

**Submission date:** February, 7, 2020

**Program/s in this review:** Environment and Society (BS) GES \_\_\_\_\_

**Specialized accrediting agency (if applicable):** \_\_\_\_\_

**Campuses where the program is delivered:** Anchorage \_\_\_\_\_

**Members of the program review committee:**

Shannon Donovan, Associate Professor & Chair, ANC

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**1. Centrality of Program Mission and Supporting Role (700 words or less)**

The Environment and Society degree program was developed, in 2008-9, in consultation with professionals working for Alaska companies and agencies such as HDR, the Alaska Railroad, and the State Department of Transportation, to name a few. The goal in developing the program was to produce graduates able to work in applied environmental fields. The program was approved by the Board of Regents in 2010.

While the program prepares students interested in pursuing graduate programs, work in policy, etc. its primary goal is to help students understand the key role of environmental professionals in planning and mitigating the impacts of development projects and then give them to skills to be those professionals. Hence, students take a suite of courses that build skills to this end.

In the United States, development projects are subject to the National Environmental Policy Act (NEPA), which requires certain steps in the development process aimed at accounting for and mitigating environmental problems. Professionals working in the NEPA environment must be able to work with local communities, understand field methods, apply technical skills like geographic information systems (GIS), in addition to having a broad knowledge of the natural environment and human/environment relations.

Coursework in our program is thoughtfully selected to move students towards competencies in this knowledge and the skill sets they need to be environmental professionals. Through two professional development courses, the program encourages student success and measures progress in these pragmatic outcomes.

Thus the program is focused on developing graduates prepared for work in a range of occupations. According to the State of Alaska, Department of Labor and Workforce Development, a number of positions open annually in fields our major prepares students to work in based on current graduate placements (see program quality). This includes the following: Conservation Scientists (17 positions/year), Environmental Scientists (58/year), Urban and Regional Planners (15), Environmental Science and Protection Technicians (45), Forest and Conservation Technicians (45).

In addition, our program provides crucial support to both the Natural Sciences and the International Studies majors. Natural Sciences majors in the Environmental Science option take ENVI A211 and ENVI A212 and often opt to use our other courses (GEOG A111, GEOG A375, ENVI A370, ENVI A470, ENVI A490) to fulfill major “selectives”. In the International Studies major, our program offers the gateway GEOG/INTL A101 course. We also teach a number of general education required courses including ENVI/GEOG A111, ENVI A211, ENVI A211L, ENVI A212, GEOG/INTL A101 and two capstone GERs - ENVI A470 and GEOG A390A. It should also be noted that our majors take a number of interdisciplinary courses that support enrolments in other programs. These include, but are not limited to, coursework in economics, English, philosophy, and community engagement. Finally, one faculty member in the department teaches a course outside our department (BIOL A473), reducing the department's FTE but making an important contribution to several majors.

Intrinsic to our program’s design and our department’s outlook is the development of community partnerships. Geography and Environmental Studies has a number of strategic partnerships with local organizations and agencies. These partnerships allow our students to fulfill the internship requirement in the major and give faculty the opportunity to engage in meaningful community-engaged research that is relevant to Anchorage, Alaska, and our students. Recent partnerships include the following: Chugach State Park, Audubon Alaska, The Alaska Center, Great Land Trust, HDR consulting, the Municipality of Anchorage, the Bureau of Land Management, the Campbell Creek Science Center, the Anchorage Museum, the Alaska Center, Alaska Department of Fish and Game, and others.

In the last ten years, the GES faculty have collectively worked on over 20 projects that included more than \$5 million in external funding. Project partners have included local, state, and federal agencies from the private, public and non-profit sectors. These projects have helped fund approximately 30 undergraduate and graduate students in environmentally-related research projects and have been used to support findings in peer-reviewed journals, white papers, community reports, and at various conferences and workshops.

## **2. Program Demand (including service to other programs), Efficiency, and Productivity (7 year trend; 1400 words or less)**

The following comments are provided in response to each data table:

- Seven-year degree trend: As would be expected with a relatively new and small program, there has been some degree of fluctuation in degree awards. We expect an increase in the coming year, over last year’s production.
- Credits per degree: The Environment and Society major has seen an increase in semesters per degree and credits per degree. We have no knowledge why this change has taken place or whether or not it is a short-term aberration.
- Seven-year major enrolment trend: Again, we have no special knowledge as to why the number of majors has dipped in the last year. This could be a short-term aberration. Recent enrolment in our sophomore-level professional development course (ENVI A280), for example, has been strong (16 out of 15 seats, Spring 2019; 16 out of 15 seats, Spring 2020). This suggests that there will be a large increase in the number of majors over the next few years).
- Course pass rates seem remarkably consistent.

- Internal demand: Environmental Studies and Geography courses demonstrate a significant amount of external demand. We offer one social science and one natural science course both in environmental studies and geography (four courses total), in addition to two GER capstone courses. These courses are popular outside of our own major. The environmental studies courses include a basic environmental science class and lab and a social science approach to environmental studies. The geography courses include a global-issues oriented “world regional geography course” and a popular earth science survey course. All four of these courses are common in curricula at other state universities reflecting the importance of teaching basic environmental sciences and studies, earth sciences, and global issues courses to undergraduates.
- Seven year SCH production trend: SCH production has fluctuated a bit over the past seven years, consistent with a small number of faculty members. The department has only three faculty members and has, from time-to-time, relied on adjunct faculty members to deliver courses due to sabbatical and maternity leaves, and a small number of course releases. These resources have not always been available so our FTE has fluctuated somewhat, much more than one would find in a large department. However, faculty members have worked hard to keep course offerings consistent and SCH production fairly high.
- SCH/FTEF: As with SCH production, there has been some fluctuation in SCH/FTEF. The salient point is that production is high in our department. In Environmental Studies the average SCH/FTEF is 467.4 while in Geography it is 1199.0. If these numbers only reflected lower-division credits, which they do not, this represents revenue of \$104,230.20 for two tri-partite environmental studies professors and \$267,377 for one bi-partite geography professor.
- Enrollment/FTEF: Again, there is fluctuation during the seven-year period in both environmental studies and geography. However, enrollment/faculty member is high, with very small numbers of those students being accounted for by adjunct faculty. The faculty of the Department of Geography and Environmental Studies are highly productive in teaching enrolled students.
- FTES/FTEF: The efficiencies described above are clearly seen in the metric of full-time equivalent students/full-time equivalent faculty. The two environmental studies faculty average 15.6 students with only a small decline, consistent with overall enrolment declines across the university. The sole geography faculty member averages 26.1 students with almost no decline between the initial and last year, though there was a peak of students four years ago.
- Class Size: Class sizes have declined somewhat over the seven-year period, though it should be noted that during this time, our young department set standards for class size based on course level and our intensive use of written assignments and civic engagement projects. These class size adjustments were made in consultation with the dean’s office and will not change in the immediate future. Despite these changes, class sizes are still high. In environmental studies, which includes a number of lab, field-based, and professional development classes, the average over the seven-year period is 17.5. In geography, which largely has traditional lecture classes but also includes a seminar and a lab class, the average is 33.0.
- Cost/SCH: Cost/SCH has remained fairly consistent over the five years for which we have data. The average for environmental studies is 332.3. In geography that cost averages 142.6.
- Tuition revenue/SCH: Tuition revenue/SCH is, predictably, higher for environmental studies than geography as we offer significantly more upper-division courses in the former than the latter.

### **3. Program Quality, Improvement and Student Success (1500 words or less)**

The Environment and Society Bachelor of Science has been, since its inception, a program focused on currency, professional development, and high-impact teaching practices. While our

faculty is small, it prides itself on being flexible and responsive to changing professional needs and the changing landscape of university pedagogy.

As described above, the program was developed in consultation with professionals in environmental fields. Since the program's founding we have remained closely in touch with environmental professionals as we have made incremental changes our program. We have stayed attuned with the professional field for a variety of reasons: 1) All of our students are required to take internships, keeping us in touch with student work experiences and coordinating with professional work supervisors, 2) several of our courses have strong professionally-driven objectives including our environmental planning and problem solving course and our field methods course, and 3) all students take two professional development courses which bring them and our faculty into close touch with our professional peers.

These professional development courses themselves are pedagogically innovative. They require students to develop electronic portfolios which they are then able to use in their job search. In addition, the portfolios are used to assess student learning outcomes in the major program. Other courses also employ high-impact practices. Most of our courses have a community-engagement component and many include service-learning and/or undergraduate research. This is particularly the case for our capstone environmental planning and problem solving course which is a studio and field-based course with required service-learning work.

It is important to note that the fields of geography and environmental studies have always employed field experiences and many of our courses continue to do this, even with the growth of online classes. Our department has also sponsored several short-term faculty-led study abroad initiatives.

Since the program began granting degrees, about ten years ago, we have had 91 graduates. (N.B. The Department of Geography and Environmental Studies has been staffed, fairly consistently, by only three full-time, tenure track faculty.) We have made an effort to track our students after graduation and we currently have information on about 55 out of our 91 graduates.

As with any major, not all of our students graduate to work in high demand jobs, but we have evidence of at least 37 of the 55 for which we have information working in an environment-related field. Of those students, at least 27 are working in Alaska in environment-related fields, and there are a number of others living in Alaska working outside of the field. We seem to also have a number of entrepreneurs who emerge from our program. We know of several working in real estate, several environmentally-inspired artists, a designer, and one former student who started a business in sustainable agriculture.

To our knowledge, at least six students are currently in graduate school, five of whom are pursuing their degrees outside of Alaska with the hopes of returning to work in the state.

As by design, the bulk of our students take positions in Alaska-based environmental fields and a large number go on to work in local, state, and federal agencies regulating development. It has always been our contention that Alaska needs Bachelor of Science degree programs that will teach *Alaskans* how to apply environmental principles, techniques, and regulations to problems facing our state.

A list of 10 notable positions our students have secured post-graduation are:

- Environmental Science and Engineering Officer, US Army
- Large Project Coordinator, Alaska Department of Natural Resources
- Planning & Environmental Coordinator, BLM Anchorage Field Office
- Environmental Program Specialist, Alaska Department of Environmental Conservation
- Program Coordinator, Alaska Harmful Algal Bloom Network and Alaska Sea Grant Fellow with Alaska Ocean Observing System
- Wildlife Technician, Alaska Department of Fish and Game
- Scientist, HDR
- Natural Resources Specialist, State of Alaska Division of Oil and Gas
- Education and Outreach Specialist, Anchorage Museum
- M.S. graduate student, Center for Wildlife Ecology, Simon Fraser University

#### **4. Program Duplication / Distinctiveness (300 words or less)**

The Bachelor of Science in Environment and Society at the University of Alaska bears similarity to the UAF Bachelor of Science in Natural Resources and Environment, and the UAS Bachelor of Science in Environmental Science (though less than most parallel majors). All three of these programs require similar coursework and appear to have similar student learning objectives.

We are committed to working with our colleagues in both of these programs to share and merge programs where it is reasonable and would not impact student learning. Over the past several years we have contacted faculty members at both UAF and UAS with a mind to doing this but have not received encouraging replies.

It is important to note that environmental fields do require a significant amount of fieldwork and certain classes do not lend themselves well to being taught in an online environment. Notably, field methods courses, environmental planning courses requiring field time, and GIS courses with field data collection components should be taught independently at each institution. Beyond that, there are definitely opportunities to work with our colleagues to produce a more streamlined and efficient program in our field. We await opportunities to collaborate.

As highlighted earlier, all of these programs prepare students for a large number of in-demand occupations. Given that a large number of environmental positions are located in Anchorage, having a program centered in the state's population center provides maximum opportunities for internships, student work experience, and employment after graduation.

Our department has found the coordinator of UAF's Bristol Bay Certificate in Environmental Studies, to be very receptive to collaboration. In fact, we have begun work on a partnership to give our students an opportunity to take a field methods class at the Bristol Bay Campus.

#### **5. Summary Analysis (500 words or less)**

The Environment and Society degree program was developed approximately a decade ago in consultation with agencies and organization. As such, our program has always maintained a high

degree of relevance and practicality in order to meet our mission of providing a pipeline for environmental professionals in this state.

We strive to be innovative in our pedagogical approaches in order to expose students to what their job situation will be like when they graduate from college, as part of our commitment to providing “real-world ready” students to the environmental workforce of Alaska. We maintain four separate concentrations within our major so that students can tailor their learning to their previous experiences and to the aspect of environmental science that is most interesting to them. The majority of our classes employ high impact teaching practices such as undergraduate research experiences and service learning opportunities where students are learning about issues and solutions currently being worked on in Alaska. We also require that students complete an internship, and then use our research and service connections across the Alaskan environmental community to provide internship and later job opportunities for students and recent graduates. Our department also provides several popular GER courses (GEOG A101 and A111, and ENVI A211) to the larger UAA community. We do all of this with only three full-time faculty, who produce a large number of student credit hours per FTE: an average SCH/FTEF in Environmental Studies of 467.4, and in Geography of 1199.0.

Our Program Quality statement should evidence that our degree program places students in real environmental careers, largely in Alaska. We see several opportunities for expansion of our program and for working with related environmental programs at UAS and UAF. (1) The second largest private-sector employer in Alaska is the tourism industry, with a 78% resident hire rate, yet no department within the UA system provides an opportunity for Alaskan students to study tourism as a major or work with faculty doing relevant research. This is a significant omission that could be corrected by our department, as we have suggested numerous times recently. (2) It could be efficient to combine forces across the three environmental programs within the UA system, such that students first take a singular set of lower division, online courses that meet their GER requirements and prepare them for advanced study, and then take upper division courses in a face-to-face environment at one of the three campuses where faculty focus particularly on the environmental resources and issues that most affect that area of the state. For example, in Anchorage issues of urban planning, recreation and tourism development, and environmental management at the state and federal levels are important for students to experience. In Juneau, students might focus more on work with the fishing industry and in Fairbanks, students might be trained to specifically monitor Arctic change - enabling students to choose their campus based on their interests and allowing faculty to focus on providing locally-based, high-impact experiences.