4. Science and Nonsense: Facts, Fads, and Critical Thinking (3)
Use of language, thought, and logic in science, distinguishing science fact from science fiction. Inductive and deductive methods, judgment, opinion, belief, and knowledge. A critical examination of contemporary pseudoscientific issues (creation "science," UFOs, astrology, etc.) G.E. Foundation A3.

15. Environmental Science: An Integrative Course (3)
Concurrent enrollment in BIOL 15, GEOL 15, and S SCI 15 required. Portion of *Humans and the Natural Environment* Cluster. A study of the interrelationships among the anthropological, biological, and geological aspects of man/woman and the natural environment. Team taught. ***CR/NC*** grading only. (HNE program field trip fee, $300)

40T. Topics in Natural Sciences (1-4; max total 12)
Prerequisite: permission of instructor. Interdisciplinary topics covering such subject matter areas as environmental studies and the impact of science on society.

100. Chemistry for Liberal Studies (3)
Not open to engineering students. Prerequisites: N SCI 1A and 1B. Emphasizes chemistry as a process rather than a collection of facts, laws, and theories. Designed especially for students planning careers as elementary school teachers.

101. Biology for Liberal Studies (3)
Not open to engineering students. Prerequisites: N SCI 1A and 1B. Emphasizes biology as a process rather than a collection of facts, laws, and theories. Designed especially for students planning careers as elementary school teachers.

102. Physics and Astronomy for Liberal Studies (3)
Not open to engineering students. Prerequisites: N SCI 1A and 1B. Introductory physics and astronomy with emphasis on hypothesis formation, analysis, and testing. Everyday observations and materials will be used to the extent possible to facilitate the transfer of concepts and techniques to the elementary classroom. (2 lecture, 2 lab hours)

106. Reigning Theories of Science (3)
Examination of historically important scientific theories from the perspective of science as a human enterprise. Role of philosophy, religion, culture, and nationalism in the acceptance/rejection of theories. Research paper, class presentation required.

110. Practicum in Medicine (2)
Prerequisite: permission of instructor. Offered in association with the UCSF Fresno Medical Education Program. Premedical students assigned in one or more clinical settings in the community. Emphasis on in-depth association with health professionals for clinical observation and biomedical research experience. (Spring semester)

115. Environmental Earth and Life Science (3)
Prerequisites: completion of General Education Foundation and Breadth Area B. Environmental problems related to population, energy and resource use, and pollution. Examines social and ethical issues along with technological and scientific factors. Independent work on case studies required. G.E. Integration IB.

116. Energy, Technology, and Society (3)
Not open to engineering students. Prerequisites: N SCI 1A and 1B. Examines the role that chemistry, physics, and technology play in our society. Designed especially for students planning careers as elementary school teachers.

120. Biotechnology and Its Impact on Society (3)
Prerequisites: completion of General Education Foundation and Breadth Area B; courses in biology and chemistry (high school or college) strongly recommended. Introduction to the tools of modern biotechnology including recombinant DNA, gene therapy, cloning, monoclonal antibodies, DNA fingerprinting, and the Polymerase Chain Reaction (PCR). Addresses applications of biotechnology to medicine, agriculture, the environment, and forensics, as well as their ethical implications. G.E. Integration IB.

121. Blood: Science, Art, and Folklore (3)
Prerequisites: completion of General Education Foundation and Breadth Area B; courses in biology and chemistry (high school or college) strongly recommended. Introduction to blood — its unique chemical, physical, and biological properties and its importance in medicine and forensics. Explores the significance of blood images for artistic and religious symbolism in both contemporary and historical cultures. G.E. Integration IB.

125. Revenge of the Killer Microbes (3)
Prerequisites: completion of General Education Foundation and Breadth Area B; courses in biology and chemistry (high school or college) strongly recommended. Introduction to the adversarial relationships between disease-causing microorganisms and human affairs, both currently and historically. Explores the unique defense and counter defense mechanisms that have developed in a variety of microbes and the human immune system. Addresses health care issues related to disease prevention and control. G.E. Integration IB.

131. Biological Bases of Neurological Disorders (4)
Prerequisites: completion of General Education Foundation and Breadth Area B. Biological mechanisms which underlie various neurological disorders. Nervous system structure and function will be presented as a basis for understanding pathology. Topics include multiple sclerosis, Alzheimer's disease, Parkinson's disease, language disorders, depression, obsessive-compulsive disorder, and schizophrenia. G.E. Integration IB.

140T. Topics in Natural Sciences (1-6; max total 12)
Prerequisite: permission of instructor. Interdisciplinary topics covering such subject matter areas as medical technology and ecology. (May include lab hours)

180. Practicum in Secondary Science Teaching (2)
Concurrent enrollment in EHD 155B required; for single subject life/physical science student teachers. Application of best science teaching research; practice; emphasis on reflection/discussion of current teaching, effective management of students/time, authentic assessments, laboratory/curriculum resources, sheltered techniques, student motivators.

GRADUATE COURSE
Natural Science (N SCI)

240T. Topics in Natural Sciences (1-4; max total 8)
Prerequisite: permission of instructor. Interdisciplinary topics in the natural sciences at the graduate level covering such subjects as advanced techniques. Sample topics are *Radiation Techniques in Biology and the Physical Sciences* and *Recent Advances in Psychophysiology*. (May include lab hours)

IN-SERVICE COURSE
Natural Science (N SCI)

380T. Topics in Natural Sciences (1-4; max total 6)
Studies in the natural sciences integrating topics from biology, chemistry, geology, mathematics, physics, and psychology.