not present, the grade is 0%. There will be a cumulative final covering all lectures and assigned textbook material covered by the course.
- In addition to regular laboratory assignments, there will be additional assignments given throughout the course, including: Each student will be required to give a 5-10 minute oral report.
- Any student intending on continuing in the course must sign and complete the course contract.

The grade equals the number of points you earn out of the total points possible for each assignment. The points earned in lecture (tests, quizzes) and those in lab (reports, quizzes, semester projects) are grouped separately. At the end of the semester a lecture and lab percentage will be separately calculated for each student.

Assignment	Percentage Percentage	Totals
Lecture Exams	45%	
Final E <mark>xam</mark>	20%	65%
Laboratory	26%	
Laboratory Practicum	9%	35%
Course Total	NO. P. D.	100%

A = 90-100% B = 80-89% C = 65-79% D = 56-64% F = < 55%

Please be aware that this is a college science class: this class is not curved.

#### Tests, Reports, Grades

Tests are composed of short answer and essay questions. These tests are closed book. During the test no electronic device can be in use. There will be no trips outside the classroom during the test.

MISSING Assignments, labs, prelabs, quizzes, exams OR the final: will result in an "F" for the class & cannot be made up except under exceptional circumstances with full documentation (FYI: vacations, birthdays, weddings, & sporting events do NOT count as exceptional circumstances!). You must make every effort to contact me if you have a problem. Please refrain from requesting exceptions, as this is not fair to the other students.

It is assumed that your registration in this class was based upon the class time fitting your schedule. Long absences, numerous late appearances aren't correlated with satisfactory results in this class. So, if you are planning on being part of this representative group, please don't bother with the class. Problems with this will be taken into consideration in your final grade, or if needed, will result in withdrawal from the class.

All students are expected to attend classes regularly. In the event an absence is unavoidable, students are responsible for notifying the instructor. Failure to



attend class meeting(s) during the first week of the class will result in the student being dropped from the class. After the first week of class, a student may be dropped if:

The student fails to attend regularly; The student has more than two absences; the student attends so irregularly that it is unlikely the student will be successful in class; the student does not attend either first day of class or laboratory session; or at the Instructors discretion.

CONSIDERATION OF OTHERS:

The goal of this class is to have fun learning about biology. Each student is paying for the right to be in class and I will not allow anyone to infringe on the rights of others. Texting during class is rude & NOT acceptable. PLEASE turn all cell phones off during class, not on silent or vibrate. Unauthorized use of electronic devices & other specified infractions during any point in class will result in confiscation and point deductions at the discretion of the professor. Thinking I cannot see you, or hiding your phone under the desk or book are old strategies.

**COURSE MECHANICS:** 

The lecture material will work with and expand on the textbook reading assignments. Therefore, there may be times when the lecture material is not covered by the textbook. The exams will focus on the lecture material. To best comprehend the lecture material, make sure you finish the reading assignment before you come to class. Participation in class is imperative and noted! Attendance is required for both lecture and lab in order to pass the course. Students must also pass the lab with a C or higher to pass the course.

- 1. Attend every class and lab and be on time. Since this is a condensed class, missing a single session is like missing a week in another regular, semester course. It is the student's responsibility to ensure retrieval of all relevant class material, including lectures, exams, etc.
- 2. Obtain the lecture and laboratory books as soon as possible.
- 3. **Read the assigned lecture and lab material <u>BEFORE</u> class begins.** It will make it much easier for you to take really good notes during lecture. It will also help you to be efficient and understand the purpose of the lab work.
- 4. Schedule at least 2 hours of homework and reading time for each 1 hour of class or lab. That would be <u>12 extra hours</u> per week for study time.
- Complete all assignments <u>ahead of time</u> so you can check answers with other classmates and edit your work before turning it in. Last minute work always shows.
- 6. **Work in a study group**. Give at least one other student your phone number/e-mail address at the first class meeting. That way, you can call them if you miss class, or don't understand an assignment.
- 7. Study in advance. **All-nighters and cramming do not work in this course**. Work a little on the material every day, especially vocabulary words. You need more than 24 hours to learn difficult material accurately and thoroughly.
- 8. Study important pictures and diagrams until you can draw them without looking at the book or your notes.
- 9. Check your math!
- 10. If your grades do not meet your goals, talk to me as soon as possible. I can help.

Cheating is defined as copying someone else's work on any assignment, exam or term paper. While it is proper to check work you've already finished with your friends, it is cheating if you simply copy their answers/work onto your own paper without doing the entire assignment first yourself. Cheating also includes copying material from reference books, textbooks or the Internet without identifying the source of the material. Working in groups does NOT allow you to produce group work – Reports are to be individual. If you allow others to copy from you or if you copy another student's work or another source such as those listed above, you are cheating and will receive an F for the course, no exceptions.

**CHEATING POLICY:** 



#### **CALENDAR**

Week	Lecture (MW)	Chpt	Exam	Laboratory (M or W)
1: 08-27-2012	Introduction / Introduction to Biology	1		<ul><li>0 - Introduction/ Lab Safety /</li><li>1 - Metric Measurement / Scientific Method</li></ul>
2: 09-03-2012	Holiday / Introduction to Biology	1		2 - Molecules and pH
3: 09-10-2012	Chemistry of Life: Basic Chemistry	2		
4: 09-17-2012	Chemistry of Life: Organic Molecules	3		3 - Microscope
5: 09-24-2012	Cell Anatomy and Function	4	ı	4 - Macromolecules
6: 10-01-2012	Enzymes	5		5 - Enzymes
7: 10-08-2012	Biochemical Pathways: Catabolism	6		6 - Respiration
8: 10-15-2012	Biochemical Pathways: Anabolism	7		7 - Photosynthesis
9: 10-22-2012	DNA/RNA	8	П	8 - Mitosis & Meiosis
10: 10-29-2012	Mitosis	8		9 - Genetics
11: 11-05-2012	Holiday / Meiosis	8		10 - DNA and Gene Expression
12: 11-12-2012	Genetics	9	10	11 - Natural Selection
13: 11-19-2012	Genetic Engineering/Molecular Biology			12 - Cardio Health
14: 11-26-2012	Principles of Evolution	13	IV	Lab Practical
15: 12-03-2012	Botanical Adaptation	31		13 - Plant Kingdom
16: 12-10-2012	Final Examination(5:30-7:30pm)			

# Dates may be adjusted as necessary. Students will be notified of all changes via email and campus web system.

Important Dates		Holidays		
09-07-12	Last day to add	09-03-12	Memorial day	No Lecture / No Lab meeting
09-09-12	Last day to drop without a W	11-12-12	Veteran's day	No Lecture / No Lab meeting
11-18-12	Last day to drop with a W	11-22-12: 11-25-12	Thanksgiving	Class unaffected (but you should be studying)
12-10-1 <mark>2:</mark> 12-15-12	Finals	A	1 1	

**Note:** Monday holidays conflict only with the Monday lecture section, and will be adjusted accordingly, this does not change the schedule for the remainder of the sessions. Similarly, holidays that interfere with a specific date, apply only to that date, the remainder of each week will proceed as usual without altering class or laboratories.



#### **Class Protocol**

As sets of homework, labs, and/or exams come up, you may wish to re-assess your performance in the class, please be reminded that you are responsible for reviewing your syllabus contract regularly. When assessing adequate performance in the class, the following will be taken into consideration:

- ✓ Access to the online academic system (i.e. web campus system) and to your school-listed email is mandatory as all critical information is posted there.
  - o It is YOUR responsibility to log onto the website and check your listed email EVERY day; campus is open during extended business hours and the weekend which provides plenty of access opportunities to all online work every day.
  - o Thus, there are no acceptable excuses of not knowing the current deadlines and materials due. If you feel that despite these availabilities this is prohibitive, please reconsider your enrollment in the class, as there may be more suiting courses that meet your needs.
  - o ALL online academic systems are tracked. I monitor closely who logs on, how often, and which files and folders are accessed. Since I am able to observe if you have chosen to access each file and when, I am well aware that you checked the system 2 hours before class and you rushed to turn in your work. In light of procrastination, your grade will reflect your choices.
  - Announcements, homework and labs are posted with sufficient time to run all tasks, even if posted 48 hours before it is due. Therefore, if you check online daily as required, you will be able to complete the assignment. Typically tasks are allotted a week or more time; if your choice is to perform the task 2 hours before class, your work will be graded but there will be no leniency for incomplete or unacceptable work. When a task is difficult, it is your responsibility to contact the instructor in a timely fashion usually 48 hours and obtain the proper help.
- ✓ Another factor influencing your grade is your attendance.
  - o It is tracked each class, regardless of a sign-in sheet or roll call (remember, the instructor knows your name by the second or third day).
  - This becomes especially significant in courses that are 2-3 hours in length, which require your presence for the entire session. There are DAILY announcements made in class, for example, changes in the syllabus, new homework posted, changes in test dates, etc. If you did not attend one day of class in its ENTIRETY you will likely miss out on vital information which can severely affect your grade.
  - o A simple formula to follow: missing more than 3 classes for any course will likely result in an F-grade. Being able to obtain the notes from a classmate when absent, study harder, including doing well on assignments, is noteworthy, but participation in class is MANDATORY and therefore, your grade is assessed on performance IN class as well.
- On a lighter note, your instructor is there to help you as long as you seek the assistance. Given that it is your choice to learn the material and your choice on how well you would like to perform in class, help is available. You can always contact me and expect a 24-hour turn around.
  - Being stuck, not understanding, not having help, is not an excuse: You have help available; all you have to do is ask. I am happy to review papers, homework, answers, etc., prior to due dates to ensure you get the proper grade!

/llabus Contract	THE REAL PROPERTY.
erstood the information described in the entire s	yllabus and guidelines set, and
ire to both fully understand and adhere to these	guidelines may result in an
urse, including prosecution to the full extent of t	the law if applicable.
I D BOARD A	17 13 17 1
Signature	Date
	rstood the information described in the entire s re to both fully understand and adhere to these



### **Laboratory Protocol**

The California code for Occupational Safety and Health Administration is ensuring that the School, the faculty, and YOU as a student are well-cared for under the settings used in class and especially in the laboratory. Thus, similar to your class contract in your syllabus, you must read the following guidelines and agree to follow these conditions if you are to remain in the class.

Good science always has a practical aspect to learning, a hands-on laboratory class. You will be doing many laboratory activities which require the use of hazardous chemicals and technology. Safety in the science classroom is the #1 priority for students, teachers, and parents. To ensure a safe science classroom, a list of rules has been developed and provided to you in this student safety contract. These rules must be followed at all times. One copy must be signed you and before you can participate in the laboratory. A second copy is recommended to be kept in your science notebook as a constant reminder of the safety rules.

#### **General Rules**

- A. Conduct yourself in a responsible manner at all times in the laboratory.
- B. Follow all written and verbal instructions carefully. If you do not understand a direction or part of a procedure, ask the instructor before proceeding.
- C. No student may work in the laboratory without an instructor present.
- D. When first entering a science room, do not touch any equipment, chemicals, or other materials in the laboratory area until you are instructed to do so.
- E. Do not eat food, drink beverages, or chew gum in the laboratory. Do not use laboratory glassware as containers for any use other than instructed.
- F. Perform only those experiments authorized by the instructor. Never do anything in the laboratory that is not called for in the laboratory procedures or by your instructor. Carefully follow all instructions, both written and oral. Unauthorized experiments are prohibited.
- G. Be prepared for your work in the laboratory. Read all procedures thoroughly before entering the laboratory. Never fool around in the laboratory. Horseplay, practical jokes, and pranks are dangerous and prohibited.
- H. Observe good housekeeping practices. Work areas should be kept clean and tidy at all times. Bring only your laboratory instructions, worksheets, and/or reports to the work area. Other materials (books, purses, backpacks, etc.) should be stored in the designated areas.
- I. Keep aisles clear. Push your chair under the bench when not in use.
- J. Know the locations and operating procedures of all safety equipment including the first aid kit, eyewash station, safety shower, fire extinguisher, and fire blanket.
- K. Know where the fire alarm and the exits are located.
- L. Always work in a well-ventilated area. Use the fume hood when working with volatile substances or poisonous vapors. Never place your head into the fume hood.
- M. Be alert and proceed with caution at all times in the laboratory. Notify the instructor immediately of any unsafe conditions you observe.
- N. Dispose of all chemical waste properly. Never mix chemicals in sink drains. Sinks are to be used only for water and those solutions designated by the instructor. Solid chemicals, metals, matches, filter paper, and all other insoluble materials are to be disposed of in the proper waste containers, not in the sink. Check the label of all waste containers twice before adding your chemical waste to the container.
- O. Labels and equipment instructions must be read carefully before use. Set up and use the prescribed apparatus as directed in the laboratory instructions or by your instructor.
- P. Keep hands away from face, eyes, mouth and body while using chemicals or preserved specimens. Wash your hands with soap and water after performing all experiments. Clean all work surfaces and apparatus at the end of the experiment. Return all equipment clean and in working order to the proper storage area.
- Q. Experiments must be personally monitored at all times. You will be assigned a laboratory station at which to work. Do not wander around the room, distract other students, or interfere with the laboratory experiments of others.



- R. Students are never permitted in the science storage rooms or preparation areas unless given specific permission by their instructor.
- S. Know what to do if there is a fire drill during a laboratory period; containers must be closed, gas valves turned off, fume hoods turned off, and any electrical equipment turned off.
- T. Handle all living organisms used in a laboratory activity in a humane manner.
- U. Preserved biological materials are to be treated with respect and disposed of properly.
- V. When using sharp instruments, always carry with tips and points pointing down and away. Always cut away from your body. Never try to catch falling sharp instruments. Grasp sharp instruments only by the handles.
- W. If you have a medical condition (e.g., allergies, pregnancy, etc.), check with your physician prior to working in lab.

#### **Laboratory Attire**

- A. Any time chemicals, heat, or glassware are used, students will wear laboratory goggles unless stated by the instructor.
- B. Contact lenses should not be worn in the laboratory unless you have permission from your instructor.
- C. Proper dress during a laboratory activity: Long hair, dangling jewelry, and loose or baggy clothing are a hazard in the laboratory. Long hair must be tied back and dangling jewelry and loose or baggy clothing must be secured. Shoes must completely cover the foot. No sandals allowed.
- D. Lab aprons or coats are strongly recommended to be worn during "wet" laboratory activities

#### Injury response

- A. Report any accident (spill, breakage, etc.) or injury (cut, burn, etc.) to the instructor immediately, no matter how trivial it may appear. Notify the instructor immediately.
- B. If you or your lab partner are hurt, immediately yell out "Code one" to get the instructor's attention.
- C. If a chemical splashes in your eye(s) or on your skin, immediately flush with running water from the eyewash station or safety shower for at least 20 minutes or until instructed.
- D. When mercury thermometers are broken, mercury must not be touched. Notify the instructor immediately.

#### **Chemical Handling**

- A. Never remove chemicals or other materials from the laboratory area. All chemicals in the laboratory are to be considered dangerous. Do not touch, taste, or smell any chemicals unless specifically instructed to do so. A proper technique for smelling chemical fumes will be demonstrated.
- B. Check the label on chemical bottles twice before removing any of the contents. Take only as much chemical as you need.
- C. Never return unused chemicals to their original containers.
- D. Never use mouth suction to fill a pipette. Use a rubber bulb or pipet pump.
- E. When transferring reagents from one container to another, hold the containers away from your body.
- F. Acids must be handled with extreme care. You will be shown the proper method for diluting strong acids. Always add acid to water, swirl or stir the solution and be careful of the heat produced, particularly with sulfuric acid.
- G. Handle flammable hazardous liquids over a pan to contain spills. Never dispense flammable liquids anywhere near an open flame or source of heat.
- H. Take great care when transporting acids and other chemicals from one part of the laboratory to another. Hold them securely and walk carefully.

#### Laboratory Equipment Handling

- A. Carry glass tubing, especially long pieces, in a vertical position to minimize the likelihood of breakage and injury.
- B. Never handle broken glass with your bare hands. Use a brush and dustpan to clean up broken glass. Place broken or waste glassware in the designated glass disposal container.



- C. Inserting and removing glass tubing from rubber stoppers can be dangerous. Always lubricate glassware (tubing, thistle tubes, thermometers, etc.) before attempting to insert it in a stopper.
- D. Always protect your hands with towels or cotton gloves when inserting glass tubing into, or removing it from, a rubber stopper. If a piece of glassware becomes "frozen" in a stopper, take it to your instructor for removal.
- E. Fill wash bottles only with distilled water and use only as intended, *e.g.*, rinsing glassware and equipment, or adding water to a container.
- F. When removing an electrical plug from its socket, grasp the plug, not the electrical cord. Hands must be completely dry before touching an electrical switch, plug, or outlet.
- G. Examine glassware before each use. Never use chipped or cracked glassware. Never use dirty glassware.
- H. Report damaged electrical equipment immediately. Look for things such as frayed cords, exposed wires, and loose connections. Do not use damaged electrical equipment.
- I. If you do not understand how to use a piece of equipment, ask the instructor for help.
- J. Do not immerse hot glassware in cooler liquids as it may shatter.

## **Heat Handling**

- A. Exercise extreme caution when using a gas burner. Ensure that hair, clothing and hands are a safe distance from the flame at all times. Do not put any substance into the flame unless specifically instructed to do so. Never reach over an exposed flame.
- B. Never leave a lit burner unattended. Never leave anything that is being heated or is visibly reacting unattended. Always turn the burner or hot plate off when not in use.
- C. You will be instructed in the proper method of heating and boiling liquids in test tubes. Do not point the open end of a test tube being heated at yourself or anyone else.
- D. Heated metals and glass remain very hot for a long time. They should be set aside to cool and picked up with caution. Use tongs or heat-protective gloves if necessary.
- E. Never look into a container that is being heated.
- F. Do not place hot apparatus directly on the laboratory desk. Always use an insulating pad. Allow plenty of time for hot apparatuses to cool before touching it.
- G. When bending glass, allow time for the glass to cool before further handling. Hot and cold glass have the same visual appearance. Determine if an object is hot by bringing the back of your hand close to it prior to grasping it.

#### Informing your Instructor

A.	Please ensure your instructor is aware of	any of this information prior to participation	ng in a lab.
В.	Do you wear contact lenses?	The state of the s	5
C.	Are you color-blind?		
D.	Do you have any hearing impairment? _	ACTURE 1	
E.	Do you have any allergies?	If so, please list	
	All Marie All Comments and All Comments		100
	Labo	oratory Contract	3.0
You ac studer	hereby acknowledge that you have fully read and understood to the guidelines posted here. Failure to both fully understan from the course, including procknowledge that you have read and agreed to follow all of the nts and instructors. I will cooperate to the fullest extent with nthe oral and written instructions provided by the instructor. I are your misbehavior on my part, may result in being removed from	nd and adhere to these guidelines may result in an automatic secution to the full extent of the law if applicable. e safety rules set forth in this contract to ensure your own sa my instructor and fellow students to maintain a safe lab envir am aware that any violation of this safety contract that result	of F in, as well as, dismissal afety, and that of my fellow conment. I will also closely is in unsafe conduct in the
	Complete Name	Signature	Date
			A CONTRACTOR

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