



THE UNIVERSITY  
of  
**WISCONSIN**  
MADISON

October 1, 2009

Provost Paul DeLuca  
150 Bascom Hall  
Campus

Dear Provost DeLuca,

On behalf of the College of Agricultural and Life Sciences, I am pleased to submit the attached **Proposal to Increase Student Access in High Demand Courses in Introductory Economics and the Economics of Natural Resources and the Environment** for Phase 1 funding via the Madison Initiative for Undergraduates. This proposal meets the request for ideas that “generate faculty and instructional support ... to offer the courses, majors, and experiences students need” and those that “expand best practices and innovation in teaching and learning, curricular design, and student services in order to enhance student outcomes.”

This proposal seeks faculty and TA support for both the introductory applied economics course offered by Agricultural and Applied Economics and for three intermediate-level resource economics courses. Introductory economics is a popular course for many students across the university, and the Economics Department alone cannot satisfy the heavy demand for this preparation. Additional TA support for AAE 215 will enable the AAE department to help support the College of Letters and Science in providing this necessary prerequisite course. Meanwhile, growing interest in the environment and natural resources is increasing the need for campus to offer multiple courses on the economic aspects of these fields, yet this growth in student interest is occurring at a time of decreasing capacity for AAE to teach these very courses, due to recent and impending retirements among the faculty. MIU funds would enable the department to shore up these essential areas in the discipline to meet existing and anticipated student demand from multiple schools and colleges.

Sincerely,

Molly Jahn  
Dean and Director

## **MADISON INITIATIVE FOR UNDERGRADUATES**

### **Proposal to Increase Student Access to High Demand Courses in Introductory Economics and the Economics of Natural Resources and the Environment**

This is a proposal to increase access to high demand courses in introductory economics and the economics of natural resources and the environment. We propose to do this by hiring two faculty members and four academic-year teaching assistants in the Department of Agricultural and Applied Economics (AAE). These new positions will allow expanded access to four high demand courses that are presently capped and cannot meet student demand: Agricultural and Applied Economics 215, 343, 344, and 531. These courses serve students across the campus. In 2008/2009, of the 768 students enrolled in these classes, almost half were from outside CALS: 241 from L&S and 124 from other units.

#### **Introductory Economics Courses**

Introductory economics is in demand by large numbers of first and second year students wishing to go on to further study of economics and business. The initial economics course for these students is either Economics 101 or Agricultural and Applied Economics 215. Either course is a prerequisite for virtually all the next level courses that students need if they wish to continue in this area. Econ 101 or AAE 215 are equally satisfactory, formally designated prerequisites for such courses as the following:

Economics 102 (Principles of Macroeconomics);  
Economics 300 (Introduction to Finance);  
Economics 301 (Intermediate Microeconomics);  
Economics 302 (Intermediate Macroeconomics);  
Economics 310 (Measurement in Economics);

Business/Finance 300 (Introduction to Finance);  
Business/Risk Management 300 (Principles of Risk Management);

Agricultural and Applied Economics 320 (Managerial Economics);  
Agricultural and Applied Economics 322 (Commodity Markets);  
Agricultural and Applied Economics 373 (Globalization, Poverty and Development).

Many of these courses are then required for more advanced courses. Thus AAE 215 is an important gateway course for further study in the field. In addition, AAE 215 or Econ 101 is required for all undergraduate students in CALS, regardless of field of study.

Increasing access to AAE 215 will allow more students in Letters and Science, Business, Agricultural and Life Sciences, Engineering, Human Ecology, and others to pursue studies in economics and business without delaying progress toward degree. Over the past five years, approximately 30% of the students in AAE 215 have come from outside CALS: 22% from L&S and 7% from other colleges.

AAE 215 is offered in spring and fall, enrolling a total of approximately 500 students per year, with limits set by availability of faculty and TAs. **This proposal would allow more offerings and larger enrollment per offering, increasing enrollment in AAE 215 to approximately 1,000 students per year.**

### **Resource and Environmental Economics Courses**

The faculty members we seek to hire will also expand access to capped, high demand courses in the economics of natural resources and the environment. This is an area in which student demand is growing rapidly and now exceeds capacity; and it is an area in which interdisciplinary research has been capturing significant extramural funding. But it is an area in which faculty strength will be just 0.70 FTE by January, 2010.

At UW-Madison, core courses in environmental and resource economics are taught exclusively by faculty in the Department of Agricultural and Applied Economics. Three of these undergraduate courses, in particular, have served the campus community for many years:

- AAE 343, Environmental Economics (cross-listed with Economics and Environmental Studies) is always capped at 100 due to TA constraints, but the course always fills, with excess demand. This has been true for many years. The course has occasionally been offered in both spring and fall semesters, and yet remained full. This course serves students across all colleges: based on the last 5 offerings, 64% of undergraduates taking the class are from L&S, 13% are from Engineering, 9% are from CALS, and 13% are from other units, including graduate students (mainly from the Nelson Institute).

- AAE 344, The Environment and the Global Economy (cross-listed with Environmental Studies), has been offered 11 times since 1999. Its enrollment has grown in that time from 18 to 103. Like 343, this course serves students from many colleges: 58% are from L&S, 16% from CALS, 4% from Engineering, 4% are from Business, and 16% are graduate students, special students and others.

- AAE 531, Natural Resource Economics (cross listed with Economics and Forest and Wildlife Ecology) is likewise in demand by students across campus, especially students from the Nelson Institute; and many students are turned away. This is a math-intensive course, and enrollment has been limited to 25 because there is no TA available to help work closely with students on lab/homework assignments.

Gregg Mitman, Interim Director of the Nelson Institute for Environmental Studies, comments as follows about cross-campus student demand for these courses:

AAE 343, Environmental Economics and AAE 344, The Environment and the Global Economy, both cross-listed with the Nelson Institute, are important social science electives for students pursuing the Environmental Studies Certificate, which is the second-largest undergraduate certificate on campus. The opportunity to expand the access to these classes would be of great benefit to students from across campus pursuing the Environmental Studies Certificate.

Professor Randy Dunham of the School of Business writes that, “these courses seem particularly important to the Wisconsin School of Business given the increasing interest of our undergraduates in sustainability and global environmental and economic issues.”

It is clear that there has been significant unmet demand by undergraduates for these courses, and this demand is growing.

In addition to teaching the above undergraduate courses, the new faculty would share responsibility for the graduate field courses in resource economics, AAE 760 and 762. These very intensive taught courses (not reading seminars) are required by all graduate students selecting resource economics as a field of specialization.

Retirement and resignation have left the Department of Agricultural and Applied Economics with only 0.70 FTE to cover all the teaching in this area. This is insufficient to offer these courses in the future. The department is trying to fill gaps with advanced graduate students and visiting scholars until new faculty can be hired. It is entirely possible that as early as 2010 this campus will offer *no* core undergraduate courses in environmental economics or resource economics at a point in time when the economics of environmental issues are the staple of daily news and policy debate. **The proposed hiring would allow approximately 400 students per year to enroll in these classes.**

### **Student and Public Demand for Expertise in Resource and Environmental Economics**

Resource scarcity and environmental damage are hardly new concerns, but their prominence in Wisconsin, U.S. and international public discourse has risen in spectacular fashion. As a result, questions about natural resource exhaustion, greenhouse gas emissions and climate change, species extinction, ecological vulnerability, and sustainable development now guide research throughout the natural sciences, social sciences, and humanities. This ascent of environmental and resource issues is more than matched by strong growth of student demand for relevant educational experiences, by interdisciplinary demand for collaborations with environmental and resource specialists, and by public demand for deep, rigorous research to inform policy. In addressing resource and environmental issues, an understanding of the economics is primary. The New York Times (September 17, 2009) featured a major, front page article on groundwater pollution in Wisconsin—the result of agricultural runoff. This has long been a serious problem and the evidence presented in the article suggests that there are

continuing and serious public health implications. Economic research is needed to understand how to develop public policies to rectify this problem.

Public policy with respect to climate change is another prominent example. What are the implications of climate change for the U.S. and global economy? What are the appropriate policy instruments to address climate change? For instance, do economists think a cap-and-trade program is better or worse than a carbon tax? What are the obstacles to a global climate treaty? What concessions to global climate goals should be asked of low-income developing economies? These (and many others) are the sorts of questions and issues that our undergraduates should have the opportunity to examine, and that an inquiring public should be able to ask of faculty specialists at any major research university. Public concern with these issues is reflected in current student demand for resource economics courses, and this sizable demand continues to grow.

One example of the increasing student demand is the 2009 proposal by a group of L&S students for creation of a campus-wide undergraduate certificate in Sustainable International Development. Their focus on sustainability places a premium on understanding the economics of resource use, conservation, and pollution that are inextricably involved in the development process. Recognizing the centrality of economics in these issues, Dean Bousquet has asked the Department of Agricultural and Applied Economics to take the lead in helping these students refine their proposal.

### **Cross-College Partnerships and Collaborators**

The requested positions would fill a critical need for multidisciplinary work on environmental issues. AAE faculty in the sub-discipline find themselves in high demand as collaborators on research projects; and interdisciplinary research collaboration leads to interdisciplinary teaching collaboration. In the past 5 years, AAE faculty in the environment and natural resources field have collaborated with UW-Madison colleagues in areas as diverse as limnology, ecology, forestry, health, geography, zoology, botany, and complex systems modeling.

Two examples are offered to illustrate the point. AAE resource economics expertise was critical in helping the campus win the \$3.4 million NSF Integrated Graduate Education and Research Traineeship, entitled Biodiversity Conservation and Sustainable Development in Southwest China. This traineeship funds 19 PhD students in 13 departments in L&S, CALS, Engineering, Medicine and Public Health, and the Nelson Institute.<sup>1</sup>

AAE resource economics expertise also plays a central role in another major campus NSF grant, the North Temperate Lakes Long Term Ecological Research (NTL-LTER)

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<sup>1</sup> In addition to Agricultural and Applied Economics, the departments are Agronomy, Anthropology, Botany, Civil and Environmental Engineering, Forest and Wildlife Ecology, Geography, Land Resources, Political Science, Population Health, Rural Sociology/Sociology, Soil Science, Zoology.

project. Project leader Steve Carpenter, Professor of Zoology, has written about the key role of AAE resource economics participation in the NTL-LTER grant and the importance of continuing the partnership.

NSF has made a significant investment in resource economics at NTL-LTER. This investment makes NTL-LTER one of the important interdisciplinary programs at UW-Madison. Less than a year ago we received a renewal proposal for 6 years that will come close to \$9M counting supplements. Under the leadership of Bill Provencher we just received an additional \$1.5M for research on resource economics of invasive species. Other proposals are in planning stages. Significant grant-funded programs therefore depend on access to a strong cadre of resource economists at U.W. Madison. Such partnerships are essential for obtaining future interdisciplinary grants dealing with natural resources and the environment.

The NSF and other funding agencies are increasing their funding for research in natural resources and the environment, and at the same time they are requiring interdisciplinary approaches to such research. Economics is usually a required discipline. Resource economics is also viewed as important by the School of Business for their renewal application for a CIBER<sup>2</sup> grant, in which global sustainability will be one of the major themes. As with instruction, the number and scope of such collaborations is constrained by the limited number of faculty with relevant skills.

Tackling real-world resource and environmental challenges typically calls for work by interdisciplinary teams. As noted, this is a tradition among the AAE resource economists, and we would expect it of the new hires. Interdisciplinary research is the springboard for interdisciplinary teaching. Research collaborators from other departments provide a pool of colleagues to participate in class to illustrate the ways in which economic analysis is linked with biophysical research. These sessions acquaint students with the “language” of other disciplines and open them to the broader possibilities for applying their new economics skills. Many potential employers emphasize the need for students who can work in teams. This will be one way to prepare students for such employment.

One example of cross-disciplinary and cross college teaching is a course offered last year. Steve Carpenter, Monica Turner and Jake Vander Zanden from Zoology; Bill Provencher and Dave Lewis from Agricultural and Applied Economics, and Chris Kucharik from SAGE co-taught a graduate seminar on Ecosystem Services to 24 students. It was "add-on" teaching for all, but everyone agreed that it was a tremendously valuable experience.

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<sup>2</sup> Center for International Business Education and Research, funded by the Department of Commerce

## **Expanding and Coordinating Undergraduate Research**

The interdisciplinary research conducted by AAE resource economists represents a fertile arena for undergraduate research. One example is the UW's aforementioned NSF Long Term Ecological Research program focused on Wisconsin lakes. Students could join interdisciplinary teams gathering data in the state during the summers, and they could join teams undertaking analysis throughout the year. Since faculty teaching the courses are also doing the research, they can build into the classes preparatory opportunities for students who may want to go on to engage in such research. This coordination of research with teaching will improve both experiences for the student. In addition to NSF funds, these students would be eligible for the Holstrom Environmental awards as well as the broader-gauge Hilldale awards. As mentioned above, the experience of working in research teams will be good preparation for future employment.

## **Benchmarking**

Historically, UW-Madison has been a national leader in the field of environmental and resource economics. As recently as 2004, there were 5 economists on campus in this sub-discipline (three of them in AAE) as well as numerous others whose core research activities included environmental/resource applications. These numbers were roughly comparable with similar research universities elsewhere in the country (for example: UC-Berkeley, 6 core faculty; Cornell U, 4; U. Minnesota, 5; U. Michigan, 3). In the past three years, however, we have seen 3 retirements (a fourth is impending) and one resignation, and the fifth faculty member has reduced his appointment to 70%. Consequently, both our preeminence in research and – importantly – our capacity to offer undergraduate courses and graduate instruction in this sub-discipline are now severely compromised.

## **Measuring Progress**

The success of this proposal will be measured by the number of undergraduate students enrolled and the number engaged in related research. We expect to see major increases in enrollment numbers in the first year following the new hiring. These increases will come from students who attempt to register and would ordinarily be closed out, i.e., the kind of large unmet demand we now see. Additional increases are expected when word spreads that these courses now have increased capacity, thus bringing out students who had been discouraged and resigned to delaying their progress or switching fields. Thus by the second year, we expect to see further increases up to the numbers indicated above. Undergraduate student researchers are likewise expected to grow as new faculty hires expand the research options well beyond the examples cited above.

## **Recruiting a Diverse Pool of Candidates**

The department gets candidate pools that represent the full diversity of economics Ph.Ds through Job Opportunities for Economists (JOE). JOE is the primary job listing for all the various types of economics Ph.D. degrees (Economics, Agricultural and Applied Economics, Public Policy, and Business).

## **Budget**

### Two Faculty Members

One Assistant Professor: Salary - \$95,000; Standard start-up package of \$30,000 from the Graduate School, three months summer salary from CALS, and the opportunity to apply for a Hatch Grant.

One Associate Professor: Salary - \$120,000; Standard start-up package

### Four Senior Teaching Assistants

Half time: Salary -  $\$15,477 \times 4 = \$61,908$

## **Summary**

Responding to the invitation in the Madison Initiative for Undergraduates, we propose to seek two outstanding, any-level faculty hires and four lines of TA support. These additions will allow increasing enrollment in introductory economics AAE 215 and in the area of natural resource and environmental economics, AAE 343, 344, 531. The new faculty members will also be critical to UW's ability to attract extramural funding in this increasingly important area. As has been the tradition, we anticipate that the faculty positions will be filled by scholars who are both prominent (or in the case of a junior hire, capable of reaching prominence) within the profession and also enthusiastic about cross-discipline and cross-college collaborations on research and teaching.

**From:** Gregg Mitman <[gmitman@mailplus.wisc.edu](mailto:gmitman@mailplus.wisc.edu)>

**Date:** September 25, 2009 2:58:36 PM CDT

**To:** MARGARET M JAHN <[mjahn@cals.wisc.edu](mailto:mjahn@cals.wisc.edu)>

**Cc:** Ken Shapiro <[kshapiro@cals.wisc.edu](mailto:kshapiro@cals.wisc.edu)>, Lewis Gilbert <[gilbert2@wisc.edu](mailto:gilbert2@wisc.edu)>

**Subject:** Support for AAE MIU proposal

Dear Molly,

I am writing in support of the MIU proposal that the Department of Agricultural and Applied Economics has put together to hire two faculty members and four teaching assistants in the area of resource/environmental economics. AAE 343, Environmental Economics and AAE 344, The Environment and the Global Economy, both cross-listed with the Nelson Institute, are important social science electives for students pursuing the Environmental Studies Certificate, which is the second-largest undergraduate certificate on campus. The opportunity to expand the access to these classes would be of great benefit to students from across campus pursuing the Environmental Studies Certificate. In addition, the Nelson Institute recently partnered with Arizona State University, George Mason University, and Brown University on a \$10 million grant proposal at the request of the NSF SBE directorate to support a long-term research infrastructure network on humanistic and social science approaches to sustainability. The research focus of the UW-Madison hub in this network is on carbon as a new commodity, and Jennifer Alix-Garcia, a new faculty hire in AAE, is among the senior personnel on that grant.

Payments for carbon storage and other ecosystem services now occupies central stage in international economic development policy and funding, yet the social impacts of such payments and related governance issues are poorly understood. If we are successful in securing this NSF grant, an additional faculty member in resource/environmental economics in AAE will add greatly to the research infrastructure we are building at the UW-Madison in this area.

Sincerely,

Gregg

Gregg Mitman  
Interim Director, Nelson Institute for Environmental Studies  
William Coleman Professor of the History of Science  
Professor of Medical History and Science & Technology Studies

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----- Original Message -----

23 August 2009 [via email]

Dear Gary [Sandefur],

I'm writing to explain why I support this proposal from Ken Shapiro.

In these times, resource economics is a critical field for environmental science. We find that the public is asking for cost-benefit information more and more often when we are faced with big public policy decisions that involve the environment or natural resources such as fish, forests and wildlife. UW-Madison must be strong in this crucial area of policy making and research.

Yet resource economics is sparsely represented on our faculty. David Lewis left for another position. Bill Provencher has reduced his appointment so that he can pursue other interests with part of his time. Dan Bromley is on the brink of retirement. Buz Brock is terrific help with theory but does not have time to get involved with data-intensive field programs.

I have a particular interest because of the North Temperate Lakes Long-Term Ecological Research program (<http://lter.limnology.wisc.edu>). NSF has made a significant investment in resource economics at NTL-LTER. This investment makes NTL-LTER one of the important interdisciplinary programs at UW-Madison. Less than a year ago we received a renewal proposal for 6 years that will come close to \$9M counting supplements. Under the leadership of Bill Provencher we just received an additional \$1.5M for research on resource economics of invasive species. Other proposals are in planning stages. Significant grant-funded programs therefore depend on access to a strong cadre of resource economists at U.W. Madison.

Natural scientists in L&S also depend on collaborations with resource economists for teaching. Last semester, 6 of us (myself, Monica Turner and Jake Vander Zanden from Zoology; Bill Provencher and Dave Lewis from Agricultural and Applied Economics, and Chris Kucharik from SAGE) co-taught a graduate seminar on Ecosystem Services to 24 students. It was "add-on" teaching for all of us but I think everyone would agree that it was a tremendously valuable experience. We could not have conducted this remarkable course without generous participation of resource economists on the faculty.

For this reason I hope that the proposal to add resource economists to UW-Madison's faculty can be funded through the Madison initiative.

If you need further information about NTL-LTER, related research collaborations, or our teaching collaboration I will be happy to provide it.

Steve [Carpenter]

----- Original Message -----

**Subject:**Madison Initiative proposal for Econ and Econ of Natural Resources & the Environment

**Date:**Sun, 27 Sep 2009 15:00:41 -0500

**From:**Randall B. Dunham <[rdunham@bus.wisc.edu](mailto:rdunham@bus.wisc.edu)>

**To:**Mike Knetter <[mknetter@bus.wisc.edu](mailto:mknetter@bus.wisc.edu)>, Joan Schmit <[jschmit@bus.wisc.edu](mailto:jschmit@bus.wisc.edu)>, "Kenneth Kavajecz A." <[kkavajecz@bus.wisc.edu](mailto:kkavajecz@bus.wisc.edu)>

**CC:**Joan Schmit <[jschmit@bus.wisc.edu](mailto:jschmit@bus.wisc.edu)>, Ken Shapiro <[kshapiro@cals.wisc.edu](mailto:kshapiro@cals.wisc.edu)>, Gilles Bousquet <[bousquet@wisc.edu](mailto:bousquet@wisc.edu)>, Susan Miller Huber <[shubermiller@bus.wisc.edu](mailto:shubermiller@bus.wisc.edu)>

Mike, Joan, and Ken,

I recently received a copy of a proposal from Ken Shapiro in Agricultural and Applied Economics. There are two components to this proposal that are not only good for the campus in general but for undergraduate business majors.

The first component of particular interest to us is one that is focused on increasing access for undergraduates (including business undergraduates) to a series of high-demand, limited access Agricultural & Applied Economics courses. These are courses that are not only important liberal arts courses for our undergraduates but that can also serve as prerequisites to Finance 300 and Risk Management 300.

The second component of interest concerns a series of resource and environmental economics courses that are facing increasing demand and that are also enrollment constrained. Of particular interest are Environmental Economics and The Environment and the Global Economy. These courses seem particularly important to the Wisconsin School of Business given the increasing interest of our undergraduates in sustainability and global environmental and economic issues.

In preparation for our new CIBER grant proposal, Susan Huber Miller, Suzanne Dove, and I have conducted a series of focus groups with people from a variety of units in the WSOB and across campus. Discussions with representatives from CALS, from the Nelson Institute, and others frequently identified global environmental and economic sustainability issues as important areas in which UW-Madison has strength but insufficient capacity. Ken's proposal addresses these issues. In addition, a theme for the upcoming CIBER grant proposals will likely be global sustainability. We would like to find a way to have CIBER piggy-back with these other units to enhance the impact of their offerings and the activities supported by CIBER.

I have attached a copy of the proposal that Ken sent me. I thought you would like to be aware of the content of this proposal. If you wish to express support for all or parts of the proposal, it would be useful to notify Ken to that effect.

Thanks,  
Randy