

# INTERDISCIPLINARY EDUCATION AND RESEARCH AT THE UNIVERSITY OF ALASKA FAIRBANKS : PROSPECTS AND CHALLENGES

Report of the Faculty Senate Task Force on Interdisciplinary Studies

November 17, 2013

## TASK FORCE MEMBERS

- Craig Gerlach, Center for Cross Cultural and Indigenous Studies; Institute of Arctic Biology; Committee Chair
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- Raymond J. Barnhardt, Alaska Native Knowledge Network, Center for Cross Cultural and Indigenous Studies; Member
- Lawrence K. Duffy, Institute of Arctic Biology, Chemistry and Biochemistry; Member
- Ginny Eckert, Fisheries and Ocean Sciences; Member
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- Gary Jacobsen, Secondary Education; Member
- Chanda Meek, Political Science; Member
- Silke Schiewer, Civil and Environmental Engineering, Engineering and Mines; Member

## EXECUTIVE SUMMARY

Interdisciplinary research and education are increasingly important in meeting contemporary challenges of society, offering opportunities for new discoveries, forms of dialogue, and problem solving. In response to the challenges in their established (and developing) programs, the University of Alaska Fairbanks interdisciplinary efforts and initiatives have a long history, but for the most part they have received limited institutional support and have emerged synergistically through self-organized faculty and student initiatives. Our task force was directed by the UAF Faculty Senate to explore the issue of how to advance interdisciplinary research and education at UAF, to identify barriers that impede their development. Barriers were identified at three levels and include, but are not necessarily limited to:

### Institutional & Administrative Level

- Limited institutional frameworks that support interdisciplinary research and education;
- “Bean Counting” allocation of resources and “credits

- Students who have advisors or committee members from different units are only counted for “primary” unit. Advising students that are housed in different units, or for serving on INDS committees are discouraged by some department heads or deans, ostensibly because of workload issues as defined by the Union and the statewide administration;
- Space (offices, labs) is allocated primarily to faculty / staff who are clearly situated within one disciplinary unit rather than for faculty who work in interdisciplinary teams and/or thematically clustered groups
- Academic units “fighting” over revenue distribution based on student tuition because of an archaic statewide accounting system
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interdisciplinary teams to secure ~~per~~ reviewed external funding, to develop and promote interdisciplinary curriculum development, and to increase student enrollment and retention at both the undergraduate and graduate levels

Ultimately, achieving the growth and development of interdisciplinary research and education ~~4id Feolnal rquio r romg rend~~

## INTRODUCTION AND BACKGROUND

The Task Force on Interdisciplinary Studies at the University of Alaska Fairbanks convened in February, 2018 at the request of Faculty Senate President Jennifer Reynolds and President Elect, David Valentine. The committee was tasked with identifying existing problems, barriers, and constraints in the way that interdisciplinary studies at the University of Alaska Fairbanks (UAF) are organized and implemented. Using key findings from this report, the faculty senate is to target new ways of fostering cross campus faculty collaboration and finding more effective ways to create an institutional environment and "culture" that will help rather than hinder the progress of interdisciplinary research and education. This report is a compilation of several weeks of

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of the Intellectual Culture of Indians at Old Crow, Yukon Territory Anthropologists

internationally recognized for their efforts in the area of interdisciplinary research. However, the number of faculty with skills for designing and leading interdisciplinary research is limited. Moreover, these achievements have occurred as a result of efforts that are mostly self-organized by faculty working with no formal, well institutionalized framework that provides incentives and rewards for such work.

Based on the findings of this task force, we believe the UAF administration could contribute tremendously to the growth and development of interdisciplinary research and education by actively and formally encouraging such activities by students and faculty and by creating a functional institutional framework within UAF and at the statewide administrative level. Given national and international interests in interdisciplinary research and education, failure to move forward in this area may be reflected in lower enrollments, the loss of valuable faculty members and qualified students who choose more creative and forward looking educational institutions and potentially in the loss of funding streams through externally funded grants (e.g., NSF, NOAA, USDA, etc) that now require interdisciplinary elements. Continued failure to move forward, to move out of a mid 20<sup>th</sup> century academic model may also have an impact on high quality faculty retention as well.

In the sections below we describe several interdisciplinary research and education programs at UAF and other institutions, which support the identification of barriers and the recommendations listed at the beginning of this report.

## Existing Interdisciplinary Research and Education at UAF

### Undergraduate Studies

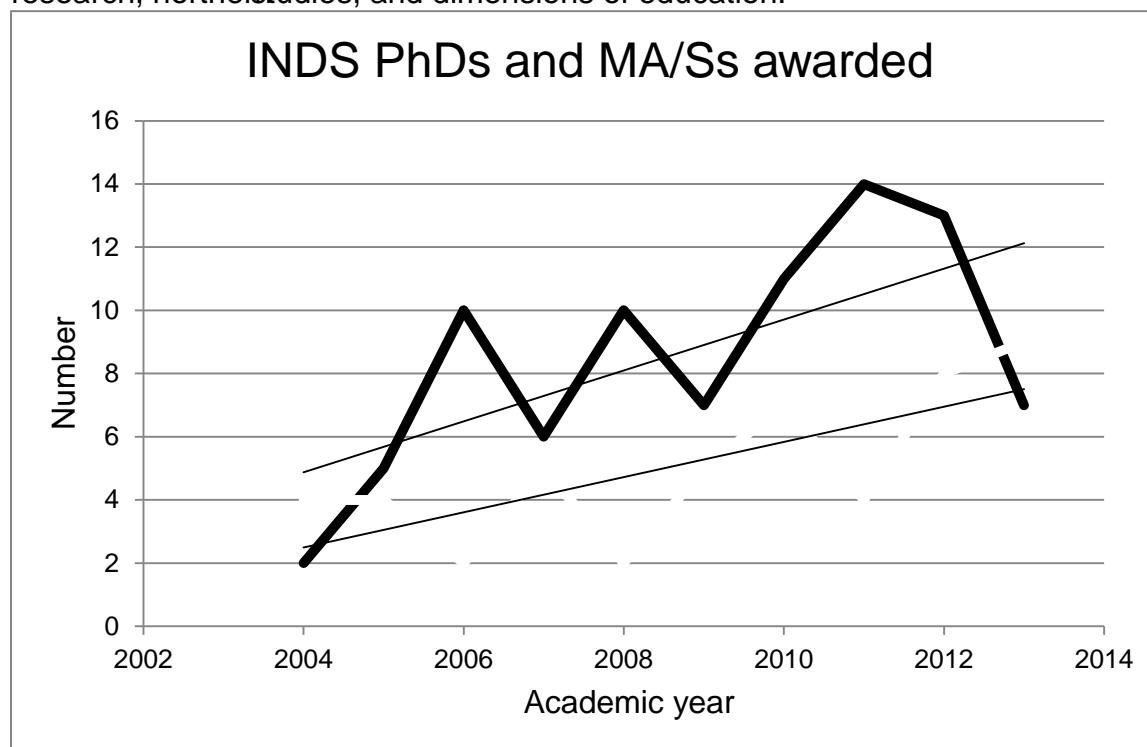
The conventional wisdom of undergraduate liberal arts education is that students should receive a broad-based education in the liberal arts and sciences. This education should provide students with a strong foundation in the liberal arts and sciences, which will enable them to pursue a variety of careers and to continue their education at the graduate level. The conventional wisdom of undergraduate liberal arts education is that students should receive a broad-based education in the liberal arts and sciences. This education should provide students with a strong foundation in the liberal arts and sciences, which will enable them to pursue a variety of careers and to continue their education at the graduate level.



## Interdisciplinary Graduate Program Mission and Practices

UAF currently offers interdisciplinary (INDS) graduate programs at the MS and PhD levels, programs that are intended for students whose research does not specifically fit graduate programs offered by specific disciplines. The primary mission of the Interdisciplinary Master's and PhD Programs is (1) to provide opportunities for quality graduate education through student and faculty collaboration in research, education, and scholarly activities; (2) to create opportunities for students and faculty to work conceptually and pragmatically across disciplines; and (3) more realistically, the existing INDS program works well for disciplines that do not have a formal graduate program, but that clearly do have interest in an access to the necessary interdisciplinary expertise for successful completion of an INDS graduate degree, with this coupled with a strong student interest in interdisciplinary research and education.

Overall INDS graduate enrollment increased from 53 students in fall, 2004, to 108 in spring 2010, with a PhD/MS student ratio of approx. 3.5:1. Records show that the increase in INDS graduate students is greater than the overall increase in total number of graduate students at UAF. Thesis projects often fall within clusters of topic areas, such as sociological systems research, northern studies, and dimensions of education.



Blue = PhD; red = MA/S ( source: 2013 Graduate School Draft Report)

Recent program reviews show that over half of the UAF faculty members are now or have in the past successfully comprised INDS graduate committees, and that program quality is equal to or in some cases greater than what is expected of disciplinary PhD degrees. These committee members are either UAF faculty or scholars from other



While intended for truly interdisciplinary projects, the INDS PhD program also serves as a placeholder for disciplines where there are no specific graduate programs available (e.g., Education). In several cases, the INDS program has served as an “incubator” for emerging degree programs while specific graduate programs are being established (which can take years) such as the PhD in Indigenous Studies or the PhD in Engineering. This means that not all INDS graduate students necessarily pursue truly interdisciplinary research; some projects are interdisciplinary in name only, simply because no alternative program exists. During 2002-2010, the largest number of INDS PhD students was associated with CLA, followed by CNSM, SNRAS and the School of Earth and Atmospheric Sciences. There is a Synthesis Report available for review in the Graduate School.

In some cases, students who have applied to the INDS program would fit well enough within a specific existing PhD program, raising the question as to whether or not applicants have sought to avoid the restrictive standards imposed by existing programs; in some cases prospective students who apply to the INDS Program may actually have been denied acceptance by discipline-specific admissions committees. A mechanism could easily be put into place to avoid a problem of the perceived and/or real “ceiling,” but it is important to note that there are also many students who apply to the INDS Program with legitimate interdisciplinary interests. More than there are students who are applicant “refugees” from existing departments and programs, and this is becoming increasingly the case as the educational and research landscape is changing nationally and internationally.

The current INDS program provides for much flexibility due to its broad scope. For

(CANHR), and the Northern Studies Masters Program as additional excellent examples that crosscut disciplinary boundaries, each with a different set of objectives, mission and mandates. With the hope that UA administrators will find creative ways to move interdisciplinary research and education forward, the following serve as good models to review.

Water and Environmental Research Center (WERC)

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in coursework, internships and thesis research that transcend disciplinary boundaries in new and innovative ways.

## PhD Degree in Sustainability and Natural Resources through SNRAS and SOM

The NRS PhD program is a joint effort of the SNRAS and SOM established in 2009. The program was created with the intent of leveraging the existing resources, without additional budgetary requirements. This leveraging includes a pool of participating faculty with expertise in the social and natural sciences, and in public policy development. It is distinguished from other UAF programs through the emphasis on research and education of natural resource issues specific to Alaska. The program is organized thematically and in an interdisciplinary ways, with emphasis on: (1) resource economics; (2) resource policy and sustainability science; and (3) forest and agricultural sciences. A limiting factor, however, is a consistent funding stream to support graduate student education, and to enhance program development.

Students are encouraged to cross the thematic areas, and/or to select courses in related disciplines. The multiand interdisciplinary focus of the program allows for students to have a broad base of academic experience and expertise from which to draw. Student interest has been strong from the inception of the program. With the exception of economics, there is no Fund 1 money for research assistantships or program development dedicated to this program. Despite the funding limitations, student numbers have consistently ranged from 12 to 15 over the last three years.

## OTHER UNIVERSITIES, OTHER MODELS

Universities across the country are in various stages of creating new and innovative interdisciplinary programs for both research and undergraduate education. Given the purpose of our report, the examples provide insights into others' experience and thus provide a road map for linking interdisciplinary ambition to action. As demonstrated from these examples, universities that have successfully transitioned to strong interdisciplinary efforts have attracted a greater number of externally funded research grants and contracts, as well as a greater number of students.

with a Hawaiian orientation to positively contribute to the expansion of new knowledge at UHM.

The Chancellor's Office at the University of Hawaii Manoa initiated the "Cluster Hire Innovative Program" that has now added ten new Native Hawaiian hires, and one First Nations faculty member from Canada, faculty in much needed and specifically target areas across the campus. This innovative program has filled many of the gaps in schools and colleges across campus that will greatly benefit from the presence of Native Hawaiian faculty. Faculty are appointed to a cluster hire position on a 25% or 75% assignment in a participating college or school, with 75% workload appointments



The University of California at Davis (UCD) institutionalized interdisciplinary Graduate Groups to provide graduate students with the intellectual freedom to transcend disciplines, and this framework has been in place for over 40 years. Today, a majority of UCD graduate programs, 47 out of 87, are organized in this fashion. This university structure retains a standard college and departmental organization, through which undergraduate programs are administered, faculty are hired and classes offered, but this allows for graduate education to go beyond these boundaries. Graduate Groups bring together faculty from departments across campus around a common theme. For example, the Graduate Group in Ecology has 200 students and 126 faculty members from 32 different departments/units on campus. Faculty from different departments can apply for a three year appointment to the Graduate Group, which requires teaching and serving on graduate and other administrative committees of the Group.

Only faculty in the Graduate Group (note that the departmental restriction in place at UAF is not pertinent to the UC Davis program) may serve as major professor for graduate students in that program. Faculty can belong to more than one Graduate Group, and many do. The Graduate Group has an administrative home that is based in the department of the Chair of the Group, with staff responsible for administering the graduate programs within this Group. Students in a Graduate Group earn their degree from the Group. For example, students in the Ecology Graduate Group earn a PhD or MS in Ecology, with a specified Area of Emphasis, that ranges from biological orientation, e.g. Physiological Ecology, to a more social orientation, e.g. Environmental Policy and Human Ecology. There are a variety of Graduate Groups within traditional disciplines; for example, the College of Biological Sciences includes 8 Graduate Groups and 5 academic departments. This model allows for great flexibility for graduate education, and although not explicitly stated, likely synergizes research across disciplines as well.

#### “The New American University Research University as Knowledge Enterprise at Arizona State University

Under the leadership of its President, Dr. Michael Crow, Arizona State University embarked on a comprehensive reorganization (2002) of its academic departments to emphasize an orientation towards problem solving around themes, rather than a traditional model of discipline-specific departments. President Crow, an expert in knowledge-based organizational innovation, led the reorganization. Imagine ASU as “...an egalitarian institution committed to academic excellence, inclusiveness for a broad demographic, and maximum societal impact” (Crow, 2010: 3). Drivers of institutional change included the growth of the university (approaching 70,000 students), the changing market and global reach of major research universities (e.g., American universities moving into foreign markets, Chinese investment in education at home), and rapidly changing demographics in Arizona that required a new approach to maintain access and affordability of higher education. Crow argued that the desire of many research universities to emulate Ivy League or other elite institutions works against a vision of shared societal prosperity, socioeconomic mobility and a more educated American population.

To meet these challenges, ASU established a reorganizational design team of administrators and faculty members and others who reviewed its academic operations and organization and recommended that the University reposition itself as a federation of research and teaching colleges, schools, interdisciplinary research centers and departments. As ASU has four campuses (main and three satellite), each campus has its own distinctive character and mission.

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