

**FUNDAMENTALS OF BIOLOGY  
BIOLOGY 3  
LOS ANGELES MISSION COLLEGE  
Spring Session 2013**

**Lecture: Sections: 3147/3148: Th. 18:50 pm – 20:50pm (CMS 004)**

**S. 11:10am-12:10pm (CMS 005)**

**Laboratory: Section 3147: S. 7:50am -11:00am (CMS110)**

**Laboratory: Section 3148: S. 12:20pm -15:30pm (CMS 110)**

<b>INSTRUCTOR:</b>	Maria Gabriela C. Ledezma.
<b>OFFICE HOURS:</b>	Th. 5:45 pm-6:45 pm, and S. 3:30pm – 4:30pm or by appointment.
<b>OFFICE:</b>	To be determined
<b>E MAIL:</b>	<a href="mailto:Ledezmmg@lamission.edu">Ledezmmg@lamission.edu</a>
<b>PHONE NUMBER:</b>	(818) 364-7600 extension 4607
<b>TEXT:</b>	Campbell N., J. Reece, M.R. Taylor, and E. Simon. 2011 Biology: Concepts and Connections, Pearson/Benjamin Cummings, San Francisco. 7 <sup>th</sup> Ed. ISBN 13: 978-1256302407 (unbound text and Mastering Biology bundle in bookstore) ISBN 13: 978-0321696816 (bound text by itself)
<b>LAB MANUAL:</b>	Supplemental Biology 3 “Lab Pack” available in the bookstore or free download at: <a href="http://www.lamission.edu/lifesciences/Biology3Laboratories.aspx">http://www.lamission.edu/lifesciences/Biology3Laboratories.aspx</a>
<b>PREREQUISITES:</b>	None
<b>ADVISORY:</b>	English 28 or ESL 8

**A new state policy in effect as of summer 2012 limits students to 3 attempts per course. Receiving a grade or "W" for a course counts as an attempt, regardless of when the course was taken. Withdrawal before or during Feb.18<sup>th</sup>, 2013 (avoiding a "W") will not count as an attempt.**

**OTHER REQUIREMENTS:**

1. A three- ring binder to contain the lab manual.
2. 20 Scantrons sheets: Form number 882 E (Green) for tests and quizzes.
3. Colored pencil set

**STUDENT LEARNING OUTCOMES:**

Biology 3 students will work together as a laboratory team to answer questions, in writing, on laboratory techniques learned in the course and design a simple experiment using those methods.

**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 Linnaean 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.
- 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 systems.
- Discuss the modern concept of a gene, and the processes of transcription and translation.

#### ATTENDANCE:

- Regular attendance is necessary for the success in the course. Some material presented in the lecture **will not** be covered by the notes or the textbook; therefore, **notes during class are very important tools for the successful development in the course.**
- **The instructor will only drop students that do not show up during the first two weeks of classes. IT IS THE STUDENTS' RESPONSIBILITY TO DROP AFTER THE SECOND WEEK OF CLASSES IN ORDER TO AVOID A FAILING GRADE IN THE COURSE. If the student wants to avoid a W" (Remember that "W" counts as an attempt), should drop before, or on February 18<sup>th</sup>.**

#### CONDUCT:

- It is expected from all students to be **on time and prepared for class.** Coming late is a distraction for the students that have arrived on time.
- **Beepers and cellular phones should be turned off, and put away,** prior to the beginning of the lecture and lab sessions. **No text messaging will be allowed during classes.**
- If a class is missed, it is the responsibility of the student to collect notes from a fellow student. Make up labs are almost impossible to schedule. Since this is a laboratory and a practical course, participation is essential to further understand the information given in lecture, and to grasp both the principles of the techniques used in the laboratory, and the interpretation of the results. **If you miss a lab, the practical experience of your learning process will be lost.**

- **It is expected from all students to read the exercise before each laboratory session, and come prepared to participate in all aspects of the lab experiment.**
- It is expected from all students to behave in a **responsible, mature, and respectful manner** while in classroom.
- Students are expected to work cooperatively in groups to complete laboratory work and other class assignments.

**ACADEMIC HONESTY:** Academic honesty is required. **Cheating will not be tolerated.** Please see the “Academic dishonesty Defined” section of the SMC course catalog. Infractions can result in severe penalties. **Anyone found cheating or speaking** during an exam (test or quiz) will forfeit the grade for that exam, and will have a letter describing the incident placed on file with the Campus Disciplinarian. A zero grade for cheating on an exam will NOT be dropped from the final score.

### **Code of Academic Honor and Integrity**

#### **Los Angeles Mission College, Departments of Physical and 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 professional conduct. These standards require personal integrity and a commitment to honesty. 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 **Academic Code of Honor and Integrity** is an undertaking of the students, both individually and collectively, that they will:

1. Not give or receive unpermitted aid during exams, quizzes or assignments
2. Not give or receive unpermitted aid in assignments, reports or any other course work that is to be used by the instructor as a basis for grading.
3. Do their share and take an active part in upholding the spirit and letter of the Code of Academic Honor and Integrity.

Examples of conduct that are regarded as being in violation of the Academic 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 and instill an environment of honesty and integrity during quizzes and examinations, the following guidelines will apply:

1. Students will leave all books and all other non-essential items (e.g. paper, electronic devices) on the floor or inside their backpacks 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 improperly assist themselves or another.
3. Students will promote the spirit and letter of the **Code of Academic 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.
4. Students will make every effort to avoid the appearance of dishonesty or lack of integrity. Violation of this policy will not be tolerated and violators will be subject to penalties. The success of the **Code of Academic 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.

#### **WITHDRAWALS:**

- Last day to add classes: **Feb.15, 2013**
- Last day for refund: **Feb. 18, 2013**
- Last day to drop and avoid a W: **Feb. 18, 2013**
- Last day to drop and avoid a W on line: **Feb. 18 2013**
- Last day to petition credit/No- credit: **March 8, 2013**
- Last day to receive a warranted W: **May. 3, 2013**
- Last day to receive a W on line: **May. 5, 2013**
- **The instructor will only drop students that do not show up during the first two weeks of classes. IT IS THE STUDENTS' RESPONSIBILITY TO DROP AFTER THE SECOND WEEK OF CLASSES IN ORDER TO AVOID A FAILING GRADE IN THE COURSE.**

#### **IMPORTANT WEBSITES**

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

- This site contains the textbook publisher's online supplemental study material, practice questions and exercises.
- 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).
- Your instructor's website where you can download course notes and handouts:  
<http://www.lamission.edu/~ledezmmg>

#### **COLLEGE RESOURCES FOR STUDENTS:**

**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/](http://www.lamission.edu/learningcenter/)

**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/>

### SPECIAL ACCOMMODATIONS

- If you require special accommodations, religious or a disability, etc please inform the instructor within the first week of the course. You will need to consult the Disabled Student Programs and Services office after which we will arrange to meet your needs.

### GRADING:

A single grade will be assigned for this course that includes both lecture and laboratory components:

- **Lecture:**

Four tests (125 pts each) and a comprehensive final (175 pts) will be administered during the term. The lowest of your four test scores will be dropped from your total accumulated points calculated at the end of the term. Accordingly, if you miss an exam, there will be **NO MAKE-UP WITH NO EXCEPTIONS. The COMPREHENSIVE FINAL EXAMINATION cannot be dropped, and must be taken by all students.** Missing more than one exam will necessitate your withdrawal from the course or will result in failure of the course.

- Four lecture tests (125 points each) ..... 375 pts ( **Lowest score is dropped**)
- Final exam (175 points).....175 pts
- Paper Assignment .....50 pts
- Total points (Lecture).....600 pts

- **Laboratory:** There will be **no make-up** Laboratory quizzes. **There are twelve scheduled quizzes throughout the semester; the lowest grade will be dropped.** **At the beginning of each lab session, students will have a quiz pertaining all the material of the previous laboratory session as well as all the material pertaining the NEXT laboratory session (Students need to come prepared for the new lab session).** **Lab worksheets are due at the start of the next lab session.**

The **Lab Practical** will cover material from ALL laboratory exercises throughout the semester and will include “hands-on” experimentation that will be performed by lab table groups.

- 12 Quizzes (20 pts. each).....220 pts.(**Lowest score is dropped**)
- 13 Lab Reports (5 pts. each).....65 pts
- Field Trip Assignment.....20 pts.
- Project “**Genesis**”.....50 pts.
- Lab Practical.....45 pts
- Total points (Laboratory)..... 400 pts.

- **TOTAL (Lecture and Laboratory).....1000pts**

At the end of the term, the grades will be **STRICTLY** awarded per the following table:

- **900 - 1000 = A**
- **800 – 899 = B**
- **700 – 799 = C**
- **600 – 699 = D**
- **0 - 599 = F**

### CLASS POLICIES:

- **Exams will cover material from lecture, laboratory, and assigned readings.** Questions will include multiple choice, matching, true/false; fill on the blanks, and short answer formats.
- During exams, students will remain in their seats, **and no one should leave the room before turning in the exam. Rest room breaks will be taken before or after the test.**
- **Late assignments will be subject to a deduction of 1.0 point (Lab assignments), 10 points (Project Genesis and Lecture Paper) and 4.0 points (Trip Assignment).**
- Dictionaries, calculators, cell phones, head phones, Blue Tooth, and iPods, **cannot be used during exams.**
- Tests and quizzes are **property of the instructor**, and students **cannot keep them.** **Twenty (20) points will be deducted** from the test and **five (5) points from the quiz** that is/are not returned. Students can review their tests **only during the instructor's office hours.**

#### **LECTURE PAPER ASSIGNMENT: Due: Th 5/23**

- Students will choose a **research article** related to any aspect of Biology that we have covered during this semester, **from a primary literature source such as Science, Nature, Proceedings of the National Academy of Science, Ecology, The Journal of Bacteriology, Immunology, etc.** published no more than five years ago.
- “Second hand” articles from sources such as The Economist, Time Magazine, etc. **will not be accepted.**
- **Simple, short, and non- challenging articles** will be graded accordingly.
- **Students will include a copy of the original article with their assignment.**
- Students will write a **one or two- pages paper answering the following questions (10 pts each):**
  1. **a. Who did the research?**  
**b. Why was the research done?**
  2. **a. What were the scientist's hypothesis/hypotheses?**  
**b. What were the scientists trying to test?**
  3. **How was the research done, i.e. techniques, materials, etc they used?**
  4. **a. What were the results they obtained?**  
**b. Did the results support their hypothesis? / Did not support their hypothesis?**
  5. **How significant are these results for Biology and for future studies?**
- Topics may include:
  1. Genetic engineering
    - Cloning
    - Gene Therapy
    - Artificial Life
  2. Immunology
  3. Microbiology
    - Bacterial infections
    - Viral infections ( HIV,AIDS, Influenza viruses)
    - Prion infections ( Mad Cow's Disease)
    - Antibiotic resistant bacteria
  4. Air pollution/Water pollution

5. Cancer
6. Human population growth
7. Global warming
8. Depletion of the ozone layer
9. Acid rain/ Destruction of rain forests or other natural environments
10. Organic Foods, Food Security

**PROJECT GENESIS: Due: Sections 3147 and 3148: S 4/20**

- **Students will work individually** and will be responsible for three monocot seeds (corn) and three dicot seeds (bean).
- Each student will germinate the seeds following the instructions given during class.
- Students will work on a **detailed report** describing the growth of the seeds, and the changes they may observe **every other day**, while the plant is forming until it gets into a height of approximately 15 cm. **In order to answer the questions stated below, students will have to do research on the internet or in Biology books. Students will follow this format:**
  - **Monitoring of plant growth: (15 pts)**
    - Day of appearance and description of the growth of the stem (3 pts)
    - Day of appearance and description of the growth of roots (3pts)
    - Day of appearance and description of the growth of leaves (3 pts)
    - Differences between the growth of a dicot seed and a monocot seed.(3 pts)
    - Measurements in millimeters of stems, roots and leaves ( **Taken every other day**) ( 3 pts)
  - **First steps during seed germination: (20 pts)**
    - How does the germination process start? Explain ( 4pts)
    - Why does the stem grow towards the light? (4 pts)
    - Why does the root grow away of the light? (4 pts)
    - Why does the plant can grow by adding only water? ( 4 pts)
    - Will the plant be able to keep on growing indefinitely by adding only water? (4 pts)
  - **Cellular Differentiation (10 pts)**
    - What is Cellular Differentiation? (5 pts)
    - Relate the process of Cellular Differentiation with the growth of a plant starting from a seed (germination). (5 pts)
  - **Preparation or setting of the Genesis project: ( 5 pts)**
    - Students will include drawings of the main events during the plant growth; **OR** students may photograph the growing plant at different stages, make an animation of the process, and present it in a burnt CD which has to be **compatible with Windows PC. If no files are present in the CD, that project will be considered with tardiness and 10 points will be taken off.** With each extra day of tardiness, 20 extra points will be deducted of the grade.  
**Be original and creative in your projects!**
- **Students will bring the growing plants before or the day the project is due. Failure to bring the plant will mean 5 pts off the grade.**
- **Total amount of points: 50 pts**

**FIELD TRIP ASSIGNMENT: Due: Section 3147: S 5/18  
Section 3148: S 5/18**

- Every student is responsible to go to **The Page Museum at La Brea Tar Pits** during this semester.
  - **Address:** 5801 Wilshire Blvd. Los Angeles, CA 90036
  - **Phone Number:** (323) 934-7243
  - **Guided Tours:**
    - ❖ **Weekdays:** 1 pm and 3 pm
    - ❖ **Weekends:** 11 am, 1 pm, and 3 pm
  - **Students will answer the questions posted on the instructor's web site. Click on the link: FIELD TRIP ASSIGNMENT. Students WILL STAPLE THE ENTRANCE TICKET to the front page of his/her assignment.**
  - **Each question is worth 0.5 points. The entrance ticket is worth 10 pts.**
  - **If there is an evidence of plagiarism (similar answers between students) the grade will be of 0 (zero).**
  - **Total amount of points: 20 pts**

**TIPS FOR A SUCCESSFUL COURSE:**

- Learning Biology is like climbing a ladder: it has several steps and you have to take one at a time. **If you miss one step, it will be very difficult to take the next one.** Make sure you feel comfortable and at ease during every step you take by reviewing, studying, and understanding every chapter done during the lecture period.
- **MAKE SURE YOU HAVE READ THE LECTURE NOTES POSTED ON LINE BEFORE EVERY CLASS.** Remember that notes are both basic and compressed notions, and to fully understand them, you have to listen to lecture classes and to read the text book.
- Come prepared to classes by previously **making a copy of the notes** related to the chapter that will be covered that day. **Take notes during the lecture class in order to complete the basic notes on the power point slides on line.**
- **READ EVERY LAB BEFORE COMING INTO THE LAB SESSIONS** in order to know what is going to be done that day.
- Record every new word and its meaning in your **"Biology 3 Vocabulary"** at the end of your notebook and at the end of every lecture class.
- Biology is an interesting and fascinating science that is not difficult, just tricky. In order to learn the trick, **LISTEN CAREFULLY TO THE EXPLANATIONS DURING LECTURE, READ AND STUDY EVERY LECTURE RIGHT AFTER CLASS.** **Memorization** is part of the trick, but not everything: **you have to understand concepts and you have to know how to relate them.**
- **Be interested in the course.** Ask questions and participate in every class. Demonstrate you are learning, and that you like the trip through Biology.
- **Welcome to Biology 3 and enjoy the trip!**

**LECTURE AND LABORATORY SCHEDULES  
SPRING SEMESTER 2013**

**These are tentative schedules. Adjustments will be announced in class**

<b>Week</b>	<b>Date</b>	<b>Lecture Topic</b>	<b>Text Book Chapter</b>	<b>Laboratory topic Sections 3147 /3148</b>
1	1Th: 2/7	Introduction: Biology and Life. Atoms, molecules and water	1 2	
	1S: 2/9	Atoms, molecules and water	2	Scientific Method/ Metric System Part 1 and Part 2
2	2Th:2/14	Atoms, Molecules and water Macromolecules Microscopy/The Cell	2 3 4	
	2S:2/16	<b>NO CLASS</b>		
3	3Th:2/21	Microscopy/The Cell	4	
	3S:2/23	The Cell Metabolism/Enzymes	4 5	Molecules, water and pH <b>QUIZ 1</b>
4	4 Th:2/28	<b>TEST # 1</b> Metabolism/Enzymes	<b>1,2,3,4</b> 5	
	4 S:3/2	Metabolism/Cell Transport	5	Microscopy and Cell <b>QUIZ 2</b>
5	5 Th:3/7	Cellular Respiration Photosynthesis	6 7	
	5 S:3/9	Photosynthesis Cell Reproduction: Mitosis and Meiosis	7 8	Macromolecules <b>QUIZ 3</b>
6	6 Th:3/14	Mitosis and Meiosis DNA Structure	8 10	
	6 S:3/16	DNA Structure	10	Enzymes <b>QUIZ 4</b>
7	7 Th:3/21	DNA Function Biotechnology	10 12	
	7S:3/23	Biotechnology Heredity	12 9	Respiration <b>QUIZ 5</b>
8	8 Th:3/28	<b>NO CLASS</b>		
	8 S:3/30	<b>SPRING BREAK</b>		

9	Th: 4/4	<b>SPRING BREAK</b>		
	S: 4/6	Heredity	9	Mitosis and Meiosis <b>QUIZ 6</b>
10	10 Th:4/11	<b>TEST #2</b>	<b>5,6,7,8 10, and 12</b>	
		Evolution	13	
	10 S:4/13	Evolution	13	Photosynthesis <b>QUIZ 7</b>
11	11 Th:4/18	Evolution/Speciation Animal Diversity	13/14 18	
	10 S:4/20	Animal Diversity	18	Genetics <b>QUIZ 8</b> <b>PROJECT GENESIS DUE</b>
12	12 Th:4/25	Microbes/ fungi Immune System	16/17 24	
	12 S: 4/27	Immune System	24	DNA and Gene Expression <b>QUIZ 9</b>
13	13 Th:5/2	<b>TEST # 3</b>	<b>9,13,14,18, and 16/17</b>	
		Circulation	23	
	13 S:5/4	Circulation	23	Natural Selection <b>QUIZ 10</b>
14	14 Th:5/9	Human Reproduction The Digestive System	27 21	
	14 S:5/11	The Digestive System Excretory System	21 25	Cardio Health <b>QUIZ 11</b>
15	15 Th:5/16	Plants Populations	31 36	
	15 S:5/18	Populations Communities	36 37	<b>FIELD TRIP</b> <b>ASSIGNMENT DUE</b> <b>LAB PRACTICAL</b>
16	16 Th:5/23	<b>TEST #4</b>	<b>24,23,27,21, 25 and 31</b>	
		<b>LECTURE PAPER DUE</b>		
		Communities	37	
	16 S:5/25	Communities Ecosystems	37 34	The Plant Kingdom <b>QUIZ 12</b>
17	17 Th:5/30	<b>Review for Final Exam</b>		
	17 S:6/1	<b>FINAL TEST from 11:00am to 1:00 pm in 004 (COMPREHENSIVE)</b>		

**SCORE SHEET:**

To keep track of your performance throughout the course, add up your total points earned and divide by the total points possible at that stage of the class. Then multiply by 100 to get a percent score to compare with the grade scale on page 5 of the syllabus to have an idea of how you are doing.

**LECTURE**

Test 1	/ 125
Test 2	/ 125
Test 3	/ 125
Test 4	/ 125
Lecture paper	/ 50
Final Test	/ 175
Total Lecture	/ 600
Total Lab	/ 400
<b>GRAND TOTAL</b>	<b>/ 1000</b>

**LABORATORY**

Quizzes	/ 20	Lab Reports	/ 5
Quiz 1		L 1	
Quiz 2		L 2	
Quiz 3		L 3	
Quiz 4		L 4	
Quiz 5		L 5	
Quiz 6		L 6	
Quiz 7		L 7	
Quiz 8		L 8	
Quiz 9		L 9	
Quiz 10		L 10	
Quiz 11		L 11	
Quiz 12		L 12	
TOTAL	/ 220	L 13	
		TOTAL	/ 65

Project Genesis	/ 50
Field Trip	/ 20
Lab Practical	/ 45
<b>TOTAL LAB</b>	<b>/ 400</b>