# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

**EOS 810 - Introduction to Astrophysics**  
Credits: 4  
Review of the sun, stars, Milky Way, external galaxies, and expansion of the universe. Recent discoveries of radio galaxies, quasi-stellar objects, cosmic black-body radiation, x rays, and gamma rays precede a discussion of Newtonian and general relativistic cosmological models, steady-state big-bang theories, and matter-antimatter models. (Also offered as PHYS 810.) (Alternate years only.) Cr/F.

**EOS #844 - Biogeochemistry**  
Credits: 4  
Examines the influence of biological and physical processes on elemental cycling and geochemical transformations from the molecular to the global scale, involving microorganisms, higher plants and animals and whole ecosystems; factors that regulate element cycles including soils, climate, disturbance and human activities; interactions among the biosphere, hydrosphere, lithosphere, and atmosphere; transformations of C, N, S, and trace elements. Prereq: one semester each of biology and chemistry. (Also offered as NR 844.)

**EOS 895 - Topics**  
Credits: 1-4  
Study on an individual or group basis of topics not covered by the other listed courses. Topics may include any area relevant to interest in Earth, ocean, atmospheric, and space studies. (May be repeated.) Lab.

**EOS 896 - Topics**  
Credits: 1-4  
Study on an individual or group basis of topics not covered by the other listed courses. Topics may include any area relevant to interest in Earth, ocean, atmospheric, and space studies. (May be repeated.) Lab.

**EOS 901 - Seminar**  
Credits: 1  
Introduction to the fundamental components of the Earth system, such as the biosphere, cryosphere, hydrosphere, and its environment in space. Basic concepts are presented in a lecture format by selected EOS faculty according to their research specialization. To familiarize the student with the literature in earth, oceans, and space science and engineering, students are expected to contribute to a discussion of current topics of interest in the literature. Cr/F.

**EOS #954 - Heliospheric Physics**  
Credits: 3  
The solar wind and its effects on cosmic rays. The basic equations of the solar wind: mass, momentum, angular momentum, and energy balance. Transport processes. Waves, shocks, and instabilities in the solar wind. The basic equations of energetic particle transport. Solar modulation of solar and galactic cosmic rays. Interaction of energetic particles with shock waves. Salient data are reviewed. (Normally offered every other year.) Also offered as PHYS 954.

**EOS 995 - Special Topics**  
Credits: 1-4

**EOS 996 - Special Topics**  
Credits: 3-4  
See description for EOS 995.