

## NSL (4-credit GEMS classes with laboratories)

- **GEMS 151** *Science and Technology for Everyday Life*. Modern society would not exist without the aid of technology. We depend upon technological devices for communication, food production, transportation, health care and even entertainment. This course focuses on the wide variety of technology used in everyday life. The objective is to develop a familiarity with how various technological devices work, and to explain the basic scientific principles underlying their operation. Topics covered include: the automobile, radio, television, CD players, microwave ovens, computers, ultrasound, and x-ray imaging. Concepts from basic science are introduced as they appear in the context of technology. Laboratory projects include construction of simple objects such as radios, electric motors, and a musical keyboard.
- **GEMS 157** *The Planet Earth*. An introduction to the scientific study of the planet on which we live. This course emphasizes the study of the major Earth systems (atmosphere, hydrosphere, biosphere and solid Earth) and the interactions between them. Particular attention is given to the subject of environmental change and the implications for our future. One or two Saturday morning field trips are required.
- **GEMS 158** *Human Biology in Health and Disease*. (this class is required for social work majors) Despite our differences, each of us has a body that functions to keep us alive. This course examines the structure and function of the human body from investigative and interdisciplinary perspectives. We will consider how the various organ systems work to maintain life and the ways in which the functions of these systems can be compromised by disease. Participants will explore how scientific methods are used to learn about the biology of humans. In addition to more traditional laboratory exercises, teams of students will design, carry out, and report on a laboratory project related to human biology.
- **GEMS 160** *The Chemistry of our Environment* This course will look at how chemistry, which is the study of matter and its changes at the molecular level, serves as the basis for understanding and predicting how our technological society impacts the environment in which we live. Basic chemical principles will be introduced and serve as building blocks to explain environmental phenomena we encounter in our everyday life. Laboratory investigations of environmental processes, together with case studies of environmental problems, will be used to build an understanding of the molecular nature of the world around us, and how we interact with it. Topics will include: testing for groundwater pollution, chemicals in the home, chemical manufacturing and recycling, and others.
- **GEMS 295-01 & 02** (students should register under **CSCI 114**) *Introduction to Computer Science*. Ever wonder how to set up a home computer network? To work with pictures in Photoshop Elements? To create a basic webpage? To add to the functionality of programs like Facebook or Firefox? Would you like to know what the differences are between operating systems like Windows and Linux, and how you would go about installing one? Lab activities in this updated course will explore the concepts covered in lecture by completing tasks such as those described above.

## NS2 (2 and 3 credit classes in the natural sciences)

- **CSCI 140** (3 credits) *Business Computing*. This class introduces students to computing skills used in the business world. Students learn the fundamentals of operating systems, spreadsheet processing in Microsoft Excel, and statistical packages.
- **GEMS 201-01A** (2 credits, first half semester) *Evolution of Dinosaurs*. This class investigates the geological record and biology of dinosaurs and provides an overview of current knowledge about dinosaurs as a framework for answering questions about their history, function, ecology, evolution, and portrayal in popular media. Case studies will examine such topics as warm-bloodedness and the evolutionary relationship between dinosaurs and birds. The course will culminate in a symposium where students present the results of library and analytical research
- **GEMS 206-01B and -02B** (2 credits, last half semester) *The Night Sky*. Understanding the unique features of astronomical objects in our night sky is the primary goal of this class. Through hands-on activities, we will understand the day-to-day and annual changes in our night sky. About one-third of the class involves field work in which we make observations using the Harry F. Frissel Observatory.
- **GEMS 295-03A** (2 credits, first half semester) *History of Science*. This half-semester course surveys the history of the science with particular attention to scientific revolutions from the Renaissance to the present day. In addition to the readings and lectures, students will test the hypothesis that re-creating historic experiments aids the understanding of both historic and contemporary scientific theories as well as the nature of science itself.
- **GEMS 295-04A** (2 credits, first half semester) *Abrupt Climate Change*. A study of science and how science knowledge integrates with our own beliefs and values, through an examination of the capacity of the earth's global climate to exhibit rapid and unpredictable change.