

La Costa Canyon Course Profile

Biology

➤ **10 credits**

➤ **Meets UC/CSU “d” Laboratory Science**

Course at a Glance

Level of Difficulty	Time Required Outside of the Classroom	Recommended Prerequisites
<input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Difficult <input type="checkbox"/> Very Difficult	2-3 hours per week* * This is a general guideline for planning and scheduling purposes. A student’s ability level may affect the actual preparation time needed to be successful.	Successful completion of Algebra I with a C or better Concurrent enrollment in Geometry or higher level math class Successful completion of 8th grade Physical Science with a C or better

Course Description

Biology is a one-year course taught in accordance with the California State Biology Standards, fulfilling the life science requirement for graduation from the San Dieguito Union High School District. Biology utilizes laboratories, lectures, demonstrations, textbooks, and visual aides to support students’ understanding of biology. Emphasis is placed on laboratory work using scientific methodology and research. Biology is the science of life. Topics for biology include:

- Cellular Biology
- Genetics
- Ecology
- Evolution
- Physiology

Student Background Skills

Biology is a course which involves concrete concepts and requires a good foundation in study skills, observation skills, and the Scientific Method. To make sure you are prepared for Biology at La Costa Canyon High School there are three recommended areas in which you should be competent:

- Mathematics
- Study Skills
- Skills Set
- Technology

Mathematics

In order to increase success in Biology is it **strongly recommended** each student be proficient with the following mathematical topics:

- Add, subtract, multiply and divide fractions
- Calculate a percentage
- Calculate a mean from a set of data (average)
- Perform calculations involving surface area of an object.
- Perform calculations involving volume of an object (square or rectangle)
- Convert numbers within the metric system
- Add, subtract, multiply, and divide rational numbers **without** a calculator

Study Skills

Students are expected to have the following *study skills*:

- The ability to comprehend and find information within a science textbook.
- The ability to organize and use a notebook for referencing notes and laboratory reports.
- The ability to record notes from a science textbook or information presented in a discussion/lecture.
- The ability to use other resources to assist in gathering content information, such as the Internet, other textbooks, tutoring, etc.
- The ability to seek help when unable to understand content or materials presented or read in class, without prompting from the instructor.

Skill Sets

Students are expected to have the following *skill sets*:

- Create and interpret graphs (X-Y Scatter Plots and Frequency Distributions).
- Be able to follow a sequential set of directions in either verbal or written form.
- Be able to be a self-starter when given an assignment to complete.
- Be able to communicate the logical connection among hypothesis, science concepts, tests conducted, data collected, and conclusions drawn from scientific evidence.

Technology

To further enhance the experience in Biology, technology is used. Students should be able to perform the following tasks:

- The ability to operate and interpret an electronic balance and calculator.
- The ability to use a word processing program (Microsoft Word, Microsoft Works, WordPerfect, etc.) to type an assignment.
- The ability to embed graphs and tables into a word processing program.
- The ability to use the Internet to read, compose, and send e-mails.
- The ability to attach a document to an e-mail.
- The ability to scan a document using a document scanner.
- The ability to use an Internet Browser (Internet Explorer, Mozilla, Opera, etc.) to navigate the World Wide Web.

Sample Mathematical Problems

Students planning on entering Biology should be able to solve the following types of mathematical problems.

Calculate the following:

1. $\frac{3}{4} + \frac{3}{4} = ?$

2. $\frac{2}{3} - \frac{1}{2} = ?$

3. $\frac{1}{2} \times \frac{1}{4} = ?$

4. $\frac{2}{3} \div \frac{1}{4} = ?$

5. Given the set of values, what is the mean (average)?

Length of Hair (cm)

14

20

18

22

23

6. Barbara performs a study to determine the frequency of rats that choose to go left around a corner rather than right. If Barbara records 10 out of 25 rats choose to go left, what is the percentage?
7. What is the volume of a cube with a side equal to 10 cm?
8. How many centimeters are in 10.5 meters?
9. Calculate the surface area of a cube that is 3 cm in height.
10. Solve the following **without** a calculator:
- $45 + 18 + 16 = ?$
 - $2345 - 1862 = ?$
 - $23 \times 64 = ?$
 - $2000 \div 50 = ?$

Answer Key for sample biology math problems

1. $\frac{6}{4} = 1\frac{2}{3}$ or 1.66
2. $\frac{1}{6}$ or 0.167
3. $\frac{1}{8}$ or 0.125
4. $\frac{8}{3}$ or 2.67
5. 19.4
6. 40%
7. 1000 cm³
8. 1050 cm
9. 54 cm²
10. Without a calculator!
 - a. 79
 - b. 483
 - c. 1472
 - d. 40