

Los Angeles Mission College, Fall 2012

Lecture: T/Th 12:15pm-1:40pm in CMS 004

Lab: T 1:50 PM – 5:00 PM in CMS 110

Lab: Th 1:50 – 5:00 PM in CMS 110

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office hours: W 12:30-1:30; or by appt (CMS 110)

BIOLOGY 3 (0140 & 0141)

COURSE DESCRIPTION: Examines the fundamental principles of biology with laboratories emphasizing hands-on investigations. Topics include an introduction to evolutionary theory, basic biological chemistry, cell function and reproduction, cellular respiration and photosynthesis, classical and contemporary genetics, gene expression and an introduction to animal structure and function. Meets UC/CSU GE requirement of natural science with a lab.

STUDENT LEARNING OUTCOME

- 1) BIO3 students will analyze a scientific experiment and determine the major components.
- 2) BIO3 students will graph, interpret, and analyze data pertaining to a biological process.
- 3) BIO3 students will analyze a genetic problem to determine the probabilities of genotypic and phenotypic outcomes.
- 4) Given a DNA sequence, the BIO3 students will apply the principles of gene expression to determine the protein product.

COURSE OBJECTIVES: Upon completion of this course a successful student will be able to:

- Discuss the scientific method, including identification of dependent, independent, and standardized variables, and the role of a control group.
- Apply the metric system of measurement: gram, liter, meter, and degree Celsius.
- Explain the theory of evolution by means of natural selection, and evidence across biological disciplines.
- Interpret the Linnean system of taxonomical classification.
- Identify properties that distinguish living and non-living things.
- Compare prokaryotes and eukaryotes.
- Describe the structure of atoms and the rules underlying the formation of molecules.
- Discuss the unique properties of water and the concept of pH.
- Illustrate the structure and function of major biological molecules: carbohydrates, lipids, proteins, and nucleic acids, and how to perform simple qualitative tests in the lab.
- Describe cell structure: including major organelles of eukaryotic cells.
- Operate the microscope to view living things on the cellular level.
- Explain the role of enzymes in the control of chemical reactions in organisms, and how to assay enzyme activity in a laboratory setting.

- Distinguish endergonic and exergonic reactions, and the role of ATP in cell metabolism.
- Compare the similarities and differences between cellular respiration and photosynthesis in energy metabolism, and how to model these processes in the laboratory.
- Explain the cellular basis of asexual and sexual reproduction, and the processes of mitosis and meiosis, including examination of the mitosis in the microscope.
- Identify simple Mendelian patterns of inheritance and the use of Punnet squares in the analysis of monohybrid and dihybrid crosses.
- Discuss the modern concept of a gene, and the processes of transcription and translation.
- Compare the basic structure and function of angiosperms and gymnosperms.
- Describe the structure and function of important human organ systems, including at least: digestive, circulatory, and reproductive

REQUIRED BOOKS AND MATERIALS

Biology: Concepts & Connections, Campbell et al, 7th ed. 2011 Pearson-Benjamin Cummings;
 Online access to **Mastering Biology** – <http://www.masteringbio.com/>
 ISBN 13: 978-1256302407 (unbound text and Mastering Biology bundle in bookstore)
 ISBN 13: 978-0321696816 (bound text by itself)

Supplemental Biology 3 “Lab Pack” available in the bookstore or for free download at:
<http://www.lamission.edu/lifesciences/Biology3Laboratories.aspx>

5 SCANTRON 882-E forms; No. 2 pencils
 Iclicker

COURSE GRADE

Your Course Grade will be weighted as follows: 60% Lecture – 40% Laboratory.

LECTURE: There will be 3 midterm exams worth 50 points each. The Final Exam will not be comprehensive, but will be worth 100 points..

3 Midterm Exams	Each exam is worth 50 pts (150pts)
Final Exam	100 pts
	TOTAL 150 pts

LAB: At the beginning of each lab there will be a short quiz covering the previous weeks material. Your lowest lab quiz score will be dropped. Lab worksheets are due at the *start* of the next laboratory session. **Late or incomplete lab worksheets will receive only *partial* credit.**

14 Lab Quizzes	140 pts
Lab Exams	100 pts
Lab Worksheets	70 pts
	310 pts possible

Exams and quizzes will consist of true/false, multiple choice and matching questions answered on **Scantron** forms and there may be one or more short answer questions per exam. You will be expected to provide **Scantron** forms (available in the bookstore) and a **no. 2 pencil with a good eraser** for each exam or quiz. **Any make-up exams or quizzes will be more challenging and**

contain short answer questions.

The <u>grade scale</u> is:	
(90-100%)	A
(80-89%)	B
(65-79%)	C
(55-64%)	D
(below 55%)	F

ATTENDANCE

Roll will be taken. There is a *strong* correlation between poor attendance and poor grades. **You are responsible for information, exam announcements, date changes, etc. presented in class, whether or not you are present.**

Students given add slips *must* complete the process by September 7
Students withdrawing from the class must do so by:

September 7 to receive a refund in person

September 9 to avoid receiving a “W”

November 16 to receive a “W” and avoid a non-passing grade

COLLEGE RESOURCES FOR STUDENTS

Bookstore: For hours of operation, book availability, buybacks, and other information call 818-364-7767 or 7768 or visit <http://www.lamissionbookstore.com/>

Counseling Department: For appointments and information call 818-364-7655 or visit <http://www.lamission.edu/counseling/>

Disabled Students Programs and Services (DSP&S): For appointments, eligibility and information call 818-364-7732 or visit <http://www.lamission.edu/dsps/>

Extended Opportunity Programs and Services (EOPS): For appointments, eligibility and information call 818-364-7645 or visit <http://www.lamission.edu/eops/>

Financial Aid: For information and applications call 818-364-7648 or visit <http://www.lamission.edu/financialaid/>

Library: For information on hours, resources, workshops, and other services contact 818-364-7106 or visit <http://www.lamission.edu/library/>

Tutoring Services in Learning Center: Laboratories for Learning, Writing, Math & Science. Walk-in and appointment services offered. Call 818-364-7754 or visit www.lamission.edu/learningcenter/

IMPORTANT WEBSITES

<http://www.masteringbiology.com/>

- This site contains the textbook publisher’s online supplemental study material, practice

questions and exercises which are required and account for 10% of your course points.

- Access requires a code you will receive when purchasing the textbook in the bookstore, or you can purchase access online for \$42.90. You can also purchase access to **Mastering Biology AND the e-text for \$78.00** (*with the e-text you do not need to buy a hard copy of the textbook*).
- Once you have access to the site, you will need to “join your online course” which will require the following Course ID: **BIO3SPRING2012BROWN**. Be sure to join by the end of the 1st week and keep up with the assignments so you don’t fall behind.

<http://www.lamission.edu/~brownst>

- This is your instructor’s website where you can download course notes and various handouts.

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

- This is the LA Mission College life science department web page where you can download Biology 3 laboratory exercises and worksheets.

SCIENCE SUCCESS CENTER (SSC)

If you need assistance or feedback while you are studying or working on your assignments, visit the Science Success Center (SSC) at the LRC, located on the 1st floor of the Library building (Room 208). Free tutoring will also be available Monday through Thursday from 11AM-7PM. Enroll in a study group. Check out the schedule for Science related workshops. For details visit the SSC webpage at <http://lamission.edu/learningcenter/ssc.aspx>, call (818)364-7628 or email us at: lamcssc@gmail.com

Join your peers and tutors at the LAMC SSC on Facebook for class discussions off campus:
<http://www.facebook.com/group.php?gid=299594615838>

SPECIAL ACCOMMODATIONS

If you require special accommodations for a disability, religious holiday, etc, please inform me within the first week of the course and I will accommodate you if at all possible. For accommodations due to disability, you must consult the Disabled Student Programs and Services office after which we will abide by their recommendations.

RECOMMENDATIONS FOR SUCCESS

This is a demanding class covering a lot of information. Here are some suggestions:

- do **NOT** fall behind in the course, keep up with the material on a weekly basis
- each time you study, spend a few minutes reviewing previous lessons (this is the secret to long term memory)
- outline the powerpoint notes, this will help you to mentally organize the large amount of material you will be learning
- use associations, acronyms to help you remember things
- create flash cards and form study groups if you find that helpful
- keep up with the Mastering Biology assignments on a weekly basis, this will help you to better learn the material and **avoid losing free points**
- **know the key terms** (you can't answer questions correctly if you don't!)
- at a **minimum**, you should **learn** the course material **3 times** in order to retain it well for the exams and quizzes:
 - 1) **comprehend** the class material during the lecture
 - 2) **read** the corresponding material in the text while reviewing your notes
 - 3) **review** your notes and key terms before the exams

*****If you don't do at least this much, you won't do well in this class*****

Code of Honor and Integrity

Los Angeles Mission College

Department of Life Sciences

Students at Los Angeles Mission College, because they are members of an academic community dedicated to the achievement of excellence and the pursuit of honor, are expected to meet high standards of personal, ethical, and moral conduct. These standards require personal integrity and a commitment to honesty without compromise. Without the ability to trust in these principles, an academic community and a civil society cannot exist. Los Angeles Mission College students and faculty are as committed to the development of students with honesty and integrity as they are to the academic and professional success of its students.

The Code of Honor and Integrity is an undertaking of the students, first and foremost, both individually and collectively, that they will:

1. Not give or receive dishonorable aid during exams, quizzes or assignments
2. Do their share and take an active part in seeing to it that fellow students, as well as themselves, uphold the spirit and letter of the Code of Honor and Integrity.

Some examples of conduct that are regarded as being in violation of the Honor Code include:

- Copying from another's examination or quiz, or allowing another to copy from one's own papers

- Using any unpermitted source of information, human or other, during an exam, quiz or assignment that influences the grade; this includes the use of technological devices
- Any student-to-student collaboration that is unpermitted
- Plagiarism (plagiarism is defined as the use, without giving reasonable and appropriate credit to, or acknowledging the author or source, of another person's original work)
- Representing the work of another as one's own work
- Giving or receiving aid on an academic assignment under circumstances in which a reasonable person should have known that such aid is not permitted

As a part of the effort to promote an environment of honesty and integrity during quizzes and examinations, the following guidelines will apply for any courses in the Department of Life Sciences:

1. Students will leave all books and all other non-essential items (e.g. paper, electronic devices) on the floor so that they are not useable nor block the sight line between professor and student. No electronic devices will be in reach.
2. Students will not communicate in any way that will dishonorably assist themselves or another student.
3. Students will leave the room during an exam only if permitted by the professor's policy. If permitted, only one student may leave the room at any time and be gone for only the average length of time needed for the stated purpose. Students will leave all purses, bags, books, phones, jackets, etc., in the classroom during the absence.
4. Students will promote the spirit and letter of the Code of Honesty and Integrity by dissuading fellow students from dishonest activity and, when such casual persuasion does not work, informing the professor of the possible dishonest activity, either anonymously, or otherwise.
5. Students will make every effort to avoid even the appearance of dishonesty or lack of integrity.

Violation of this policy will not be tolerated and violators will be subject to severe penalties. The success of the Code of Honor and Integrity is based upon the collective desire of students, faculty and the community to live in an environment that embraces respect for that which is right – both in the college and in society as a whole.

LECTURE SCHEDULE (tentative)

Week	Date	*LECTURE TOPIC (textbook reading)
1	2/11-2/13	Introduction; Scientific Method (ch 1)
		Atoms, Molecules & Water (ch 2)
2	2/18-2/20	9/3 Holiday/ Atoms, Molecules & Water (cont'd) (ch 2)
		Biological Macromolecules (ch 3)
3	2/25-2/27	Biological Macromolecules (cont'd) (ch 3)
		Cell Structure (ch 4)
4	3/4-3/6	Membranes & Membrane Transport (ch 5.1-9)
		Energy & Enzymes (ch 5.10-16)
5	3/11-3/13	Energy & Enzymes (ch 5.10-16)
		Cellular Respiration (ch 6)
6	3/18-3/20	EXAM 1 Chapters 1 to 5.1-9
		Photosynthesis (ch 7)
7	3/25-3/27	DNA Structure & Replication (ch 10.1-5)
		DNA Replication/Transcription/Translation
8	4/1-4/3	Gene Expression (ch 10.6-16)
		Cell Division: Mitosis & Meiosis (ch 8)
	4/8-4/10	SPRING BREAK
9	4/15-4/17	EXAM 2 Chapters 5.10-16, 7, 10, 16, 8
		Principles of Genetic Inheritance (ch 9)
10	4/22-4/24	Principles of Genetic Inheritance (ch 9)
		Evolution & Natural Selection (ch 13)
11	4/29-5/1	Evolutionary History & the Origin of Species (ch 14 & ch 15)
		Biological Communities & Ecosystems (ch 37)
12	5/6-5/8	Exam 3 Chapters 9, 13-15, 37
13	5/13-5/15	Tissues & Organ Systems (ch 20)
		Digestive (ch 21), Respiratory (ch 22) & Urinary (ch 25) Systems
14	5/20-5/22	The Cardiovascular System (ch 23)
		The Cardiovascular System (cont'd) (ch 23); Reproduction & Embryonic Development (ch 27)
15	5/27-5/29	Reproduction & Embryonic Development (cont'd) (ch 27)
		Final Exam Review Chapters 20-23, 27
16	6/3	FINAL EXAM (12:15 PM in CMS 004)

* The lecture notes are available in PDF format on the instructor's LAMC website:

<http://www.lamission.edu/~brownst/1486>

NOTE: Quizzes will cover material from previous lectures.

LABORATORY SCHEDULE

WK	DATE	MONDAY LAB (0140)	WEDNESDAY LAB (0141)	DATE
1	2/11	LAB 1A: Scientific Inquiry	LAB 1A: Scientific Inquiry	2/13
2	2/18	LAB 1B: Metric System	LAB 1B: Metric System	2/20
3	2/25	LAB 2: Molecules, Water & pH	LAB 2: Molecules, Water & pH	2/27
4	3/4	LAB 3: Microscopy & Cells	LAB 3: Microscopy & Cells	3/6
5	3/11	LAB 4: Macromolecules	LAB 4: Macromolecules	3/13
6	3/18	LAB 5: Enzymes	LAB 5: Enzymes	3/20
7	3/25	LAB 6: Respiration	LAB 6: Respiration	3/27
8	4/1	LAB 7: Photosynthesis	LAB 7: Photosynthesis	4/3
9	4/15	LAB 8: Mitosis & Meiosis	LAB 8: Mitosis & Meiosis	4/17
10	4/22	LAB 9: Genetics	LAB 9: Genetics	4/24
11	4/29	LAB 10: DNA & Gene Expression	LAB 10: DNA & Gene Expression	5/1
12	5/6	LAB 11: Natural Selection	LAB 11: Natural Selection	5/8
13	5/13	LAB 12: Cardiovascular Health	LAB 12: Cardiovascular Health	5/15
14	5/20	<i>LAB PRACTICAL EXAM</i>	<i>LAB PRACTICAL EXAM</i>	5/22
15	5/27	LAB 13: The Plant Kingdom	LAB 13: The Plant Kingdom	5/29

Copies of the labs are available as a “Lab Pack” in the bookstore or can be downloaded from the following web page:

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

NOTE:

- *A short quiz worth 10 points will be given at the beginning of each lab, so be prepared and on time!*
- *Worksheets for each lab should be due before you leave.*

