August 25, 2015

AY 2013-2014 Annual Report

Bachelor of Science in Environmental Science

**Overview**

The Environmental Science (ENVS) B.S. degree aims to provide students with rigorous interdisciplinary training in Earth Science, Chemistry, and Ecology. Program graduates are prepared for entry-level employment in resource agencies such as the Department of Environmental Conservation, the Department of Natural Resources, and the US Geological Survey. Environmental Science students are also well prepared to enter graduate programs in Earth Sciences and Ecology. The Environmental Science degree utilizes the natural laboratory available to students in Southeast Alaska both through laboratories and hands-on field exercises and through guided research projects with program faculty. All program students are required to complete either an internship or an individual research project within the degree program.

The Environmental Science B.S. degree is closely aligned with the Geography (GEOG) and Environmental Resources B.S. degree. These two degrees share a number of required courses primarily in Earth and Geographic Information Sciences. However, the two degrees are fundamentally different in their aims. The ENVS degree is focused on developing a rigorous, quantitative understanding of the physical, chemical and ecological processes in Earth’s surface and near-surface environments. This entails course work in Chemistry, Physics, Earth Science (e.g. Hydrology and Atmospheric Science), and Biology. In contrast, the GEOG B.S. degree is focused on understanding Earth from a geographic perspective (both Human and Physical), with a focus on course work in spatial analysis (e.g. Geography, Geographic Information Science, and Remote Sensing).

**Key Findings and Measures (2013-2014)**

*Student Data and Trends*

Program Head counts

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Academic Year | 10/11 | 11/12 | 12/13 | 13/14 |
| ENVS Majors | 24 | 21 | 17 | 17 |

Program Graduates and Average GPA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Academic Year | 10/11 | 11/12 | 12/13 | 13/14 |
| ENVS Graduates (Avg. GPA) | 3 (3.16) | 2 (3.05) | 2 (2.81) | 2 (3.13) |

In AY 2013, Banner listed 17 ENVS majors. The number of program students has dropped slightly in the last four years. There continues to be some attrition of ENVS majors as evidenced by the fact that the program head count is higher (ranging from 17-24 over the four year period) than the number of program graduates (between 2-3 per year during the last four AYs). This may be partially a result of the development and expansion of the UAS Geography Program, which offers B.S. and B.A. degrees in environmental fields. However, it is important to note that before the creation of the GEOG programs, students that left the ENVS program nearly always left UAS. While the attrition rate is still higher than faculty would like for the ENVS Program, many of the students that leave the program switch into the BS and BA Geography degree programs and thus remain at UAS, which was not previously an option.

Enrollments in Core ENVS Program Courses

|  |  |  |
| --- | --- | --- |
| Academic Year 13/14 | Fall | Spring |
| ENVS 102 | 18 | - |
| ENVS 338 | 7 | 8 |
| GEOL 104 | - | 17 |
| GEOL 302 | 10 | - |

Enrollments in core program courses continue to be stable. Both ENVS 102 and ENVS 338 are cross listed with GEOG designators so the total enrollments in those courses are higher than what is shown in the table (only the students taking the course with the ENVS designator). This was the first year that ENVS 338 was offered in both Spring and Fall semesters and the demand for the course, which comes from ENVS, GEOG, and BIOL students, warrants that it continue to be taught twice per academic year.

ENVS students participating in Directed Research and Internship Classes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Academic Year | 10/11 | 11/12 | 12/13 | 13/14 |
| Directed Research Students | 0 | 2 | 1 | 3 |
| Student Internships | 1 | 2 | 1 | 2 |

ENVS majors continued to be involved in faculty research within the program. Alex Whitehead completed a research project examining organic matter degradation in natural waters (streams and rivers) under the direction of ENVS Faculty Eran Hood and Jason Fellman. Alex presented his findings at the American Water Resources Association Annual Meeting in Juneau in October 2014. Jamie Pierce worked on two directed ENVS research projects related to climatology and glacier dynamics on the Juneau Icefield. Jamie presented his work at the Northwest Glaciology meeting in Vancouver, B.C during Fall 2013. Hunter Brown also completed an internship at the National Weather Service forecast office in Juneau.

*Curriculum Updates*

During AY13/14 we held a number of faculty meetings to evaluate how to streamline and improve the ENVS degree to make it more appealing and provide a clear path to graduation. This was a direct outcome from our 5 year program review completed in AY2012-2013 and is aimed at both making the program more attractive to potential and incoming students and increasing retention. We made progress and completed a draft of updated program requirements that we intended to finalize in AY2014-2015 based on the new hire in the GEOL position. The main focus of the program update is to establish concentration areas that allow students more choice in the classes they take and also the opportunity to develop a more coherent academic theme for their ENVS degree.

*Potential Future Program Changes*

One area that we have identified to increase data collection is in tracking graduates of the ENVS Program. In particular, it will be helpful to have a quantitative understanding of the proportion of ENVS graduates who are entering graduate school or careers in fields that are related to Environmental Science. Developing a database that includes information on post-graduation career outcomes will be a priority for 2014-2015.

Our present course schedule and rotation within the ENVS program seem to be satisfying student needs in terms of progression toward graduation. We currently offer most required courses every year with the exception of a few focused courses that don’t typically have the enrollment to warrant being taught every year. We anticipate overhauling our 6 year course sequence to reflect the changes that will be made as part of updating the course requirements for the ENVS degree. In addition, we will continue to update course offerings resulting from faculty turnover within the program. In particular, the course offerings in the program will be cleaned up to reflect new courses being offered by ENVS Faculty Jason Amundson and Brian Buma.

We are also continuing to develop new research opportunities for undergraduates as well as internship opportunities at local agencies. The ENVS program has a long running internship agreement with the US Geological Survey office in Juneau. In recent years, we have also had increased success placing students into internships at the Alaska Department of Environmental Conservation and the Alaska Department of Fish and Game. We hope to develop more collaborations with agencies and local businesses thereby increasing the number of regular internship opportunities available to ENVS students. We have also been in discussions with the Mendenhall Visitor Center about hosting a summer intern from UAS (in ENVS or Geography) to work at the visitor center during the summer tourist season. Ideally, this effort would be combined with ongoing efforts to collect data on environmental change (primarily glacier and climate data) at Mendenhall Glacier.

The final major program update will be the recruitment and hiring of a new ENVS Geology faculty member to replace Cathy Connor. The plan now is to hire a person with expertise in Earth surface processes.