Project: Enhancing Research Intensive Capstone Courses with More Fieldwork

Department: Environmental Programs and Department of Geography

Responsible Parties: Drs. Cairns, Collins, Frauenfeld, Houser, Klein, Lafon, Quiring, Roark

College Theme:
- Enhancing Field Based Experiences at Home and Abroad
- Enhancing Research and Internship Experiences for Both Undergraduate and Graduate Students

Year 2 Highlights: Integrated research at multiple field sites in TX and Costa Rica into GEOS 405, GEOG 450, and GEOG 476. Research projects in Redfish Bay (Corpus) on marine and coastal processes; coastal and wind processes at Padre; forestry, ecohydrology and biogeography at Soltis; hydrology, biogeochemistry and river geomorphology on the Brazos and Navasota Rivers and Lake Whitney. Purchased equipment: temperature sensors, data loggers, marine safety equipment. ~58 students in GEOS 405 and ~30 students in GEOG 450 conducted ~20 field based projects.

Plans for Year 3: Build on and solidify current field sites; add one to three new sites for hydrology and water cycling research projects and to better meet the needs of GEOG 450 and 476. Track students better long-term. Challenge: finding blocks of time for field campaigns.

Project: Research IS Education (RISE)

Department: Oceanography

Responsible Party: Dr. Debbie Thomas

College Theme:
- Enhancing Research and Internship Experiences for Both Undergraduate and Graduate Students

Year 2 Highlights: Two FYS students began research as underclassmen (Amaya and Berger), and two others will begin research projects in the fall (placed with other advisors). Approaching “younger” researchers yielded increases in Spring 2013 participation due to word-of-mouth recruiting by Amaya (bringing in Rencurrel and Hernandez) and the Geology students (bringing in Bradshaw and Mendoza). Strong participation in research communication, with four students presenting at the College symposium, three at the AGU Fall meeting, five at 2013 SRW (Amaya won top undergrad honors), and three at 2013 SC GSA.

Plans for Year 3: Students require two semesters of research before they can realistically prepare for a presentation — students performing radiogenic isotope work cannot complete data collection and prepare a presentation within one single semester. Limit numbers to manageable group to build team morale and function. Drop proposal-writing component.

Project: National and International Field-based Experiences for Graduate Students

Department: Geology and Geophysics

Responsible Parties: Drs. Newman, Kronenberg, Miller, Herbert, Lamb, Sparks, Everett, and F. Chester

College Theme:
- Enhancing Field Based Experiences at Home and Abroad

Year 2 Highlights: Graduate-level class (GEOL 609; two credits; 12 students) explored the tectonic setting, stratigraphy and structure of the southern Appalachians, with a focus on thrust-system geometries. Students, in groups of two-three, chose a field location to study in detail and prepared a poster presentation for that location that included a problem for students to address. Following the field work, students focused on microstructural and compositional analyses to address a question raised at one fault zone exposure. A controversy was resolved and students are pursuing a better understanding of the deformation processes along this fault zone.

Plans for Year 3: A location for field studies for Year 3 has not yet been chosen. Associated faculty members have been alerted as to the availability of these funds and discussion is underway.

Project: Student Operational ADRAD Project (SOAP)

Department: Atmospheric Sciences

Responsible Parties: Drs. Conlee, Nasiri, and Rapp.

College Theme:
- Enhancing Research and Internship Experiences for Both Undergraduate and Graduate Students

Year 2 Highlights: Eighteen undergraduates broken into six research teams of three met twice weekly for two hours in the summer and also participated in two Intensive Operating Periods (IOP) outside of normal meeting times. Trained in the safe operation of the ADRAD and of the iMet Portable Radiosonde System in both free and tethered modes of operation. Special projects of opportunity included the check-out and operation of NWS-
surplus Vaisala CT-12K ceilometers, and a Vaisala PP-11 radiosonde system with a custom radio using surplus RS-80 sondes. Produced 5 student posters at the Student Conference of the American Meteorological Society. All students documented work in written logbooks, as well as in an online blog.

**Plans for Year 3:** Will reintroduce generation of local forecasts but otherwise maintain program while seeking synergy with the REU program.

**Project:** Students at Sea: Maximizing graduate student opportunities for participation in research cruises (SAS)
**Department:** Oceanography
**Responsible Party:** Daniel C.O. Thornton
**College Theme:**
✓ Enhancing Field Based Experiences at Home and Abroad

**Year 2 Highlights:** Seven students were provided with the resources to join research cruises in the Caribbean, Mexico and the Galapagos Islands.

**Plans for Year 3:** Monitor publications arising from SAS and continue program.

**Project:** High Impact Research Experiences (HIRE)
**Department:** Oceanography
**Responsible Party:** Daniel C.O. Thornton
**College Theme:**
✓ Enhancing Research and Internship Experiences for Both Undergraduate and Graduate Students

**Year 2 Highlights:** Five students involved in the program took at least 3 hours of OCNG 491 and engaged with their mentors to collaborate on a research project. Students received recognition for their work; both Audra Hinson and Kyle Calbat received awards this semester on graduation and both successfully submitted honors theses; Kyle Calbat gave an oral presentation of his research at a major international oceanography conference (ASLO).

**Plans for Year 3:** Student support per student will increase to $3,000 per student for two reasons: 1) $1,100 was considered to be insufficient to support the students’ research activities; and 2) Students participating in the program are doing very high impact work and communicating to a very high standard (presentations at international conferences and honors theses).

**Project:** Engaging Students Early through Field Based Experiences in Introductory Courses
**Department:** Geography
**Responsible Parties:** Drs. Brannstrom, Ewers, Frauenfeld, Houser, Quiring, Roark
**College Theme:**
✓ Enhancing Field Based Experiences at Home and Abroad

**Year 2 Highlights:** Special sections of GEOG 203 Planet Earth (11 students) and GEOG 201 Introduction to Human Geography (25 students) offered high impact field experiences during the Spring 2013 semester: GEOG 201 field experience included an environmental justice tour of Houston and mapping of the Galveston Business District (before and after 1900 hurricane); GEOG 203 field experience included a range of field experiments focused on climatology, oceanography, geomorphology and dendrochronology around Corpus Christi and Port Aransas to develop skills in topographic surveying, GPS technology, water and meteorological sampling, and map reading and interpretation.

**Plans for Year 3:** Continue field experiences in both 201 and 203 for both fall 2013 and spring 2014; plan to develop these field experiences further and implement more intensive and rigorous field activities; increase enrollment in the special sections of both classes through a more focused recruitment plan that includes all faculty involved with both 201 and 203. Based on the success of these field experiences, we are also planning to introduce special sections of GEOG 203 and GEOS 105 in which students will have an opportunity to participate in a study abroad field trip to the Soltis Center for Research and Education in spring 2014.