NSCI 102 INTRODUCTION TO LIVING SYSTEMS
Spring 2013

Required texts and material:
- Internet Access
- Aplia Biology + Global Environment Watch: 1 Semester Custom Edition for CSU, Chico. Access code is included through the purchase of the textbook.
- NSCI 102 Concepts of Biology Laboratory Manual – (available at the Omicron coffee table 2nd floor of Holt Hall– in front of the Mountain Lion and next to Room 246) - $15 CASH only
- Course Dedicated Notebook for Lab (preferably a lined Composition Book)

Our Purpose:
Welcome to this class! The intent of NSCI 102 is to help you become more familiar with life on earth and to gain a greater appreciation of the biological processes that surround your daily lives. We also want to introduce you to the underpinning of biological research - the scientific method of investigation that has guided us to our current state of knowledge about biological systems.

Most importantly, we want you to have FUN participating in this course; incite your sense of wonder of your surroundings while at the same time helping you develop your critical thinking skills.

The goal of this course is to provide you with a greater understanding of the major themes. We have divided the course content into three major themes: Ecology and Ecosystems, Human Disease (cell/molecular processes) and Evolution. Each of these major themes will be presented in the same format that consists of three components that are tightly integrated.

The first component will be online Aplia homework and online quizzes which is linked to readings from the required text. You will access the online material using Blackboard Learn through the University Portal site. Additionally, there will be a link provided to the Aplia site where you will login using your access code provided with your textbook. There will be a weekly 10-point quiz that will accompany the weekly Aplia material and it will be administered online through Blackboard Learn. The quiz content will cover lecture material as well as text readings and lab material. It is an open-book quiz but you will also need to go through all of the weekly material (Textbook, Aplia, Discussion, and Lab) before taking the quizzes.

The second important component of the course is the Activity which follows the three major themes of the course. Each theme will culminate with a presentation prepared by you and a team of collaborators that provides you with the opportunity to synthesize across all of the major concepts that are presented in that particular theme. The lecture and text readings are designed to enhance the laboratory. Many of us learn better by doing and the lab/activity experience will provide you with the
opportunity to formulate hypotheses, conduct scientific investigations, and gain experience in presenting and writing up your results.

- **The third component is the Discussion** that accompanies each weekly online component/lab sequence. Discussion attendance provides the bridge between the other components. Discussion will be led by faculty and will provide you with the opportunity to learn more about the week’s concepts and introduce you to the upcoming lab/activity. This will be a chance to learn more about the topics and ask questions.

**This course is a GE Foundation Course and is part of the Sustainability Pathway:**
In this course, the student will meet three of the GE student learning outcomes.
1. **Active Inquiry** is met through scientific investigation during laboratory activities. Written and oral reports will be prepared and presented for each theme.
2. **Mathematical Reasoning** is met through statistical analysis of data collected from scientific investigation during laboratory activities.
3. **Sustainability** is met through the study of population, community and ecosystem ecology as it pertains to the biosphere, and human influence thereon. Each student will prepare their own ecological footprint, and the results will be compiled and presented during discussion.

**GRADING AND POINTS**
- Your grade in NSCI 102 is determined on the basis of performance on:
  1) Online quizzes and Aplia homework
  2) Exams
  3) Discussion assignments
  4) Laboratory activities.
- Your Laboratory instructor will monitor your lab performance, and your Discussion leader will monitor your lecture and discussion performance.
- There are **three lecture exams** based on material covered through online quizzes, Aplia assignments, discussion topics, readings AND labs – one exam for each of the three themes. The exams are not cumulative; however the information does build on previous material. The exams will take place during your specific discussion period for the first two exams and during the assigned time for the final for the third exam. **Tests will be multiple choice.**
- If you are unable to take a lecture exam because of a serious reason (serious illness, death in family, etc) you may take a makeup exam only
  a) IF you have a documented serious and compelling reason AND
  b) IF you contact your Discussion leader within a week of the exam AND
  c) Arrange to take the exam also within the week of the exam. Otherwise you will receive a 0. Makeup exams are not necessarily the same in content or format as the scheduled exam.
- Laboratories are important to your understanding biology – and your grade. Attendance is monitored. **FAILURE TO ATTEND LAB REGULARLY (MORE THAN 2 ABSENCES) WILL RESULT IN AN AUTOMATIC “F” REGARDLESS OF YOUR GRADES.** See the lab manual and your laboratory instructor for lab policy.
• Discussion attendance will be monitored and is crucial to achieving high marks for the course. If you are unable to attend your Discussion you should attempt to visit another Discussion section **during the week** that you missed. You should let your Discussion leader know that you have attended another Discussion for the one you missed in a particular week in order to keep accurate records of attendance and to be sure you are up to date on all pending assignments, quizzes, surveys and exams. Attending two discussions in one week **after** the week you missed WILL NOT HELP, you must attend a discussion during the week of the missed discussion. **FAILURE TO ATTEND DISCUSSION REGULARLY WILL RESULT IN POOR COURSE PERFORMANCE.**

• Each week’s Aplia material will be accompanied by an online quiz using Blackboard Learn.

• The quiz (worth 10 points) will cover the week’s Aplia material, discussion topic, reading, and current lab.

• Aplia homework and BlackBoard Learn quizzes will open by Monday at 6:00 am each week **preceding** the lecture topic and remain **open six days, closing at 11:00 pm for Aplia homework and midnight for Blackboard quizzes on the sixth day** (See quiz schedule on-line). Quizzes are open book and are instantly graded upon your submission of your responses. Quiz grades will automatically be entered into your record and you will be able to access the quiz later by clicking on the quiz grade in My Grades on Blackboard Learn **FOR REVIEW** (but ONLY if you take the quiz!). Blackboard quizzes will not be **REOPENED** for any reason. Do not even ask! However, Blackboard and computers malfunction occasionally, so if you email Professor Wittsell before 9:00 pm on Sunday during the quiz’s availability period he can **RESET** the attempt for you. Therefore, do not procrastinate! Do the quiz right after doing the week’s lab and Aplia homework. Aplia assignments cannot and will not be reopened!

**YOUR RESPONSIBILITIES**

• **Complete the Aplia homework in a timely manner.** Labs and Discussion build on the reading and Aplia material and if you fall behind in the online homework you will under-perform in the course.

• **Complete the online quizzes in a timely manner.** Take them at the same time as do the on-line Aplia homework.

• **Attend your lab section.** Your lab grade is important as it reflects the opportunity for you to gain hands-on experience with many of the concepts that are stressed in lecture. The labs are also based on many different components, all of which receive credit whereas the lecture grade is based on 3 exams. Your lab instructor also has the opportunity to interact with you and monitor your participation in lab activities – be sure your impression is positive rather than negative.

• **Attend your discussion section.** If you do not attend a discussion section you will be unprepared for the upcoming lab. It is assumed that you will be prepared (have read the lab and attended Discussion) before going to lab and thus lab instruction can be minimal. If you do not show up for lab prepared, you could easily get lost, make mistakes and cost your team of collaborators valuable time.
• **Do not hesitate to ask questions.** It is important that there be the multiple opportunities to ask questions - in the Discussion (before and after as well), in labs, via email and during faculty and lab instructor office hours. However, it is your responsibility to initiate the process. If you would like to question the grading structure of the course or your specific grade performance, contact the faculty in charge to reevaluate your entire performance on the task in question.

• **For online questions please contact Rick Wittsell:** rwittsell@csuchico.edu

• **For discussion & lab questions contact Darhl Whitlock** dwhitlock@csuchico.edu

We usually will get back to you within 24 hours on weekdays

• **If you want or need to drop the class,** you may do so for any reason during the first 2 weeks of the semester through Blackboard Learn and during the 3rd and 4th weeks by submitting a Change of Program (COP) form signed by your Discussion leader. After the 4th week, to drop a class, you must have a “serious and compelling” reason as defined by the University – see the University Catalogue or your advisor. (Reasons not considered serious and compelling include low grades, failure to attend class or take tests, dissatisfaction with course material, instructional method or instructor, difficulty of material, pressure of other classes or extracurricular activities!) The Department of Biological Sciences and the College of Natural Sciences interpret the “serious and compelling” rule strictly.

• **All University policies pertain to this course.** This course conforms and adheres to EM 08-40 Code of Student Rights and Responsibility

• **Americans with Disabilities Act:**

  If you need course adaptations or accommodations because of a disability or chronic illness or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see your instructor during office hours. Please also contact Disability Support Services (DSS) as they are the designated department responsible for approving and coordinating reasonable accommodations and services for students with disabilities. DSS will help you understand your rights and responsibilities under the Americans with Disabilities Act and provide you further assistance with requesting and arranging accommodations.”

The point structure below is intended as guidelines. You will accumulate points throughout the semester but ONLY AT THE END of the semester will they be converted to a grade.

**COURSE POINTS FOR GRADES:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>3 Lecture Exams (50 pts each)</td>
<td>150 points</td>
</tr>
<tr>
<td>BlackBoard Learn Quizzes (10 pts each)</td>
<td>150 points</td>
</tr>
<tr>
<td>Aplia Homework (10 points each)</td>
<td>150 points</td>
</tr>
<tr>
<td>Syllabus Quiz</td>
<td>20 pts</td>
</tr>
<tr>
<td>Ecological Footprint Survey</td>
<td>10 points</td>
</tr>
<tr>
<td>1 Lab Exit Survey</td>
<td>10 points</td>
</tr>
<tr>
<td>Laboratory (see below)</td>
<td>390 points</td>
</tr>
<tr>
<td>2 Exit Surveys (20 points each)</td>
<td>40 points</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>920 points</strong></td>
</tr>
</tbody>
</table>
Lab Point Breakdown:

- Project Presentations (3 X 50 each) 150 points
- Notebooks (3 X 50 each) 150 points
- Interactions Assignment 20 points
- Cytochrome Genetics homework 20 points
- Sex and the Single Guppy 20 points
- Lab Participation (2 points/day) 30 points

Total 390 points

Total points possible to earn in the class is 920 points.

Grades will be based on the percentage of total points acquired in the class out of 900 pts.

**GRADING SCALE**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>94%</td>
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<tr>
<td>A-</td>
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<tr>
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<tr>
<td>B</td>
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</tr>
<tr>
<td>B-</td>
<td>80%</td>
</tr>
<tr>
<td>C+</td>
<td>77%</td>
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<tr>
<td>C</td>
<td>74%</td>
</tr>
<tr>
<td>C-</td>
<td>70%</td>
</tr>
<tr>
<td>D+</td>
<td>67%</td>
</tr>
<tr>
<td>D</td>
<td>60%</td>
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</tbody>
</table>

NSCI 102 Introduction to Living Systems
Spring 2013

Student Learning Outcomes

By the end of each section students should be able to successfully accomplish each of the tasks listed below:

**I. Ecosystems and Ecology**

*Week One: Chapter 1 – Invitation to Biology and Introduction to the Scientific Method*

Pgs 2 – 21

1. Describe the importance of abiotic factors in patterns of ecological diversity.
2. Identify and describe the causes of global patterns in vegetation, the distribution of biomes and their general characteristics.
3. Identify how the interaction between climate and mountains influence vegetation patterns.
4. Describe causes of ecological diversity in aquatic systems.
5. Recognize patterns of ecological diversity at different scales and develop hypotheses as to what abiotic factors might cause the observed diversity patterns.

*Week Two: Chapter 42 – Ecosystems*

Pgs 708 – 721

6. Describe the biogeochemical cycles (carbon and nitrogen), explain the relevance and importance of these cycles in ecosystem processes and the affect humans have had on these cycles.
7. Explain the hydrologic cycle, explain its importance and relevance and human impacts.

8. Identify the causes of climate change, the current evidence that climate change is occurring and human influence.
**Week Three:** Chapter 41 – Community Ecology: Species Diversity, Ecosystems, and Food Webs

Pgs 690 – 707

9. Describe the relationship between trophic levels, food webs and energy flow. Students can identify and explain the importance if producers, consumers, decomposers, sunlight, and global patterns of productivity. Students will have a basic understanding of the structure and function of trophic levels and ecological food webs.

10. Distinguish the difference between niche and habitat, give examples. Students can provide examples of resource partitioning.

11. Describe how biotic interactions are important for ecological community patterns. They can define, identify and give examples of the following interactions: competition, predator/prey/, host/parasite, commensalism. Students can also distinguish between different types of mimicry and mutualism and their evolutionary basis.

**Week Four:** Chapters 41, 43, and 44 – Succession, Biosphere, and Human Effects on Biosphere

Pgs 700 – 704, 722 – 745, and 746 – 761

12. Define ecological community, and know the role of and distinguish the difference between ecological dominant and keystone species.

13. Know how to interpret measures of species diversity as a measure of community composition and distinguish the difference between three measures of biodiversity: species diversity, geographic diversity and genetic diversity.

14. Define disturbance, list/identify the characteristics of disturbance and the three key sources of disturbance. Students can also create hypotheses of the interaction between disturbance and community patterns based on the intermediate disturbance hypothesis.

15. Define succession and describe the causes and differences between primary and secondary succession. Students can interpret the results from the Hubbard Brook experiment testing the relationship between disturbance, succession and nutrients. Student can also describe how life histories characteristics reflect how different species respond to disturbance.

**Week Five:** Chapters 39 and 40 – Animal Behavior and Population Ecology

Pgs 664 – 667, and 672 – 689

16. Describe the difference between a community and a population. Students can explain the three things that are important for studying populations. Students can describe or identify the three basic types of population growth patterns, the role of carrying capacity.

17. Identify key life history characteristics that distinguish k-selected and r-selected species and explain how different life history strategies influence population growth patterns. Students can also describe how life history traits are related to successional patterns.

18. Describe the relationship between age distribution and a human population pyramid. Students can draw how human population size as changed in the recent past. Students can explain why human populations have experienced exponential
growth. Students can also describe what current population growth trends are, and why. Students can provide an explanation for the difference for population size and resource use per person.

II. Human Health Theme

Week Six: Chapters 2 and 3 – Life’s Chemical Basis and Molecules of Life
Pgs 22 – 50, and lab manual

1. Draw a crude molecular structure of DNA and explain how the structure of DNA enables DNA to store information.
2. List and describe the steps in gene expression, and use the genetic code to deduce the amino acid sequence of a protein from the gene or mRNA sequence.
3. Explain how enzymes are a subclass of proteins that catalyze biochemical reactions and how their action can lead to different phenotypes, such as alcohol intolerance.
4. Diagram a gene and explain the functions of the different parts of a gene, including non-transcribed regions such as promoters and introns, can describe the steps needed to turn DNA into protein, and can describe the basic properties of the human genome (number of genes, sizes of genes, 5 coding sequence in the genome).

Week Seven: Chapters 8, 11, 12, and 14 – DNA Structure and Function, Mitosis, and Meiosis, and Human Inheritance

5. Explain how the structure of DNA allows it to be copied, how DNA is packaged into chromosomes and how the process of mitosis and meiosis ensure that daughter cells and offspring get a complete copy of all of the DNA.
6. Determine from a picture of a karyotype the ploidy of the cell and whether there are any chromosomal abnormalities, and can explain why chromosomal abnormalities occur and what their consequences are.
7. Analyze a pedigree for a genetic disease and use genotypes and Punnett squares to determine the probability of future children inheriting the genetic disease.
8. Describe the common methods of genetic testing and can interpret test results.

Week Eight: Spring Break

Week Nine: Chapters 4 and 19 – Bacterial Cells and Viruses
Pgs 51 – 73, 297 – 310, and lab manual

9. Identify the groups of organisms within the “Domains” or “Kingdoms” of life on earth as either eukaryote or prokaryote and describe basic cellular differences between prokaryotes and eukaryotes.
10. Provide functions for prominent cell components, explain the steps in gene expression, define the term “enzyme” and explain the importance of 3-dimensional structure in enzyme function.
11. Describe with example how an antibiotic works. Use an example to explain how an antibiotic can be selective for prokaryote cells and provide an explanation for why it is difficult to find antibiotics that preferentially target viral pathogens.
12. Define the term “flora”, explain why pathogens naturally occurring on the human body may or may not inflict disease, and explain mechanisms through which pathogenic bacteria cause disease.
13. Describe a set of experiments that would lead to the identification of an unknown bacterial organism and characterize its susceptibility to antibiotics. Use results from experiments that characterize bacteria to identify them.

**Week Ten:** Chapters 9 and 29 – Protein Synthesis and Neurons

Pgs 136 – 149, 466 – 477, and lab manual

14. Define the terms “element”, “molecule”, “toxin”, “toxicant”, “MSDS”, “LD50”, “dose”, and “exposure”. Describe or identify or give examples of potential sources of toxins. Recognize polarity in a molecule and make predictions on water solubility for a molecule when presented with the molecular structure. Describe or identify potential paths of toxicant movement within the environment and food chain.

15. List or identify sites of toxicant absorption, metabolism, and excretion within the human body. Describe the metabolism and pathway of example toxicants within the environment and the human body. Using examples explain at the molecular level how toxicants disrupt normal cellular function.

16. Analyze toxicity test panels on human samples and use material safety data sheets and the Centers for Disease Control to assess risks from exposure and identify any health threatening toxins that match symptomology displayed by the test subject.

**Week Eleven:** Chapter 34 – Immunology

Pgs 557 – 577, and lab manual.

17. Explain the origin of mutations in DNA and how DNA proofreading and repair mechanisms work.

18. Describe with examples how toxicants can be eliminated from within the human body.

19. Describe or explain responses of the human immune system to viral and bacterial invaders.

***Evolution***

**Week Twelve:** Chapters 16 and 18 – How Life was Shaped and Life’s Origins

Pgs 236 – 255, and 282 – 295

1. Understand the important difference between “scientific theory” and the common vernacular use of the word “theory”.

2. Understand the evolutionary concept of “decent with modification” as the process by which living organisms undergo change through long periods of time.

3. Understand the concept of natural selection and that populations are the fundamental unit that evolves.

**Week Thirteen:** Chapter 17 – Means of Evolution: Micro versus Macroevolution

Pgs 256 – 281

4. Understand that populations evolve by changes in the frequency of genetic alleles present within the gene pool.

5. Know the difference between evolutionary fitness and “survival of the fittest” concept.


**Week Fourteen:** Chapter 23 – Animals: The Invertebrates

Pgs 342 – 375

7. Gain knowledge of the diversity of life: Bacteria, Archaea, Eu.
8. Understand the diversity and importance of plant species.
9. Understand the diversity and importance of animal species.
10. Understand the evolutionary development that led to modern species.

Week Fifteen: Chapter 24 – Animals: The Chordates
Pgs 376 – 393
11. Gain knowledge of the hypothetical abiotic origins of life, including the physical environmental conditions on early earth.
12. Gain knowledge of the Cambrian explosion of life, the movement of plants onto land followed by the animals.
13. Understand the evolutionary linage of humans.

Week Sixteen: Chapter 21 – Plant Evolution
Pgs 324 – 341
14. Understand the biological meaning of species.
15. Understand how new species arise and the processes of specialization and adaptive radiation.
16. Gain knowledge of the basics of biological taxonomy and the nature of species relationships.
<table>
<thead>
<tr>
<th>Week No</th>
<th>Week of</th>
<th>Lecture</th>
<th>Readings</th>
<th>Discussion and Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/28</td>
<td>Ch. 1 – Invitation to Biology and Introduction to the Scientific Method</td>
<td>Pgs 2 – 21</td>
<td>Lab 1: Introductions &amp; Scientific Method</td>
</tr>
<tr>
<td>2</td>
<td>2/4</td>
<td>Ch. 42 – Ecosystems- Online work</td>
<td>Pgs 708 – 721, 745, 761</td>
<td>No lab/ No Discussion</td>
</tr>
<tr>
<td>3</td>
<td>2/11</td>
<td>Ch. 41 – Community Ecology: Species Diversity, Ecosystem, and Food Webs</td>
<td>Pgs 690 – 707</td>
<td>Lab 3: Ecological Diversity</td>
</tr>
<tr>
<td>4</td>
<td>2/18</td>
<td>Ch. 41, 43, and 44 – Succession, Biosphere, and Human Effects on Biosphere</td>
<td>Pgs 700 – 704, 722 – 745, and 746 - 761</td>
<td>Lab 4: Plant succession &amp; disturbance</td>
</tr>
<tr>
<td>5</td>
<td>2/25</td>
<td>Ch. 39 and 40 – Animal Behavior and Population Ecology</td>
<td>Pgs 664 – 667, and 672 - 689</td>
<td>Ecology Theme Presentations and papers</td>
</tr>
<tr>
<td>6</td>
<td>3/4</td>
<td>Ch. 2 and 3 – Life’s Chemical Basis and Molecules of Life</td>
<td>Pgs 22 – 50, and lab manual</td>
<td>DISCUSSION EXAM 1 Lab Notebooks Due Lab 5A: Alcohol dehydrogenase; Lab 6A: Human Flora</td>
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<tr>
<td>7</td>
<td>3/11</td>
<td>Ch. 8, 11, 12, and 14 – DNA Structure and Function, Mitosis, and Meiosis</td>
<td>Pgs 123 – 136, 162 – 187, 202 – 216, and lab manual</td>
<td>Lab 5B: Alcohol dehydrogenase; Lab 6B: Human Flora</td>
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<tr>
<td>8</td>
<td>3/18</td>
<td>Spring Break</td>
<td></td>
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<tr>
<td>9</td>
<td>3/25</td>
<td>Ch. 4 and 19 – Bacterial Cells and Viruses. Online references: <a href="http://www.jlindquist.net/generalmicro/102bactid.html">www.jlindquist.net/generalmicro/102bactid.html</a></td>
<td>Pgs 51 – 73, 297 – 310, and lab manual</td>
<td>Lab 6C: Human Flora Lab 7A: Toxicology Lab</td>
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<tr>
<td>10</td>
<td>4/1</td>
<td>Ch. 9 and 29 – Protein Synthesis and No Discussion or Lab this week</td>
<td>Pgs 136 – 149, 466 – 477, and lab manual</td>
<td>Lab 6D: Human Flora Lab 7B: Toxicology</td>
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<tr>
<td>11</td>
<td>4/8</td>
<td>Ch. 34 - Immunology</td>
<td>Pgs 557 - 577, and lab manual</td>
<td>Human Disease Theme Presentations and papers</td>
</tr>
<tr>
<td>12</td>
<td>4/15</td>
<td>DISCUSSION EXAM 2</td>
<td>Pgs 236 – 255, and 282 – 295</td>
<td>Lab 8 Dating Rocks Lab Notebooks Due</td>
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<tr>
<td>13</td>
<td>4/22</td>
<td>Ch. 17 – Means of Evolution: Micro versus Macroevolution</td>
<td>Pgs 256 – 281</td>
<td></td>
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<tr>
<td>14</td>
<td>4/29</td>
<td>Ch. 23 – Animals: The Invertebrates</td>
<td>Pgs 324 – 341</td>
<td>Lab 9: Simulating Natural Selection</td>
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<tr>
<td>15</td>
<td>5/6</td>
<td>Ch. 24 – Animals: The Chordates</td>
<td>Pgs 376 – 393</td>
<td>Lab 11: Investigating Common Descent</td>
</tr>
<tr>
<td>16</td>
<td>5/13</td>
<td>Ch. 21 – Plant Evolution</td>
<td>Pgs 342 – 375</td>
<td>Presentations and papers Lab Notebooks Due</td>
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*Final Exam: TBA; **2/22 Drop w/o special permission
<table>
<thead>
<tr>
<th>Lab Period</th>
<th>Theme</th>
<th>Week of</th>
<th>Topic</th>
<th>Other</th>
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<tr>
<td>1</td>
<td>Ecology</td>
<td>1/28</td>
<td>Lab 1: Project Assignment, Scientific Method; Eco-Regions Homework,</td>
<td>Student Safety Contract Project Assign</td>
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<tr>
<td>2</td>
<td>Ecology</td>
<td>2/4</td>
<td>Lab 2: Abiotic Factors and Ecosystems</td>
<td>Outline Due</td>
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<tr>
<td>3</td>
<td>Ecology</td>
<td>2/11</td>
<td>Lab 3A: Ecological Diversity</td>
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<td>Lab 3B: Biotic interactions: Oaks Gall Wasps</td>
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<tr>
<td>4</td>
<td>Ecology</td>
<td>2/18</td>
<td>Lab 4: Plant succession &amp; disturbance</td>
<td>Outline Returned</td>
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<tr>
<td>5</td>
<td>Ecology</td>
<td>2/25</td>
<td>Project Presentations</td>
<td>Peer and Group Review</td>
</tr>
<tr>
<td>6</td>
<td>Cell/Molec</td>
<td>3/4</td>
<td>Lab 5A: Alcohol dehydrogenase; Lab 6A: Human Flora</td>
<td>Notebooks Due Project Assign</td>
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<tr>
<td>7</td>
<td>Cell/Molec</td>
<td>3/11</td>
<td>Lab 5B: Alcohol dehydrogenase</td>
<td>Outline Due</td>
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<tr>
<td>8</td>
<td>Spring Break</td>
<td>3/18</td>
<td>Enjoy!</td>
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<tr>
<td>9</td>
<td>Cell/Molec</td>
<td>3/25</td>
<td>Lab 6C: Bacterial characterization</td>
<td>Outline Returned</td>
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<tr>
<td>10</td>
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<td>No Labs this week</td>
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<td>Cell/Molec</td>
<td>4/8</td>
<td>Project Presentations</td>
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<td>12</td>
<td>Evolution</td>
<td>4/15</td>
<td>Lab 8: Varves: Dating Sedimentary Strata</td>
<td>Peer and Group Review</td>
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<tr>
<td>13</td>
<td>Evolution</td>
<td>4/22</td>
<td>Lab 9: Simulating Natural Selection</td>
<td>Notebooks Due Project Assign</td>
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<tr>
<td>14</td>
<td>Evolution</td>
<td>4/29</td>
<td>Lab 10: Classification - teams</td>
<td>Outline Due</td>
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<tr>
<td>15</td>
<td>Evolution</td>
<td>5/6</td>
<td>Lab 11: Investigating Common Descent</td>
<td>Outline Returned</td>
</tr>
<tr>
<td>16</td>
<td>Evolution</td>
<td>5/13</td>
<td>Project Presentations</td>
<td>Notebooks Due</td>
</tr>
</tbody>
</table>