DIVERSITY OF LIFE – Biology sequence for science majors (Biology, Environmental Science, Biochemistry majors) – 2011-2012

1. What is the theme you propose for your group of courses?
The theme for this sequence is the diversity of life on earth, with an emphasis on the integration of structure and function from the molecular through the organismal level.

2. List the three courses.
Biology 1403 Animal biology (5 units) (lecture + lab)
Biology 1402 Plant biology (5 units) (lecture + lab)
Biology 1401 Cellular & molecular biology (5 units) (lecture + lab)

3. Explain briefly how the theme will be used to integrate course content in each course.
In this sequence of courses, students will learn about the structure and function of the major groups of organisms on earth. The courses will all emphasize the unity of life forms on earth that can be seen by examination at the cellular and molecular level and then will build on this theme of unity and diversity by examination of structures and functions of multicellular organisms. The ecological and evolutionary pressures that have helped to shape life on earth will be emphasized throughout.

4. Explain how each course in the proposed cluster will support student learning of the lower division G.E. area learning outcomes.
The courses in this sequence will satisfy G.E. area B2 Life Science learning outcomes. On essay and multiple choice examinations, students will be able to demonstrate understanding of fundamental concept in the life sciences through their abilities to describe molecular basis of cellular life, the diversity and classification of living organisms, and how the diversity of organisms has been shaped by evolutionary forces. To accomplish this, we will have sets of embedded questions on exams and/or on BlackBoard in each of the 3 courses. These embedded questions will cover fundamental life science concepts and will be tabulated and evaluated yearly, independent of other exam questions. Students will demonstrate application of quantitative skills and methods of scientific investigations through laboratory activities that require students to conduct experiments, collect data, analyze the data graphically and statistically, draw appropriate conclusions, and write reports in correct scientific paper format. Students will also be asked to read and analyze primary scientific literature (i.e., published peer-reviewed journal articles) in these courses. Through these readings, students will become familiar with empirical methodologies, will be able to distinguish science from pseudoscience, and will demonstrate their understanding in written scientific papers.

5. Attach course outlines for the three courses.
In all three courses, students will use a common textbook (Biology, by Campbell, Reece and Mitchell). A unifying theme throughout all 3 courses will be the evolutionary relationships of life forms, including the unity of genetic material, cellular structure, and organismal functions including metabolism, reproduction, and feedback mechanisms. In
each course, there will be written laboratory assignments that will emphasize the importance of writing papers in correct scientific format.

6. **Briefly explain how the course will meet the relevant G.E. requirements.**
   These courses will satisfy the G.E. requirements for B2 Life Science and Science Laboratory through emphases on scientific methodologies, systematic observation and experimentation of the living natural world. To satisfy G.E. Areas B1 (Physical Science) and B3 (Science Elective) all students taking this sequence MUST take additional courses in physical sciences. Only students that are Biology, Biochemistry or Environmental Science majors will be allowed to take this G.E. sequence because students in these majors are *required* to take multiple additional courses in chemistry, physics, and/or geology to satisfy their major requirements. In the event that a student changes his/her major after taking this sequence, the student will still be required to take 2 additional courses in physical science to satisfy the remaining Science G.E. requirements of Areas B1 and B3.

7. **Briefly describe how the cluster (sequence) will incorporate composition, oral communication, and GE activities.**
   Students will be required to write and present scientific papers. These papers will be based on data collected in class, but will require library research (conducted in conjunction with a linked Library course), appropriate writing conventions (in conjunction with linked English courses), and well-organized oral presentations (in conjunction with linked communication courses). Faculty teaching in the sequence will work with Library, English and Communication faculty in linked sections to develop prompts that will enhance the ability of students to perform well in the science sequence of courses. Over the 3 quarters, students are expected to show improvement in the ability to respond to appropriate writing prompts inside class (eg. on essay exams) and outside of class (eg. on writing assignments).
Approved by Department Chairs:

__________________________________________  ________  ______
Signature                                             Department          Date

__________________________________________  ________  ______
Signature                                             Department          Date

__________________________________________  ________  ______
Signature                                             Department          Date

Approved by College Dean/Associate Dean

__________________________________________          ______
Signature                                             Date

Signatures of three faculty members:

We each agree, if selected, to attend a one-day Summer Seminar on interdisciplinary curriculum and pedagogy (dates to be arranged, with several options to meet participants’ schedules).

__________________________________________          ______
Signature                                             Date

__________________________________________          ______
Signature                                             Date

__________________________________________          ______
Signature                                             Date

Proposals should be submitted to the Office of General Education, WA LM 55 as soon as possible and no later than Monday April 12, 2004. Please submit an electronic copy of the Proposal and syllabi, and 12 paper copies of the proposal, signature page, and syllabi. (The paper copies will be passed on to each committee that acts on the proposals.)

1 While College approval for application of courses to meet GE requirements is no longer required, given the current budget climate, College approval of assures support for departmental participation.
BIOLOGY 1403  
Foundations of Biological Sciences – ANIMAL BIOLOGY

FALL 2010  MWF 1:20-2:30 pm  Science North 120

An introduction to animal biology with emphasis on relationship of structure and function in animals, principles of classification and ecology, and a brief survey of the animal kingdom, including evolutionary relationships. Four hrs. lect., 3 hrs. lab. 5 credits.

**Prerequisites**: BIOL 1401 and 1402, or consent of instructor.

Lab times: **2A** Tue 920-1150a (Wildy), **2B** Tue 200-430p, **2C** Wed 240-510p, N. Science 313
Office Hours: Mon/Fri 230-430 pm, or by appointment
Office Location: South Science 303C, knock on South 303 door
Office Phone: 510-885-2367
Email (best way to contact me): james.murray@csueastbay.edu
Text: *Biology, 8th ed.*, by Campbell *et al.*, (2007), Benjamin Cummings
(ISBN: 978-0321543257 or 0321543254)

Course Websites:
Blackboard: [http://bb.csueastbay.edu/](http://bb.csueastbay.edu/) [syllabus, course announcements, study advice, class notes]

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**COURSE OBJECTIVES**

To familiarize you with the biology of animals including issues in evolution, functional morphology, physiology, and ecology. Specifically, during this course, you will learn about:
- Understand the basic classification of animals
- Understand the form and function of animals and animal-like microorganisms (protists)
- Understand the workings of invertebrate and vertebrate biological systems
- Understand biology as it relates to the Earth's environment

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**REQUIRED TEXTS/MATERIALS**

3) *i-Clicker Classroom Response System* (for interactive participation in class)
4) *Scantron form* (Green, 100 questions)
5) *composition book* for taking notes in lab (not spiral bound, glued, or loose-leaf)
Recommended: **Essential Study Skills for Science Students**, Daniel D. Chiras. Brooks/Cole Pub Co (October, 1999) ISBN: 0534375952. It only costs $2 (or 1 cent used) and has a lot of excellent info on how to study effectively.

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**BLACKBOARD**

I will be using this online website program and email to post important information. Therefore, it would be to your advantage to check this and your CSUEB email daily for any new updates. Course information, including announcements, instructor information, and other relevant information will be posted on Blackboard which can be accessed via the web at: [http://bb.csueastbay.edu/](http://bb.csueastbay.edu/). You will be required to enter your username and password.

**GRADING:** Your grade in the course will be determined by your performance on assignments and exams in both the lecture (60%) and laboratory (40%) sections of the course. **Note! You will not be able to pass this course unless you pass BOTH the lecture and the lab** (i.e. you have to pass each portion with no less than 60% of the possible points). You can earn up to a total of 300 pts in the class. The general point breakdown is shown below:

<table>
<thead>
<tr>
<th>LECTURE POINT BREAKDOWN</th>
<th>LAB POINT BREAKDOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lecture Exams:</strong> 105 pts (500-pt. midterm; 750-pt. final)</td>
<td><strong>Lab Exams &amp; Quizzes:</strong> 100 pts</td>
</tr>
<tr>
<td><strong>Quizzes:</strong> 700 pts</td>
<td><strong>Pillbug Assignment:</strong> 10 pts</td>
</tr>
<tr>
<td><strong>Attendance:</strong> multiply % attendance by total lab pts</td>
<td><strong>Osmoregulation Papers:</strong> 60 pts</td>
</tr>
<tr>
<td><strong>TOTAL PTS:</strong> 180 pts</td>
<td><strong>Lab participation/Notebook:</strong> 20 pts</td>
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<td></td>
<td><strong>TOTAL PTS:</strong> 120 pts</td>
</tr>
</tbody>
</table>

**LECTURE POINTS:**

- **Quizzes:** There will be a total of eight quizzes given throughout the quarter but the scores for seven will count (see the lecture schedule below for specific dates). Each quiz is worth 10 pts but your lowest quiz score will be dropped. So your quizzes will ultimately account for a total of 70 potential pts. If you miss a quiz, you will be assigned a “0” for that quiz and that score will serve as your lowest quiz score. Quizzes will be given at the given at the beginning of class on Fridays, will be in multiple choice format, and
will involve material covered since the previous quiz. Note: Students not present by the time the last quiz is given out will not be allowed to take the quiz.

- **Exams**: Because of the size of the class, both the midterm and final exams will primarily consist of multiple choice questions. However, it is possible that other question formats including matching, fill-in-the-blanks, definitions and especially short/long essays. The dates of the exams are listed on the lecture schedule. **THERE WILL BE NO MAKEUPS FOR EITHER THE MIDTERM OR THE FINAL EXAM!** If you miss an exam, you will receive a "0" for that exam.

- **Participation**: I will be using interactive software (i-Clicker) in my PowerPoint lectures which is designed to allow you participate in lecture discussions using your clickers (see “Required Materials” above). Students who are not regularly participating in these interactive periods will not receive participation points. You may use only one clicker (see Academic Dishonesty policy).

**LABORATORY RESPONSIBILITIES:**

Your performance in lab will be worth 40% (120 pts) of your total course grade. For more information regarding the assignments and point breakdown for your lab grade, please see above. Attendance in lab each week is mandatory.

If you want to chart your progress as the quarter progresses, you may use the following formula to determine the % of course points you have earned at any given time:

\[
\left(\frac{\text{# of points received}}{\text{total # points potentially earned}}\right) \times 100\%
\]

**IMPORTANT NOTES REGARDING THE COURSE**

1) I have a No-Tolerance policy for cheating, plagiarizing or other forms of academic dishonesty. If I discover evidence of academic dishonesty, I will assign you an “F” (i.e., 0 pts) for that assignment/exam. Furthermore, additional punitive action such as academic record notation (lasting for five years or until you graduate), suspension, or expulsion may be taken by the Student Disciplinary Officer and the Office of the Vice President of Student Affairs. For more information regarding forms of academic honesty and/or the University’s (and thus my) policies and procedures regarding this issue, you can check out the online catalog at: [http://www.csueastbay.edu/ecat/current/i-120grading.html#section12](http://www.csueastbay.edu/ecat/current/i-120grading.html#section12)

2) Lecture slides and Student Learning Objectives are available on Blackboard, usually before class. All lectures will be recorded on Blackboard.
3) **Classroom courtesy:** It is inappropriate and discourteous to bring into class any device that emits an audible sound, such as a cellular phone or pager. If you carry a phone or pager, please turn it to silent mode. I’ll try to remind everyone, including myself, to silence our devices at the beginning of each class. Please take your seat in class before class starts, but if you must arrive late, please sit at the back of the room and make as little disturbance as possible.

4) **Disabilities:** We will provide reasonable accommodations for physical or learning disabilities. Please register with student services and notify me as early as possible (first week of class).

5) **Office hours and study habits:** Please come visit during my office hours. Feel free to stop by to chat, or to clarify something from class or the reading materials. Sometimes students do not seek help until after they have performed poorly on an exam, so I encourage you to visit with me early and often. Please realize that we are here to help you, not to trip you up with tough exams. We all have the same goal—for students to learn and master the foundations of biology. But it can be hard for us to help, unless we know you need help. To find out if you need help, please ask questions in class, by email, or Blackboard. Form study groups and study together regularly. Take online quizzes and do questions at the end of each chapter. If you make these efforts, you will greatly benefit. It is important in your future professions to become ‘active learners’. This means that you take responsibility for your own learning and actively seek out the knowledge you require. Our class is large, but please do not accept "not understanding"! If you don't understand, don't think that you are the only one who did not get it, and be embarrassed to ask a question. It is my pleasure (and my paid responsibility) to HELP you understand. Class time is most productive and enjoyable when it is a two-way communication between teachers and students.

6) **About the exams:** All lecture quizzes and exams will stress the lecture material. Readings are designed to expand and deepen understanding, and it is unlikely that you will do well without reading the assigned text information. You can read the text in detail after the lecture presentation on the topic, however, the most successful students will have read the text on the lecture topic before it is presented, using the text after class to help clarify questions. For all exams & quizzes, be sure to bring a #2 or softer pencil and a scantron that is free of tears and creases. A non-programmable calculator may be used during exams unless contrary instructions are given. Do **not** use cellular phones, pagers, or other devices that emit an audible sound on the day of the exam (keep them silenced, in your backpack, on the floor).

7) **Harassment:** Sexual harassment or any other illegal or obnoxious personal behavior will not be tolerated. I expect all of us to behave as professionals. Please see me if you experience problems with fellows students or other faculty or staff. Please contact me if you perceive any problems with my behavior, but if you would rather, you can contact the department chairperson, Prof. Mike Hedrick in the Biological Sciences office.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic(s)</th>
<th>Text Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wk 0</td>
<td>9/22</td>
<td>What is Biology?; Biological Classification</td>
<td>pp. 1-17; 536-544; 551-553, pp.18-24</td>
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<td></td>
<td>9/24</td>
<td>The Scientific Method</td>
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<td></td>
<td>A Closer Look at Evolution and Natural Selection</td>
<td>pp. 452-471 Ch22; 479-484</td>
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<td>Introduction to Protists; Animal-like Protists</td>
<td>pp. 575-597 of Ch. 28</td>
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<td></td>
<td>An Introduction to Kingdom Animalia</td>
<td>pp. 654-664 of Ch. 32</td>
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<td>10/4</td>
<td>The Shape of Life &amp; Diversity</td>
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<td>10/6</td>
<td>Introduction to Animal Organ Systems</td>
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<td></td>
<td>10/8*</td>
<td>The Invertebrates: Porifera and Cnidaria</td>
<td>pp. 852-858 of Ch. 40</td>
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<td></td>
<td>pp. 666-673 of Ch. 33</td>
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<td></td>
<td>10/11</td>
<td>The Invertebrates: Platyhelminthes, Annelida</td>
<td>pp. 674-676; 680-682</td>
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<td>10/13</td>
<td>The Invertebrates: Phylum Mollusca</td>
<td>pp. 677-680</td>
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<td>10/15*</td>
<td>The Invertebrates: Phylum Arthropoda</td>
<td>pp. 684-692</td>
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<td></td>
<td>10/18</td>
<td>Phyla Nematoda &amp; Echinodermata</td>
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<td>10/20</td>
<td>Phylum Chordata: invertebrate Chordata</td>
<td>pp. 683-684; 693-695</td>
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<td>Vertebrate Evolution; Fishes &amp; Amphibians</td>
<td>pp. 698-703 of Ch. 34</td>
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<td>pp. 704-713</td>
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<td></td>
<td>10/25</td>
<td>Amniota: Reptiles, Birds &amp; Mammals</td>
<td>pp. 713-727</td>
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<td>10/27</td>
<td>Asexual &amp; Sexual Reproduction</td>
<td>pp. 997-1006 of Ch. 46</td>
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<td>10/29</td>
<td><strong>MIDTERM EXAM</strong></td>
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<tr>
<td></td>
<td>11/1</td>
<td>Nutrition &amp; Digestion I</td>
<td>pp. 875-896</td>
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<td>11/3</td>
<td>Nutrition &amp; Digestion II</td>
<td>pp. 875-896</td>
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<tr>
<td></td>
<td></td>
<td>Catch Up</td>
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<td></td>
<td>11/8</td>
<td>Circulation &amp; Respiration I</td>
<td>pp. 898-927</td>
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<tr>
<td></td>
<td>11/10</td>
<td>Circulation &amp; Respiration II</td>
<td>pp. 898-927</td>
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<td></td>
<td></td>
<td>Osmoregulation &amp; Excretion</td>
<td>pp. 954-972</td>
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<td></td>
<td>11/15</td>
<td>Nervous Systems; Sensory Mechanisms I</td>
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<tr>
<td></td>
<td>11/17</td>
<td>Nervous Systems; Sensory Mechanisms II</td>
<td>pp.1047-1091</td>
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<td></td>
<td>Animals &amp; Hormones</td>
<td>pp.1047-1091</td>
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<td>pp. 975-994</td>
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<td></td>
<td>11/22</td>
<td>Introduction to Ecology</td>
<td>pp.1148-1171</td>
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<td></td>
<td>11/24</td>
<td>Population Ecology</td>
<td>pp.1174-1195</td>
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<td><strong>Thanksgiving Break - NO CLASS</strong></td>
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<td></td>
<td>11/29</td>
<td>Community Ecology</td>
<td>pp.1198-1219</td>
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<tr>
<td></td>
<td>12/1</td>
<td>Ecosystem/Global Ecology</td>
<td>pp.1222-1242</td>
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<tr>
<td></td>
<td>12/3*</td>
<td>Catch up/Review</td>
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</tbody>
</table>
**DECEMBER 6th (Monday) - FINAL EXAM 2:00 pm to 3:50 pm**

*Indicates the dates of quizzes (quizzes will be given at the beginning of the lecture period).

TENTATIVE LAB SCHEDULE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>LAB MANUAL</th>
<th>ASSIGNMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Sep 28-29)</td>
<td>Pillbug experiments; Scientific Method &amp; Scientific Papers</td>
<td>Handouts on BB</td>
<td>Evaluate/grade a lab report.</td>
</tr>
<tr>
<td>2</td>
<td>Protista, Porifera, Cnidaria</td>
<td>Ex. 26</td>
<td>Pillbug paper analysis <strong>due</strong></td>
</tr>
<tr>
<td>3</td>
<td>Platyhelminthes, Annelida</td>
<td>Ex. 27</td>
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<tr>
<td>4</td>
<td><em>Nereis</em> osmoregulation experiment</td>
<td>Ex. 28</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Mollusca</td>
<td>Ex. 28</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; draft <em>Nereis</em> osmoregulation paper <strong>due</strong></td>
</tr>
<tr>
<td>6</td>
<td>Arthropoda, Nematoda,</td>
<td>Ex. 29</td>
<td>Lab practical #1</td>
</tr>
<tr>
<td>7</td>
<td>Echinodermata, Intro to chordates</td>
<td>Ex. 30</td>
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</tr>
<tr>
<td>8</td>
<td>Chordata - Comparative vertebrate digestive &amp; excretory systems</td>
<td>Ex. 34-36</td>
<td>Final draft <em>Nereis</em> osmoregulation paper <strong>due</strong></td>
</tr>
<tr>
<td>9</td>
<td>Chordata - Comparative vertebrate cardio-vascular &amp; respiratory systems</td>
<td>Ex. 34-36</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Lab practical exam</td>
<td></td>
<td>Lab practical #2</td>
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</tbody>
</table>

Your lab instructors will give you additional information in lab about lab assignments. At the beginning of lab on random days, there will be a lab quiz on material covered in the previous lab period. There will be no make-ups given for lab quizzes. Students absent or arriving late will not be allowed to take the quiz and will receive a zero. Furthermore, you may only attend the lab section in which you are registered (contact the instructor as soon as you know you will be late or will miss lab!). Students with documented medical reasons for missing lab must present documentation to the lab instructor within one week of a missed lab.

Each student is required to purchase and bring to lab every week a copy of the lab manual and a separate notebook (used only for this lab class; composition-type notebook with sewn-in pages, not spiral bound or loose-leaf). You will be given
assignments in lab to write in your lab notebook, which will be checked for completeness in each class.

The overall objectives for laboratory are:
  - To apply the knowledge from lecture with real organisms
  - To learn how to handle animal and tissue in a laboratory setting
  - To learn and apply the scientific method
  - To learn how to analyze data
  - To learn how to effectively communicate scientific results
  - To stimulate scientific curiosity
  - To provide a basis of skills for future lab courses in biology
Biology 1402 Winter 2011

Instructor: Professor Chris Baysdorfer
Office and Office Hours: North Science 402, MF 2:40-4:10pm or by appointment
Telephone and Email: 510-885-3459, chris.baysdorfer@csueastbay.edu
Text: Campbell, Biology, 8th Edition.

Grading: 

<table>
<thead>
<tr>
<th></th>
<th>Exams (160 pts each)</th>
<th>320 points</th>
<th>2 out of 3 exams counted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes (15 pts each)</td>
<td>300 points</td>
<td>20 out of 23 quizzes counted</td>
<td></td>
</tr>
<tr>
<td>Paper</td>
<td>100 points</td>
<td></td>
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<tr>
<td>Laboratory</td>
<td>280 points</td>
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</tr>
<tr>
<td>Total</td>
<td>1000 points</td>
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</tbody>
</table>

Grades: 

96-100% = A Note: The scores of the top 3 students are averaged and this average is the 100% mark for the class
92-95% = A-
88-91% = B+
84-87% = B
80-83% = B- and so on

BlackBoard: Blackboard is used for course notices and documents and for submission of your review paper.

eXams: Each exam contains 40 fill-ins and short answer questions, four essay questions, and four "Plant of the Day" question sets. The last two exams are comprehensive. The highest two exams (out of three) are counted towards your grade.

Quizzes: A ten-minute quiz is given in the middle of the class period. Each quiz has five fill-in/short answer questions and one short essay question based on the reading assignment for that day. The highest 20 quizzes (out of 23) are counted towards your grade.

Paper: This is a five-page, double-spaced, review or "translation" of a scientific article. You need to email me the name (and journal information) of your article by January 21st and turn in the paper by Feb 25th. Late penalties are 25% per day. You will have a 15 minute verbal "defense" of your paper with your lab instructor; this is a required part of the assignment. The defense will occur during the last two weeks of class and will be scheduled in advance. The article that you review must have been published in December 2010 or later. A list of acceptable journals is posted on Blackboard. The paper and the scientific article must be submitted electronically via Blackboard.

Policy on Make-ups: Since you can discard the lowest exam and 3 quizzes, there are no make-ups.

Policy on Cheating: See the academic dishonesty section of the 2010-2011 catalog for University policy on the definition and handling of cheating. My automatic and non-reversible response to verified cheating is filing an Academic Dishonesty Incident Report and assignment of a course grade of F.

Course Objectives: Explained on the first day of class.
## Assigned Reading Schedule

<table>
<thead>
<tr>
<th>DATE</th>
<th>READINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 3</td>
<td>Course Introduction</td>
</tr>
<tr>
<td>Jan 5*</td>
<td>Chap 24 Origin of Species pp 487-498</td>
</tr>
<tr>
<td>Jan 7*</td>
<td>Chap 24 Origin of Species pp 498-504</td>
</tr>
<tr>
<td>Jan 10*</td>
<td>Chap 23 Evolution of Populations pp 468-471, 475-484</td>
</tr>
<tr>
<td>Jan 12*</td>
<td>Chap 25 History of Life on Earth pp 507-519</td>
</tr>
<tr>
<td>Jan 14*</td>
<td>Chap 25 History of Life on Earth pp 519-531</td>
</tr>
<tr>
<td>Jan 17</td>
<td>HOLIDAY</td>
</tr>
<tr>
<td>Jan 19*</td>
<td>Chap 26 Phylogeny and the Tree of Life pp 536-548</td>
</tr>
<tr>
<td>Jan 21*</td>
<td>Chap 26 Phylogeny and the Tree of Life pp 548-553</td>
</tr>
<tr>
<td>Jan 24*</td>
<td>Chap 27 Bacteria and Archaea pp556-560, 565-573</td>
</tr>
<tr>
<td>Jan 26*</td>
<td>Chap 28 Protists 575-579, 590-592</td>
</tr>
<tr>
<td>Jan 28</td>
<td>FIRST MIDTERM</td>
</tr>
<tr>
<td>Jan 31</td>
<td>Chap 29 Plant Diversity I pp 600-606</td>
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<tr>
<td>Feb 2*</td>
<td>Chap 29 Plant Diversity I pp 606-615</td>
</tr>
<tr>
<td>Feb 4*</td>
<td>Chap 30 Plant Diversity II pp618-625</td>
</tr>
<tr>
<td>Feb 7*</td>
<td>Chap 30 Plant Diversity II pp625-634</td>
</tr>
<tr>
<td>Feb 9*</td>
<td>Chap 35 Plant Structure, Growth and Development pp 738-750</td>
</tr>
<tr>
<td>Feb 11*</td>
<td>Chap 35 Plant Structure, Growth and Development pp 751-761</td>
</tr>
<tr>
<td>Feb 14*</td>
<td>Chap 36 Resource Acquisition and Transport in Vascular Plants pp 764-772</td>
</tr>
<tr>
<td>Feb 16*</td>
<td>Chap 36 Resource Acquisition and Transport in Vascular Plants pp 772-782</td>
</tr>
<tr>
<td>Feb 18</td>
<td>SECOND MIDTERM</td>
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<tr>
<td>Feb 21</td>
<td>Chap 10 Photosynthesis pp 185-194</td>
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<tr>
<td>Feb 23*</td>
<td>Chap 10 Photosynthesis pp 194-203</td>
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<tr>
<td>Feb 25*</td>
<td>Chap 37 Soil and Plant Nutrition pp 785-792</td>
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<tr>
<td>Feb 28*</td>
<td>Chap 37 Soil and Plant Nutrition pp 792-797 and carnivorous plant article is blackboard</td>
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<tr>
<td>Mar 2*</td>
<td>Chap 38 Angiosperm Reproduction and Biotechnology pp 801-811</td>
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<tr>
<td>Mar 4*</td>
<td>Chap 38 Angiosperm Reproduction and Biotechnology pp 812-819</td>
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<tr>
<td>Mar 7*</td>
<td>Chap 39 Plant Responses to Internal and External Signals pp 821-835</td>
</tr>
<tr>
<td>Mar 9*</td>
<td>Chap 39 Plant Responses to Internal and External Signals pp 835-847</td>
</tr>
<tr>
<td>Mar 11</td>
<td>POSTER SESSION</td>
</tr>
<tr>
<td>Mar 16</td>
<td>FINAL EXAM (2-4pm)</td>
</tr>
</tbody>
</table>

* quiz on this day
Biology 1402 Labs A, B, C and D – Winter 2011

Grading: Successful Completion of Experiments and Notebook 80 points
          Final 100 points
          Special Project and Poster 100 points

Note: You do not receive a separate grade for the lab. Your lab points are combined with lecture points to determine your overall grade.

Notebooks – Laboratory reports need to be written in a bound notebook.

For each experiment (where appropriate) include the following:
Introduction – Brief description of the objectives of the experiment.
Methods – An overview of the materials and procedures involved in the experiment.
Results – The results of the experiment in a tabular or descriptive summary form.
Conclusion – The conclusion of the experiment should contain a description of any problems that you encountered and how they may have affected the experiment, a discussion of the biological process that was studied and how the results extend our knowledge of that process.
Attendance – Taken at the start of the lab. You can make up one lab without penalty; any additional absence will result in a deduction of 40 pts.

Blackboard and the Lab Manual - A brief description of the experiment and the procedures to be followed will be posted on blackboard the preceding Friday. It is your responsibility to print and bring this information to the lab.

Special Project: The experiments for the special project will be done during lab time or outside of lab time, as appropriate. You will work in groups of two. Potential topics will be outlined at the start of the quarter and you should select a topic by the 3rd week of class (Jan 17-21). You will be graded on the “quality” of your results so chose your topic carefully and do the work well.
Poster Session: The poster session for your special project will be on March 11th from 1:20-2:30. You need to be there in order to receive credit for this assignment.

Week of          Experiments
Jan 3-7         Introduction to the lab
                Horticulture – Planting seeds or bulbs
                Plant Biotechnology – Tomato Tissue Culture I – seed germination
Jan 10-14       Plant Biotechnology – Tomato Tissue Culture II – sterile culture
                Plants and Medicine – Antibiotics in Plants I – extraction and assays
Jan 17-21       Human Evolution – Genetic Diversity I – DNA isolation, PCR
                Plants and Medicine – Antibiotics in Plants II – data analysis
Jan 24-28       Human Evolution – Genetic Diversity II – Restriction Digestions, Agarose gel electrophoresis
                Plant Biotechnology – Tomato Tissue Culture III - subculturing
Jan 31- Feb 4   Human Evolution – Genetic Diversity III –data analysis
                Plant Anatomy – Cell Types and Tissues – Microscopy I
                Work on Special Project
Feb 7-11        Plant Anatomy – Cell Types and Tissues – Microscopy II
                Plants and Toxicology – DNA isolation, PCR
                Work on Special Project
Feb 14-18       Plants and Toxicology – Agarose gel electrophoresis
                Plant Diversity – Native California Plants
                Work on Special Project
Feb 21-25       Plants and Toxicology – data analysis
                Plant Diversity – Common Bay Area Plants
                Work on Special Project
Feb 28- Mar 4   Plant Diversity – Field Trip
                Plant Biotechnology – Tomato Tissue Culture IV – data analysis
Mar 7-11        Horticulture – bring your plant to class
                Lab Final
Mar 11          Poster Session 1:20-2:30
Biology 1401
Cell and Molecular Biology
Fall 2010

Dr. Maria Nieto
Office: NS 113; 885-4757
Email: maria.nieto@csueastbay.edu
Office Hours: T 1:50-2:20, W 1:00-3:00, Th 1:50-2:20, or by appointment

Reading Material: All assigned reading is meant to serve as supplementary reading to foster deeper understanding of lecture material.

Text - Biology by Campbell and Reece, Eighth Edition

Articles – Web Links to relevant articles and videos have been included herein, and are listed in the class outline alongside correlating subject headings.

Grading:

<table>
<thead>
<tr>
<th>Grading</th>
<th>Quiz #1</th>
<th>10%</th>
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<tbody>
<tr>
<td></td>
<td>Quiz #2</td>
<td>10%</td>
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<tr>
<td></td>
<td>Midterm</td>
<td>30%</td>
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<tr>
<td></td>
<td>Final</td>
<td>30%</td>
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<tr>
<td></td>
<td>Lab</td>
<td>20%</td>
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</tbody>
</table>

A Rough Grade distribution is as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>F</td>
<td>0-59</td>
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<tr>
<td>D</td>
<td>60-66</td>
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<tr>
<td>D+</td>
<td>67-69</td>
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<tr>
<td>C-</td>
<td>70-73</td>
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<tr>
<td>C</td>
<td>74-76</td>
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<tr>
<td>C+</td>
<td>77-79</td>
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<tr>
<td>A-</td>
<td>90-93</td>
</tr>
<tr>
<td>A</td>
<td>94-100</td>
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</tbody>
</table>

The format of the exams and quizzes will consist of Multiple Choice, True and False, and Short Answer questions. Although you will have to regurgitate some information, success in the class will depend upon understanding the material rather than simply memorizing it.

The Final Exam will be comprehensive. With regard to the material presented up to the Midterm, you will only be tested on a portion of this material, primarily big picture concepts. I will provide focus points for the Midterm material you will be responsible for ahead of time.
Class Outline

Sep.23
Introduction
Selected Topics in Chemistry

http://www.forensicmag.com/article/tracing-unidentified-skeletons-using-stable-isotopes?page=0.0

28
Carbohydrates and Lipids


30
Proteins and Nucleic Acids

http://www.youtube.com/watch?v=lijQ3a8yUYQ

Oct. 5-7
A Tour of the Cell
Cellular Membranes
Metabolism and Enzymes
Cell Cycle and Cell Division

http://www.youtube.com/watch?v=v3FsB_lygpU&feature=related
http://www.youtube.com/watch?v=4gLtk8Yc1Zc
http://www.ornl.gov/sci/techresources/Human_Genome/posters/chromosome/chooser.shtml

14
Molecular Basis of Inheritance

http://www.youtube.com/watch?v=teV62zrm2P0

19
Gene to Protein

http://www.youtube.com/watch?v=WsofH466lgk&feature=related
http://www.youtube.com/watch?v=5bLEDd-PSTQ&feature=related
Quiz #1

21
Gene Regulation-Prokaryote

http://www.pbs.org/wgbh/nova/sciencenow/3411/02.html

26
Gene Regulation-Eukaryote

28
Cell Communication/Signal Trans.

Nov.2
Midterm

4
Viruses and More
http://www.youtube.com/watch?v=Rpj0emEGShQ

9 Cell and Molecular Techniques pp 396-425

11 Holiday
16 Meiosis and Development pp 248-261; 655;
1008-1009
http://www.nytimes.com/2008/02/24/opinion/24shubin.html?_r=1


18 Catch-Up
Quiz #2

23 Human Genetics pp 262-285

25 Holiday
30 Chromosomal Basis of Inheritance pp 286-304
Dec.2 Cellular Energy pp 162-184
7 Final @ 12:00
1401 Laboratory '10

Grading: The laboratory grade will be worth 20% of your course grade. The breakdown of the 20% will be as follows:

- 2 quizzes each worth 35%
- Lab Participation 30%

Protocols for the laboratory exercises will be posted on Blackboard.

Outline

Jan. 4-6 No Lab
Jan. 11-13 Math Lab - Solutions
Jan. 18-20 No Lab
Jan. 25-27 Sugar Digestion
Feb. 1-3 Transformation
Feb. 8-10 Transformation Lab Analysis
     Protein Purification/Quiz #1
Feb. 15-17 Protein Purification Continued
Feb. 22-24 DNA Quantification
     Crime Scene DNA Analysis
Mar. 1-3 Gel Electrophoresis
     Gel Analysis
Mar. 8-10 Quiz #2