BIOLOGY 3: Introduction to Biology

Sections 0107 and 0108

Los Angeles Mission College **Summer, 2014**

Lecture: Mon-Thu 7:40-9:05 AM in Center for Math & Sciences (CMS) Room 4

Lab Sections: **Section 0107:** Mon/Wed 9:15 AM-12:25 PM in CMS 110 (Echeverri)
Section 0108: Tue/Thu 9:15 AM-12:25 PM in CMS 110 (Brown)

Professors:

Angela Echeverri, Ph.D. **e-mail:** echeveac@lamission.edu **Voicemail:** 818-364-7704

Stephen Brown, Ph.D. **e-mail:** brownst@lamission.edu **Voicemail:** 818-364-7665

Office hours: T/Th 9:05-9:35 AM (Echeverri) and 12:25-12:55 PM (Brown) or by appt.

PREREQUISITES: None **ADVISORY:** ***English 28 or ESL 8 or the equivalent***

Hours: Lecture – 3 Carnegie hours/wk, **Laboratory** – 3 Carnegie hours/wk; 4 semester units

Articulation: Meets CSU/UC General Education requirement of natural science with a lab. CSUN Biology 101; CSULA Biology 155 & 156; UCLA Life Science 15; UCR Biology 2

Course Description: This course examines the fundamental principles of biology with laboratories emphasizing hands-on investigations.

TEACHING PHILOSOPHY:

Biology is fun, fascinating, and constantly changing our lives. Science is empowering because it teaches us new skills to find the answers to questions and solutions to problems we encounter on a daily basis. Biology 3 is a web-enhanced class that will open new frontiers, understanding, and possibilities in your personal and professional life. In order to get the most out of your learning experience in Biology, study on a weekly basis, plan ahead, come prepared to class, ask questions, participate fully in the lab experiments, monitor your progress online regularly, and seek help early when you need it. I encourage you to take full advantage of the many resources available to help you develop effective study habits and succeed in Biology 3 at Los Angeles Mission College.

STUDENT LEARNING OUTCOMES

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

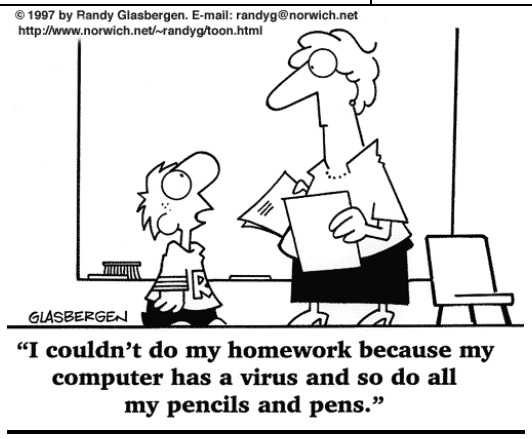
REQUIRED BOOKS AND MATERIALS

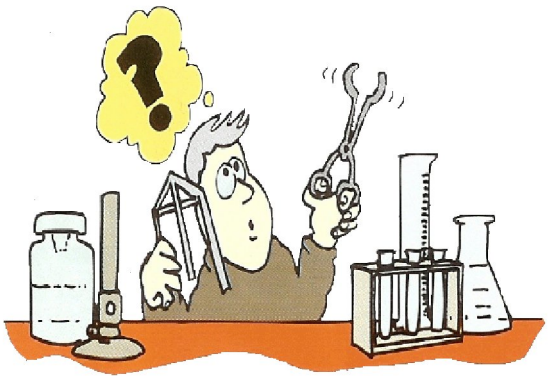
Biology: Concepts and Connections, Campbell, Reece, Taylor, Simon, and Dickey; Pearson-Benjamin Cummings - 7th edition 2012. Earlier editions or e-text versions of the book may be used. **Note:** You may purchase the Mastering Biology ***code*** if your book does not have a valid code. ISBN 13: 978-1256302407 (book + Mastering Biology bundle) or ISBN 13: 978-0321696816 (bound textbook by itself). An e-text is also available with the code. In order to access the Mastering Biology Web site click on the link below:
http://www.masteringbiology.com/ **COURSE ID IS: BIOLOGY3LAMC2014**
Biology 3 Lab Manual: The 2013 (not the older versions) lab manual can be purchased from the LAMC bookstore before the semester begins OR click THIS link to download and print the manual for free before the semester begins:
http://lamission.edu/lifesciences/Biology3Laboratories.aspx
Scantron 882-E forms and a number 2 pencil will be needed for exams and some quizzes.

COURSE GRADE

There will be 1000 possible points for the entire course as shown below:

LECTURE PORTION (650 Points)		LAB PORTION (350 Points)	
3 Lecture Exams	**300 points**	**Lab Worksheets**	**100 points**
Final Exam (Cumulative)	**150 points**	**Lab Quizzes**	**100 points**
15 Online Lecture Quizzes	**150 points**	**Lab Practical Final Exam**	**100 points**
Written Assignment	**50 points**	**Participation**	**50 points**





LECTURE ASSIGNMENTS:
Exams & Quizzes: Exams and quizzes will consist of multiple choice, matching, true/false, short answer, and essay questions. Exam multiple-choice and matching questions are to be answered on **Scantron** forms. Most lecture quizzes will be administered online using the Etudes Web site; dates and times will be announced during lecture. **No make-up exams will be given.** The first missed exam score will be replaced by the average score for the other exams taken during the semester. Additional missed exams will result in a grade of zero.
Written Assignment: Students will prepare a tri-fold brochure on a human disease. Guidelines for the Disease Brochure will be detailed in a separate handout.

LAB ASSIGNMENTS:

Lab Quizzes: Lab quizzes will be administered online or at the beginning of most labs. Quizzes will be answered online or in class on a **Scantron 882-E** form.

Lab Worksheets: Completed lab worksheets are **due at the beginning of the following lab period**. Late or incomplete lab sheets will only receive partial credit.

Lab Exam: A lab final exam will be administered toward the end of the semester. The lab exam will be cumulative and will have both group and individual components.

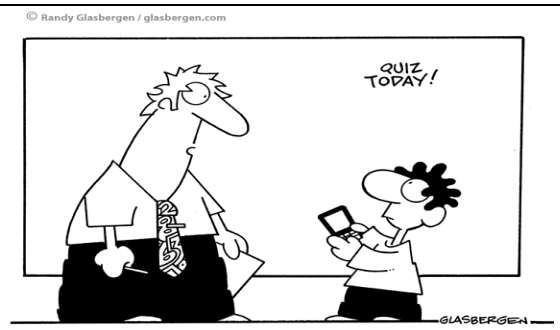
Participation: Students are expected to read each lab exercise ***before*** class. Participation scores will be based on preparation, completion of labs, lab safety, cleanup, teamwork, microscope care and usage, appropriate use of equipment and supplies, as well as participation in class and online activities. ***Ten points will be deducted from the 50-point participation total for each unexcused absence from the laboratory.*** You will be allowed to miss one laboratory without penalty. Additional absences will impact your grade.

Field Trip: We will take a 2-hour guided tour of the **Los Angeles Zoo** on **Saturday, 7/19/14 at 9:30 am**. Tickets for LAMC Biology 3 students are offered at the reduced rate of $5.

Grading Scale:

Out of a total of 1000 points:

900+ points (90-100%)	**A**
780-899 points (78-89%)	**B**
650-779 points (65-77%)	**C**
550-649 points (55-64%)	**D**
0-549 points (below 55%)	**F**



"You have to attend classes. You can't just follow me on Twitter."

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. Exchange contact information with at least two other classmates in case you cannot attend class.** Students missing more than 2 consecutive classes may be dropped.

Students who are adding ***must*** complete the process by **Monday, June 23rd**.

If you stop attending or wish to drop Biology 3 you must drop the course yourself online or in person by the deadline. Failure to do so may result in a grade of "F" in the class.

Students withdrawing from the course must do so by the following dates:

Monday, June 23rd: Last day to drop 16-week classes without a "W" on your transcript and to drop classes without incurring fees or with a refund

Friday, July 25th: Last day to drop classes with a "W." A grade is given after this date.

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 June 23, 2014 will avoid a "W" and will not count as an attempt.*

SPECIAL ACCOMMODATIONS

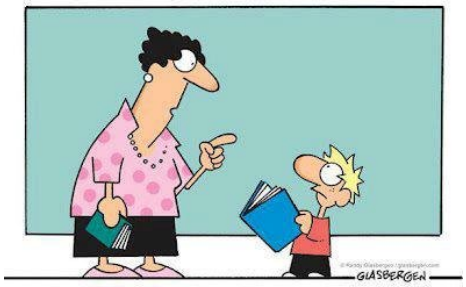
If you require special accommodations for a disability, religious holiday, or any other reason, please inform your instructor within the first week of the course and we will accommodate you if at all possible. For accommodations due to disability, you must consult with the Disabled Student Programs and Services office (see resources on page 5) after which we will abide by their recommendations.

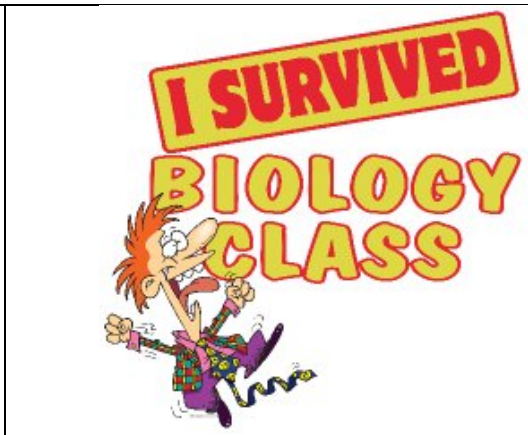
RECOMMENDATIONS FOR SUCCESS

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

- Keep up with the material by studying on a weekly basis
- Each time you study, spend a few minutes reviewing and summarizing 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, and flash cards to help you remember and review information
- Attend free tutoring and workshop sessions offered by the SSC (see resources on page 5)
- Form study groups with your classmates
- **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; **ask questions** if you don't.
    2) **Read** the corresponding material in the text while reviewing your notes
    3) **Review** your notes and key terms before the exams
- If you are having trouble with the material, take advantage of my office hours and/or the free tutoring services and workshops available to LAMC students. Do **NOT** fall behind!

*****Prepared students do well in this class*****



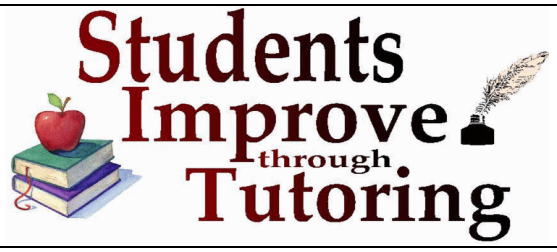


ONLINE RESOURCES FOR BIOLOGY 3 STUDENTS

Your instructor's LAMC Web site: **http://www.lamission.edu/~echeveac**
Etudes Web site: **https://myetudes.org/portal**
Announcements, quizzes, lecture notes, and other important information will be posted on this site. You can use the Etudes site to take your quizzes, monitor grades, and communicate with your instructor and each other, as well as ask/answer questions about lecture, laboratory, and assignments. If you already have used an Etudes account, sign in using your userid and password. If you have never used an Etudes account before you can go to https://myetudes.org/portal to set up your account. Detailed instructions, tutorials, and support for online students can be viewed at http://www.lamission.edu/online/
Textbook Web site: **http://www.masteringbiology.com/**
Contains online supplemental study material, practice quizzes, etc.
Department Web site: **http://www.lamission.edu/lifesciences/Biology3Laboratories.aspx**
This is the LA Mission College Life Sciences department web page where you can download Biology 3 laboratory exercises and worksheets.

COLLEGE RESOURCES FOR BIOLOGY 3 STUDENTS

- **Science Success Center (SSC):** Free tutoring and workshops are available for Biology 3 students in Room CMS 101. During the summer the SSC is open Monday-Thursday from 10 am-4 pm. For more information visit their Facebook page **LAMissionSSC** or call (818) 364-7600 x 7133.
- **STEM Office:** For information on free tutoring, resources, internship opportunities, and academic counseling for STEM (Science, Technology, Engineering, and Math) students visit the STEM Center in Room CMS 8 or http://www.lamission.edu/stem
- **Admissions and Records:** Students can register for classes, request transcripts, file petitions for graduation, and drop classes at this office. For more information call (818) 833-3322 or visit: http://www.lamission.edu/admissions/
- **Assessment Center:** Offers student assessments in English, English-as-a-Second-Language (ESL) and Mathematics. Please contact the Assessment Center at (818) 364-7613 for more information or visit http://www.lamission.edu/assessment/
- **Bookstore:** For hours of operation, book availability, buybacks, and other information call (818) 364-7767 or 7768 or visit http://eagleslanding.lamission.edu/default.asp
- **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, services, 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, & some Math classes. Walk-in and appointments. Call (818) 364-7754 or visit www.lamission.edu/learningcenter/



Code of Academic Honor and Integrity

LAMC 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 as one's own work as the work of another
- 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:

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 serious 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.

"Yes, I did the book report myself. I found it on eBay myself, I bid on it myself, I paid for it myself, I printed it myself..."

TENTATIVE CLASS SCHEDULE-SUMMER 2014

Dates are subject to change as needed

Week	Date	Lecture *Laboratory Section 0107*	Date	Lecture *Laboratory Section 0108*
1	Mon 6/16	Introduction to Biology 3 Chapter 1: Biology: Exploring Life ***Lab 1: Scientific Method (Part I)***	Tue 6/17	Chapter 1: Biology: Exploring Life Chapter 2: Chemical Basis of Life ***Lab 1: Scientific Method (Part I)***
1	Wed 6/18	Chapter 2: Chemical Basis of Life ***Lab 1: Scientific Method (Part II)***	Thu 6/19	Chapter 2: Chemical Basis of Life ***Lab 1: Scientific Method (Part II)***
2	Mon 6/23	Chapter 3: The Molecules of Cells ***Lab 2: Molecules, Water, & pH***	Tue 6/24	Chapter 3: The Molecules of Cells ***Lab 2: Molecules, Water, & pH***
2	Wed 6/25	Chapter 4: A Tour of the Cell ***Lab 4: Macromolecules***	Thu 6/26	Chapter 4: A Tour of the Cell ***Lab 4: Macromolecules***
3	Mon 6/30	Chapter 5: The Working Cell ***Lab 5: Enzymes***	Tue 7/1	**EXAM 1**: **Chapters 1-4** ***Lab 5: Enzymes***
3	Wed 7/2	Chapter 5: The Working Cell ***Lab 6: Respiration***	Thu 7/3	Chapter 6: How Cells Harvest Chemical Energy ***Lab 6: Respiration***
4	Mon 7/7	Chapter 6: How Cells Harvest ***Lab 7: Photosynthesis***	Tue 7/8	Chapter 7: Photosynthesis ***Lab 7: Photosynthesis***
4	Wed 7/9	Chapter 8: Cellular Basis of Reproduction and Inheritance ***Lab 3: Microscopy and Cell***	Thu 7/10	Chapter 8: Cellular Basis of Reproduction and Inheritance ***Lab 3: Microscopy and Cell***
5	Mon 7/14	**EXAM 2: Chapters 5, 6 & 7** ***Lab 8: Mitosis & Meiosis***	Tue 7/15	Chapter 9: Patterns of Inheritance ***Lab 8: Mitosis & Meiosis***
5	Wed 7/16	Chapter 9: Patterns of Inheritance ***Lab 9: Genetics***	Thu 7/17	Chapter 10: Molecular Biology of the Gene ***Lab 9: Genetics***
6	Mon 7/21	Chapter 10: Molecular Biology of the Gene ***Lab 10: DNA & Gene Expression***	Tue 7/22	Chapter 13: How Populations Evolve ***Lab 10: DNA & Gene Expression***
6	Wed 7/23	Chapter 13: How Populations Evolve ***Lab 11: Natural Selection***	Thu 7/24	Chapter 20: Animal Structure and Function ***Lab 11: Natural Selection***
7	Mon 7/28	**EXAM 3: Chapters 8, 9, 10 & 13** ***Lab 12: Cardiovascular System***	Tue 7/29	Chapter 23: Circulation ***Lab 12: Cardiovascular System***
7	Wed 7/30	Chapter 23: Circulation ***Lab Review Session***	Thu 7/31	Chapter 21: Digestion & Nutrition ***Lab Review Session***
8	Mon 8/4	Chapter 21: Digestion & Nutrition ***FINAL LAB PRACTICAL EXAM***	Tue 8/5	Chapter 27: Reproduction ***FINAL LAB PRACTICAL EXAM***
8	Wed 8/6	Chapter 27: Reproductive System Review for Final Exam	Thu 8/7	**FINAL LECTURE EXAM**

BIOLOGY 3 LABORATORY SCHEDULE

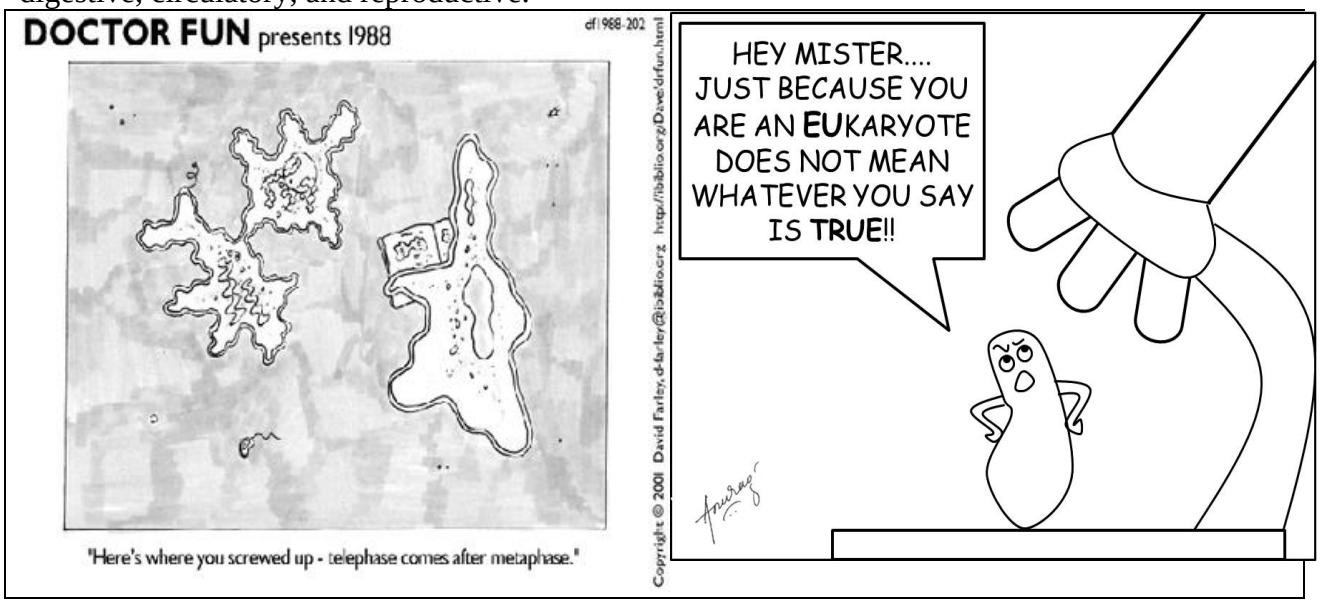
Week	Monday/Wednesday Lab Section 0107		Tuesday/Thursday Lab Section 0108	
	Date	**Lab Exercise**	**Date**	**Lab Exercise**
1	**M 6/16**	Lab 1A: Scientific Method	**T 6/17**	Lab 1A: Scientific Method
1	**W 6/18**	Lab 1B: Metric System	**Th6/19**	Lab 1B: Metric System
2	**M 6/23**	Lab 2: Molecules & pH	**T 6/24**	Lab 2: Molecules & pH
2	**W 6/25**	Lab 4: Macromolecules	**Th6/26**	Lab 4: Macromolecules
3	**M 6/30**	Lab 5: Enzymes	**T 7/1**	Lab 5: Enzymes
3	**W 7/2**	Lab 6: Fermentation & Resp.	**Th7/3**	Lab 6: Fermentation & Resp.
4	**M 7/7**	Lab 7: Photosynthesis	**T 7/8**	Lab 7: Photosynthesis
4	**W 7/9**	Lab 3: Microscope and Cell	**Th7/10**	Lab 3: Microscope and Cell
5	**M 7/14**	Lab 8: Cell Division	**T 7/15**	Lab 8: Cell Division
5	**W 7/16**	Lab 9: Principles of Genetics L.A. Zoo Field Trip on 7/19	**Th7/17**	Lab 9: Principles of Genetics L.A. Zoo Field Trip on 7/19
6	**M 7/21**	Lab 10: DNA & Gene Exp.	**T 7/22**	Lab 10: DNA & Gene Exp.
6	**W 7/23**	Lab 11: Natural Selection	**Th7/24**	Lab 11: Natural Selection
7	**M 7/28**	Lab 12: Cardiovascular System & Heart	**T 7/29**	Lab 12: Cardiovascular System & Heart
7	**W 7/30**	**Lab Review Session**	**Th7/31**	**Lab Review Session**
8	**M 8/4**	**FINAL LAB PRACTICAL EXAM**	**T 8/5**	**FINAL LAB PRACTICAL EXAM**
8	**W 8/6**	No Lab-Review Session	**Th8/7**	**FINAL LECTURE EXAM No Lab**

COURSE OBJECTIVES -

Lecture Objectives: Upon completion of this course a successful student will:

1. Discuss the scientific method, including identification of dependent, independent, and standardized variables, and the role of a control group.
2. Apply the metric system of measurement: gram, liter, meter, and degree Celsius.
3. Explain the theory of evolution by means of natural selection, and evidence across biological disciplines.
4. Interpret the Linnean system of taxonomical classification.
5. Identify properties that distinguish living and non-living things.
6. Compare procaryotes and eucaryotes.

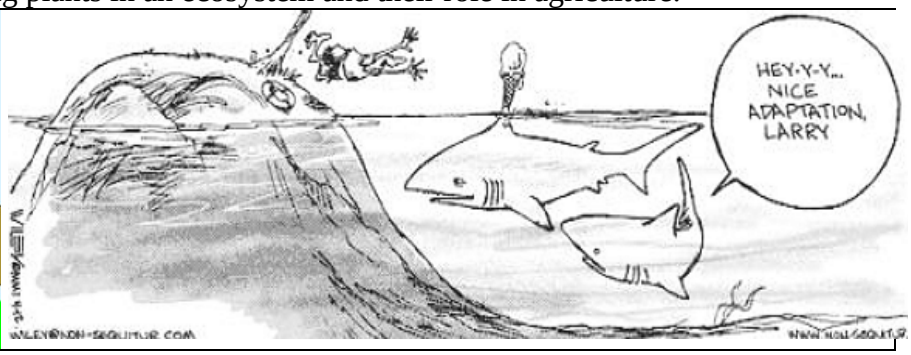
7. Describe the structure of atoms and the rules underlying the formation of molecules.
8. Discuss the unique properties of water and the concept of pH.
9. Illustrate the structure and function of major biological molecules: carbohydrates, lipids, proteins, and nucleic acids, and how to perform simple qualitative tests in the lab.
10. Describe cell structure: including major organelles of eukaryotic cells.
11. Operate the microscope to view living things on the cellular level.
12. Explain the role of enzymes in the control of chemical reactions in organisms, and how to assay enzyme activity in a laboratory setting.
13. Distinguish endergonic and exergonic reactions, and the role of ATP in energy transformations.
14. Compare the similarities and differences between cellular respiration and photosynthesis in the regulation of energy transformations, and how to model these processes in the laboratory.
15. Explain the cellular basis of asexual and sexual reproduction, and the processes of mitosis and meiosis, including examination of the mitosis in the microscope.
16. Identify simple Mendelian patterns of inheritance and the use of Punnet squares in the analysis of monohybrid and dihybrid crosses.
17. Discuss the modern concept of a gene, including the processes of transcription and translation.
18. Compare the basic structure and function of angiosperms and gymnosperms.
19. Describe the structure and function of important human organ systems, including at least: digestive, circulatory, and reproductive.



Laboratory Objectives: Upon completion of this course a successful student will:

1. Apply the basic principles of the scientific method.
2. Employ the metric system of measurement to measure length, mass and volume.
3. Prepare a solution and determine its pH.
4. Differentiate among the different chemical tests for biological macromolecules.
5. Explain the parts of the microscope, use it properly and create a wet-mount slide for examination.
6. Set up a chemical reaction using enzymes and analyze how different physical factors affect its function.
7. Explain the different reactions of cellular respiration.
8. Construct a simple experiment on the effects of light on the reactions of photosynthesis.

9. Differentiate between the processes of mitosis and meiosis and draw pictures of what happens to chromosomes.
10. Isolate DNA from mammalian cells and solve Punnett square problems.
11. Interpret the results of DNA fragments on an agarose gel and compare with a suspect's banding pattern.
12. Perform a blood pressure exam and take the heart rate on a classmate.
13. Discuss the role of digestive enzymes and set up reactions to demonstrate their function.
14. Compare and contrast the different sensory systems of the human body.
15. Label the parts of a typical angiosperm and describe their functions.
16. Assess the role of flowering plants in an ecosystem and their role in agriculture.



OTHER INFORMATION