Justification for Proposed Course: NREM 467, Natural Resources Conservation Planning.

Additional information requested in item 18 on Form UHM-1:

1. **What is the course modification?**
   This is a request for a new course

2. **Why is this course being requested?**
   This course is needed at the department, college and university level to provide students interested in working in natural resources management with the theoretical background to developing resource conservation management plans and the hands-on experience of working as a group to develop a draft conservation plan for an actual land management operation. The focus will be on situations where land is being actively managed for one or more of the following objectives: agricultural production, agri-tourism, forestry, education and recreation.

   It will be especially valuable to both upper division undergraduate and graduate students who have limited field experience working in natural resource management by providing the some exposure to the challenges and rewards of actual, on-the-ground conservation planning.

   This course was taught to 9 students as an experimental course in Spring 2004 and received excellent reviews. Discussions with other NREM faculty and faculty outside the department indicate that this course is desirable as an elective for NREM students and for students from other related departments (e.g. DURP, Geography).

3. **How will the content be organized?**
   The course content will be organized around the development of a conservation plan or plans for one or more actual land management operations. Students will work through the steps of the USDA-NRCS planning process to identify the goals and objectives of the land manager, identify resource concerns, develop and evaluate alternative management strategies, and develop management recommendations. Lecture/discussion sessions (2, 50-minutes sessions per week) will present and discuss both theoretical principles and how they have been applied in other situations. Laboratory sessions (150 minutes, 1 session per week) will consist either of field visits to the actual property or working sessions on the university campus (e.g. work in the computer lab using the RUSLE2 model to estimate soil erosion under existing and proposed management systems). A draft course syllabus is attached.

4. **How is this course different from related courses at UHM?**
   This course provides students with a different set of knowledge, skills and experience than other courses currently offered at UHM. The list below summarizes the differences between this course and other related 400-level courses:
NREM 461 (Soil, Erosion and Conservation): This course provides a primarily theoretical background on the soil processes and behavior that impact conservation. As such, the proposed course provides a good applied complement to this one. In addition, the two courses will be offered in alternating years.

GEOG 412 (Environmental Impact Assessment): This course focuses only on EIA. Proposed course will focus on integrated conservation planning at the enterprise level.

GEOG 455 (Resource Management): This course focuses on the development of analytical models related to resource management issues. Proposed course applies existing models as part of developing a conservation plan.

BOT 457 (Aina Mauliola: Hawaiian Ecosystems): This course focuses on the analysis of traditional Hawaiian and modern resource management practices. Proposed course focuses on the choice of and application of appropriate resource management practices to an existing enterprise.

5. **Where or how does this course fit in the current or future curriculum?**
This course will be an elective course in the NREM curriculum at both the undergraduate and MS level. It provides students with hands-on exposure to multi-disciplinary conservation planning at the individual enterprise level. It builds on students' knowledge and skills gained in lower division courses, and it complements more discipline-specific courses at the 400 level. It also provides a potential elective for students in related departments (e.g. Geography, Urban and Regional Planning, Botany) who are interested in natural resources management.

6. **Number of credits and level**
This course requires that students integrate information from a variety of disciplines in order to develop a useful and appropriate conservation plan. As such, 400 is the appropriate level for this type of course. Teaching at a 400 level also opens the course for MS students who desire or require additional hands-on experience in this area.

As noted on Form UHM-1, the time allotted for the course (both lecture and laboratory) is consistent with the guidelines for a three credit course.

7. **How does the course address CTAHR critical skills and competencies?**

   **NREM Department:** Aspects of this course address all five components of the two primary goals for the NREM B.Sc. program.

   **Objective 1a:** This course provides students with a chance to develop positive personal and work related skills through interaction with actual land managers, resource management professionals (NRCS staff and others), and their classmates in groups during the course of their field project to develop a conservation plan for an actual operation or operations.

   **Objective 1b:** Students will gain additional opportunity to demonstrate effective written and oral communication skills through the preparation of both oral and written reports during and at the conclusion of their field project.
Objective 1c: Students will gain additional exposure to diverse opinions and perspectives through working directly with a landowner/land manager in the development of their conservation plan.

Objective 2a: Students will have the chance to expand and refine their skills and knowledge of ecological process in managed agro-ecosystems during the process of plan development.

Objective 2b: Students will gain hands-on experience in all stages of the process of developing a conservation plan for an actual land management operation (e.g. farm, experiment station, natural reserve area, etc.).

This course will also provide a valuable hands-on field learning experience for graduate students, particularly those who join the NREM Department with little previous work experience in the field.

CTAHR: Through the activities mentioned above, this course also directly addresses aspects of the CTAHR learning objectives listed below:

Written communications (Objective 1): Students will prepare regular progress reports during the plan development process. They will prepare a final conservation plan as well as a final group report on plan development addressing issues of group interaction, strengths and weaknesses of the final plan and recommended next steps.

Oral communications (Objective 2): Students will enhance competency in this area through interaction with the land owner / manager throughout the planning process. They will have the opportunity to practice interviewing and listening skills. At the conclusion of the course, they will give an oral presentation of their plan to the landowner / manager as well as providing the written plan (mentioned above).

Analytical and problem solving skills (Objective 3): Development and enhancement of these skills is the primary focus area of the class. Students will be required (with instructor assistance as appropriate) to identify the resource management concerns on a given site, to identify and evaluate possible changes in management that will address these concerns, and to develop a set of management recommendations.

Personal characteristics (Objective 4): Through group work and interaction with the public in this course, students will have the opportunity to improve these skills.

Human relations skills (Objective 5): Through group work and interaction with the public in this course, students will have the opportunity to improve these skills.

Business management skills (Objective 6): Not addressed in this course

“Real World” experience (Objective 7): This is the other primary objective of this course (along with Objective 3). Through the development of a conservation plan for an existing enterprise, students will obtain hands-on experience in this area. They will also be exposed to USDA-NRCS programs and procedures and to the agency (and other groups/agencies working in conservation) as a potential career opportunity.
Leadership skills (Objective 8): This is not a primary objective of the class. But, through working in groups, students will have a chance to apply and enhance skills in this area.

Computer skills (Objective 9): Students will be exposed to and use common software packages used in USDA-NRCS conservation planning including RUSLE2 (soil erosion prediction), WIN-PST (pesticide fate prediction) and PRRE (phosphorus runoff risk prediction). Students will be expected to use word processing, spreadsheet and presentation software as appropriate in the development and presentation of their final conservation plan.

Global perspective (Objective 10): Not a primary focus of the course. If time and student interest permit, there may be limited discussion of the similarities and differences in conservation planning between the US and other countries.

8. How will students be evaluated?
Students will be evaluated on several measures:
1. Groups will submit progress reports every 3 weeks during the first 9 weeks of the class. These progress reports will include activities completed toward plan development (and who did them), ongoing activities (including who and when), information needs, and next steps (who, when and why). A sample report format will be provided on the first day of class. Additional laboratory reports may be requested as appropriate.
2. Individual students will submit a short mid-semester report and a longer final report giving a self-assessment of their own involvement and learning in the course.
3. Student participation in class discussions and in group work will be evaluated by the instructor through observation and discussion. A peer evaluation of group work will also be conducted.
4. Groups will present a final conservation plan both orally and in writing. They will also prepare a final group report on plan development addressing issues of group interaction, strengths and weaknesses of the final plan and recommended next steps.

The relative weights of these items will be as follows:
Group progress reports & lab reports (20%)
Mid-semester and end of semester self assessments (10%)
Participation (20%)
Conservation plan (30% -- 15% oral, 15% written)
Final group report (20%)

9. Minimum qualifications and availability of instructor
The minimum qualifications for teaching this course are graduate level training and field experience working with land owners in conservation planning. Recommended qualifications include knowledge of USDA-NRCS planning procedures and technical resources.
An instructor is currently available for this course. He is a USDA-NRCS employee who also holds an adjunct assistant professor appointment at UHM through the auspices of the Tropical Natural Resources Technology Consortium, a cooperative entity consisting of the USDA-NRCS, the University of Hawaii, the University of Florida, the University of Guam and the University of Puerto Rico.

10. **How will course be financed?**
Present instructor’s salary is paid by USDA-NRCS under the terms of the existing MOU. The course should not require additional funds beyond normal departmental operating funds.

11. **Has the course been offered before? Is there a demand?**
The course was offered as an experimental course (NREM 491) in Spring 2004. There were 9 students enrolled and several others expressed interest but were unable to enroll due to time conflicts. With the growth in both the NREM undergraduate and graduate programs, there is a need for additional upper-division electives. In addition, both faculty and students have expressed a desire for field-based courses.

12. **Cross-listing?**
No, the course is not cross-listed with any other department.