

9/26/08 **LIFE SCIENCE 2: Cells, Tissues, and Organs (Lecture 1), 5 credits**
FALL 2008
Monday, Wednesday, Friday 1:00 PM - 1:50 PM
LaKretz 110

Description of the course: Designed for students interested in the life sciences and as part of a four-course sequence (LS1-LS4), this course has three hours of lecture and an average of two hours of discussion per week, including labs. It covers structure from molecules to cells to systems and physiology from cells to systems.

Like most other universities, the University of California expects 3 hours of work each week/credit, or 15 hours each week for a 5-credit course. For this class, that means five hours in class and ten hours outside of class each week. If you cannot devote this amount of time (or more!), consider taking fewer courses, working fewer hours on your job, or dropping the course!

Professor Stan Schein: Office hours: Monday, Wednesday 4:00 – 6:00, and by appointment
Franz Hall Room 8522
phone 310-825-0505 or 310-855-4769; email schein@ucla.edu

Class Website: <http://www.lsic.ucla.edu/classes/fall08/>

Textbooks and supplies

Clicker: You'll need to have or buy a PRS clicker, the RF version with the LCD screen.

Textbook: Loose leaf (UCLA Bookstore): WK Purves, D Sadava, GH Orians, HC Heller. *Life, The Science of Biology, 8th Ed.* Sinauer Associates, Inc.: Sunderland, MA and WH Freeman and Co.: Gordonsville, VA (2008). ISBN # 13: 978-1-4292-0459-0 (loose leaf format).

Study Guide. It is available on the web at <http://bcs.whfreeman.com/thelifewire8e/>

Laboratory Manual (UCLA Bookstore): G Pfluegl. Life Sciences 2 Cells, Tissues and Organs 2008-2009 Lab Manual. Hayden McNeil: Plymouth, MI, 2003. ISBN # 978-0-7380-2755-5.

The **Chemistry CD** is available online in rooms 4335, 4336, 4340, 4341, 4345, 5346, 4350 & 4351 in Young Hall, rooms 2370, 2379 & 2336 of Young Hall South during lab sections, and in the LS Computer Lab (LS 2127) by the end of week 1.

Because the textbook is loose leaf, you can carry around one chapter at a time. Also, you can share the book with a student in LS1, each of you keeping just the chapters you need for the quarter.

Powerpoint slides and recordings of lectures

The slides for each lecture (in powerpoint files) are posted to the lecture on Blackboard under Course Materials. You should print them out and bring them to lecture.

Lectures will be audiotaped and videotaped. Barring glitches, the files will be posted on the same day as the lecture. If you must miss a lecture for religious or other reasons, you can watch the videotaped version. Below, we provide instructions for accessing or downloading these files.

Important notices

In-lecture quizzes. Except for the first lecture, you will use your PRS clicker to answer two questions for credit during each lecture.

Enrollment. If you are not enrolled but want to, you should keep trying URSA in case someone drops the course. If you have other enrollment concerns, go to the Life Science Office, Life Science Building, Rm 2305, where you can contact Lily Yanez or Mark Katayama at lscore@lifesci.ucla.edu. Neither the professor nor the LS Core office has PTEs to distribute.

Exams. Except for the final exam, *exams will be given in the evening*. We do this for several reasons. First, you will be able to have more lectures. Second, you can have more time to complete your exams. Third, when it comes time to take the exams, you won't have to wait anxiously for the previous class to leave the lecture hall or feel the pressure of the students in the next class trying to get into the room. Finally, after the exam, you will be mentally ready to attend the must-not-miss lecture on the next day and get started on the next body of material. If you cannot be available during those times, you should drop the class. Please bring your UCLA Student ID to the exams!

Teaching Assistants (TAs)

| | | | |
|---------------------|--|---------------------|-----------------|
| Christiane Abouzeid | christiane.ls2@gmail.com | W11-1 | Bombshelter |
| Adi Avital | adiavital25@yahoo.com | M12-1, R11:30-12:30 | Kirchhoff patio |
| Behnood Khodayari | tabehn@gmail.com | M2-3, M6-7 | Bombshelter |
| Anna Konstorum | anna.konstorum@gmail.com | T3-4, R3-4 | 4101 LS Bldg |
| Joanne Leung | joannecleung@gmail.com | M2-3, R11-12 | CHS 68-124 |
| Sherry Soliman | sksoliman@gmail.com | R12-2 | Bombshelter |
| Deepthi Sudhakar | dsudhakar@ucla.edu | M2-3, F10-11 | Bombshelter |

Discussion section meetings

| Section | Lab/Discussion Day | Lab room | Discussion room | Time | TA |
|---------|--------------------|-----------------------|-----------------|------|------------|
| A | Wed | Young Hall South 2370 | MS 3915H | 8-11 | Christiane |
| B | Wed | Young Hall South 2379 | Slichter 2834 | 10-1 | Adi |
| C | Wed | Young Hall South 2336 | MS 3915G | 2-5 | Christiane |
| D | Wed | Young Hall South 2370 | MS 3915H | 2-5 | Sherry |
| E | Thurs | Young Hall South 2336 | MS 3915G | 8-11 | Adi |
| F | Thurs | Young Hall South 2370 | MS 3915H | 8-11 | Joanne |
| G | Thurs | Young Hall South 2379 | Slichter 2834 | 9-12 | Sherry |
| H | Thurs | Young Hall South 2379 | Slichter 2834 | 12-3 | Anna |
| I | Thurs | Young Hall South 2379 | Slichter 2834 | 3-6 | Joanne |
| J | Thurs | Young Hall South 2336 | MS 3915G | 5-8 | Behn |
| K | Fri | Young Hall South 2336 | MS 3915G | 10-1 | Anna |
| L | Fri | Young Hall South 2370 | MS 3915H | 10-1 | Adi |
| M | Tues | Young Hall South 2379 | Slichter 2834 | 9-12 | Deepthi |
| N | Tues | Young Hall South 2379 | Slichter 2834 | 12-3 | Sherry |
| O | Tues | Young Hall South 2336 | MS 3915G | 8-11 | Adi |
| P | Tues | Young Hall South 2370 | MS 3915H | 8-11 | Sherry |
| Q | Tues | Young Hall South 2336 | MS 3915G | 2-5 | Behn |
| R | Tues | Young Hall South 2370 | MS 3915H | 2-5 | Deepthi |

If you are unhappy with your Lab/Discussion section assignment, you can change it IF you can find someone else with whom to swap. For this purpose, there is a real bulletin board outside of the LS Core office and a virtual Swap Forum available on the Discussion Board of the course website. Then, consult with the LS Core office to make the swap.

Discussion sections meet during weeks 3, 5, 7 and 10. This is a good time to get your own questions answered! The first five minutes however, will be taken up by a quiz that might have five or more questions (e.g., two conceptual questions from the Study Guide and three questions from the Scientific American article that was assigned for that week). Please go online to get these articles and print them out at the start of the quarter! If you miss your own Discussion section, you may ask your TA for permission to attend a different one that week. Note the odd schedule for week 7.

Laboratory meetings

Dr. Gaston Pfluegl (gaston@lifesci.ucla.edu, Slichter Hall 2875) is director of the Life Sciences Core Laboratories. Rhonda Murotake (rhondam@lifesci.ucla.edu, Young Hall South 2360) coordinates and Rachel Sauvageot (rachel@lifesci.ucla.edu, Young Hall South 2340) manages the lab portion of this course. Labs meet on week 1, 2, 4, 6 and 8. Lab manuals are available at the UCLA Bookstore. Please note which laboratory room number (in Young Hall) goes with your Discussion section. (However, the first lab meeting will be held in the Science Learning Center on the 4th floor of Young Hall South (YHS) where those sections that would normally meet in YHS2336, 2370, and 2379 will meet instead in YHS 4335, 4336, and 4341, respectively, EXCEPT that Friday sections K meets in YHS 4336 and L meets in YHS 4335.) Up-to-date information can be found at <http://lslab.lscore.ucla.edu/>. No lab switching is allowed once the labs are finalized. Only under special circumstances can students go to a different section and only after making arrangements in advance with your TA. Lab attendance and participation are mandatory.

| <u>Activity</u> | <u>Assignment</u> | <u>Points (quiz + lab)</u> |
|-------------------------|-----------------------|----------------------------|
| Lab 1 Scientific Method | Individual lab report | 5 + 10 |
| Lab 2 Photosynthesis | Group lab report* | 4 (quiz) + 15 |
| Lab 3 Metabolism | Individual lab report | 4 (quiz) + 18 |
| Lab 4 Rat dissection | In class assignment | 8 |
| Lab 5 Histology | In class assignment | 16 |
| Lab questions on final | N/A | 20 |
| Total | | 100 points |

*Group lab reports are produced by a team of 3 students. The 3 students get the same score. Details are available in the lab manual. TAs may assign and rotate students in teams for different labs.

Articles

- #1. Clarke MF and Becker MW (2006) Stem cells: the real culprits in cancer? *Sci Am* 295(1):52-9.
- #2. Sinclair DA and Guarente L (2006) Unlocking the secrets of longevity genes. *Sci Am* 294(3):48-51, 54-7.
- #3. Flier JS and Maratos-Flier E (2007) What fuels fat. *Sci Am* 297(3):72-81.
- #4. Ramachandran VS & Hubbard EM (2003) Hearing colors, tasting shapes. *Sci Am* 288 (5), 52-59.

Grading

All grades are posted in my.ucla. The course has 484 total points and is graded on a curve. All exams are based on the **Textbook**, the **Study Guide**, the **Lectures**, the **Discussion sections**, and the **Articles**. The final includes questions from the labs. The exams are **NON-CUMULATIVE**. *Grading is on a curve. Everyone has the same exam, so it does not matter if you find the exams easy or difficult.*

First exam, 100 points (50 multiple-choice questions): Tuesday, October 21, in the **EVENING**, from 7:00 pm - 8:50 pm in TBA (students of Christiane, Adi, Behnood and Anna) and in TBA (students of Joanne, Sherry, and Deepthi). This exam covers Chapters 1-6 of the text, lectures 1-11 covering those chapters, the chemistry CD, and the first article. Bring your Student ID!

Second exam, 100 points (50 multiple-choice questions): Thursday, November 13, in the **EVENING**, from 7:00 pm - 8:50 pm in TBA. This exam covers Chapters 7, 8, 15, 40-42, and 48-51 of the text, lectures 11-21 covering those chapters, and the second and third articles. Bring your Student ID!

Final exam, 100 points (50 questions) + 20 points (10 lab questions): Wednesday, December 10 (Finals week), from 6:30 pm to 9:30 pm in TBA. This exam covers Chapters 44-47 of the text, lectures 22-29 covering that material, the fourth article, and all of the laboratory material. Bring your Student ID!

Labs, 100 points: 80 points for lab write-ups and 20 points for questions added to the final. See above.

Discussion sections, 40 points: 10 points for each of 4 quizzes.

In-lecture quizzes, 44 points: Your best 18 scores (2 points max) among 23 quizzes in regular lectures (not lecture #1), plus your four scores (2 points max) for the must-not-miss lectures marked with an asterisk. One question can be answered by skimming the chapter before the lecture; one question can be answered by paying attention during the lecture. If you must miss a lecture for religious reasons, email Prof. Schein regarding these points.

Re-grading policy. Exams will not be returned to you. Your TAs will go over the exams in Discussion section. If you wish to compare your own answers with the Key, you may do so in Professor Schein's office during his office hours or by appointment. Midterm exams will be destroyed two weeks after the end of the quarter. If you disagree with an answer on an exam or quiz, the points you received on an exam, quiz or lab report, or your final grade, you must contact your TA and Prof. Schein in a timely manner (as soon as possible, necessarily before the next exam).

Enjoying the class and doing well

To understand the material and ENJOY (!) the course, you should skim the Textbook before lecture, print out the notes from the powerpoint file on the webpage and skim them as well, attend the lecture, and read the text carefully after lecture. You may be able to listen to the lecture again (MP3 file on website) or view it on video from the class webpage. Then, answer the **conceptual** questions in the online Study Guide or answer the conceptual questions in the publisher's online quizzes: <http://bcs.whfreeman.com/thelifewire8e>. (Your performance on these quizzes will not be reported to the instructors.) (You'll also find animations on the website.) If you are confused, do not let your frustration linger! Get help right away. Ask questions during your Discussion section. **Go to any TA's office hours or to the professor's office hours**. Ask your friends. Form a study group. Get help!

One (easy) question of the In-lecture quiz can be answered if you have skimmed the material beforehand. The second (harder) question will be taken from the material in the lecture.

You can get help from Covell tutoring. You can sign up (first-come, first-served) during week 1 only, M-W 12-4 in the Covell Commons Room 230. Bring your Student ID.

Honors LS89. Any student interested in attending 10 hour-long biology seminars of your choice and meeting for an hour 5 times during the quarter in an honors meeting may take this course for 5+1 units of Honors credit. (The 1 credit for LS 89 does not count against your credit cap.) Evidence of attendance at a seminar is one page (!) with the following: your name, the course name (Life Science 89), the speaker's name, the seminar title, the date of the seminar, the number out of the 10 you have attended (e.g., #3), and a brief (!), one-paragraph (!!), typewritten summary. Summaries are due at Friday meetings when we will meet from 3-4 in Franz Hall 2258A. The last summaries are due at the final exam. You may register for LS 89 by getting a PTE from Prof. Schein **in person** at a Friday meeting of Weeks 1 or 2. Seminar listings will be posted on the course website and updated each week. If you are in the College Honors program, then you must earn at least a B in LS2 to get College Honors credit.

Cheating

It's just not worth it!!! The penalties can be very harsh, the gain small. **Don't do it.** Don't believe it if you hear that "everyone does it." (You generally don't hear of the punishments because they are kept confidential.) If you are caught cheating in an exam, either helping someone else or being helped, you will be reported to the Dean of Students, who will be encouraged to take strong action. If you are found guilty, you will receive no points on that exam. (Such a score may cause you to fail the course.) Past examples of penalties also include loss of an entire term of credit *and* suspension for several terms. If you plan to apply to graduate or professional school, such a blemish on your record may be a major obstacle to admission.

If you plagiarize (even in honors reports), you will be reported to the Dean of Students for further action. If found guilty, you will receive no points for your report. Don't do it. Also, your fellow students are happier when no one cheats. Indeed, they get angry when they detect cheating, and they can and do report it to us during the exam.

Accessing or downloading lectures

The lectures will be as recorded and available on the web usually on the same day of the lecture or the next day. You can download Podcasts to your computer and then transfer them to your compatible mp3 (audio) or mp4 (video) player. Or, if you don't want the files to take up memory on your computer, you can use Real Player to see the steaming webcasts.

Any assistance with the streams and files should be directed to bruincasthelp@ucla.edu

Log into Bruincast page

Go to <http://www.bruincast.ucla.edu/courses/2008-2009/2008fall/lc2-1>

Left-click on Life Science 2 - Lec 1

Sign in with your UCLA logon ID and password

To see streaming webcasts:

Left-click "video" link. Real player should start subsequently within a few seconds.

(To watch a webcast (Real Video stream) you'll need a RealOne Player, which can be downloaded by clicking the Real icon near the top of the Bruincast Life Science 2-1 page.)

To download the video or audio podcast (MP4/MP3)Windows/PC:

Right-click on the "MP3" audio or "MP4" video podcast link and then

Left-click on Save Link As... to download the file to your computer.

Note where you saved it and open it manually.

(Windows Media Player, Quicktime, iTunes, and Real Player can all play back the MP3 audio files. MP4 video files are best viewed with Quicktime or Real Player.)

To download the video or audio podcast (MP4/MP3)Mac:

Ctrl+ mouse click the "MP3" audio or "MP4" video podcast link and then

Mouse click on "download linked file"

You can also start an MP3 or MP4 file by clicking on it.

Alternatively if you are familiar with iTunes and have it on your computer, you can subscribe to the audio or video podcast by

Clicking on the appropriate iTunes icon at the top of the Bruincast Life Science 2-1 page. (This will eliminate the need to log on to the Bruincast page to retrieve the most recent files.)

Course schedule

| <u>Week</u> | <u>Date</u> | <u>Lect.#</u> | | <u>Topic</u> | <u>Book chapter</u> |
|-------------|-------------|---------------|---------------|---|---------------------|
| 0 | Sept 26 | F | 1. | Introduction | 1 |
| 1 | Sept 29 | M | 2. | Small molecules & chemical bonds | 2, Chem CD |
| | Oct 1 | W | 3. | Biological macromolecules | 3 |
| | Oct 3 | F | 4. | Biological macromolecules | 3 |
| | Oct 3 | F | Honors | 3:00 - 4:00 in Franz Hall 2258A | |
| | | | Laboratory #1 | Scientific Method (Computer Learning Center rooms) | |
| 2 | Oct 6 | M | 5. | The organization of cells | 4 |
| | Oct 8 | W | 6. | The organization of cells | 4 |
| | Oct 10 | F | 7. | Cellular membranes | 5 |
| | Oct 10 | F | Honors | 3:00 - 4:00 in Franz Hall 2258A | |
| | | | Laboratory #2 | Photosynthetic pigments + Quiz | |
| 3 | Oct 13 | M | 8*. | Equilibrium potential; Membrane potential | 5 |
| | Oct 15 | W | 9. | Energy, enzymes, and metabolism | 6 |
| | Oct 17 | F | 10. | Energy, enzymes, and metabolism; Cellular respiration | 6,7 |
| | Oct 17 | F | Honors | 3:00 - 4:00 in Franz Hall 2258A | |
| | | | Discussion #1 | Chapters 1-5; Article #1; Disc quiz1 | |
| 4 | Oct 20 | M | 11. | Cellular respiration | 7 |
| | Oct 20 | M | REVIEW | 4:00 – 6:00 in LaKretz 110) | |
| | Oct 21 | T | EXAM 1 | 7:00-8:50 PM (Lectures 1-11, Chapters 1-7, Chem CD, and Article 1) in TBA and TBA | |
| | Oct 22 | W | 12. | Photosynthesis | 8 |
| | Oct 24 | F | 13. | Photosynthesis; Cell signaling | 13.4, 15 |
| | Oct 24 | F | Honors | 3:00 - 4:00 in Franz Hall 2258A | |
| | | | Laboratory #3 | Metabolism + Quiz | |
| 5 | Oct 27 | M | 14. | Cell signaling; Homeostasis | 40 |
| | Oct 29 | W | 15. | Hormones and chemical signaling (skip insects) | 41 |
| | Oct 31 | F | 16. | Hormones and chemical signaling; Reproduction | 41,42 |
| | Oct 31 | F | Honors | 3:00 - 4:00 in Franz Hall 2258A | |
| | | | Discussion #2 | Go over midterm; Chapters 8, 13.4, 15, 40; Article #2; Disc quiz2 | |

| | | | | | | |
|----|-------------|----|-------|--|---|-------|
| 6 | Nov | 3 | M | 17. | Reproduction | 42 |
| | Nov | 5 | W | 18. | Respiration | 48 |
| | Nov | 7 | F | 19. | Circulatory System | 49 |
| | Nov | 7 | F | Honors Laboratory #4 | 3:00 - 4:00 in Franz Hall 2258A Rat dissection | |
| 7 | Nov | 10 | M | 20* | Circulatory System; Nutrition and Digestion | 49,50 |
| | Nov | 11 | T | | Veteran's Day | |
| | Nov | 12 | W | 21. | Nutrition and Digestion | 50 |
| | Nov | 12 | W | REVIEW | 5:00 -7:00 in LaKretz 110 | |
| | Nov | 13 | R | EXAM 2 | 7:00-8:50 PM (Lectures 12-21, Chapters 8, 13.4, 15, 40-42, 48-50 and Articles #2 & #3) in TBA and TBA | |
| | Nov | 14 | F | 22 | Salt and Water Balance | 51 |
| | Nov | 14 | F | Honors Discussion #3 | 3:00 - 4:00 in Franz Hall 2258A Chapters 41, 42, 48-50, Article #3; Disc quiz3 (Tuesday and Friday students should attend the second half of a Wednesday or Thursday section) | |
| 8 | Nov | 17 | M | 23* | The action potential | 44 |
| | Nov | 19 | W | 24* | The action potential; Synaptic transmission | 44 |
| | Nov | 21 | F | 25 | Synaptic transmission; Sensory systems | 45 |
| | Nov | 21 | F | Honors Laboratory #5 | 3:00 - 4:00 in Franz Hall 2258A Histology; Go over midterm after completion of lab | |
| 9 | Nov | 24 | M | 26 | Sensory systems | 45 |
| | Nov | 24 | M | . | Night at the movies (7-9pm): An Inconvenient Truth | |
| | Nov | 26 | W | 27 | Sensory systems | 45 |
| | Nov | 28 | F | . | Thanksgiving | |
| 10 | Dec | 1 | M | 28 | Sensory systems; Mammalian Nervous System | 46 |
| | Dec | 3 | W | 29 | Mammalian Nervous System | 46 |
| | Dec | 5 | F | 30 | Motor function | 47 |
| | Dec | 5 | F | Honors | 3:00 - 4:00 in Franz Hall 2258A | |
| | Dec | 5 | F | REVIEW Discussion #4 | (4-6 PM in LaKretz 110) Chapters 44-46; Article #4; Disc quiz4; evals | |
| 11 | December 10 | W | FINAL | 6:30-9:30 pm (Lectures 22-30, Chapters 44-47, Article #4, An Inconvenient Truth, and all of the laboratory material) in TBA and TBA. | | |