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Educational Policies Committee Program Proposal, College of Agriculture and Applied Sciences, March 30, 2012 – Bachelor of Science in Environmental and Natural Resource Economics

Utah State University

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Regents

State Board of Regents Meeting
 Salt Lake Community College
 Miller Campus, Sandy, Utah
 Miller Free Enterprise Center (MFEC)
 March 30, 2012

AGENDA

(Amended 3/29/2012)

7:30 - 8:50 a.m.

**BREAKFAST MEETING – STATE BOARD OF REGENTS, SLCC BOARD OF TRUSTEES,
 PRESIDENT BIOTEAU, COMMISSIONER SEDERBURG**
(Culinary Arts Building (CART) 116AB)

8:30 a.m.

Continental Breakfast
(MFEC 203)

9:00 - 10:30 a.m.

COMMITTEE OF THE WHOLE
(MFEC 203)

1. Commissioner's Report
2. Report of the 2012 Legislative Session [TAB A](#)
3. Policy Revision of R120, Bylaws of the State Board of Regents [TAB B](#)
4. Policy Revision of R141, Functions of the Commissioner of Higher Education [TAB C](#)
5. Annual 2011 Faculty Discipline Majors' Meetings – Report [TAB D](#)
6. University of Utah – Campus Technology Plan [TAB E](#)

10:30 a.m.

Refreshment Break
(MFEC 203)

10:30 a.m. - 12:15 p.m.

MEETINGS OF BOARD COMMITTEES

PROGRAMS/PLANNING COMMITTEE

Regent John H. Zenger, Chair

Location: MFEC 206

ACTION:

1. University of Utah – Bachelor of Arts/Bachelor of Science in Peace and Conflict Studies [TAB F](#)
2. University of Utah – Doctor of Philosophy in Occupational and Environmental Health with Emphases [TAB G](#)
3. Utah State University – Bachelor of Arts in Art History [TAB H](#)
4. Utah State University – Bachelor of Science in Environmental and Natural Resource Economics [TAB I](#)
5. Utah State University – Master of Science in International Food and Agribusiness [TAB J](#)
6. Snow College – Associate of Applied Science in Natural Resources [TAB K](#)
7. Salt Lake Community College – Associate of Applied Science Degree in American Sign Language (ASL)/English Interpreting [TAB L](#)
8. Salt Lake Community College – Associate of Applied Science in Media Music [TAB M](#)
9. Salt Lake Community College – Associate of Applied Science in Music Recording Technology [TAB N](#)
10. Award Amounts for New Century and Regents' Scholarship Awards 2012-13 [TAB O](#)
11. Policy Revisions to Policy R604, New Century Scholarship [TAB P](#)
12. 2011 Report of the HigherEdUtah2020 Plan [TAB Q](#)

INFORMATION:

1. Symposium: Jobs for Utah's Future [TAB R](#)

FINANCE/FACILITIES COMMITTEE
Regent Nolan E. Karras, Chair
Location: MFEC 223

ACTION:

1. UHEAA – Gateway Office Building Refinance [TAB S](#)
2. Proposed Revisions to Policy R512, Determination of Resident Status [TAB T](#)
3. Utah State University – Tooele Regional Campus (TRC) Property Purchases and Ground Lease Approval [TAB U](#)
4. Utah State University – Property Transfer [TAB V](#)
5. Presidential Commitments [TAB W](#)

INFORMATION:

1. Salt Lake Community College – Campus Master Plan Progress Report [TAB X](#)
2. USHE – Capital Facilities Update [TAB Y](#)
3. S.B. 153 S2 State Procurement Code Amendments [TAB Z](#)
4. USHE – Annual Money Management Report for Fiscal Year Ending June 30, 2011 [TAB AA](#)
5. USHE – Spring Enrollment Report [TAB BB](#)
6. Update of Institutional Audit Reports to the Regents' Audit Committee [TAB CC](#)
7. USHE – Report of Auxiliary Funds [TAB DD](#)
8. USHE – Annual Report of Institutional Revenue Bonded Indebtedness [TAB EE](#)
9. USHE – Annual Contract and Grant Report [TAB FF](#)

12:15 - 1:00 p.m.

LUNCH
(MFEC Showroom)

1:00 - 1:30 p.m.

State of the College - President Bioteau
(MFEC 203)

1:30 - 3:00 p.m.

COMMITTEE OF THE WHOLE
(MFEC 203)

1. Reports of Board Committees
2. General Consent Calendar [TAB GG](#)
3. Legislative Update: Budget Summary [TAB HH](#)
4. USHE – Tuition Increases for 2012-2013 (1st- and 2nd- tier) [TAB II](#)
5. USHE – Proposed Fee Increases for 2012-2013 [TAB JJ](#)
6. Resolution
7. Report of the Chair

3:00 - 4:00 p.m.

EXECUTIVE SESSION (CLOSED MEETING - STATE BOARD OF REGENTS)
(MFEC 206)

Projected times for the various meetings are estimates only. The Board Chair retains the right to take action at any time. In compliance with the Americans with Disabilities Act, individuals needing special accommodations (including auxiliary communicative aids and services) during this meeting should notify ADA Coordinator, 60 South 400 West, Salt Lake City, UT 84180 (801-321-7124), at least three working days prior to the meeting. TDD # 801-321-7130.

March 21, 2012

MEMORANDUM

TO: State Board of Regents

FROM: William A. Sederburg

SUBJECT: Utah State University – Bachelor of Science in Environmental and Natural Resource Economics

Issue

Officials at Utah State University (USU) request approval to offer a Bachelor of Science in Environmental and Natural Resource Economics, effective Fall Semester 2012. The proposed degree was approved by the USU Board of Trustees on January 6, 2012. The proposed program was approved by the Regents' Program Review Committee on February 15, 2012, and recommended to move forward to the full board.

Background

The Bachelor of Science in Environmental and Natural Resource Economics (ENRE) is an undergraduate degree to be administered by the Department of Applied Economics (APEC). The degree focuses on the application of economic principles to the efficient allocation of natural resources such as minerals, oil and natural gas, the management of public lands, and pollution of public goods such as air and water. The curriculum requirements will consist of 61 credit hours and includes seven APEC courses. An important feature of this degree is that ENRE majors will be required to complete a 15-20 credit "track" or a minor in the College of Natural Resources. Students may choose from one of three required tracks/minors: Environmental Policy and Management, Ecology, and Watershed Science.

According to the USDA (Goecker et al., 2010), significant job opportunities in occupations associated with the ENRE degree are expected in the 2010-2015 period. These jobs result from shifts in employment as opportunities associated with climate change, renewable energy, and environmental restoration become more important in the future. Potential careers include environmental consulting, natural resource and environmental policy analysis, environmental law, and resource management.

Policy Issues

Other Utah System of Higher Education institutions have reviewed this proposal, given input, and are supportive of Utah State University offering this degree.

Commissioner's Recommendation

The Commissioner recommends the Regents approve the request by Utah State University to offer the BS in Environmental and Natural Resource Economics, effective Fall Semester, 2012.

William A. Sederburg
Commissioner of Higher Education

WAS/GSW
Attachment

Programs and Planning Committee

Action Item

Request to Offer a BS in Environmental and Natural Resource Economics

Utah State University

Prepared for:
William A. Sederburg
by
Gary S. Wixom

March 21, 2012

Program Description
Utah State University
BS in Environmental and Natural Resource Economics

Section I: The Request

Utah State University requests approval to offer a Bachelor of Science in Environmental and Natural Resource Economics, effective Fall Semester 2012.

Section II: Program Description

Complete Program Description

The Bachelor of Science in Environmental and Natural Resource Economics (ENRE) is an undergraduate degree to be administered by the Department of Applied Economics (APEC) using courses that are all currently offered at USU. The degree focuses on the application of economic principles to the efficient allocation of natural resources such as minerals, oil and natural gas, the management of public lands, and pollution of public goods such as air and water. A defining curricular component in the degree program is the required minor or track in disciplines currently housed in the College of Natural Resources. A solid grounding in either environmental policy and management (a track offered by the Department of Environment and Society) or a natural science (Watershed Sciences minor offered by the Department of Watershed Sciences or the Ecology Track offered by the Department of Wildland Resources) assures that an ENRE graduate will learn economic principles in the context of natural resources and the environment.

Purpose of Degree

With increasing competition for limited land, water and other natural resources in the U.S. and throughout the world, as well as growing concern about environmental degradation, there is a growing need for professionals who can assist in the process of balancing economic and environmental tradeoffs. Private firms face serious challenges in meeting stricter environmental regulations and achieving self-imposed environmental goals. Public agencies continually seek to design policies so that society's resource conservation or environmental quality goals are achieved in a cost-effective manner. ENRE graduates will be well-prepared to contribute to the goals of organizations and agencies in both the private and public sectors.

Institutional Readiness

APEC currently offers three undergraduate degrees: the BS in Agribusiness, BS in International Agribusiness, and the BS in Agricultural Economics. In addition, the department offers three graduate degrees: an MS in Applied Economics, an MS in Economics and Statistics (jointly administered with the Department of Mathematics and Statistics), and a PhD in Economics. A third MS degree, International Food and Agribusiness, is currently in the review process. The ENRE major will require no new courses.

Faculty

The Department of Applied Economics includes 11 faculty members holding the rank of Assistant Professor or higher, and one Extension Specialist holding an MS degree. Four faculty members have been hired since 2009. All faculty members holding the PhD degree may supervise Senior Projects for ENRE majors. Seven faculty members will be responsible for handling the core curriculum of the proposed degree.

Staff

Based on the study by Park (2010), an additional 20-22 students are anticipated, who will be advised by APEC personnel. The program requires no lab technicians, additional secretarial support, or teaching assistants. The College of Agriculture Advising Center has assured APEC that sufficient advising capacity exists for ENRE majors. Thus, no additional staff will be required.

Library and Information Resources

No additional library resources are necessary to support the degree. USU's undergraduate computing facilities will be adequate to serve ENRE majors, and no specialized software will be needed. In the case of a senior project requiring specialized econometric software, APEC will provide access to its graduate computing lab to be located in the College of Agriculture building currently under construction.

Admission Requirements

The admission requirements will be consistent with the existing USU admission requirements. Admission will require a minimum high school grade point average of 2.5 (4.0 = A) accompanied by a score of 18 on the ACT, and 860 on the SAT (not including the writing component), or a 90 index score. Provisional admission may be made following USU admissions policies.

Student Advisement

APEC has a designated advisor housed in the College of Agriculture's Advising Center. The advisor and Associate Dean in the College of Agriculture have assured APEC that the COA Advising Center has capacity to handle the additional students in the ENRE major.

Justification for Graduation Standards and Number of Credits

The ENRE degree will require 61 credits in its core curriculum, with an additional 14-20 credits for the required natural resources/environment minor or track, summing to 75-81 required credits, with 121 total credits needed for graduation. The core curriculum requirements are very similar to those of APEC's other undergraduate degrees, which require between 68 and 71 credits.

External Review and Accreditation

The discipline of Economics (and its fields) has no accrediting body. Instead, the former Department of Economics has been periodically reviewed by the USDA. APEC plans to maintain these regular external institutional reviews. According to the USDA, the agency conducts reviews:

...at the request of cooperating institutions, facilitates reviews of institutions, departments, programs, or issues...Institutions identify the purpose, objectives, and scope of the review activity based on their own needs and internal planning processes. Preparation of a forward looking planning document by the reviewed entity is an integral part of the review activity. Generally, the internal review process is followed by an in depth on-site visit by an external team of well qualified peers lasting two or more days, depending on the scope and complexity of the activity as determined by the institution. The external team of reviewers can help the institution project future needs and directions for the reviewed entity for some definitive time frame into the future based on the self-study document and the site visit.¹

¹ http://www.nifa.usda.gov/about/prog_reviews.html

Projected Enrollment

Year	Student Headcount	Student-Faculty Ratio*
2012-13	3	25
2013-14	7	30
2014-15	12	36
2015-16	18	40
2016-17	20	42

* Note: The proposed degree will be offered using existing courses. The student:faculty ratio was calculated using numbers from the USU Basic Undergraduate Instruction plus the expected enrollment from the 2010 Department Profile.

Expansion of Existing Program

The proposed degree will require no new courses and thus does not represent an expansion of current programs.

Section III: Need

Program Need

The proposed Bachelor of Science in Environmental and Natural Resource Economics is an undergraduate degree that prepares the student for placement in the workforce or further training in graduate school. The proposed program aims to help improve the quality of life for citizens of Utah and the U.S. with respect to sustainable use of natural resources and protection of environmental quality by making human capital investments necessary to prepare graduates for leadership positions within the private, public and nonprofit sectors.

Labor Market Demand

Evidence of employer need for graduates of the proposed program can be found in a report by Gloecker, et al. (2010) entitled "Employment Opportunities for College Graduates in the U. S. Food, Agricultural, and Natural Resources System: 2010-2015". The report projects 54,400 annual job openings for the foreseeable future. Of the four major factors affecting employment opportunities for graduates of Colleges of Agriculture, two are within the purview of ENRE graduates: "Food, energy, and environment public policy choices" and "Global market shifts in population, income, food, and energy." Nearly half of the total projected job openings are in management and business occupations, a category that includes environmental and natural resource economists. A substantial shortfall of qualified agricultural and natural resource graduates is expected. The report specifically notes that, "A growing number of managerial jobs will be found in environmental compliance and restoration ecology." The ENRE curriculum, with its required policy and management or natural sciences minor/track, ensures that graduates will be well-trained as contributors to the pressing needs of the future.

Students graduating with this major may find employment in private firms with environmental compliance and restoration activities or conservation initiatives directed toward energy or other natural resources. Opportunities also exist with consulting firms that assist clients in meeting environmental objectives. Many nonprofit environmental organizations seek to employ staff with economic training. Several federal government agencies, including the Environmental Protection Agency and the departments of Agriculture, Interior and Energy, employ natural resource and environmental economists. State and local government agencies also provide opportunities for employment. The major provides a strong background for graduate studies in natural resource and environmental economics, leading to career opportunities in teaching and/or

research, as well as high-level policy positions. Students would also be well prepared to pursue a professional program in environmental law.

Student Demand

Park (2010) conducted a survey of over 25 economics departments housed in Colleges of Agriculture at land grant institutions. The two departments with the longest-lived ENRE-like programs (University of Georgia and Michigan State University) reported 56 and 41 majors, respectively, in 2009. Park's survey shows generally growing enrollment trends in the late 2000s across surveyed institutions. The program director at the University of Georgia (UGA) has provided time-series data that shows some mild oscillations in student demand over the years, with oscillations loosely pegged to waxing and waning interest in environmental issues (Bergstrom, 2010).

Similar Programs

There are no similar programs in Utah. In the mountain west, only the University of Arizona offers a similar undergraduate degree (BS in Environmental and Water Resource Economics). Colorado State University offers a concentration within its BS-Agricultural Economics degree. No Land Grant institution in the states of Idaho, Nevada, New Mexico, or Montana offers a similar degree. Land Grants institutions in Washington, Oregon, and California each offer a similar degree.

Collaboration With and Impact on other USHE Institutions

No other program similar to proposed degree ENRE is offered at any USHE institution.

Benefits

Given the importance of public lands, renewable and non-renewable natural resources, and environmental amenities to Utah's economy, the state will benefit from training its undergraduates in the tools and techniques of efficient management of these resources. A little over half of the U.S. Land Grant institutions already offer a degree or concentration in environmental and natural resource economics, but the proposed degree at USU distinguishes itself from those of its land grant peers because of the required policy or natural sciences minor/track. Not only will ENRE graduates be well-versed in how economists approach management of environmental and natural resources, but also in how state and federal policies or natural scientists approach natural resource management decisions.

Consistency with Institutional Mission

As the state's land grant institution, Utah State University has a mission in research, teaching, and extension. The goal of the proposed program is to contribute to improving the quality of life for citizens of Utah and the U.S. with respect to sustainable use of natural resources and protection of environmental quality by making human capital investments necessary to prepare graduates for leadership positions within the private, public and nonprofit sectors. This goal is consistent with the mission of Utah State University, the College of Agriculture, and the Department of Applied Economics. The teaching goal of COA and APEC is to prepare students in the natural and social sciences-based academic programs for careers in agriculture, natural resources and other arenas.

Section IV: Program and Student Assessment

Program Assessment

The specific objectives of the proposed program are (1) to challenge students intellectually in their study of natural resource management and environmental policy, (2) to prepare professionals who can apply

economic analysis within a multidisciplinary perspective, and (3) to prepare graduates to successfully pursue advanced study in the areas of economics, law and public policy if desired.

Evaluation of the proposed program with regard to the three objectives stated above will be multifaceted and ongoing and will be the responsibility of the APEC Department Head. The degree program will be evaluated as part of the regular external Academic Program Review as designated by the USU Provost's Office. Student feedback will be solicited in three ways: 1) through evaluations of each departmental course required in the program; 2) through a group senior exit interview held at the end of the spring semester; and 3) through a survey of alumni every five years. Finally, APEC will use the COA Advising Center to track the employment of graduates in the private, public and nonprofit sectors.

Student Performance Standards

Consistent with departmental standards in its other majors, ENRE majors will be required to have an overall major GPA of 2.5 or higher, with a C or better in every required course.

Section V: Finances

Budget

The current request represents a program that requires no new courses. Thus, the APEC Department has already allocated the teaching FTE necessary to meet student numbers associated with the ENRE degree. All figures and footnotes in the Financial Analysis Form presented below have been calculated and written by the USU Budget and Planning Office.

5-Year Budget Projection					
	Year 1	Year 2	Year 3	Year 4	Year 5
Students					
Projected FTE Enrollment	3	7	12	18	20
Cost per FTE ¹	7,202	6,089	5,104	4,274	4,054
Student/Faculty Ratio ²	25	30	36	42	45
Projected Headcount ³	3	7	12	18	20
Projected Tuition					
Gross Tuition ⁴	22,098	53,625	95,605	149,144	172,345
Tuition to Program					
	Year 1	Year 2	Year 3	Year 4	Year 5
Expense					
Salaries and Wages					
Benefits					
Total Personnel	N/A - All costs are currently covered in existing programs. There are no additional faculty or staff FTE, library, or other operational funds				
Current Expenses					
Travel					
Capital	Required				
Library Expense					
Total Expense					
Revenue					
Legislative Appropriation					
Grants and Contracts					
Donations	N/A – funded through existing				
Reallocation	Resources				
Tuition to Program					
Fees					
Total Revenue	0	0	0	0	0
Difference					
Revenue - Expenses	0	0	0	0	0

Budget Comments

Represents the 2009-10 E&G cost of Basic Undergraduate Instruction in the Department of Applied Economics divided by the 2009-10 AY undergraduate student FTE in Applied Economics plus projected enrollment. Source: 2010 USU Department Profiles.

1. Represents the 2009-10 AY Basic Undergraduate Student FTE in the Department of Applied Economics plus the projected enrollment noted divided by the 2009-10 AY E&G Applied Economics FTE faculty. Source: 2010 USU Department Profiles.

2. The projected number of students in the program each year.
3. The gross tuition generated by the projected headcount enrollment at 15 undergraduate credit hours per semester for an academic year. The figures use the 2011-12 tuition schedule and assume 75% resident and 25% non-resident. Assumed 4% growth in tuition rate each year.

Funding Sources

The proposal requires no new courses, and will rely upon already allocated E&G funding resources.

Reallocation

The proposal does not require any reallocation of existing resources within the department.

Impact on Existing Budgets

All courses required by this program are currently offered and taught at USU. Therefore, there will be no incremental cost to the APEC Department.

Section VI: Program Curriculum

Course Prefix/Number	Title	Credit Hours
ACCT 2010	Financial Accounting Principles	3
ACCT 2020	Managerial Accounting Principles	3
APEC/ECN 201	Intro to Microeconomics	3
APEC 3010	Intro to Agric Economics and Agribusiness	3
APEC 3012	Intro to Natural Resource and Regional Economics	3
APEC 3310	Mathematics in Agricultural and Resource Economics	3
APEC/ECN 4010	Intermediate Microeconomics	3
APEC 5000	Macroeconomics and Trade	3
APEC 5330	Applied Econometrics	3
APEC 5560	Natural Resource and Environmental Economics	3
APEC 5850	Regional and Community Economic Development	3
ECN 1500	Intro to Economic institutions, History, and Principles	3
ENVS 3010	Fundamentals of Natural Resource and Environmental Policy	3
ENVS 3330	Environment and Society	3
MATH 1050	College Algebra	3
MATH 1100	Calculus Techniques	3
MIS 2100	Principles of Management Information Systems	3
MIS 2200 <i>or</i> ASTE 3050	Business Communication <i>or</i> Technical and Professional Communication Principles in Agriculture	3
STAT 2300	Business Statistics	4
SOC 4620	Sociology of the Environment and Natural Resources	3
Total		61

The policy or natural sciences minor or track will require an additional 14-20 credits. No new courses will be required or are planned for the next five years.

Section VII: Faculty

Name	Degree/Institution	Field(s) of Expertise
Ryan Bosworth	PhD, University of Oregon	Environmental Economics, Econometrics
Arthur Caplan	PhD, University of Oregon	Environmental Economics
Paul Jakus	PhD, North Carolina State University	Environmental Economics
Man-Keun Kim	PhD, Texas A&M University	Natural Resource Economics, Regional Economics
Reza Oladi	PhD, McGill University	International Trade and Environment
Charles Sims	PhD, University of Wyoming	Natural Resource Economics
Don Snyder	PhD, Utah State University	Natural Resource Economics, Agricultural Production