

Cluster Hub for Interdisciplinary Education in Environmental Sustainability

Justification

Environmental Sustainability has become one of the major societal questions of our time. It cuts across traditional disciplinary boundaries: hydrology (can we provide sustainable water supplies for an increasing number of people); economics (what are the ecological costs of ongoing economic growth), sociology and demography (how many people can the earth support?). Furthermore, investigations about sustainability all take place in the context of a changing climate and its associated impacts on ecosystems and people. Beyond the natural and social sciences, issues related to sustainability involve philosophy, education, ethics and policy as well: what are the rights of future generations? Are we spending our children's environmental heritage? Can regions and nations pursue both environmental justice and economic development at the same time? What policy changes are needed to lead the way toward greater sustainability?

As a major research university with a large undergraduate population, UMass Amherst is positioned to contribute to an intellectually rigorous and scientifically grounded approach to sustainability. A joint hire between the Bachelors Degree in Individual Concentration (BDIC) program and the department of Natural Resources Conservation (NRC) will provide not only scientific rigor and depth but also the interdisciplinary connectivity and breadth in which sustainability and the environment can be given all the inflections it requires. The initial hiring plan is built around a new faculty hire that will integrate interdisciplinary undergraduate education through a formal appointment between BDIC and NRC. The new hire will be in *Sustainability and the Environment* (BDIC/NRC). A future hire is envisioned in Social Ethics and Sustainability; this current proposal focuses on an initial junior position.

Position Description As one of the premier 'green' departments at the University of Massachusetts, NRC's undergraduate and graduate programs span the fields of environmental science, ecological conservation (wildlife conservation, forest conservation, aquatic ecology conservation), building technologies & green construction.

There is a solid base of excellence on which to build. A recent Chronicle of Higher Education has published excerpts of the latest Academic Analytics Faculty-Productivity Index. Three programs in the Department of Natural Resources Conservation rank in the top 10 nationally: Wildlife Sciences at UMass Amherst is ranked in the top ten nationally (#4); Forest Resources at UMass Amherst is ranked in the top ten nationally (#7); Fisheries Science at UMass Amherst is ranked in the top ten nationally (#10). Also, all faculty members in Building Materials and Wood Technology teach required courses in and serve as faculty of the new graduate program in Architecture. Architecture at UMass Amherst is ranked in the top ten nationally (#8) in the category of Architecture, Design, and Planning.

Founded in 1970, the Bachelor's Degree with Individual Concentration was one of the first individualized major programs in the country. BDIC students formulate interdisciplinary concentrations that combine courses from three or more departments. The program is housed in the Commonwealth Honors College. Over the decades, numerous departments, including most recently the undergraduate Public Health Science major, have evolved out of the demand reflected by students in BDIC. At the same time, BDIC saves the university the massive expense of creating new departments in response to every new academic trend. BDIC currently serves about 300 students and is the second largest program of its kind, after the Gallatin School for

Individualized Study at New York University.

Recent BDIC concentrations include: “Global Sustainable Nutrition,” “Sustainable Farm Management,” “Sustainable Systems and Public Health,” and “Marketing and Public Relations in the Green Industry.” There are now 40 BDIC students with concentrations like these, primarily focused on sustainability, and a large number of other students for whom sustainability plays a smaller but significant role in the concentration.

A joint NRC/BDIC hire in Sustainability and the Environment will strengthen both programs, expand the options for BDIC students in sustainability and foster an integrated relationship between BDIC and NRC. The faculty tenure line will reside with NRC, with teaching and service appointments shared between BDIC and NRC.

Qualification We have supporting feedback from relevant third parties. The department of Natural Resources Conservation (NRC) conducted an AQAD review in 2005-2006. NRC prepared its response to the review team in June 2006. The AQAD review team recommended a primary faculty line in the area that focuses on Urban Environmental Policy and Planning. The department agreed with that conclusion. Since that time the department of NRC has focused more intensely on Environmental Sustainability. We have just concluded a yearlong restructuring of the department programs and the faculty senate approved our revisions in May 2009. Our department now includes the Environmental Science major. The Building Materials and Wood Technology (BMATWT) program now has a Green Building certificate program and a MS graduate concentration in Green Building. BMATWT has hired an assistant professor in Green Building and changed its name to Building and Construction Technology (BCT) with a primary focus on the integration of built and natural environments. The other 4 majors have combined to form one major called Natural Resources Conservation. This new NRC major has 6 concentrations: Wildlife Ecology & Conservation, Fisheries Ecology & Conservation, Forest Ecology & Conservation, Urban Forestry & Arboriculture, Water Resources, and Environmental Conservation. Because of all these changes, the position we are proposing is timely and appropriate.

There is no national ranking of BDIC-type programs. However, in 1986, as part of the Regents Institutional Program Review, BDIC was evaluated by an outside faculty committee which observed: “There is no question, again, that the Program at UMass exceeds in quality and effectiveness other individualized degree programs with which the committee was familiar.” A 2006 AQAD report also praised the program and recommended that the university supply more faculty support, including a half-time faculty director--a change that was implemented in 2008. The new director proceeded to co-organize the first national conference for leaders of individualized major program, held at Indiana University, Bloomington, in March 2009. Attending that conference was a dean from Drexel University charged with creating a new Custom Major program. He concluded that BDIC was the best model and has arranged for the BDIC director to function as a consultant to his fledgling program.

Departmental Support NRC has 18 faculty at a rank of Associate or Full professor who have an expressed interest in participating and leading this interdisciplinary cluster concept in Environmental Sustainability. It has been the topic of several faculty meetings and of our faculty retreat. This faculty hire will be integrated with all of the programs in the NRC department, which we think already represents a cluster of sorts; and form solid connections between NRC and BDIC. This position would act as the “glue” that is needed to optimize the interactions between research, teaching and service that is focused on the integration of the built and natural environments.

Position Duties

Teaching: The joint hire will teach 7-9 credits per year: these will include a major undergraduate course in environmental sustainability, a BDIC proposal course in which students with sustainability-related concentrations will develop the intellectual underpinnings for their course of study, and one other NRC course at the 500-level or above in an area of specialization. The focus of the teaching appointment is to develop a focus on Interdisciplinary education in the area of Environmental Sustainability.

Research: The faculty member will develop an active research program that advances NRC's two primary goals of (1) securing major interdisciplinary grants to train graduate students in interdisciplinary research and (2) increasing the number of undergraduates involved in research by advising Commonwealth College Senior Theses on environmental topics. The candidate's own research program will span at least three areas within NRC, with demonstrated ability to work across departmental lines within the new College of Natural Sciences (e.g. Geosciences, PSIS, Biology). Research areas that investigate ecological processes and the interaction between societal needs and ecological sustainability are particularly encouraged. Examples include: vulnerability of water resources to climate change, land conservation policies that provide a sustainable stream of 'green' ecosystem services, biodiversity conservation in the context of human needs for economic development. A major part of the faculty member's service expectation will be to work as an interdisciplinary catalyst with faculty from NRC and the College of Natural Sciences (CNS), helping a lead PI to assemble teams and to compete successfully for federal grants.

Service: Within BDIC, the faculty member will mentor BDIC students interested in Environmental Sustainability. S/he will coordinate all sustainability-focused concentrations through advising, sponsoring, and leading an interest group of existing faculty on campus. Experience in academic administration would be advantageous: the campus is considering a Minor in Sustainability that would complement BMAWT, LARP, WFCON and BDIC. A major portion of the faculty member's service effort will be allocated to the development and submission of large grants at the request of the Dean and Department Heads.