

**Life Sciences 2**  
**Life Sciences 2: Cells, Tissue, and Organ Systems**  
**Spring 07**

**Instructor:** Youssef Ezzeddine, Ph.D. 2524 Gonda, (310) 600-5799,  
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**Office Hours:** Mon 10:00-12:00, TBA

**TAs:** Sara Chalifoux (sarachalifoux@ucla.edu)  
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**Class Time:** Mon, Wed, & Fri 9:00 - 9:50 am, Moore 100

**Website:** <http://www.lsic.ucla.edu/classes/>  
<http://lslab.lscore.ucla.edu/>

**Lab Management:** Dr. Gaston Pfüegl. YHS 2340, 44113 (gaston@lifesci.ucla.edu)

**LS Administrator:** Lily Yanez. LSB 2305, x56614 (lyanez@lifesci.ucla.edu)  
Mark Katayama. LSB 2305, x56614 (katayama@lifesci.ucla.edu)

**Textbook:** Purves, Orians, and Heller, Life, The Science of Biology, 8<sup>th</sup> edition.  
Sinauer Associates, Inc.; Sunderland, Freeman and co.  
The textbook will be on reserve in the Powell Library.

Life Sciences 2, Laboratory Manual, 5<sup>th</sup> edition.  
Available at ASUCLA Bookstore.

**Grading:**

Total points for this class will be 500 points:

Midterm 1 (Thursday 4/19/07; 5-7 pm)	100 points
Midterm 2 (Thursday 5/10/07; 5-7 pm)	100 points
Lab Experiments and quizzes	80 points
Lecture Assignments	40 points
Attendance and Participation	10 points
Final Exam (Wed 6/13; 6:30-9:30 pm)	170 points
(20 points from the lab will be on the final exam)	

**Total:** **500 points**

**Exams:**

Two midterm examinations will be held on Thursday 4/19 and Thursday 5/10 (5-7 pm) location TBA. The final exam will be held on Wed 6/13 (6:30-9:30 pm). Examinations will cover material from the lecture, reading, and discussion sections. The lecture component of the final exam is cumulative. All the exams will have both multiple choice type questions and short answers type questions. Requests for regrades must be submitted in writing with a detailed explanation and justification within one week after the exams have been graded.

**Make-up Policy:**

No make up examination will be given. If you are unable to take an examination due to illness or other emergency, you are responsible for contacting the Life Sciences Core Curriculum Office (LSB 2305, 310 825-6614) before the examination. You are required to have written verification from a physician or parent regarding the illness or emergency.

**Lecture notes:**

Lecture notes are available on the class webpage ([www.lsic.ucla.edu/classes](http://www.lsic.ucla.edu/classes)). Make sure you download the lecture notes before coming to class. Having the lecture notes with you will facilitate taking notes in class.

**Discussion Section:**

Attendance to the weekly discussion/lab sections is an important component of the course. Assigned papers (read below) will be discussed during each section. Weekly assignments pertaining to the papers will be posted on the class webpage the Friday before the first discussion section meeting on Monday. Assignments must be turned in at the beginning of each section. All assignments must be turned in on time. Late assignments will not be accepted. The discussion sections will concentrate on experimental issues and problem sets that will help you understand the lecture and succeed when taking the exams. Some of the questions on the exams will come from the discussion sections. Thirty percent of your final grade comes from discussion section, lab, attendance, written assignments, and class participation. Lecture material and papers will be presented in discussion sections. Attendance to the discussion and lab sections is mandatory. Tardiness and absences will not be tolerated. If you are late or absent from the discussion section you will not get participation points.

**Assigned Papers:**

1- Discussion 1 (4/9-4/13)

How Cancer Arises.

Robert A. Weinberg. *Scientific American*, September 1996, Vol. 275 Issue 3, p62, 9p

Assignment will be posted on the course webpage on Friday 4/6.

2- Discussion 2 (4/23-4/27)

Building a Brainier Mouse.

Joe Z. Tsien. *Scientific American*, April 2000, Vol. 282 Issue 4, p62, 7p

Assignment will be posted on the course webpage on Friday 4/20.

### 3- Discussion 3 (5/7-5/11)

Infectious Diseases and the Immune System.

Paul E. William, *Scientific American*, September 1993, Vol. 269 Issue 3, p90, 8p

Assignment will be posted on the course webpage on Friday 5/4/07.

### 4- Discussion 4 (5/29-6/1)

Cystic Fibrosis.

Michael J. Welsh and Alan E. Smith. *Scientific American*, December 1995, Vol. 273

Issue 9, p52, 8p

Assignment will be posted on the course webpage on Friday 5/25.

### **Instructions to download papers:**

These instructions will work from on-campus computers only or on computers that has Bruin On Line Proxy Server Set Up.

Go to <http://www2.library.ucla.edu>

Place mouse cursor on Search and Find

Move mouse cursor to E-resources

Click on E-Journals

On the Search for e-journals titles, type *Scientific American* and hit enter

From the right side menu, select v.268 (1993) *Scientific American* Archive, Restricted to UC campuses

Type in the title of the desired article in the find box

### **Undergraduate Research Initiative (UCLA IRB #G06-09-079-01):**

This is the first quarter we will introduce a research module into LS2. The Undergraduate Research Initiative at UCLA (**URI**) aims at bringing research to undergraduates, such as you, students in LS2. In the URI, students learn about cutting-edge research in various fields of sciences by experiencing it. The URI is not a course; it is a collaboration. Students in different undergraduate courses – from general education science to upper division life sciences – participate and learn while building a major research accomplishment.

The specific aims of this current project are two-fold: The first aim is to provide undergraduate students with a database through which they can understand research design. The current project proposes to assess cognitive functioning of undergraduate students through sophisticated computerized measures developed by a neuropsychologist, the Memory Interference Test (MIT). This will allow students to experience how real research studies are conducted and understand the different phases of research design. Students will not only be able to participate as subjects in the research but will also have the opportunity to generate hypotheses and to analyze their hypotheses through the aggregated database. Advanced students will have the opportunity to participate in groups geared toward publishing the research in scientific journals.

The **URI Project** is a quarter long assignment and has six components. **1.)** Memory Interference Test, which will be introduced during Lab 1 (Week 1). Students who choose to participate will conduct the test, which will take about 15 minutes. This will generate the database upon which the hypothesis can be tested. **2.)** The writing of a 1-page group research proposal due in (Lab2) Week 3. **3.)** Feedback of the various proposals in Week 4. **4.)** Revise group research proposals to individual proposals due for Discussion 3 (Week 6). **5.)** Test the individual hypothesis against the aggregated database from Lab 1 (Week8). **6.)** Turn in individual lab report and individual research proposal in Week 10. Below is a summary of the **URI project**, as it is integrated into the quarter schedule. There are a total of 10 points assigned to the URI Project.

*Cognitive Measures:*

**Picture Memory Interference Test** – this test assesses participants’ ability to sequentially recognize 3 lists of pictures. After exposure to an interference list and later on trial 4 the participants are to identify the list from which individual items originated. A reaction time trial is also recorded.

(Estimated time to complete, 15 min)

**Word Memory Interference Test** – this test assesses participants’ ability to sequentially recognize 3 lists of reading words. After exposure to an interference list and later on trial 4 the participants are to identify the list from which individual items originated. A reaction time trial is also recorded.

(Estimated time to complete, 15 min)

**Auditory Memory Interference Test** – this test assesses participants’ ability to sequentially recognize 3 lists of spoken words. After exposure to an interference list and later on trial 4 the participants are to identify the list from which individual items originated. A reaction time trial is also recorded.

(Estimated time to complete, 15 min). The items and order of these three tests is the same.

Week	Lab	Activity	Assignment	Points	Due
1	1	Scientific Method	Group lab report	5	Week 3
	URI 1,2	Memory Interference Test	Group Research Proposal	3	Week 3
3	2	Photosynthesis	Group lab report	15	Week 5
		Quiz		4	In Class
4	URI 3	Feedback	Individual Research Proposal	3	Week 6
5	3	Metabolism	Individual lab report	18	Week 7
		Quiz		4	In Class
6	URI 4	Discussion	Individual Research Proposal		Week 8
7	4	Rat Dissection	In Class Assignment	8	In Class
8	URI 5,6	Histology	In Class Assignment	16	In Class
		Test Hypothesis	Individual lab Report	4	Week 10
				20	Lab questions for final
<b>Total</b>				<b>100</b>	

## **UCLA Student Conduct Code**

### **102.01: Academic Integrity**

All forms of academic misconduct, including, but not limited to, cheating, fabrication, plagiarism, multiple submissions or facilitating academic misconduct.

For the purposes of the *UCLA Code*, the following definitions apply:

#### 102.01a: Cheating

Cheating includes, but is not limited to, the use of unauthorized materials, information, or study aids in any academic exercise; or the failure to observe the expressed procedures or instructions of an academic exercise (e.g., examination instructions regarding alternate seating or conversation during an examination).

#### 102.01b: Fabrication

Fabrication includes, but is not limited to, falsification or invention of any information or citation in an academic exercise.

#### 102.01c: Plagiarism

Plagiarism includes, but is not limited to, the use of another's words or ideas as if they were one's own, including, but not limited to, representing, either with the intent to deceive or by the omission of the true source, part of or an entire work produced by someone other than the student, obtained by purchase or otherwise, as the student's original work or representing the identifiable but altered ideas, data, or writing of another person as if those ideas, data, or writing were the student's original work.

#### 102.01d: Multiple Submissions

Multiple submissions includes, but is not limited to, the resubmission by a student of any work which has been previously submitted for credit in identical or similar form in one course to fulfill the requirements of a second course, without the informed permission/consent of the instructor of the second course; or the submission by a student of any work submitted for credit in identical or similar form in one course to fulfill the requirements of a concurrent course, without the permission/consent of the instructors of both courses.

#### 102.01e: Facilitating Academic Dishonesty

Facilitating academic dishonesty includes, but is not limited to, knowingly helping another student commit an act of academic misconduct (e.g., cheating, fabrication, plagiarism, multiple submissions).

#### 102.02: Other Forms of Dishonesty

Other forms of dishonesty, including, but not limited to, fabricating information or knowingly furnishing false information or reporting a false emergency to the University.

### Discussion/Lab Schedule:

Week 1:	4/2-4/6	Lab 1: Scientific Methodology <i>Exploring scientific methodologies, Memory Interference Test</i>
Week 2:	4/9-4/13	Discussion 1 (Assignment 1 due)
Week 3:	4/16-4/20	Lab 2: Photosynthesis <i>Spectrophotometry and chromatography of photosynthetic organisms</i>
Week 4:	4/23-4/27	Discussion 2 (Assignment 2 due)
Week 5:	4/30-5/4	Metabolism <i>Respiration in Goldfish</i>
Week 6:	5/7-5/11	Discussion 3 (Assignment 3 due)
Week 7:	5/14-5/18	Lab 4: Rat Dissection <i>Focusing on structure and functions of organ systems</i>
Week 8:	5/21-5/25	Lab 5: Histology <i>Microscopy and characterization of tissues</i>
Week 9:	5/29-6/1	Discussion 4 (Assignment 4 due)
Week 10:	6/4-6/8	Discussion 5 (Review for final exam)

### Lecture Schedule:

#### **Week 1:**

4/2	Introduction Biological Molecules	Chapters 2 & 3
4/4	Cell Structure: Prokaryotes & Eukaryotes	Chapter 4
4/6	Cellular Membranes	Chapter 5

#### **Week 2:**

4/9	Introduction to Enzymes & Energetics	Chapter 6
4/11	How Cells Produce Energy	Chapter 7
4/13	Photosynthesis & Organelles	Chapter 8

**Week 3:**

4/16 Nervous System I Chapter 44

4/18 **Review for Exam 1 Thursday 4/19/07 (5:00-7:00 pm)**

4/20 Sensory Systems Chapter 45

**Week 4:**

4/23 Nervous System II Chapter 46  
Structures and Higher Functions

4/25 Effectors Chapter 47

4/27 Differential Gene Expression Chapter 19

**Week 5:**

4/30 Animal Development Chapter 20

5/2 Structure & Function of the Immune System Chapter 18

5/4 Homeostasis & Temperature Regulation Chapter 41

**Week 6:**

5/7 The Endocrine System Chapter 42

5/9 **Review for Exam 2 Thursday 5/10/07 (5:00-7:00 pm)**

5/11 The Endocrine System Chapter 42

**Week 7:**

5/14 The Digestive System Chapter 50

5/16 The Digestive System Chapter 50

5/18 The Renal System Chapter 51

**Week 8:**

5/21 Gas Exchange & The Respiratory System Chapter 48

5/23 Gas Exchange & The Respiratory System Chapter 48

5/25 The Cell Cycle (Mitosis & Meiosis) Chapter 9

**Week 9:**

5/28 **Memorial Day Holiday**

5/30 The Reproductive System Chapter 43

6/1 The Reproductive System Chapter 43

**Week 10:**

6/4 The Circulatory System Chapter 49

6/6 The Circulatory System Chapter 49

6/8 **Review for the Final Exam**

6/13 **Final Exam (6:30-9:30 pm)**