Los Angeles Mission College, Fall 2009
Lecture: MW 12:25-1:50, INST 2004
Lab: M 2:00-5:10, INST 2019 ***(0134)***
Lab: W 2:00-5:10, INST 2019 ***(0135)***

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BIOLOGY 3 (0134 & 0135)

COURSE DESCRIPTION: This general biology course is for transfer students who are not biology majors. Topics include basic molecular and cellular biology, genetics, the anatomy and physiology of plants and animals, the diversity of life, evolution, and ecology. Current environmental issues, new developments in biological science, and bioethics are discussed. Laboratory experiences are integrated and stress scientific methodology and critical thinking.

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

STUDENT LEARNING OUTCOME:

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.

REQUIRED BOOKS AND MATERIALS:

Biology: Concepts & Connections; Campbell et al, 6th ed. 2008 Pearson-Benjamin Cummings ISBN 10: 0321622642 (unbound version), 0321489845 (bound version)
Symbiosis: LA Mission College Biology 3 Lab Manual; 2007 Pearson Custom Publishing (ISBN 10: 0-5361-9565-X) plus supplemental laboratory exercises and worksheets available at the bookstore or at **http://www.lamission.edu/lifesciences/Biology3Laboratories.aspx**
4 SCANTRON 882-E forms; **20** SCANTRON 815-E forms; No. 2 pencils

COURSE GRADE:

Your Course Grade will be weighted as follows: 65% Lecture – 35% Laboratory.

Lecture: There will be 10 quizzes given as indicated in the "Schedule of Topics" to be given on previous lecture material. Assuming you take all 10 quizzes, the lowest 2 scores will be dropped and the 8 highest scores will count for 12% of your Course Grade. There will be 3 exams. The lowest score will be dropped and the 2 highest scores will count for 30% of your Course Grade. The Final Exam will be comprehensive with half of the questions pertaining to new material, and half to previous material. The Written Assignment will be detailed in a handout.

6 (of 7) Quizzes	**12% of Course Grade (120 pts)**
2 (of 3) Examinations	**30% of Course Grade (300 pts)**
Final Examination	**18% of Course Grade (180 pts)**
Written Assignment	**5% of Course Grade (50 pts)**

Lab: There will be 14 lab sessions as indicated in the "Schedule of Topics". At the end of each lab there will be a short quiz covering that day's material. Your 2 lowest lab quiz scores 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.**

12 (of 14) Lab Quizzes	**12% of Course Grade (120 pts)**
Lab Practical Exam	**10% of Course Grade (100 pts)**
Lab Worksheets	**5% of Course Grade (50 pts)**
Lab Participation	**8% of Course Grade (80 pts)**

All exams will consist of objective-type questions (i.e., True/False, multiple choice, matching) to be answered on **Scantron (882-E)** forms. All quizzes will consist of True/False and multiple choice questions to be answered on **Scantron (815-E)** forms. You will be expected to provide **Scantron** forms (available in the bookstore) and a **soft lead no. 2 pencil with a good eraser** for each examination or quiz. **Any make-up exams or quizzes will be *short answer*.**

Grading Scale:

For the entire course there are 1000 total points possible. The grade scale is:

880+ pts (88-100%)	**A**
750-879 pts (75-88%)	**B**
600-749 pts (60-75%)	**C**
500-599 pts (50-60%)	**D**
0-499 pts (below 50%)	**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 **Friday September 11th**.

Students withdrawing from the class must do so by:

Monday September 14th to receive a refund
Friday September 25th to avoid receiving a "W" on your transcript
Friday November 20th to receive a "W" and avoid a non-passing grade

CHEATING/ACADEMIC DISHONESTY:

Each student is expected to do his/her own work on all assignments, reports, examinations, etc. **Cheating in any form will at a minimum result in ZERO points for the assignment or test, and may result in an "F" for the course.**

Here is a list of some actions that are considered cheating:

Copying answers from someone else's paper
Using notes of any kind, in any form, during an exam
Showing a fellow student your exam or passing information
Presenting the work of someone else as your own (plagiarism)
Providing your work for someone else to copy
Taking a call or text-message on your cell phone (please turn them off!)
***Any* sort of communication with someone else (besides me) during an exam**

If you have a question during an exam, raise your hand or quietly walk up to the instructor and whisper your question. **Translation dictionaries are not permitted during exams or quizzes. Exiting the room during an exam or quiz is not permitted.**

SPECIAL ACCOMMODATIONS:

If you require special accommodations, religious or ADA, inform me **IN WRITING** within the first two weeks of the semester. You will need to provide the appropriate documentation after which we will arrange to meet your needs.

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)
- read the relevant chapters in your textbook, hi-lite pertinent lines and add these notes to your class notes (always write as you read)
- 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*****

OTHER RESOURCES:

http://www.mybiologyplace.com

-this is the publishers website where you can find supplemental study material, practice quizzes, etc corresponding to your textbook

http://www.lamission.edu/lifesciences

-this is the LA Mission College life science department website where you can find selected laboratory exercises, worksheets and other resources

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

-this is the instructor's website where you can download course notes and various handouts

LECTURE SCHEDULE
(tentative)

Week	Date	*LECTURE TOPIC (textbook reading)
1	Aug 31	Introduction; Scientific Method **(ch 1)**
	Sep 2	Atoms, Molecules & Water **(ch 2)**
2	Sep 7	***HOLIDAY (Labor Day)***
	Sep 9	**QUIZ:** Biological Macromolecules **(ch 3)**
3	Sep 14	Membranes & Membrane Transport **(ch 5.1-9)**
	Sep 16	**QUIZ:** Cell Structure **(ch 4)**
4	Sep 21	Energy & Enzymes **(ch 5.10-16)**
	Sep 23	**EXAM #1 (ch 1-5)**
5	Sep 28	Cellular Respiration **(ch 6)**
	Sep 30	Photosynthesis **(ch 7)**
6	Oct 5	**QUIZ:** DNA Structure & Replication **(ch 10.1-5)**
	Oct 7	Gene Expression **(ch 10.6-16)**
7	Oct 12	**QUIZ:** Cell Division: Mitosis & Meiosis **(ch 8)**
	Oct 14	Genetics – Single Gene Inheritance **(ch 9.1-4, 9.6-9, 9.11-12)**
8	Oct 19	Genetics – Multiple Gene & Sex-linked Inheritance **(ch 9.5, 9.16-23)**
	Oct 21	**EXAM #2 (ch 6-10)**
9	Oct 26	Evolution & Natural Selection **(ch 13)**
	Oct 28	Evolutionary History & the Origin of Species **(ch 14 & ch 15)**
10	Nov 2	**QUIZ:** Tissues & Organ Systems **(ch 20)**; Respiratory System **(ch 23)**
	Nov 4	Circulatory System **(ch 22)**
11	Nov 9	Nutrition & Digestion **(ch 21)**; Urinary System **(ch 25.4-9)**
	Nov 11	***HOLIDAY (Veteran's Day)***
12	Nov 16	**QUIZ:** Male & Female Reproductive Systems **(ch 27.1-8)**
	Nov 18	Animal & Human Development **(ch 27.9-12, 27.15-17)**
13	Nov 23	**EXAM #3 (ch 13-15, 20-23, 25, 27)**
	Nov 25	Taxonomy and Biodiversity **(ch 16-19)**
14	Nov 30	Flowering Plant Structure & Reproduction **(ch 31 & ch 32)**
	Dec 2	**QUIZ:** Populations **(ch 36)** *****Written Assignment due*****
15	Dec 7	Biological Communities **(ch 37.1-13)**
	Dec 9	Ecosystems **(ch 37.14-23)**
16	Dec 14	**Comprehensive FINAL EXAM (12:30-2:30 in INST 2004)**

* **The lecture notes will be available in PDF format through my LAMC website http://www.lamission.edu/~brownst or by e-mail.**

NOTE: Quizzes will cover material from *previous* lectures.

LABORATORY SCHEDULE

WK	DATE	MONDAY LAB (0134)	WEDNESDAY LAB (0135)	DATE
1	**Aug 31**	**LABS 1 & 2:** Scientific Inquiry & Scientific Tools	**LAB 1:** Scientific Inquiry	**Sep 2**
2	**Sep 7**	***HOLIDAY (Labor Day)***	**LAB 2:** Scientific Tools	**Sep 9**
3	**Sep 14**	***LAB 3:** Chemistry, & pH	***LAB 3:** Chemistry, & pH	**Sep 16**
4	**Sep 21**	**LAB 5:** The Microscope	**LAB 5:** The Microscope	**Sep 23**
5	**Sep 28**	***LAB 4:** Macromolecules	***LAB 4:** Macromolecules	**Sep 30**
6	**Oct 5**	**LAB 6:** Digestion	**LAB 6:** Digestion	**Oct 7**
7	**Oct 12**	**LAB 7:** Respiration	**LAB 7:** Respiration	**Oct 14**
8	**Oct 19**	**LAB 8:** Photosynthesis	**LAB 8:** Photosynthesis	**Oct 21**
9	**Oct 26**	***LAB 9:** Mitosis & Meiosis	***LAB 9:** Mitosis & Meiosis	**Oct 28**
10	**Nov 2**	***LAB 10:** Genetics	***LAB 10:** Genetics	**Nov 4**
11	**Nov 9**	***LAB 11:** DNA & Gene Expr.	***HOLIDAY (Veteran's Day)***	**Nov 11**
12	**Nov 16**	***LAB 12:** Natural Selection	***LAB 11:** DNA & Gene Expr.	**Nov 18**
13	**Nov 23**	**LAB 13:** Circulation	***LAB 12:** Natural Selection	**Nov 25**
14	**Nov 30**	***LAB PRACTICAL EXAM***	***LAB PRACTICAL EXAM***	**Dec 2**
15	**Dec 7**	**LAB 14:** Fruits & Flowers	**LAB 14:** Fruits & Flowers	**Dec 9**

*Not in the lab manual. These labs (and worksheets for all other labs) can be obtained in an inexpensive shrink-wrapped package from the bookstore, or downloaded directly at: **http://www.lamission.edu/lifesciences/Biology3Laboratories.aspx**

NOTE:

- **A short quiz worth 10 points will be given at the end of each lab, so be prepared and bring a small Scantron.**
- **Worksheets for each lab should be completed and turned in by the next lab.**

SCORE SHEET

LECTURE POINTS

Quiz #1		**Exam 1**	
Quiz #2		**Exam 2**	
Quiz #3		**Exam 3**	
Quiz #4		**Final**	
Quiz #5		**Written**	
Quiz #6			
Quiz #7			

LAB POINTS

			Wksh.	Part.
Quiz #1		**Lab 1**		
Quiz #2		**Lab 2**		
Quiz #3		**Lab 3**		
Quiz #4		**Lab 5**		
Quiz #5		**Lab 4**		
Quiz #6		**Lab 6**		
Quiz #7		**Lab 7**		
Quiz #8		**Lab 8**		
Quiz #9		**Lab 9**		
Quiz #10		**Lab 10**		
Quiz #11		**Lab 11**		
Quiz #12		**Lab 12**		
Quiz #13		**Lab 13**		
Quiz #14		**Lab 14**		
Exam				

LECTURE possible points:

- quizzes – 20 points each (lowest score is dropped)
- exams – 150 points each (lowest score is dropped)
- final exam – 180 points
- written assignment – 50 points

LAB possible points:

- lab quizzes – 10 points each (2 lowest scores are dropped)
- lab exam – 100 points
- lab worksheets – 50 points for entries (~4 points each)
- lab participation – 80 points (~6 points per lab session)

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 3 of the syllabus.