

First-Year Seminars and Tutorial in Science 2008-2009

These innovative first-year seminars and tutorial offer an exciting approach to studying science at Williams. The “discovery” seminars, originally developed with the help of a grant from the Ford Foundation, encourage a hands-on approach to field and laboratory science. The small seminars use state-of-the-art equipment and techniques to study a selected topic in depth. The tutorial benefits from the Freeman Foote Travel Fund for the Sciences, which will cover most of the expenses for the week-long field trip to the Galapagos Islands during Spring break.

These seminars and tutorial are not limited to those students with an exceptional background in science but rather are open to all those willing to immerse themselves in an intensive examination of the process by which new scientific knowledge is generated. Of course, those with previous experience or special interest in the sciences are welcome. Enrollment in the Environmental Science course is limited to 36 (there are three lab sections of 12 students) and enrollment in both of the Geosciences courses is limited to 10. Because enrollment is limited you should fill out the application on the reverse side and return it, together with your pre-registration form, by June 13.

The small seminars, tutorial, and lab sections provide unusual opportunities for discussions, demonstrations, field study, and laboratory experiments. The courses emphasize the understanding and appreciation of (1) the approaches used to formulate and test scientific hypotheses; (2) the laboratory and field methods, instruments and scientific apparatus that are used to conduct research; and (3) the scholarly literature that provides the conceptual basis for scientific theories.

FALL 2008

GEOS 105(F) *Geology Outdoors* is an introduction to geology through student field projects. The mountains, lakes, rivers, and valleys of the Williamstown area provide unusual opportunities for learning geology in the field. Student projects will include the study of streams as active agents of erosion and deposition, the effects of glaciation on the New England landscape, and the history of mountain building in the Appalachians. Following several group projects introducing the techniques of field geology, students will pursue independent projects on the local geology. This course departs from the standard science course format with three lectures and a required lab each week. Instead, emphasis is placed on learning through active participation in field projects and presentation of results through high quality writing. The class will meet two afternoons each week from 1:00 to 3:45 p.m. There will be two all day field trips.

This course was created under the Williams College Ford Foundation Grant and is designed for students who have a serious interest in geology or other natural and environmental sciences, the outdoors, and writing.

Professor Karabinos

SPRING 2009

ENVI 102(S) *Introduction to Environmental Science* is an introduction to Environmental Science. It introduces students to current scientific methods used to assess environmental quality, rectify impaired systems, and limit future detriment. Through hands-on study of several local sites, we probe five global themes: alteration of the greenhouse effect and carbon cycle; acid deposition; toxic metals in the environment; water quality; and prospects in waste treatment and remediation. Discussions of case studies from other parts of the world illustrate the global analogues of these local studies. Following these group projects, students design and complete independent projects in subjects of particular interest to them. The format of the course consists of two, 75-minute workshop/discussion sessions, and one, 4-hour field/laboratory session each week. Evaluation will be based on reports of field and laboratory projects, participation in discussion, and an independent research project.

Professors Art, Bingemann, and Stoll

GEOS 110T(S) – *Galapagos Islands Field Geology and Biology* is a new tutorial for first-year students. It examines the geological and biological forces that influence evolution in isolated environments. Islands are attractive places for field studies because they represent discrete territories isolated from the rest of the world but associated with larger surrounding patterns of climate, ocean currents, and regional geology linked to plate tectonics. The first half of this course is devoted to topics on the geology, tectonics, paleontology, biology, and biogeography of the Galapagos Islands in preparation for a one-week field excursion during Spring Break. After Spring Break, sessions cover other archipelagos including the Hawaiian Islands, the islands in the Gulf of California, the Caribbean Islands, and the Seychelles Islands.

This course will follow the tutorial format and pairs of students will meet with both instructors each week. Students will write and present six papers. Thanks to the generosity of Joseph Lintz ('42), students will only be responsible for \$500 of their travel and lodging expenses to the Galapagos Islands, the rest will be covered by the Freeman Foote Field Trip Fund for the Sciences.

Prerequisite: any 100-level Geosciences course. Tutorial meetings to be arranged.

Professors M. Johnson and Karabinos

Application for First-Year Science Seminar
please fill out and return with your pre-registration form

- 1.) Name: _____
- 2.) Please indicate the First-Year Science Seminar(s) that interest(s) you:
- GEOS 105 *Geology Outdoors***, Fall 2008 _____.
(If you indicate your interest in *GEOS 105*, you should include it on the preliminary registration sheet in this mailing.)
- ENVI 102 *Introduction to Environmental Science***, Spring 2009 _____.
- GEOS 110T *Galapagos Islands Field Geology and Biology***, Spring 2009 _____.
(If you indicate your interest in *ENVI 102* or *GEOS 110T*, you should plan to pre-register for this course during the October pre-registration period.)
- 3.) If you are registering for *GEOS 105*, please indicate the alternative course you would like to register for if you are not admitted to the seminar, since enrollment in this course is limited to 10 students.
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4.) Describe your previous science courses and experience.

5.) Explain why you want to take the course(s) you have selected.

Please contact
Professor Paul Karabinos
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if you have questions regarding the *Geology* courses.
or
Professor Henry W. Art
Tel.: (413) 597-4541; E-mail: Henry.W.Art@williams.edu
if you have questions regarding *Introduction to Environmental Sciences*.