

## PHYSICAL SCIENCE

### PHS 101 THE PHYSICAL WORLD

3 Lecture 2 Lab 4 Credit Hours(s)

An introductory science course designed to introduce the student to the physical principles that govern the operation of machines that they encounter in their everyday lives. Topics include the metric system, simple machines, work, energy, states of matter, fluids, buoyancy, pressure, heat, nuclear energy, waves, light, color, sound, electricity, magnetism and computers. Laboratory experiments illustrate both the concepts studied and the general techniques of structured experimentation.

### PHS 102 EARTH SCIENCE

3 Lecture 2 Lab 4 Credit Hours(s)

A first course for students interested in planet earth. Topics to be considered include the earth's place in the universe, earth's materials and processes and earth's weather systems. Particular emphasis is placed on the individual's relationship to the planet. Discussions of earth's resources, waste disposal and geologic hazards such as earthquakes will be included. Laboratory work is supplemented by field trips.

### PHS 103 PHYSICAL SCI & THE ENVIRONMENT

3 Lecture 2 Lab 4 Credit Hours(s)

This course provides a local, regional and global perspective of major environmental issues. Topics such as population growth, food production, energy use, pollution, global warming and other technology are studied at the intro level. Field Labs constitute a major portion of the laboratory work.

### PHS 107 ENERGY AND THE ENVIRONMENT

3 Lecture 2 Lab 4 Credit Hours(s)

This course examines how man has met his energy needs in the past through the exploitation of the earth's natural resources and what alternative resources we may use in the future. We will examine modern methods of energy production, including exploration, mining, production, refining, distribution and environmental impact. Specific topics will include wood, coal, oil, natural gas, hydroelectric, nuclear fission, nuclear fusion, solar, wind, geothermal, biomass, ocean thermal energy conversion, conservation and environmental pollution.

### PHS 111 WEATHER AND CLIMATE

3 Lecture 2 Lab 4 Credit Hours(s)

An introductory study of energy, temperature, moisture, precipitation and winds which combine to create our weather. Topics include the causes of the seasons, forms of moisture in the atmosphere, atmospheric stability, cloud development, precipitation processes, pressure differences that create the winds, storm systems, thunderstorms, hurricanes, tornados and the world

climate. Labs include reading weather maps, making weather measurements, cloud development, drawing weather maps and climate studies.

### PHS 112 WATER RESOURCE ISSUES

3 Lecture 2 Lab 4 Credit Hours(s)

Substantial water resources are required by our growing global population. Water is used for drinking, recreation, generating electricity and by industry; it also flushes our toilets and is easily contaminated by landfills, salt and other human sources. Water is also an essential part of natural ecosystems. Students explore these multiple water demands and the challenges created by conflicting resource requirements. Case studies include investigation of the Everglades, the Mississippi River flood in 1993 and the Exxon Valdez oil spill. Labs include field trips and in-class exercises; students are introduced to the water cycle, the basic chemistry and physics of water, and the use of maps in water resource investigations.

### PHS 114 CULINARY CHEMISTRY

3 Lecture 2 Lab 4 Credit Hours(s)

A study of the application of basic scientific concepts to cooking and food science. Nutritional properties of foods, food preparation, food preservation, and social and economic issues surrounding food will be examined. Scientific topics to be studied include: fundamentals of food chemistry; molecular structure, interactions and reactions; biochemistry; energy content; mixtures and phase changes; application of concepts to common cooking processes and recipes. This course may be used in place of CHE 111 as preparation for CHE 121. A scientific calculator is required.

### PHS 115 FUNDAMENTALS OF ELECTRICITY

3 Lecture 2 Lab 4 Credit Hours(s)

This course provides a basic understanding of the fundamental principles of electricity including quantities such as voltage, current, resistance, and power. Underlying physical principles, as well as applications, will be emphasized. The course includes a comparison of the characteristics and uses of both dc and ac electricity. Hands-on lab activities involve observations and measurements of electrical quantities, using components such as dc sources, resistors, capacitors, and inductors. Pre-requisite: MAT 091 or MAT092

### PHS 271 SPECIAL STUDY PROJECT I

1 Lecture 0 Lab 1 Credit Hours(s)

A special learning experience designed by one or more students with the cooperation and approval of a faculty member. Proposed study plans require departmental approval. Projects may be based on reading, research, community service, work experience, or other activities that advance the student's knowledge and competence in the field of the physical sciences or related areas.

The student's time commitment to the project will be approximately 35-50 hours.

#### PHS 272 SPECIAL STUDY PROJECT II

2 Lecture 0 Lab 2 Credit Hours(s)

Similar to PHS 271, except that the student's time commitment to the project will be approximately 70-90 hours.

#### PHS 273 SPECIAL STUDY PROJECT III

3 Lecture 0 Lab 3 Credit Hours(s)

Similar to PHS 271, except that the student's time commitment to the project will be approximately 105-135 hours.