**Reedley College**

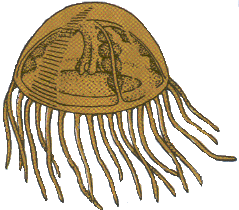
**Syllabus for Biology 3**

**Introduction to Life Science**

**Fall Semester, 2014**

**Instructor:**

Gary W. Potter (e-mail **gary.potter@reedleycollege.edu**), Please include **Biol. 3** in the subject line or I will not open your e-mail!



**Meeting Times:**

Lecture: Monday & Wednesday, 6:00 PM until 7:15PM.

Lab: Monday & Wednesday, 7:15 PM until 8:15 PM.

**Holidays: No Classes will meet.**

Monday, September 1, 2014: Labor Day holiday

Thursday, November 11, 2014: Veteran's Day (No classes held, campus closed)

Thursday & Friday, November 27 & 28, 2014: Thanksgiving holidays.

**Exam Dates**:

**Exam # 1:** Monday, September 15, 2014

**Exam # 2:** Monday, October 13, 2014

**Exam # 3:** Monday, November 10, 2014

**Exam # 4:** Monday, December 8, 2014

**Other Important Dates:**

Last day to drop a Fall, 2014, full-length class to avoid a “W”: August 31, 2014.

Last day to add a Fall, 2014, class: August 31, 2014.

Last day to drop a Fall, 2014, full-length class (letter grades will be assigned after this date.): October 10, 2014.

Fall semester ends: December 12, 2014.

**Course Description:**

**Biology 3** is recommended for the non-biological science and pre-education majors. This is an introductory course using biological concepts. The organismal structure, function, inheritance, evolution, and ecology are covered. Field trips may be required.

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

**A.** understand the process of scientific method, microscopy, and the cell.

**B**. identify levels of organization from the cell to the organismal level. Identify human organ systems structure and function.

**C**. evaluate scientific literature and current biological achievements.

**D.** assess the role of human ecology, earth resources, and limitations.

**E.** learn nature through the study of plants structure, functions, and process such as photosynthesis

**F.** apply the principles of genetics to humans and understand the outcome of reading DNA.

**G.** classify and evaluate the wide range of living organisms and their place on earth.

**H.** understand the chemical basis of life.

**I.** identify life from an evolutionary approach.

**J**. understand the chemical and energy relationships at all levels of biological organization.

**Course Objectives:**

In the process of completing this course, students will:

**A**. read, analyze, evaluate, and discuss Scientific Method, Microscopy, The cell, and Levels of Organization.

**B.** learn the periodic table of the elements and chemistry of the carbon atom and chemical structure of living organisms.

**C**. read appropriate scientific literature on classification.

**D.** learn the cell’s structure, function, and organization of living organisms

**E.** observe and document the structure and function of the human body by examining the organ systems: reproduction, respiration, circulation, excretion, and digestion.

**F.** review classical and molecular genetics and learn the process of replication, transcription, and translation.

**G.** perform experiments, observe, and record data.

**H.** learn plant structure, physiology, and interaction including photosynthesis and aerobic respiration.

**I.** study evolution.

**J.** observe chemical and energy relationships.

**Accommodations for students with disabilities:** If you have a verified need for an academic accommodation or materials in alternate media (*i.e.,* Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

**Required Materials:**

**1. Textbook:** Mader, Sylvia S., Essentials of Biology, 2nd edition (2010), McGraw-Hill

Companies Inc.

**2.** Notebook or three ring binder for note taking..

**3.** **Recommended Text:** Sierra Nevada Natural History, revised ed. Storer, T., Usinger, R., & Lukas, D., Univ. of California Press. 2004.

**4.** Biology Drawing Paper & pencil, for lab plates.

**5.** Camera – for field trips/photo essay project

**Expectations:**

**A.** You are expected to attend all class sessions. Two or more absences from laboratory

periods and four absences from lecture periods may very likely put you in jeopardy of

failing. Unless there are extenuating circumstances, such absences may also get you

dropped from the course.

**B.** You are responsible for finding out what you missed and for making up missed work due

to absence.

**C.** Cheating and plagiarism will not be tolerated. Students caught cheating will receive a

zero for that assignment, quiz, or test. Cooperative learning is limited to working in

groups during labs.

**D.** Assignments are expected to be turned in on time. In case of absence, I will be accept

late papers up to two class meetings after the due date, with a grade deduction of 10% per

per each class meeting that it is late.

**E.** Guests are not allowed in class!

**Grading:** Your grade will be determined by using an accumulative point total of all laboratory reports, quizzes, and exams. Quizzes and Lab Reports are worth 10 points each, the written exams are worth 100 points each. Each exam will consist of a combination of multiple choice and short answer essay questions. Laboratory practical exams will be given from time to time and will consist of ten to fifteen stations worth 2 points each. Two makeup quizzes will be given. Your score on the makeup quizzes will be used to makeup a missed quiz or to replace the score of a quiz on which you scored lower than on the makeup quiz. No low quiz will be thrown out! **Extra credit will be limited to a few bonus questions on tests and an occasional special quiz or assignment. Extra credit will not be given for any other work!**  At the end of the semester, your accumulated point total will be divided by the total number of points possible to determine your percentage grade. Your final letter grade will be determined using the following grading scale:

 **90% to 100% = A**

**80% to 89.9% = B**

**70% to 79.9% = C**

**60% to 69.9% = D**

**0% to 59.9% = F**

**Grades will not be rounded! 89.99999999% is a B+ not an A-!**

**Projects:** More details on each of these will be presented later.

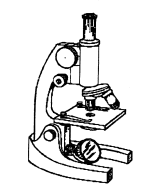
**1. Pollination Project:** Design a plant with pollination type and seed dispersal.

**2. Plant Collection Project:** Collect and identify each of the major groups of plants

**3. Photo Essay Project:** Demonstrate Sierra Nevada ecological communities with a photo display of Grasslands, Foothill Woodland (Savannah), Chaparral, Yellow Pine Forest,

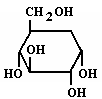
and Riparian habitats with indicator species of each.

**Week Lecture & Lab. Topics. Reading**

 **1 Lectures:** Review the Syllabus; Biological Methods and Concepts. **Ch. 1**

**Lab. 1:** What is life? Observation and Interpretation.

**Lab. 2:** Scientific method.

 **2**  **Lectures:** Introduction to chemistry. **Ch. 2** **Lab. 3:** Diagramming of atoms.

**Lab. 4:** Use of the compound microscope.

**3 Lectures:**  Biochemistry, The Organic Molecules of Life **Ch. 3**

**Lab. 5:** Chemical tests for basic organic food groups.

 **4 Lectures:** Biochemistry, continued.

Cell structure, function  **Ch. 4**

**Lab. 6:** Cell structure, onion skin, cheek cells, Anacharis leaf.

**5 Lectures:** Cell reproduction **Ch. 8**

**Lab. 7:** Mitosis

**Test# 1:** **Monday, September 15, 2014: Biological methods, chemistry, cells**

 **6 Lectures:** Cellular respiration, fermentation **Ch. 6**

Photosynthesis **Ch. 7**

**Lab. 6:** Photosynthesis & Pigment chromatography

**Lab. 7**: Respiration

**7 Lecture:** DNA & RNA structure and function. **Ch. 11**

Protein Synthesis

**Lab. 8:** DNA & Protein synthesis worksheet.

**8 Lecture:** Meiosis and Mendelian Genetics & **Ch. 8** Human Genetics **Ch. 10**

**Lab. 9:** Genetics Lab., Genetics problems & Human Genetics **Ch. 13**

**9 Lecture:** Evolution, Microevolution & Macroevolution **Ch. 15**

Classification, Systematics, & Taxonomy **Ch. 16** **Lab. 10:** Microevolution lab.

**Test # 2: Monday, October 13, 2014:** **Photosynthesis, Respiration, Genetics, & Evolution**



**10 Lecture:** The First Forms of Life, Viruses, Prokaryotes & Protists **Ch. 17**

Plants & Fungi  **Ch. 18**

**Lab. 11:** The Plants & Fungi;Introduction to **The Plant Collection Project**

**Lab. 12: Pollination Project.** Film: "Sexual Encounters of the Floral Kind."



**11 Lecture:** Plant anatomy & Physiology **Ch. 20 & 21**

**Lab. 14:** Plant morphology & Anatomy

**12 Lecture:** The Animal; Kingdom. **Ch. 19**

**Lab. 15:** AnimalTaxonomy Lab.

**13 Lecture:** Human & Animal Structure & Function **Ch. 22 through 29**

**Lab. 16:** Human & Animal Tissues, Organs & Systems

**Test # 3: Exam # 3: Monday, November 10, 2014:**  **Protista, Fungi, Plants, & Animals**

**14 Monday, November 17, 2014: Pollination Project Presentations**

**Lecture:** Human Systemscontinued  **Ch. 22 through 29**

**15 Lecture:** Ecology of Populations **Ch. 30**

**Lab. 17:** Population Ecology

**Plant Collections Due: Monday, December 1, 2014**



**16 Lecture:** Communities & Ecosystems **Ch. 31**

**Lab. 18:** Ecosystems & Biomes

**17 Lecture:** Human Impact onEcosystems **Ch. 32**

**Monday, December 1, 2014: Photo Essay Project Due**

**Review for lecture final exam**

**18 Exam # 4: Monday, December 8, 2014:** Ecosystems, biomes, communities, animal behavior, & Human populations.

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