



# University Bulletin

## Undergraduate Degree Programs

### Earth Sciences (EARTH)

**EARTH 240 Coral Reef Systems (3)** The geography, geology, and chemistry of coral reef ecosystems; threats to reef environments; and techniques for reef surveying and monitoring.

#### **EARTH 240 Coral Reef Systems (3)**

The course introduces students to coral reef environments, past and present. It describes the processes that control the distribution, growth, and morphology of reefs and introduces students to the complexity of the coral reef ecosystem. The course emphasizes the role that reefs play in the natural environment and examines their importance to society both globally (e.g. in terms of biodiversity and its potential benefits) and locally in terms of, for example, food supply and tourism. We then look at the natural disturbances (such as disease, storms, sea surface temperature variations) that affect the reef, as well as ways in which reefs are threatened from human impacts, with an emphasis on global climate change and the long-term outlook for reef survival.

Students will work in groups to research elements of the system, first at a global scale, and then focusing specifically on one region -- the Bahamas platform. Students will look at the history of the Bahamas platform and its relationship to the present nature and distribution of coral reefs. They will then examine these in the context of their social, cultural, and economic importance to local communities. A third component of the course will concentrate on the identification of vertebrate and invertebrate species and substrate conditions that are important indicators of reef health. There will then be a one-week field trip to a coral reef system to conduct reef surveys. The surveys follow the Reef Check protocol (a volunteer, community-based monitoring protocol designed to measure the health of coral reefs on a global scale). Reef Check is administered out of the University of California at Los Angeles.

The coral reef surveys will be conducted on scuba and the field trip and participation in the survey are required elements of the course. Students who are not scuba certified will be given the opportunity to obtain open water scuba certification as part of the course, through Penn State's Science Diving Program (a member of the American Academy of Underwater Sciences). There will be an additional charge for the scuba certification course and the field trip.

Student assessment will be through group presentations, term papers, and their contribution to the field program. The course satisfies part of the field requirement for the University's Marine Science Minor and serves as an introduction to the Science Diving Program.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Summer 2005

Prerequisite: [\(/bulletins/bluebook/university\\_course\\_descriptions.cfm?letter=E&course=long=||latest\)](#) Prerequisite or concurrent: **KINES**

[045\(/bulletins/bluebook/university\\_course\\_descriptions.cfm?letter=E&course=long=KINES|045|latest\)](#) or Nationally Recognized Scuba Certification

**Note** : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

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