Los Angeles Mission College, Spring 2013
Lecture: MW 10:35-12:00 in CMS 002
Lab: MW 12:10-3:20 in CMS 002
office hours: MW 9:20-10:35 in CMS 002
TTh 3:40-5:10 in CMS 002

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BIOLOGY 6 (section #0142)

PREREQUISITE: *Chemistry 65 or 101 (or the equivalent)*

ADVISORY: *English 28 or ESL 8*

ARTICULATION: LAMC Biology 6 & 7 accepted together as CSUN Biology 107 & 106, UCLA Life Sciences 1 & 2

STUDENT LEARNING OUTCOMES

Biology 6 students will interpret, critique and summarize the components of an experiment or study from an original research journal in biomedical sciences.

COURSE DESCRIPTION: *Biology 6 is an intensive science course designed for students wishing to major in a natural science at the college/university level.* Upon completion of this course, the student will be able to describe and identify the unifying principles of biology through the study of biological molecules, cell structure and function, metabolism, inheritance, cellular reproduction, molecular genetics and evolution. The student will apply the concepts learned in lectures through hands-on application in related laboratory exercises. The laboratory experience will allow the student to develop practical knowledge of many fundamental biological principles by employing an *experimental approach* to scientific inquiry. Students will be required to explore their own questions in many of the labs, and will be required to perform a *final project* at the end of the term. Critical analysis and small group collaboration are encouraged throughout the course.

COURSE OBJECTIVES: Throughout the semester the student:

1. Applies and interprets the terminology of biology in both written and oral expression.
2. Demonstrates the ability to read with comprehension current, historical, and popular literature in biology.
3. Develops the ability to use classical and contemporary laboratory methods for studying basic life processes.
4. Applies the general concepts from the textbook and other references to the specific principles which are demonstrated in the laboratories, and shows this in written and oral reports.
5. Develops a practical understanding of the use of the scientific method through experimental design.
6. Expresses an awareness of the complexity and inter-relatedness of organisms and their environment.
7. Identifies the unifying themes throughout all hierarchical levels of the life sciences.

REQUIRED BOOKS AND MATERIALS

Biology, 9th ed., Campbell, Reece, et. al. 2011 (ISBN-13: 978-0321558237)

Investigating Biology, 7th ed., Morgan and Carter 2011 (ISBN-13: 978-0321668219)

Biology 6 Lab Pack - additional lab exercises available at the bookstore (or for download online)

Bound notebook (graph ruled), **7** Scantron 815-E forms, **5** Scantron 882-E forms & **4** blue books (or Scantron 886-E)

COURSE GRADE

7 Quizzes	**10.5% of Grade (105 points)**
3 Midterm Exams	**30% of Grade (300 points)**
Final Exam	**12.5% of Grade (125 points)**
Case Study Analysis	**2% of Grade (20 points)**
Article Review/Presentation	**5% of Grade (50 points)**
Lab Reports/Worksheets	**22.5% of Grade (225 points)**
5 Lab Quizzes	**7.5% of Grade (75 points)**
Lab Notebook	**5% of Grade (50 points)**
Participation	**5% of Grade (50 points)**
	TOTAL 1000 points

LECTURE (60% of course points): Quizzes will be given at the beginning of lecture and are worth 15 points each. The lowest quiz score will be replaced by the average of the other quiz scores. Midterm exams are worth 100 points each. Exams and quizzes will consist of multiple choice, short answer and essay questions. Multiple choice questions are to be answered on **Scantron** forms. Short answer and essay questions are to be answered in Blue Books or on Scantron form 886-E. **There will be NO makeup exams or quizzes except in case of a *documented* emergency, and any makeups will be more challenging than the original**. Guidelines for the Case Study Analysis and Article Review/Presentation will be detailed in handouts.

LAB (40% of course points): Students are expected to read each lab exercise ***BEFORE*** class. For selected labs students should keep a lab notebook, *independently* write a short lab report in the format of a scientific paper (see handout for guidelines), and answer the associated review questions. For all other laboratories, students are required to complete the corresponding worksheets or questions. All lab reports and worksheets are due within **one week** of *completion* of the lab. Lab quizzes are worth 15 points each and are given at the beginning of class (10:35). The lowest lab quiz score will be replaced by the average of the other quiz scores. Participation will be based on overall attendance, being on time, and professionalism in both lab and lecture.

Grading Scale:		
	900+ pts (90-100%)	**A**
	780-899 pts (78-89%)	**B**
	650-779 pts (65-77%)	**C**
	500-649 pts (50-64%)	**D**
	0-499 pts (below 50%)	**F**

ATTENDANCE POLICY

Attendance is required and roll will be taken. **You are responsible for any information, date changes, etc., presented in class, whether or not you are present.** Students missing more than 2 consecutive classes may be dropped. Students given add slips ***must*** complete the process by **Friday February 15th**. Students withdrawing from the class must do so by:

Monday February 18th to avoid receiving a "W" and to receive a refund
Friday May 3rd (or *Sunday May 5th via internet) to receive a "W"

* The LACCD website is not always available on Sundays due to routine maintenance.

*NOTE: 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 by February 18th (avoiding a "W") will not count as an attempt.*

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
- **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*****

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.

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

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

- your instructor's website where you can download course notes and various handouts

http://www.lamission.edu/learningcenter/ssc.aspx

-this is the website for the Science Success Center (SSC) located in the library

https://myetudes.org/portal

-here you can monitor your scores and standing in the course and engage in discussion forums with the instructor and fellow students

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: lamcssc@gmail.com

Join your peers and tutors at LAMC SSC on Facebook for class discussions off campus:

Bio6: http://www.facebook.com/groups/198317193512401/

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 **http://www.lamission.edu/learningcenter/**

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 chapter)
1	**Feb 4**	Introduction – Overview of the Field of Biology **(ch 1)**
	Feb 6	Review: Atoms & Molecules **(ch 2)** Review: Water & pH **(ch 3)**
2	**Feb 11**	Organic Molecules & Chemical Groups **(ch 4)**
	Feb 13	***QUIZ:** Large Biological Molecules: Polymers & Proteins **(ch 5)**
3	**Feb 18**	***HOLIDAY (President's Day)***
	Feb 20	Large Biological Molecules: Carbohydrates, Lipids & Nucleic Acids **(ch 5)**
4	**Feb 25**	Cellular Structure & Function **(ch 6)**
	Feb 27	***QUIZ:** Membrane Structure & Function **(ch 7)**
5	**Mar 4**	Energy, ATP & Enzymes **(ch 8)**
	Mar 6	Cellular Respiration: Harvesting Chemical Energy **(ch 9)**
6	**Mar 11**	**EXAM #1 on chapters 1-8**
	Mar 13	Photosynthesis **(ch 10)**
7	**Mar 18**	Cell Communication **(ch 11)**
	Mar 20	***QUIZ:** The Cell Cycle **(ch 12)**
8	**Mar 25**	Meiosis and Sexual Life Cycles **(ch 13)**
	Mar 27	Mendel and the Gene Idea **(ch 14)**
--------	**Apr 1-5**	***Spring Break***
9	**Apr 8**	***QUIZ:** The Chromosomal Basis of Inheritance **(ch 15)**
	Apr 10	DNA Structure & Replication **(ch 16)**
10	**Apr 15**	**EXAM #2 on chapters 9-15**
	Apr 17	Gene Expression & Mutations **(ch 17)**
11	**Apr 22**	Control of Gene Expression **(ch 18)** ******Case Study Due******
	Apr 24	***QUIZ:** Viruses **(ch 19)**
12	**Apr 29**	Biotechnology **(ch 20)**
	May 1	Biotechnology (cont'd) **(ch 20)** The Immune System **(ch 43)**
13	**May 6**	***QUIZ:** The Immune System (cont'd) **(ch 43)**
	May 8	Genomes and Their Evolution **(ch 21)**
14	**May 13**	**EXAM #3 on chapters 16-21 & 43**
	May 15	Descent with Modification: A Darwinian View of Life **(ch 22)**
15	**May 20**	The Evolution of Populations **(ch 23)**
	May 22	***QUIZ:** The Origin of Species **(ch 24)** History of Life on Earth **(ch 25)**
16	**May 29**	**Comprehensive Final Exam** (10:00-12:00 in CMS 002)

** Quizzes will be given from 10:35-10:50 after which we will review the answers.*

NOTE: The lecture notes and various handouts are available in PDF format on the instructor's LAMC website http://www.lamission.edu/~brownst.

LABORATORY SCHEDULE

Week	Date	LAB TOPIC (exercise #)
1	Feb 4	Scientific Investigation (Morgan/Carter #1)
	Feb 6	The Metric System & Graphing
2	Feb 11	*Gel Filtration Chromatography (Edvotek #108)
	Feb 13	Macromolecules
3	Feb 18	***HOLIDAY (President's Day)***
	Feb 20	**Purification of Green & Blue Fluorescent Proteins (Edvotek #255)
4	Feb 25	**QUIZ:** Microscopes & Cells (Morgan/Carter #2)
	Feb 27	Diffusion & Osmosis (Morgan/Carter #3)
5	Mar 4	Enzymes (Morgan/Carter #4)
	Mar 6	*Restriction Enzyme Digestion of DNA
6	Mar 11	*Restriction Enzyme Digestion of DNA (cont'd); **Restriction Enzyme Mapping
	Mar 13	**Restriction Enzyme Mapping (cont'd)
7	Mar 18	**QUIZ:** Fermentation & Respiration
	Mar 20	Photosynthesis
8	Mar 25	Mitosis & Meiosis (Morgan/Carter #7)
	Mar 27	Principles of Genetic Inheritance
--------	Apr 1-5	***Spring Break***
9	Apr 8	Mendelian Genetics of Drosophila (Morgan/Carter #9)
	Apr 10	**QUIZ:** **DNA Cloning: Ligation and Transformation
10	Apr 15	**DNA Cloning: Inoculation of Bacterial Clones
	Apr 17	**DNA Cloning: Plasmid Mini-preps & Digests
11	Apr 22	**DNA Cloning: Gel Electrophoresis of Digested Plasmid Mini-preps
	Apr 24	DNA and Gene Expression
12	Apr 29	*Sickle Cell Genotype by Southern Blot (Edvotek #315)
	May 1	**QUIZ:** *Sickle Cell Genotype by Southern Blot (Edvotek #315); *RT-PCR (Edvotek #335)
13	May 6	*RT-PCR (Edvotek #335) (cont'd); **PCR Amplification of DNA
	May 8	**PCR Amplification of DNA (cont'd); Bioinformatics
14	May 13	*Introduction to ELISA Reactions (Edvotek #278)
	May 15	Natural Selection
15	May 20	**QUIZ:** Oral Presentations of Reviewed Papers
	May 22	Oral Presentations of Reviewed Papers ******Article Review Due******

**** These labs should be recorded in your lab notebook.***
***** These labs should be recorded in your lab notebook and require a formal written lab report.***

NOTE: Morgan/Carter labs are from the Morgan/Carter lab manual, all other labs are available in the lab pack or can be downloaded from the instructor's LAMC web page:

http://www.lamission.edu/~brownst/2457

SCORE SHEET

LECTURE POINTS

Quiz #1	/15	**Exam 1**	/100
Quiz #2	/15	**Exam 2**	/100
Quiz #3	/15	**Exam 3**	/100
Quiz #4	/15	**Final**	/125
Quiz #5	/15	**Case Study**	/20
Quiz #6	/15	**Article Review**	/25
Quiz #7	/15	**Oral Pres**	/25

LABORATORY POINTS

M/C #1	/10	**Genetics**	/15	**Quiz #1**	/15
Metric System	/10	**M/C #9**	/10	**Quiz #2**	/15
***Edvotek #108**	/5	****DNA Cloning**	/20	**Quiz #3**	/15
Macromolecules	/5	**DNA/Gene Expr.**	/5	**Quiz #4**	/15
****Edvotek #255**	/20	***Edvotek #315**	/5	**Quiz #5**	/15
M/C #2	/10	***Edvotek #335**	/5		
M/C #3	/10	****PCR**	/5		
M/C #4	/10	**Bioinformatics**	/10		
***Restriction Enzymes**	/5	***Edvotek #278**	/20		
****Restriction Mapping**	/20	**Natural Selection**	/5		
Respiration	/5	**Participation**	/50		
Photosynthesis	/5	**Notebook Quantity**	/25		
M/C #7	/10	**Notebook Quality**	/25		

**** records should be kept in lab notebook***

***** records should be kept in lab notebook <u>and</u> a formal lab report should be written***

LECTURE possible points:

- quizzes – 15 points each (lowest quiz replaced with average)
- midterm exams – 100 points each
- final exam – 125 points
- case study analysis – 20 points
- article review – 50 points (25 points each for written paper and oral presentation)

LAB possible points:

- lab reports/worksheets – points for each lab vary (see possible points for each above)
- lab quizzes – 15 points each (lowest quiz replaced by average)
- lab notebook – 50 points (25 points each for completeness and quality of notebook)
- participation – 50 points (lecture/lab attendance, timeliness, professionalism)

To keep track of your performance throughout the course, enter your scores in the chart above as you receive them. At any point you can add up your total points earned and divide by the total points possible at that stage of the course. Multiply this by 100% and then compare with the grade scale on page 3 of the syllabus to see how you are doing.