

**BIO 10: Introduction to Principles of Biology  
Section 8314**

**INSTRUCTOR:** Albert Carranza

**Office Hours:**

Monday and Wednesday: 4:30-5:30PM or by appointment

**Office:** Baker Hall Room 1869A

**E-mail:** [acarranza@santarosa.edu](mailto:acarranza@santarosa.edu)

**LECTURE :**

Lark Room 2004

Monday - Thursday

5:30 - 7:25 PM

**LAB INSTRUCTION:**

Baker Hall Room 1869

Monday and Wednesday

7:30 - 10:30 PM

**TEXTS:**

Simon, Reece & Dickey, 2014

*Campbell Essential Biology with Physiology*, 5th Ed.

ISBN 9780321967671

Reserve copy available in the Doyle Library, please have a current student identification card and the following information:

CALL NUMBER: QH308.2 .C344 2013

BAR CODE: 33155005952802

Bio 10 Laboratory Manual Santa Rosa Campus available at bookstore and through Amazon:

ISBN **978-1505541076**

**COURSE DESCRIPTION:**

Introductory course in biology including: scientific method, ecology, bio diversity, physiology and anatomy, chemistry of life, cell and molecular biology,

Transfer Credit: CSU; UC.

Recommended: Eligibility for ENGL 100 or ESL 100.

**Objectives:**

Upon completion of this course, student will be able to:

1. Apply the steps in the scientific method to problem solving in biological investigation.
2. Apply laboratory techniques, including proper microscope use, to observing and experimenting with biological phenomena.
3. Describe the role of biotic and/or abiotic factors to structuring biomes, ecosystems, communities, and populations, and how humans interact with these systems.
4. Correlate the structure and function of plant and animal organ systems, organs, tissues and cells.
5. Compare and contrast the cell structure and function of prokaryotic and eukaryotic cells and of plant and animal cells.
6. Show the relationships between the structure of atoms, molecules, biological polymers, and their significance to structure and function of cells, physiology, genetics, and evolution.
7. Integrate knowledge of molecular genetics, inheritance, and cell division (mitosis and meiosis), and apply these to evolutionary biology.
8. Synthesize knowledge of the mechanisms of evolution, adaptation, and speciation.
9. Recognize major evolutionary patterns and adaptations in the biodiversity of major taxa (domains, kingdoms, and phyla).
10. Describe the values, themes, methods, and history of the discipline and relate them to a course of study in the major.

**Objectives:**

Upon completion of this course, student will be able to:

1. Apply the scientific method to biological investigation.
2. Apply laboratory techniques, including proper microscope use, to observing and experimenting with biological phenomena.
3. Describe the role of biotic and/or abiotic factors to structuring biomes, ecosystems, communities, and populations, and how humans interact with these systems.
4. Correlate the structure and function of plant and animal organ systems, organs, tissues and cells.
5. Compare and contrast the cell structure and function of prokaryotic and eukaryotic cells and of plant and animal cells.
6. Explain the relationships between the structure of atoms, molecules, and biological polymers, and their significance to cells, physiology, genetics, and evolution.
7. Integrate knowledge of molecular genetics, inheritance, and cell division (mitosis and meiosis), and apply these to evolutionary biology.
8. Relate the mechanisms of evolution, adaptation, and speciation.
9. Recognize major evolutionary patterns and adaptations in the biodiversity of major taxa (domains, kingdoms, and phyla).
10. Describe the values, themes, methods, and history of biology and relate them to a course of study in the major.

**GRADING SYSTEM****EACH****TEST or ASSIGNMENT****TOTAL****Lab Exams:****300**

Concepts, Water, Enzymes

100 pts

Mitosis, Meiosis, Genetics, Evolution

100 pts

Protists, Fungi, Plants, Animals

100 pts

**Lecture Exams:****400**

Chemistry &amp; Cells

100 pts

Genetics

100 pts

Evolution

100 pts

Physiology

100 pts

**Final Exam:**100 pts **200**

Ecology

100 pts

Comprehensive

100 pts

**Assignments**

Taxonomy Quiz (on-line)

10 pts **10**

On-line Quizzes (9 required)

10 pts **90**

Evolution lab

30 pts **30**

|                            |        |             |
|----------------------------|--------|-------------|
| Pond water lab             | 30 pts | <b>30</b>   |
| Participation & Attendance |        | <b>100</b>  |
| <b>Semester Total:</b>     |        | <b>1160</b> |

Exam points are awarded as a percent of the highest score.

Final grades are calculated as a percent of the total possible points as follows:

|                |          |
|----------------|----------|
| <b>100-90%</b> | <b>A</b> |
| <b>89-80%</b>  | <b>B</b> |
| <b>79-70%</b>  | <b>C</b> |
| <b>69-60%</b>  | <b>D</b> |
| <b>59-0%</b>   | <b>F</b> |

## **EXPECTATIONS**

Attendance: Required. Tardiness or leaving early is disruptive to the class. Email me if you cannot attend due to illness or some other emergency. Missed classes and tardiness will affect your participation grade, as well as your exam performance. Repeated occurrences may result in your being dropped as per the SRJC policy.

### **DISTRICT POLICY ON ATTENDANCE:**

It shall be the policy of the Sonoma County Junior College District to maintain an attendance policy and procedures consistent with State and local requirements.

#### *1. Attendance*

- a. Students are expected to attend all sessions of the course in which they are enrolled.
- b. Any student with excessive absences may be dropped from the class.

#### *2. Excessive Absence Defined*

- a. A student may be dropped from any class when that student's absences exceed ten percent (10%) of the total hours of class time.
- b. Instructors shall state in each course syllabus what constitutes excessive absence for that course.

#### *3. Excused vs. Unexcused absences*

- a. Unless state or federal law requires that the absence be deemed excused, no

instructor shall be required to make a distinction between excused and unexcused absences.

b. If individual Instructors wish to distinguish between excused and unexcused absences the instructor shall state in each course syllabus all criteria for any excused absences in addition to those required by state or federal law.

#### *4. Nonattendance*

a. Students who fail to attend the first two class meetings of a full semester course, or the first class meeting for classes that meet once a week may be dropped by the instructor. For classes that meet online, students must log on and initiate participation by 11:59 p.m. of the third day from the official start date of the class.

b. Faculty are required to drop all No-Show students by the Census Date of each census course. A No-Show is an enrolled student who has not attended any class meeting of the course at any time, or who has not contacted the instructor to make arrangements to remain enrolled in the course. For classes that meet online, a No-Show is an enrolled student who has not logged on and initiated active participation by 11:59 p.m. of the third day from the official start date of the class.

**Lecture Exams:** There are NO makeup exams, however you may arrange to take a lecture exam in advance (adequate notice must be given).

**Lab Exams:** There are NO makeup Lab Exams. These are set up for all sections ONLY during the scheduled week.

Note! Anyone missing the FINAL EXAM (for any reason) may fail regardless of previous scores.

**Code of Conduct:** Please come to class prepared to learn and participate. Coming or going after class has started is disruptive. Students who disrupt the learning of others, may be asked to leave the classroom and may be disciplined. Inappropriate behavior, cheating, or plagiarism will not be tolerated. Those who cheat or plagiarize will be penalized points and may not receive credit for their assignment or they may receive disciplinary action that will result in an "F" in the course.

**Cell Phones:** PLEASE be sure they're turned off during class!

If you are having problems keeping up with class please come to see me before you get too far behind!

**Special Considerations:** If you have any special needs or concerns please do not hesitate to let me know. We will be working in a hands-on environment. therefore challenges may arise that do not generally come up in a lecture classroom. During labs close physical proximity and possible physical contact may occur (especially microscope labs). Please let me know if this makes you uncomfortable.

#### **Accommodations for Students with Disabilities**

If you need disability related accommodations for this class, such as a note taker, test taking services, special furniture, etc., please provide the Authorization for Academic Accommodations (AAA letter) from the Disability Resources Department (DRD) to the

instructor as soon as possible. You may also speak with the instructor privately during office hours about your accommodations.

### **Assignments:**

**Textbook Reading:** Read your text before coming to a lecture on that topic. This will help you understand the lectures and help you keep up with the pace. Read and learn thoroughly the pages in your text that refer directly to lecture material or study guide questions. Material not covered in either of these ways should be looked upon as reference material.

**Laboratory Material:** The Lab Manual is used to test lab concepts. Answer all questions carefully. Unless indicated, lab material may be helpful for lecture exams, but will not be directly tested. However most material will be covered in lab exams.

**On-line Quizzes:** The course Canvas page provides lessons, lecture notes and other study resources pertaining to each topic we cover in class. While these are mostly optional, you MUST complete 9 of the on-line quizzes by the end of the semester. Please note that each quiz closes after a certain date. Try to complete them as soon as we've covered material that the quiz pertains to. This will help you better prepare for exams. If you do not have reliable internet access at home, computers are available to you on campus.

I'm happy to help you complete this course requirement. Don't hesitate to let me know.

**Participation and Effort:** Ultimately your success in school (or a job) will result from your willingness to be actively engaged in your work. 100 points will be given for your active participation in lab and lecture. This includes: attentiveness, participation in group and individual exercises; attendance and staying until the end of class; and completion of laboratory preparation assignments or quizzes.

**Student Grievances:** All necessary forms for these procedures can be found on the college website at [http://www.santarosa.edu/for\\_students/rules-regulations/](http://www.santarosa.edu/for_students/rules-regulations/) and at the Student Affairs Office on either the Santa Rosa or Petaluma Campus.

### **In Case of Emergency...**

**Evacuation/Fire Alarm Sounding:** Audible alarm means exit the building. We will meet in the grass area between Lark and Baker Hall and I will take roll. DO NOT LEAVE the designated area before you have been accounted for.

**Earthquakes:** Take shelter under desk, table or door frame to protect yourself. After shaking stops – if there is damage – collect your belongings and evacuate the area. Again, we will meet in the pre-determined area and I will take roll.

**Power Outage:** If there is a power outage for longer than 10 minutes, we will evacuate the building and meet at our predetermined area. At this point we will attempt to locate another classroom with power to resume class.

**Reporting an Emergency:** Call the Junior College Police Dept. dispatch at 527-1000.

# Tentative Class Schedule

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| <b>Dates</b> | <b>Lecture Topics</b>                | <b>Text Chapter</b> | <b>Lab Topics</b>   |
|--------------|--------------------------------------|---------------------|---------------------|
| 17-Jun       | Levels of Biological Organization    | Chapter 1           | Biological Concepts |
| 18-Jun       | Essential Chemistry                  | Chapter 2           |                     |
| 19-Jun       | Molecules of life                    | Chapter 3           | Water               |
| 20-Jun       | Introduction to Cells and Microscopy | Chapter 4           |                     |
| 24-Jun       | Cell Structure & Function            | Chapter 4           | Enzymes             |
| 25-Jun       | Cellular Energy & Enzymes            | Chapter 5           |                     |
| 26-Jun       | Photosynthesis                       | Chapter 7           | Microscopes / Cells |
| 27-Jun       | Cellular Respiration                 | Chapter 6           |                     |
| 1-Jul        | Exam I: Cell & Chem                  |                     | Lab Exam 1          |
| 2-Jul        | Cell Reproduction                    | Chapter 8           |                     |
| 3-Jul        | Mendelian Genetics                   |                     | No lab              |
| 4-Jul        | Holiday No Classes                   | Chapter 9           |                     |
| 8-Jul        | Post-Mendelian Genetics              | Chapter 9           | Mitosis             |
| 9-Jul        | DNA Replication, Protein Synthesis   | Chapter 10          |                     |
| 10-Jul       | Exam 2: Genetics                     |                     | Meiosis             |
| 11-Jul       | Intro to Evolution                   | Chapter 13          |                     |
| 12-Jul       | Microevolution                       | Chapter 13          | Evolution           |
| 13-Jul       | Macroevolution                       | Chapter 14          |                     |
| 14-Jul       | Exam 3: Evolution                    |                     | Genetics            |
| 15-Jul       | Plant Tissues and function           | Chapters 16 & 28    |                     |

|        |  |            |            |
|--------|--|------------|------------|
| 22-Jul | Plant Nutrition                            | Chapter 29 | Lab Exam 2 |
| 23-Jul | Animal Diversity                           | Chapter 17 |            |
| 24-Jul | Animal Diversity                           | Chapter 17 | Protists   |
| 25-Jul | Animal: Nutrition/ Gas exchange            | Chapter 22 |            |
| 29-Jul | Human: Digestion, Circulation/Gas exchange | Chapter 23 | Plants     |
| 30-Jul | Exam 4: Physiology                         |            |            |
| 31-Jul | Climate and Terrestrial Biomes             | Chapter 18 | Animals    |
| 1-Aug  | Aquatic Biomes                             | Chapter 18 |            |
| 5-Aug  | Ecosystems                                 | Chapter 20 | Fungi      |
| 6-Aug  | Community Structure and Dynamics           | Chapter 20 |            |
| 7-Aug  | Population Ecology                         | Chapter 20 | Lab Exam 3 |
| 8-Aug  | Final Exam                                 | Chapter 19 |            |