Final Report

The following reports on outcomes from a Summer Curriculum Development Grant. As per reporting guidelines the following provides the project title, a listing of participants, an abstract of the activities undertaken, and a narrative summarizing outcomes to-date and related ongoing activities.

Summary

**Project Title:** Environmental Earth Science Curriculum Retreat

**Participants:** This project reflects the collective efforts of Dr. James A. Hyatt (professor), Dr. Peter Drzewiecki (associate professor), Dr. Catherine Carlson (professor), Dr. Fred Loxsom (professor) and Dr. Allison Weinsteiger (assistant professor).

**Abstract:** Funding provided the opportunity for faculty to meet over the summer on two separate days and examine a wide array of curricular matters related to all tracks offered by the Department of Environmental Earth Science. As described below, several significant outcomes were achieved, with follow-up activities planned for the upcoming academic year. Specifically the department agrees to establish a pre-EES pathway into the major that will utilize gateway and pathway classes to ensure students continuing in EES are successful. LAW and high-impact learning courses were agreed upon, along with adjustments to some lab courses. The difficult issue of sequencing classes and balancing semester loads was analyzed and revisions agreed upon so that students can efficiently move through their program of study with the intent of graduating in 4 years. Several documents will arise from the retreat to clarify procedures for new faculty (currently 50% of our tenure track lines are filled with 1 year appointment positions). Ongoing activities will develop curricular paperwork to implement changes agreed to in our retreats, and to prepare for an upcoming external evaluation. In short, the retreat was very productive.
Introduction and Objectives

All continuing faculty members in the Department of Environmental Earth Science met over the summer to discuss the EES curriculum with an eye to develop an action plan that implements strategies to improve retention and graduation rates, address departmental matters, and prepare for the Department’s upcoming external evaluation. As stated in the original EES proposal the objectives of these meetings were to:

- To organize, carry-out, and report on discussions on EES curriculum review with the intent of implementing agreed upon changes within the next academic year.
- Identify strategies for improving retention and graduation rates for EES students.
- To utilize these points of discussion to help prepare for an upcoming Academic Program Review Committee evaluation (presently slated for fall of 2011).

Participants gathered for extended meetings at the grant house on May 27th and June 13th, with a planned follow up meeting on August 26th. The off-campus venue was conducive to focused discussion resulting in significant progress related to objectives outlined above as well as other matters of importance to the department. Outcomes are summarized below.

Strategies to Improve Retention and Graduation Rates for EES

Students majoring in EES need to be sure to take gateway and supporting classes early in their college career so that they can progress smoothly through the program. Similarly, a sequence of courses that balances courses across semesters is helpful for students as they progress in the program. Moreover, given that the department currently has 50% of its tenure track lines filled with 1 year appointments, it is very important to balance teaching assignments across semesters. As such, the retreat spent considerable time examining course offerings. Following discussion, the department agreed to:

1. **Establish a pre-EES pathway into the major:**

   This will be achieved by requiring all students with interest in pursuing an EES major to first be declared pre-EES.

   - For students seeking to major in EES, “Pre-EES” will be the major declaration until the students pass geoscience gateway classes (one of either EES 104 or EES106 or 110 together with EES112), EES 130, and EES 224 with final grades of C- or higher for both EES 130 and EES 224.

   - Students considering the Energy Geoscience track should also take EES 204/205 and EES 207.
Pre-EES students can take EES 305, EES 306, EES 322, EES 330 and EES 340 as long as they have met course pre-requisites.

Students must be declared an EES major or EES minor to take additional required EES major courses.

2. **Institute consistent and appropriate requirements to become an EES major including:**
   - All students declaring EES as a major must be LAC-math eligible
   - All students declaring EES as a major must achieve a C- or better in EES 130, EES 224, and EES 204/205 (if applicable to the chosen track)
   - All EES majors, regardless of track, must successfully complete MAT 243 (calculus 1).
   - Establish standard laboratory times for middle level required EES classes. Specifically, EES 224 is the only middle-level to advanced EES class with a 2 hour lab. This is too short a time frame for lab and will be increased to a 3 hour lab to be consistent with EES 130 (the other required pathway class for EES majors) and other advanced EES lab courses.

3. **Revise curriculum to balance semester loads and refine programs.**
   - Revised sequences for all tracks in the major were developed and approved in principle.
   - The requirement that EES majors following the Energy Geoscience track take Rock and Mineral Analysis (EES 330) will be changed to Structural Geology (EES 356). This transition will take place in the 2011/2012 academic year.
   - To facilitate these changes, during the transition year (2011-2012) EES majors in the Energy Geoscience track can count either EES 330 or EES 356 toward satisfying their requirements.

**Implementing High-Impact Learning Outcomes**

Subject to final approval, retreat members agreed to propose an Undergraduate Research (EES 481), an Internship (EES 491), and Hydrological Research Methods (EES 450) courses to meet LAW requirements. These courses are not required of all students. The department will continue to highlight undergraduate research by EES majors through communication with public relations, PAD’s activities as coordinator of undergraduate research, and future highlighting of research projects in departmental documents (e.g. newsletters, brochures, and web links).
Improve Transitions for New Faculty

In response to ongoing turnover for faculty members in the department, the retreat discussed ways in which we can improve the transition for new faculty to working within EES. This resulted in:

1. **Identifying topics to include in a departmental guide for new faculty**
   - Following discussion at the retreat approximately 15 topics were identified as being useful for inclusion within a departmental document for new faculty members.
   - Given the importance of field work to the major, retreat members have discussed items that should be part of a departmental field trip policy. This will be helpful for students and faculty alike as they prepare for class-based and outside-of-class field trips.

Continuing Work

Based on agreements made during the departmental retreat, curriculum paperwork and related documents will be generated through the 2011-12 academic year. This will also be incorporated into materials developed to support the 2011-2012 external review of the department.

### Budget

Expenditures from HYAC11 are summarized below. **Table 1. Budget**

<table>
<thead>
<tr>
<th>Item and Justification</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Faculty Stipends</strong></td>
<td></td>
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<tr>
<td>• $275 for each of the 4 participants (JAH, CC, PD, AW)</td>
<td></td>
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<tr>
<td>• $150 for agenda development and drafting follow-up reports*</td>
<td></td>
</tr>
<tr>
<td>• $ 50 for in-meeting note-taking and minutes development*</td>
<td>$1,300.00</td>
</tr>
<tr>
<td><strong>Lunch Funding</strong></td>
<td></td>
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<tr>
<td>• $200 in support of lunches on two days</td>
<td>$ 92.81</td>
</tr>
</tbody>
</table>

* Individuals selected by group

**Total Request** $1,392.81