UNIVERSITY OF HAWAI'I AT MĀNOA
UHM-1 FORM (ADD A COURSE)

See Guidelines for instructions and deadlines. For undergraduate courses, submit an original and 5 copies; graduate courses, submit an original and 6 copies. If cross-listed, include extra copies for cross-listed department(s) & college(s). List one course per form. Attach additional sheets as needed.

1. Course Subject: NREM

2. Course Number: 658

3. Effective Term (semester & year): Summer 2014

4. Frequency (check all that apply):
   - Fall semester
   - Spring semester
   - Alternate years

5. Offering Status (check one):
   - Regular
   - Experimental
   - Single-term

6a. Full Course Title (Alpha courses: attach separate sheet & specify title for each alpha)
Advanced Environmental Benefit Cost Analysis

6b. BANNER Course Title (30 characters max, including spaces/punctuation. Alpha courses: attach separate sheet & specify title for each alpha)
Adv Env Benefit Cost Analysis

7. Grade Option (check all that apply):
   - Letter Grade
   - Satisfactory/Unsatisfactory
   - Credit/No Credit (500, 700, 700F, 800, 800C only)
   - Audit
   - Honors (Medicine only)

8. Gen Ed Core or Hawaiian/Second Language Requirement Designation (check one):
   - Do not consider for Core or Hawaiian/Second Language designation.
   - Request approval of _______ Diversification (DA, DH, DL, DB, DP, DY, DS), Foundations (FW, FS, FG), or Hawaiian/Second Language (HSL) designation.
   - (For Foundations, also submit a proposal to General Education Office.)

9. Contact Hours (meeting hours per week - if variable, specify range)
   - 3

10. # of credits (if variable, give range)
    - 3

11a. Repeat Limit (Do NOT write "None")
    - 0

11b. Credit Limit (Do NOT write "None")
    - 3

12. GEC Use:
    - Approve
    - Deny

13. Schedule Type (check all that apply):
   - Lecture (LEC)
   - Seminar (SEM)
   - Thesis/Dissertation (THE)
   - Field Experience/Internship/Practicum (PRA)
   - Laboratory (LAB)
   - Lecture/Discussion combined (LED)
   - Hybrid Technology Intensive (HTI)
   - Directed Reading or Research (DRR)
   - Discussion (DIS)
   - Lecture/Laboratory combined (LEL)

14. Co-requisite Course(s)
    - None

15a. Major Restriction (as it should appear in Catalog)
    - None

15b. Banner codes of acceptable majors
    - None

16. Class Standing Restriction
    - None

17a. Prerequisite Course(s) (Use "and", "ors" and punctuation to indicate relationships between prerequisites. "Or concur" is implied for ALL prerequisites. "Concur" requirements can be implemented through your class schedules each semester.)
    - None

17b. Minimum required grade for prerequisites
    - None

17c. Blanket requirements listed in Catalog (if none, write "none")
    - None

18. Catalog Description (Limit 35 words; 85 words for alpha courses)
Advanced environmental benefit-cost analysis will require that proficiency be demonstrated on fundamentals and address topics related to sustainability, including income equality, non-market goods, risk, cost of public funds and the social discount rate.

19. Justification
Attach separate sheets and indicate the rationale for the request, expected course enrollment, program learning objectives and institutional learning objectives that the new course will cover, and a course syllabus specifying student learning objectives for the course. Syllabi are not required for "-99" courses.

20. Cross-listed or Honors Course(s)

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21. Requested By
I certify that the student learning objectives for the course are consistent with the learning objectives of each program under which the course is listed.

N REM  Catherine C. Chan-Hublendt
Department/Unit Chair/Director Signature Date SEP 23 2013

Approved By

1st College or School Dean Signature Date

2nd College or School Dean Signature Date

General Education (Undergraduate courses numbered 100-499)

Director Signature Date

Graduate Division (600 level and above)

Dean Signature Date

Mānoa Chancellor’s Office

Vice Chancellor for Academic Affairs Signature Date

Rev. 7/2013
Justification for adding NREM 658 Advanced Environmental Benefit Cost Analysis

1. Why is this course being requested or modified?
The Department of Natural Resource & Environmental Management (NREM) is relatively new and the instructional programs are less than 10 years old. When the instructional programs were started, an existing 400 level course entitled Environmental Benefit Cost Analysis that included the fundamentals of benefit-cost analysis and limited advanced work on the topic became an on-line course taught in the summer. The course has been offered since 2006. While the authors of the course text book recommended that the text be used to teach two courses, a basic course and an advanced course, use of the existing 400 level course to provide one class for undergraduate and graduate students was deemed most appropriate at the time due the small size of the both instructional programs. Because the course was taught on-line each student received individual attention, which allowed students with differing skill levels to be accommodated. Over time, more instructional webinars were developed that provided instruction in basic skills for all students.

As the student enrollment increased, mixing undergraduates students, many of whom lack basic skills, with graduate students, most of which prefer a 600-level course, resulted in a less than optimal situation. A proposal to modify NREM 458 to become NREM 358 with a focus on fundamentals was submitted in Spring 2013 in order to address the need for more instruction in the basics for undergraduates. This would mean that graduate students would not be able to enroll in NREM 358 for graduate credit.

A survey of graduate students that was completed in Spring 2013 found that if a 600 level advanced course in benefit cost analysis were offered, students would be interested in enrolling. In addition, graduate students and faculty decided in the summer of 2012 that skill building course content was a desirable addition to the NREM graduate program. NREM 658 would be an advanced course in benefit cost analysis that teaches marketable skills such as how to complete a benefit cost analysis just as a professional consultant would produce for a client.

2. How will the content be organized?
A syllabus is attached, which indicates the material to be covered throughout the semester and how it will be organized. The syllabus lists specific student learning outcomes. The on-line nature of the course allows all the basics to be covered in a timely manner so that all students enrolled in NREM 658 can access the resources should they need a refresher in order to able to demonstrate proficiency as indicated on the syllabus. During the summer, the course runs for the entire summer, which provides sufficient time for all students to access the instructional information on the basics.

3. What other courses at UHM closely parallel the proposed course and in what way will the latter make a distinct contribution?
No other course at UHM offers the content that this course does. This is an interdisciplinary course that brings together economics, finance and accounting. The use of Excel provides students with an important opportunity to build skills. At the same time, the approach used in the course addresses elements of sustainability, including the
effects of a project on the environment and the social system. Courses that now examine benefit cost analysis at UHM focus only on one discipline, do not cover the topic in depth and do not address sustainability issues. Economics 651 Public Economics, for example, does address theoretical and empirical analysis of public sector allocation. Finance 633 Problems in Business Finance does apply financial principles and analytical techniques to financial problems. However, these courses do not address benefit cost analysis alone from a variety of perspectives as NREM 658 does.

5. Where or how does the proposed course fit into the current and future curriculum?
Benefit-cost analysis is decision tool used around the world by natural resource managers and other types of decision makers. A graduate curriculum in the NREM is very likely to have a course on benefit-cost analysis because it is so widely used as a decision tool in project analysis. Information about using specific natural resources, such as forests, are used as examples whenever possible. Spreadsheet skill/experience is also called for as a learning outcome in NREM and CTAHR, which is satisfied by the integration of Excel into the course.

6. Why is the number of credits and level justified? Explain the prerequisites and the absence thereof.
The course is a graduate course because it contains advanced topics in benefit cost analysis. Webinars provide sufficient instructional time to warrant a three-credit course and they are recorded so that students can view them more than once. NREM graduate students without deficiencies have the prerequisites to take this course. Students from other disciplines such as economics, and business students also have sufficient preparation for the course.

7. How will the course assist students to achieve the critical skills and competencies expected of CTAHR graduates?
This course will address three core skills and competencies that all CTAHR majors should have. These include analytical problem solving skills, computer skills and business management skills, with all the others not being addressed. Each student is required to complete 15 assignments that are composed entirely of math-like word problems and a final project which build their analytical problem solving skills. The extensive use of Excel provides them with spreadsheet computer skills. The economic, finance and accounting that is involved in the course provides them with business management skills.

8. How will students be evaluated?
Grading is explained on the syllabus. All submitted work, which includes 15 assignments and a final project, is graded.

9. What are the minimum qualifications for teaching this course? Is a qualified instructor now available?
A qualified instructor taught the course as an experimental course in Summer 2013 to ensure that it will work as proposed. Any economist should be able to teach the course.
and six other economists are now in the department so other qualified instructors are available.

10. How will the course be financed, assuming no further cutbacks?
Currently the plan is to teach the course in the summer, which the existing instructor is willing to do. If insufficient enrollment exists, then the instructor is willing to waive the overload salary for teaching the course in the summer. If the course is offered in the fall or the spring semesters, then any economist in NREM could teach the course and not additional financing will be needed.

11. Has the course been offered before? Is there a demand for it?
The course was taught as an experimental course in Summer 2013. Given that this was a last minute add-on and the actual title of the course was NREM 691 Advanced Topics in NREM, the enrollment of 5 students was impressive. Once the course is added to the graduate program as NREM 658, an effort will be made to reach out to faculty and graduate students in NREM and other departments across the UH system.

12. Is the course cross-listed with another department?
No
NREM 658 Advanced Environmental Benefit Cost Analysis

Course Description

NREM 658: Advanced Environmental Benefit Cost Analysis
Advanced environmental benefit-cost analysis will require that proficiency be demonstrated on fundamentals and address topics related to sustainability, including income equality, valuation of non-market goods, risk, cost of public funds, and the social discount rate.

Student Learning Outcomes
After completing the course, students will be able to conduct complex benefit-cost analysis for publically and privately funded projects using Excel. They will be able to present the results from a benefit-cost analysis using a professional format. They will be able to account for income distribution, valuation of non-market goods and environmental impact analysis in the project analysis. They will have a working knowledge of about the role of public and private discount rates, shadow prices, and producer and consumer surplus, the use of public funds and risk in a benefit-cost analysis.

Skills Required
The course emphasizes practical application. Spreadsheets are used to conduct the analyses and the ability to use complete financial analysis using Excel formulas is required. Assignments should include all assumptions and justification of all answers is required, i.e. providing a single number as an answer with no work being shown is not acceptable.

Textbook

This book is available through the bookstore. An e-book is also available. However, it can only be opened when the computer is connected to the internet and cannot be printed. In addition, the e-book has some figures that are unclear.

Course Format and Grading
The course will be conducted on-line using webinars. Some webinars cover the content of a chapter and others solve example problems each week. The webinars run from about 30 minutes to an hour depending on the questions from participants, the number of days in the school week (holidays interrupt the schedule) and webinar’s content. Two to five webinars are given each week. For example, the first week involves one introductory webinar, two refresher webinars (covering finance and economics), one webinar on using Excel and one on the first reading. All work is submitted via Laulima. Feedback is provided as quickly as
possible via e-mail, in person or an on-line system such as Skype. Students have the option to obtain narrated power points should they be unable to access the web at any time. Students will be assigned readings in the text and be expected to complete assignments based on these readings. The students have the option to obtain supplemental reading from the instructor. Students will also be expected to complete a final project.

The assignments, which are essentially composed of word problems similar to those found in math classes, will count for two-thirds of the course grade with each receiving a maximum score of 10. In order to demonstrate proficiency in the basics, students are required to receive a minimum score of 8 on each of the first 10 assignments. The final project/case study will count for one-third of the grade.

**Final Project**
The instructor must approve the topic for the final project. Students can work in groups only with the approval of the instructor.

**Weekly Topics Covered**
Review Topics-proficiency (a score of 8 or higher on each assignment) must be demonstrated on all 10 assignments (chapters 1-5 in the text, with 2 assignments per chapter) before moving to advanced topics:
- Finance and Economics Review (two refresher webinars)
- Introduction to Benefit-Cost Analysis (chapter 1)
- Principles of Investment Appraisal (chapter 2)
- Investment Decision Rules (chapter 3)
- Private Benefit-Cost Analysis (chapter 4)
- Efficiency of Benefit-Cost Analysis (chapter 5)

Advanced topics covered in 5 assignments (chapters 6, 7, 10, 11 and 12 in text with one assignment per chapter):
- Calculating Net Benefits to the Reference Group (chapter 6)
- Determining Consumer and Producer Surplus (chapter 7)
- The Social Discount Rate, Cost of Public Funds and the Value of Information (chapter 10)
- Weighting Net Benefits to Account for Income Distribution (chapter 11)
- Valuation of Non-marketed Good (chapter 12)

Topics (chapters 13-14 in the text) covered in order to complete Final Project.
- Economic Impact Analysis (chapter 13)
- Writing the Benefit-Cost Analysis Report (chapter 14)