Integrating Learning Objectives Across the Animal Sciences Undergraduate Curriculum.

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Proposal Description

Funding is sought to support the integration of content skills across the Animal Sciences (ANSC) curriculum and incorporate seamless learning objectives into the program. Before assessment tools can be developed, learning and program objectives must be made clear to the students that major in Animal Sciences. This proposal is seeking funding to support and assist the effort of ANSC faculty in developing content skills across the ANSC curriculum, using Bloom's taxonomy of educational objectives as a framework. The first step in development of an assessment program is to "define learning objectives for undergraduate majors" (Handbook on Departmental Assessment of Undergraduate Learning, Manoa Faculty Senate, 2001). Animal Sciences is a broad, science-based curriculum that includes both basic and applied biological principles. While courses fit together, no department-wide assessment of content has ever been attempted. The advantage of using Bloom's taxonomy as a framework is that all aspects of learning can be included in identifying the content skills that are appropriate for a successful ANSC graduate. Once these content skills are integrated across the curriculum, it will be easy to design assessment tools to evaluate the success of our program. Alumni, employers and students will be surveyed as part of the development of these content-learning objectives.

Background:

One priority of the College of Tropical Agriculture and Human Resources (CTAHR) is to "provide an excellent and relevant student-centered learning environment." This includes providing "quality education that addresses current and future needs…(Strategic Initiative 1, CTAHR Strategic Plan, 1999)". This proposal also addresses one requirement of the WASC Accreditation Report mandating that "…faculty initiate, conduct, or improve and extend departmental and program-based assessment of student learning."

Recently, CTAHR has reorganized itself into six departments. In January, 2000, the UH Board of Regents approved the reorganization and the merger of the Department of Animal Sciences and Food Science and Human Nutrition to form the Department of Human Nutrition, Food and Animal Sciences (HNFAS). The Department houses two undergraduate baccalaureate degree programs, Food Science and Human Nutrition (FSHN) and Animal Sciences (ANSC). These two programs represent 35% of the undergraduate students in CTAHR. The Animal Sciences program has 60 undergraduate majors and is home to the Pre-Veterinary Medicine Program. The FSHN program has 103 undergraduate majors and is home to the only American Dietetic Association accredited program in Hawaii leading to becoming a registered dietician.

CTAHR has a history of assessing the abilities of its students. For over 10 years, CTAHR has had in place an established set of college-wide "Critical Skills and Competencies for CTAHR Graduates." This includes ten skill categories and 58 competencies that are listed as measurable

objectives. These were developed through a College-wide assessment of academic programs through the use of focus groups of alumni, employers, faculty, and existing students. Existing and new courses are expected to address these skills and competencies. To graduate from CTAHR, students must take a capstone / internship course. Objectives measuring college-wide critical skills and competencies and program content and skills required of each graduate will be incorporated into the objectives capstone courses (CTAHR College-Wide Assessment Plan, 2/1/01, attached).

According to the Handbook on Departmental Assessment of Undergraduate Learning prepared by the Manoa Faculty Senate Committee on Academic Programs and Policies (2001), each Department will be asked to answer the following questions "How effective is a department in reaching its academic learning objectives?" and "Are students learning what the departments want them to accomplish?" Over the past year, the faculty in the FSHN program, the other part of the HNFAS Department, has been reconfiguring the human nutrition curriculum (nutrition, dietetics and secondary science teacher training) to be outcome-based and to provide a seamless transition from course to course, from their entrance into the program to graduation. Using Bloom's taxonomy of educational objectives (Bloom, 1956), the faculty has developed a systematic approach to student learning. The nutrition faculty now has a 28-page document outlining major content and skill competencies that students are expected to learn and know by the time they graduate. To test for this knowledge, the faculty is in the process of developing an examination that all seniors must take in their final semester in school as part of the FSHN 492 Internship class. We hope to pilot the examination this semester.

The Animal Sciences undergraduate program is further behind this process. Nationally, enrollments in Animal Science programs are increasing. According to the Food and Agricultural Education Information Service (http://faeis.tamu.edu/), enrollments in Animal Science baccalaureate programs at 1862 Land-Grant Universities (of which UH-M is one) have increased. At UH-M, for the same period ANSC majors have increased similarly (See attached graph). However, for the department to continue to succeed, assessment of the program is critical.

The American Registry of Professional Animal Scientists (ARPAS) accredits professionals in the field of animal science through examination. The examinations are both species-oriented (beef cattle, swine, laboratory animals) and disciplinary-oriented (nutrition, reproduction, behavior). Professionals can take the examinations, which are offered by the association and become certified in various areas. Because of the importance of developing assessment tools for students nationwide, the association has offered its exams for sale for use as student assessment tools. The PI is serving on a national committee of this association to determine the feasibility of using these exams as assessment tools. We propose to purchase these exams and evaluate their feasibility for use as an assessment tool for the Animal Science Program.

Specific Goals of the Proposal

The Department is requesting support to develop content learning objectives across the entire ANSC curriculum to reconfigure the ANSC curriculum to be outcome based and to provide a seamless transition from course to course for students majoring in ANSC. We anticipate

developing a systematic approach to student learning that includes all areas from understanding basic knowledge, to comprehension of difficult concepts, to the application of these concepts and to the development of appropriate analytical skills to synthesize the knowledge. At the end, the students will be evaluated on their learning. We will also evaluate the ARPAS exams as possible assessment tools to test for learning. We will be following the model developed by the Human Nutrition faculty in HNFAS.

Input from stakeholders is crucial to this process. We plan to survey alumni and employers of our students and other stakeholders to assist us in determining critical knowledge of what our students must know. We will conduct focus groups to further understand the needs of our stakeholders and what they expect of our students.

How will the impact be measured?

The project will have succeeded if an appropriate set of content skill learning objectives is developed in the form of a document. These content skill-learning objectives will be incorporated in the development of assessment tools, in particular, assessment tools that can be developed under the auspices of the CTAHR College-wide Assessment Plan (attached). Because WASC is mandating an assessment procedure, this project will not be left undone.

A PDF Version of The Progress Report for The Integrating Learning Objectives Across the Animal Sciences is available.