Scientific Discovery and Development

Course Overview and Syllabus

Grade level: 9–12

Prerequisite Courses: None

Credits: 0.5

Course Description

Scientific Discovery and Development is a semester-long high school course that explores the history of clinical laboratory science, learning how clinical laboratories evolved and became professionalized, and how scientific discoveries and breakthroughs fueled the development of the laboratory while the sub-disciplines in biology were advancing. Students learn about the circulatory system and about microbiology and the subfields within it. Cells and tissues, cell division and basic genetics is also addressed. This course covers the three major areas in bioresearch: biotechnology, nanotechnology, and pharmaceutical research and development. More than two dozen career fields are explored along the way including laboratory techs, phlebotomists, and pathologist assistants. Students learn what is necessary in the areas of education and credentialing with an idea of the job outlook and salaries.

Course Objectives

Throughout the course, you will meet the following goals:

- Discover the history of clinical laboratory science, how clinical laboratories evolved, and how scientific discovery fueled the development of the laboratory
- Examine immunology and the blood-bank system
- Learn about the circulatory system, microbiology and its subfields
- Explore cells and tissues, cell division and basic genetics
- Explain the philosophy of science and the scientific method
- Learn the difference between basic and applied research
- Review three major areas in bioresearch: biotechnology, nanotechnology, and pharmaceutical research and development
- Research social science and its interdisciplinary nature
- Discuss the controversial issues of embryonic stem-cell research and the problems raised by outsourcing clinical research
- Evaluate various career paths in science

Student Expectations

This course requires the same level of commitment from you as a traditional classroom course. Throughout the course, you are expected to spend approximately 5–7 hours per week online on:

- Interactive lessons that include a mixture of videos, readings, and tasks
- Assignments in which you apply and extend learning in each lesson
- Assessments, including quizzes, tests, and cumulative exams

Communication

Your teacher will communicate with you regularly through discussions, email, chat, and system announcements. You will also communicate with classmates, either via online tools or face to face, as you collaborate on projects, ask and answer questions in your peer group, and develop your speaking and listening skills.

Grading Policy

You will be graded on the work you do online and the work you submit electronically to your teacher. The weighting for each category of graded activity is listed below.

Grading Category	Weight
Lesson Quizzes	20%
Unit Tests	20%
Cumulative Exams	20%
Assignments	10%
Projects	30%
Additional	0%

Scope and Sequence

When you log into Edgenuity, you can view the entire course map—an interactive scope and sequence of all topics you will study. The units of study are summarized below:

Unit 1: Introduction to Laboratory Science
Unit 2: Clinical Laboratory Careers
Unit 3: Tissues and Cells
Unit 4: Research and Development
Unit 5: Research and Development, Part II