

**SCIENCE DEPARTMENT**  
Course Descriptions

**Conceptual Physics**

*Required: Grade 9*

Conceptual physics is a laboratory science course with an emphasis on the scientific method and the fundamental principles of physics. This course is designed to provide students with a foundation for further study in biology, chemistry, and the advanced science courses. Topics to be covered include: basic science skills, Newton's laws, linear motion, momentum, work, and energy. Students will apply algebraic skills to problem solving throughout the course.

**Biology**

*Prerequisite: Grade 10 or school approval*

The Biology course is considered essential at Lutheran High School. This course allows the student to examine, survey, and understand the magnitude and complexity of God's creation - His creation of each person as well as their surroundings. Topics include: cell development, levels of organization, vertebrates, invertebrates, botany, genetics, anatomy, physiology, and ecology. The course attempts to give the students an understanding of the interrelations of life systems, and their impact on the Christian.

**Astronomy**

*Prerequisite: Biology*

Astronomy is a one-semester course designed to provide students with an overview of the physical laws governing celestial bodies and their motion. Skills developed in this course include: reading star charts and locating objects in the sky, making measurements, and understanding the design of telescopes. Topics of study include a brief history of astronomy; the motion of Earth and moon; the origin of the universe as seen from both secular and Christian scientists; light and stars; telescopes; and comets, asteroids, and meteorites. This is a conceptual course; however, various equations and principles of both physics and chemistry are utilized to better understand the topics covered.

**Chemistry I**

*Prerequisite: C or better in Biology, C or better in Algebra 2 or be in Algebra 2*

Provides the student with knowledge of the fundamental principles of chemistry with an emphasis on the scientific method, matter and measurements, states of matter, atomic structure, chemical periodicity, chemical bonding, chemical reactions, the mole, stoichiometry, and gases. Throughout the course, students will learn proper laboratory procedures emphasizing proper techniques following safety protocols.

## **Chemistry II**

*Prerequisite: B or better in Chemistry I and Algebra II*

Provides the student with knowledge of the fundamental principles of chemistry with an emphasis on mixtures and solutions, energy and chemical change, reaction rates, equilibrium, acids and bases, redox reactions, hydrocarbons, biochemistry, and nuclear chemistry. This course is designed for the serious chemistry student who is willing to build on the concepts learned in Chemistry I. Students will employ their critical thinking skills in scenario and inquiry-based laboratory activities.

## **Advanced Physics**

*Missouri Baptist PHYS131/133 \*DC\*(4 cr) \*H\**

*Prerequisite: C or better in Algebra II or Adv. Algebra II*

A study of the relationship between energy and matter with emphasis on problem solving involving mathematical principles. Mechanics, and sound are studied and supported with laboratory work.

## **Anatomy & Physiology**

*Lindenwood BIO10700 \*DC\*(3 cr) \*H\**

*Prerequisite: B or better in Biology and B or better in Chemistry or instructor permission*

The Anatomy & Physiology course at Lutheran High School is designed to build on the foundation of knowledge that student's acquired in their first year of Biology and Chemistry in dealing with the human body. Students may be admitted to the class with the instructor's approval if the first 2 prerequisites are not met. The class will cover a number of human body systems. Students will not only be required to learn the different parts of those systems (Anatomy), but they will also be required to explain how the systems work (Physiology).