

Science

Conceptual Physics

Grade Level: 9

Prerequisites: Science in Grade 8 or 9

Course Duration: Two Semesters

Subject Area in which graduation credit is given:

Science

COURSE DESCRIPTION

In this course we will review basic chemistry concepts and understand the physics of a chemical reaction. We will also become familiar with what happens to substances on a molecular level under various conditions. (For example: during heating and cooling)

We will also study the physics of motion. We will study forces and motion, machines and mechanics. We will focus on electricity and how to produce it and build circuits. During the entire class we will use the Solar Car as a context for our learning. While we will not work on the car in class we will do several experiments with the car. We will also be using our knowledge to make a model solar car.

BASIC TEXTS AND TEACHING GUIDES

Conceptual Physics - Paul G. Hewitt Prentice Hall

Biology

Grade Level: 10

Prerequisites: Science in Grade 9

Course Duration: Two Semesters

Subject Area in which graduation credit is given:

Science

COURSE DESCRIPTION

In this course the main topics we will study are biochemistry, cellular biology, genetics and ecology. This study will begin with how the food you eat turns into you and how proteins are made and regulated by your DNA. We will focus on what makes up a cell and the mechanisms of cellular physiology. We will spend most of our time learning genetics by using modern lab methods to test DNA and make many copies of DNA. We will also focus on how living things are interconnected in an ecosystem by studying the cycling of carbon, nitrogen, and other elements.

College Preparatory Course

BASIC TEXTS AND TEACHING GUIDES

NIH curriculum and supplements will be the primary texts. Many other periodicals and interactive texts and web sites will be used as well.

Chemistry

Grade Level: 11

Prerequisites: Science in Grade 10

Course Duration: Two Semesters

Subject Area in which graduation credit is given:

Science

COURSE DESCRIPTION

This course will teach atomic structure, properties of elements, chemical naming, and the proper writing of chemical equations and what powerful information is contained in a balanced chemical equation, chemical bonding, types of chemical reactions, solutions, equilibrium, electrolytes, and acids and bases. Quantitative Analysis will include learning to use the mole, stoichiometry and solution concentration.

College Preparatory Course

BASIC TEXTS AND TEACHING GUIDES

Modern Chemistry - Holt

Anatomy and Physiology

Grade Level: 11-12

Prerequisites: Science in Grade 10

Course Duration: Two Semesters

Subject Area in which graduation credit is given:

Science

COURSE DESCRIPTION

This course is on study of Anatomy and how organs, tissues and cells function to carry out a balance in the body. Topics covered in the class are: Body Organization, The Cell, Skin, Blood, Heart And Circulation, Immunity, Respiration, Bones And Skeletal Muscles. The Nervous System, Eyes, Ears, Reproduction, Genetics, Digestion, Urinary System, Hormones And Diabetes.

College Preparatory Course - Students can register to receive COCC credit for this class BI 121 and 122

BASIC TEXTS AND TEACHING GUIDES

Professors Notes

Interactive Websites and Google Body

Aquatic Biology

Grade Level: 9-12

Prerequisites: Science in Grade 10

Course Duration: Two Semesters

Subject Area in which graduation credit is given:
Science

COURSE DESCRIPTION

The study of Ecosystems involving fresh water includes rivers, streams, lakes, ponds and wetlands. Local labs will inventory species and investigate their role in these environments. Marine ecosystems studied will include the intertidal zone of the Pacific Coast, estuaries, the kelp forest, deep sea and coral reefs. The class includes a field trip to the Oregon Coast interacting with real marine biology research and local biologists studying the hydrology of rivers and fish species.

College Preparatory Course

BASIC TEXTS AND TEACHING GUIDES

Online resources and labs are used as resources for this class

Forensic Science

Grade Level: 9-12

Prerequisites: Science in Grade 10

Course Duration: Two Semesters

Subject Area in which graduation credit is given:

Science

COURSE DESCRIPTION

The class is designed around authentic performance assessments with students working in teams to solve crimes using scientific knowledge and reasoning. It involves all areas of science including biology, anatomy, chemistry, physics, with an emphasis in complex reasoning and critical thinking. In addition, students must incorporate the use of technology, communication skills, language arts, mathematics and psychology.

In partnership with law enforcement personnel, students are trained in the techniques of crime scene investigation. Techniques using ballistic analysis, fingerprinting, PCR techniques and DNA analysis are all taught and used to solve simulated crimes in the curriculum.

College Preparatory Course

BASIC TEXTS AND TEACHING GUIDES

Many online resources are utilized for this quickly evolving science.