

## **Science (30 credits required)**

### **Advanced Biology**

**Science Elective**  
**10 credits      5 each semester**

**Recommended Prerequisite(s)**      **Integrated 3, Biology,**  
**Physiology/Chemistry**

#### **Course Description:**

This class is a detailed extension of biology. This class uses more of a research/discussion format. Specific areas of discussion include microorganisms - viruses, bacteria, protozoa, algae, and fungi; invertebrates - sponges, flatworms, roundworms, mollusks, annelids, arthropods, insects, and echinoderms; vertebrates - fishes, amphibians, reptiles, birds, and mammals. This class also includes units on ecology cell structure, genetics, and evolution. This class is currently set up for seniors.

### **Astronomy**

**Science Elective**  
**5 credits**  
**Recommended prerequisite(s): Algebra I**

#### **Course Description:**

This class is the descriptive study of the solar system, stars, and galactic system, including theories of the origin of the universe and solar system.

### **Biology**

**Science Requirement**  
**Credits - 10      5 each semester**  
**Recommended Prerequisite(s)**      **Integrated Science**  
**Course Description:**

This class is a general introduction into the field of life sciences. This class generally uses a lecture /discussion format. Areas that are discussed include cellular structure, genetics, evolution, microbiology, plants, invertebrates, and vertebrates. This class is currently set up for sophomores or freshmen.

### **Chemistry**

**Science Elective**  
**10 credits      5 each semester**  
**Recommended Prerequisite(s)**      **Algebra II, Integrated Science, Biology or**  
**approval of instructor**  
**Course Description:**

Chemistry is a lab-based college-preparatory science course. Content of this class includes history of chemistry, atomic theory, molecular structure, stoichiometry, nomenclature, acid/base interactions, and gas laws. Calculating concentrations, and lab techniques/safety. This course is intended for juniors, but open to everyone with sufficient mathematics background.

### **Conceptual Physics**

**Science Elective**  
**10 credits      5 each semester**  
**Recommended Prerequisite(s)**      **Algebra I**

### **Course Description:**

Applied physics is a conceptual approach to learning physics. The course content includes classic kinematics, gravity, friction, momentum, work, power, thermodynamics, sound, light, and optics. The contents are addressed through various labs that allow the students to experience physics along with doing the calculations. This class is open to any student with ample math background. (Successful in algebra 1 and taking algebra 11)

### **Ecology**

**Science Elective**  
**10 credits      5 credits each semester**  
**Recommended prerequisite(s):**  
**Course Description:**

Ecology is the study of the factors that influence the distribution and abundance of animal populations. It includes looking at possible human factors that escalate movement or decrease in the size of these populations.

### **Physical Science Integrated III**

**Science Requirement**  
**10 credits      5 each semester**  
**Recommended Prerequisite(s)**  
**Course Description:**

A content and lab based course intended to give students a background in the physical world around them using the following themes:

Matter: Building blocks of the universe-- Chemistry of Matter--Motion, forces and energy--Heat energy

Electricity and magnetism--Sound and light

### **Science Integrated IV**

**Science Elective**  
**10 credits      5 each semester**  
**Recommended Prerequisite(s)      Integrated III, Biology**  
**Course Description:**

This is an interdisciplinary course integrating principles from physical, biological, and earth sciences. The course must have instructor approval prior to registration. The objective of the class is to help students be able to meet the requirements of the Nebraska Science Standards.

Three concurrent twelve week sessions will provide students the ability to design and conduct original investigations, debate ideas, make observations, inferences, and predictions; collect and analyze data, draw conclusions, and communicate ideas and findings to others. This class will use current technologies, and tools to aid scientific investigations.

### **Physics**

**Science Elective**  
**10 credits      5 each semester**  
**Recommended Prerequisite(s): Algebra II, Pre Calculus or permission of Instructor**  
**Course Description:**

Physics is a lab-based college-preparatory science course. The contents includes: kinematics in one, two and three dimensions, vectors, friction, gravity, momentum, forces, power, energy, waves, electricity, optics, and thermodynamics. This course is intended for students who have successfully completed algebra II or currently taking.

**Physiology**

**Science Elective**

**10 credits            5 each semester**

**Recommended Prerequisite(s)    Integrated Science 3, Biology**

**Course Description:**

This class is centered on the study of the human body and its various systems. This class also uses a research/discussion format. Areas of concentration include the following systems - skeletal, nervous, digestive, respiratory, circulatory, regulatory, endocrine, and reproductive. This class is currently set up for juniors and seniors.