

## Environmental Conservation – The Undergraduate Experience

We, in the Department of Environmental Conservation (ECo), are passionate about our mission - *the stewardship of healthy and sustainable ecosystems that provide important human and community benefits* – and about making a BIG difference in the world. By virtue of this mission, our breadth of expertise, and our inherent ability to reach across disciplines, ECo is uniquely qualified and deeply committed to training the next generation of scholars and practitioners. We prioritize undergraduate education and our students emerge prepared to solve the complex, global challenges of environmental sustainability.

**We are the largest and most diverse flagship program in Environmental Conservation, Environmental Science, Sustainability Science, and Building & Construction Technology (Green Building) across all public and private universities in New England.** As such, ECo – in concert with our diverse on-campus partners – have the capacity to make UMass Amherst the **“destination of choice” for students interested in sustainability and the environment throughout the Northeast.** We also play a pivotal role in fulfilling the university’s promise of *“embracing responsibility for the sustainability of the planet, for the progress of society, and for the development of each individual”*.

In this summary, we highlight why UMass Amherst and ECo, in particular, are poised to be the destination of choice for prospective students interested in earth, sustainability, and environmental sciences. The following topics are presented in our summary:

- **Two Big Ideas** that ECo is pursuing in concert with on-campus partners, including creating an interdisciplinary School and a new undergraduate major;
- **Key strengths** that distinguish ECo, providing our majors very effective undergraduate programs and high-quality educational experiences; and
- Potential **areas of improvement** to strengthen and increase the attractiveness and effectiveness of our undergraduate programs.

For this summary, ECo combines our two majors - Building & Construction Technology (BCT) and Natural Resources Conservation (NRC), as well as the interdisciplinary Environmental Science (ENVIRSCI) major that is co-administered by ECo and GeoSciences with faculty from both departments advising majors and teaching core and elective courses in ENVIRSCI.

### **ECo’s Two BIG IDEAS**

We are launching two initiatives to move forward two BIG IDEAS that capitalize on a) academic programming and coordination, and b) the rapidly growing student interest in sustainability. The goal of both of these initiatives is the make UMass Amherst **the destination of choice for prospective students interested in earth, sustainability and environmental sciences.**

**Initiative 1: Establish the School of Earth, Sustainability & the Environment to increase both the attractiveness and effectiveness of undergraduate programs at UMass Amherst.**

## **Rationale:**

UMass Amherst offers a wide array of academic programs in earth, sustainability & environmental sciences. Yet, these programs reside in different departments across the campus and are largely uncoordinated. **The School would unify programs and provide the framework to:**

- 1) Improve program effectiveness for our students (e.g., retention, graduation timeline)
- 2) Maximize attractiveness to prospective students
- 3) Create cohesion across our undergraduate programs
- 4) Improve our capacity to develop new and expand existing interdisciplinary programs

## **Description**

The School would be established within the College of Natural Sciences (CNS) to serve as the central hub for academic programs in earth, sustainability & environmental sciences.

- **Focus on undergraduate programs**
  - Including single unit majors and interdisciplinary majors.
  - Participating majors/concentrations may include, but are not limited to: Building & Construction Technology, Environmental Science, Geography, Geology, Natural Resources Conservation, Sustainable Food & Farming, and Sustainable Horticulture
- **A creative partnership with multiple units from across campus**
  - Partnering units could contribute to the School in one of two ways:
    1. Lead Unit: individually or jointly administer a degree program.
    2. Supporting Unit: offer elective courses related to earth, sustainability & environmental sciences.

## **Benefits**

The following are some of the identified benefits for this BIG IDEA initiative:

- **Recruitment: Improve our attractiveness to prospective students**
  - Showcase undergraduate programs in a single snapshot with consistent messaging and information; programs are topically relevant and align with students' interests
  - Create a unified, cohesive brand for our diverse programs
  - UMass Amherst would be the only university on the East Coast with a “school” focused on, but not limited to, sustainability
- **High-Quality Educational Experience**
  - Improve program effectiveness by creating cohesion across majors (e.g., faculty advising, degree program information, hands-on experiences)
  - Better meet the needs and expectations of current students
  - Offer greater educational flexibility
- **Opportunity for growth**
  - Provide stronger interdisciplinary connections needed to support the creation of new undergraduate programs

**Initiative 2: Develop a new interdisciplinary undergraduate major focused on sustainability to meet the substantial and growing student demand for an academic program in this subject area.**

**Rationale:**

By creating a new undergraduate program in sustainability, UMass Amherst will be the “destination of choice” for prospective students in the Northeast and beyond. In several recent national Princeton Review polls, over 60% of prospective college-bound students indicated that an institution’s “*commitment to environmental and sustainability issues (from academic offerings to practices concerning energy use, recycling, etc.)*” contributes to decisions to apply to or attend a school. Further, UMass Amherst scored a perfect 99 in a survey of 861 schools for the 2015 edition of Princeton Review’s Guide to Green Colleges, recognizing our strong commitment to sustainability in our academic offerings, campus infrastructure, activities, and career preparation. Although UMass Amherst offers a number of undergraduate programs related to sustainability, there is no single major on campus that directly matches this student interest.

To capitalize on this large and growing demand from college-bound students, we propose to develop a **new interdisciplinary undergraduate major in sustainability**. With relatively few institutions offering sustainability undergraduate programs, there is an open niche for UMass Amherst to attract substantial numbers of in-state and out-of-state students. Following the highly successful model of our interdisciplinary Environmental Science program at UMass, we propose to develop a new major in sustainability in collaboration with partner units that would be coordinated within the new proposed School of Earth, Sustainability & the Environment that we highlighted above.

### **What Makes ECo So Effective**

As a land grant university, our Department strives for excellence in education, outreach, and applied research. With strengths in all three areas, ECo offers students a well-rounded educational experience that extends well beyond the classroom. Our undergraduate programs are topically relevant and designed to provide an enriching educational experience. As such, ECo attracts and retains highly competitive students, who graduate prepared to make legacy decisions for environmental sustainability. Further, ECo is a community of students and scholars who recognize that we are most successful and effective when we share our expertise, time, talents, wisdom, and passion to inspire others to act and to excel in changing the world. We also recognize that we as a single department cannot achieve this goal alone; rather it will require a trans-disciplinary approach that brings together multiple disciplines and departments across campus.

Despite our size of nearly 700 undergraduate students, ECo provides a **small college atmosphere** within a large university. This is because we **prioritize the undergraduate experience** with

- high faculty accessibility,
- faculty-centered advising,

- a newly opened student success center for academic and career advising, and
- a heavy emphasis on experiential learning opportunities with a strong commitment to meaningful student engagement.

Further, our programs have **topical relevance** that align with student interests and connect to real-world problems in environmental sustainability. Our curricula are designed to meet the certification requirements of professional societies. Additionally, the design of our ECo programs provide much sought-after **educational flexibility** to students with numerous concentrations that allow students to tailor their studies to fit their individual interests in environmental conservation and sustainability. Lastly, our ECo programs offer **real-world experiences**, both in the classroom and beyond with

- hands-on training in the field and laboratories,
- internships,
- research experiences with faculty,
- emphasis on student-centered teaching, such as team-based learning,
- opportunities for community service learning, honors programs, and international exchange.

In ECo, we have carefully designed our degree programs so that students are able to navigate through their chosen degree program with a high level of productivity, educational value, and support. Once students have declared their major, they are generally able to complete their program of study in a timely manner.

Although the average (2008-2012) first year retention rate for ECo (68%) was only slightly higher than the average for all CNS units (64%) and UMass campus (66%), our 4-year and 6-year graduation rates were 10% higher than the average rates for all CNS units and the UMass campus. What sets ECo apart from other campus units is our faculty accessibility, individual faculty advising, and dedicated resources for student support, which helps to ensure a high-quality, efficient educational experience. This is reinforced by the responses of our graduates on senior surveys with ECo scoring higher than the averages for all CNS units and the UMass campus with ECo earning a 3.8 (out of a possible 4) for accessibility to faculty and 3.5 for both academic advising and career preparation.

ECo prioritizes the collective undergraduate experience by integrating academic training with hands-on experiences. Working closely with colleagues outside the university setting, ECo has a strong understanding of what our students need to be successful in their chosen careers – whether it be as researchers, practitioners, or decision-makers. Senior survey scores for overall experience in ECo (3.7) were higher than the average for all CNS units (3.5) and UMass campus (3.5). Similarly, scores for quality of teaching and career preparation were also much higher for ECo compared to the average for all CNS units and UMass campus. We credit our students' satisfaction to our efforts to align student interests with real-world problems in environmental conservation. Additionally, our ECo programs offer educational flexibility and numerous concentrations that allow students to tailor their studies to fit their individual interests in environmental conservation and sustainability. With an emphasis on experiential learning, our programs engage with students both in the classroom

and beyond with skills-based, hands-on training in the field and laboratories. Senior surveys indicated over 65% of our majors had hands-on experiences relative to 60% for all CNS units and the UMass campus.

## Areas for Improvement

Through ECo's planning process, we identified key strengths of our department that 1) distinguish us as the destination of choice for prospective students, and 2) provide a high-quality, efficient educational experience to undergraduate students. However, that process also helped to reveal potential areas of improvement. The following are areas of improvement that ECo would like to work towards addressing, in partnership with the college and the university:

- **Create the proposed School of Earth, Sustainability & the Environment, and a new interdisciplinary major in sustainability**, as described above;
- **Develop a comprehensive, systematic approach to marketing and communications** with the development of a work plan to guide our activities to ensure consistent messaging, and maximize our reach to prospective students, especially high school seniors, transfer students (especially from community colleges), and undecided majors within the university. We anticipate redesigning our webpage to be more user-friendly and up-to-date. ECo needs to improve our online presence to grab the attention of prospective students and give them an immediate sense of what it means to be an ECo undergrad.
- **Improve mechanisms and expand support for students transferring into our programs** to maximize the value of their existing experiences and reduce the timeline to graduation. We need to improve the ease, in which transfer students step into our programs. We would benefit from a better understanding of the typical educational background of transfer students and how their previous coursework applies to our degree programs. Also, there are excellent community colleges in our area with programs related to environmental conservation and sustainability, and we plan to greatly expand our relationships with these programs so that their top students are transferring into our ECo programs.
- **Enhance and diversify our academic and career advising opportunities** by expanding our student success centers for academic and career advising, development of supplemental advising opportunities (e.g., evening sessions and peer-to-peer mentoring), new seminar courses that include course and career planning, and new advising tools. Also, we could build upon our existing efforts to connect students with real-world experiences by developing a standard mechanism for identifying and disseminating information on experiential learning and professional opportunities. Further, ECo will explore opportunities to utilize our alumni network and contacts in the field to develop new internships for our students.
- **Build community:** Evidence shows that student-learning outcomes are greatly enhanced when students have an emotional connection within a learning community. We propose to develop 1) new outdoors team-building events, and 2) new seminar series to expand our ECo learning community and to enhance curricular and career advising.

- **Expanding our commitment to the Honors program.** Although ECo faculty currently teach quite a number of Honors 391A seminars and course colloquia, we intend to expand our offerings and regularize these seminar courses for CHC. We also propose to expand the numbers of ECo majors in CHC by targeted advising and faculty expanding more Honors research opportunities into their research programs.
- **Make sure all of our eligible majors are registered as part of the New England Regional Student Program (RSP).** This program enables New England residents to enroll at out-of-state New England public colleges and universities at a discount. Students are eligible for the RSP Tuition Break when they enroll in an approved major that is not offered by the public colleges and universities in their home state.
- **Promoting greater diversity within our student body.** Eco would like to work with UMass officials to target recruitment to under-represented groups and add support to those students once enrolled.
- **Routine programmatic assessment and student tracking** to identify and address potential issues, and use data to guide future planning. ECo intends to regularly review our programs to ensure that our degree programs continue to be achievable within 4 years. Given that courses can change over time, we believe this will help us identify and address any unforeseen changes (e.g., course cancelation or scheduling changes) that may impact a student’s graduation timeline. We will also continue to work within our department and with other units to further reduce scheduling conflicts for key courses.

### **Other Initiatives Worthy of Consideration & Investment**

- a. Considering faculty accessibility and advising is a critical element for student success and retention, build a college/campus culture that expects, values and rewards faculty-centered advising of undergraduate students within each unit.
- b. College leadership to equalize the cultural standards for faculty teaching appointments within a college to meet the instructional demands of undergraduates and accessibility to courses to improve 4 and 6 year graduation rates.
- c. Campus and college leadership to build a new culture that invests in “Professors of Practice” who are exemplary teachers and who are valued and rewarded in similar ways as tenure-track research faculty.
- d. College investment in startup funds for lecturers with equal vigor as for labs and offices for tenure track faculty.
- e. Fund a required “Boot Camp for Innovative Teaching” for all new faculty hires to expand student-active learning pedagogies across campus. The current FIT program in the Center for Teaching and Faculty Development is much too modest to meet demand and need.
- f. Expand access to new team-based learning classrooms to more faculty who teach TBL classes who have not been able to participate in the TBL or FIT programs through the Center for Teaching & Faculty Development.
- g. Challenge grants to departments to develop student success centers for academic and career advising within individual units.