

Annual Report on Academic Program Assessment for 2007-08

College of Agricultural and Life Sciences

1. Has your school/college assessment plan been updated in the past year?

No, the College Assessment Plan was reviewed and updated by the College Assessment Committee and then approved by the Academic Planning Council of the College in November of 2004. I include excerpts of the plan here for information but would refer those with a deeper interest to review the 2004-05 report.

“The objective of assessment is to measure the results of our academic programs in order to determine if program objectives are met, and to use the knowledge gained from these measurements to improve the quality of education we provide our students. Programmatic assessment is not an evaluation of individual students or faculty but an analysis of the learning results of an entire curriculum.”

“Departments will use feedback from their assessment activities to continually improve their curricula. In almost all cases, departments have changed assessment plans developed in the late 1990’s. It is expected that changes will be made in the future as well.”

2. Describe any assessment activities conducted in the school/college for unit-wide programmatic or curricular review

The CALS Office of Undergraduate Programs and Services, with the support of the dean, has initiated a college-wide review of our curricular structure, which was codified in 1988 following an extensive project funded by the Kellogg Foundation. Much has changed in the past two decades, and data was presented to departments in the Spring of 2008 on the following topics:

- Changing societal needs and interests
- Evolution & globalization of new knowledge
- Changing student demographics and interests
- Emergence of new fields of study
- Increase in interdisciplinarity and internationalization
- Changing staffing patterns (including an increased reliance on academic staff, and a dramatic turnover in faculty)
- Declining/changing resources
- Increasing student enrollment, decreasing faculty size
- Shifting expectations for higher education (especially increased emphasis on learning outcomes and accountability)
- Development of new career interests and opportunities for our graduates
- Invention/innovation of new tools for research and instruction

In addition to these changes, the current degree/major structure in CALS allows for some 88 different degree paths for our undergraduates, a system some have called Byzantine. Students and advisors alike find the system complex and often confusing. A detailed look at 10 years’ enrollment and graduation data provided by the Office of

Academic Planning and Analysis indicates that not all of these 88 paths are equally used and that streamlining should be possible with minimal impact on flexibility for students.

With this data in mind, a significant goal for CALS for the coming year is to propose an overall curricular structure that is appropriate to our resources and to the students we serve, and that clearly and explicitly identifies learning outcomes for our students at the college and program levels.

3. Describe the assessment activity in your academic programs and departments.

Program assessment is an ongoing activity in all departments and programs. There are basic principles followed by agreement of the faculty. Each department is asked to: (1) identify the knowledge and skills its students should acquire; (2) develop a mechanism to measure the extent to which this knowledge and skill has been acquired; and (3) use the information to make appropriate changes to improve student learning. This assessment process is identical for both undergraduate and graduate education.

The College faculty deliberately adopted a “bottom-up” strategy for the planning and implementing of assessment. First, department plans are developed exclusively by department faculty members. The great advantages of this strategy are: (1) the plans are very well adapted to the goals of the department’s academic program; (2) the plans tend to be highly thoughtful and reflective of the department’s philosophy; (3) once a plan is developed there is a very high probability that the plan will be implemented. The disadvantages of this “bottom-up” approach are largely due to the individualistic nature of departmental responses: (1) variations in the speed of adoption of assessment activity; (2) variations in the specificity of statements of knowledge and skill outcomes; (3) variations in the level of analytical power of the measurement system; (4) uneven amounts of faculty time and departmental attention devoted to assessment in general.

The second principle of the College’s strategy is that assessment activity should be supported by the resources available in the department. The assessment plan is a “local” plan, produced and implemented by department faculty, even though the use of external resources might produce more elegant analyses. In general, this “local control” of assessment implementation means that the activity is not as extensive, and the approach is not as scientifically or statistically rigorous, as an approach that uses external resources to design and implement detailed assessment studies. On the other hand, the activities are thoughtful and are targeted on issues the faculty believes are important.

The College implementation strategy accepts the variation in the plans and implementation activity as a reasonable price to pay for a set of plans that are well-suited to the department’s program, implemented by departmental faculty, likely to produce results that the faculty in the department will use, and likely to be sustainable over the long run.

All departments report engagement in some form of academic assessment. The most common methods that are in continuous use include: Senior exit interviews; project reviews by a panel of faculty; capstone course performance; admissions to graduate or professional schools; employability of graduates; alumni surveys; business and industry advisory committee reviews; among others. Many of the departments use this information in annual faculty retreats or meetings where academic program improvements are a focus of attention. From these meetings, many programs have

decided to modify their programs for students (or the learning outcomes for students) to better address their instructional program abilities.

It is anticipated that the college-wide curriculum review currently underway will encourage departments to revisit their learning outcomes for students and the assessment plans intended to measure achievement of them.

Department Assessment Updates from the College of Agricultural and Life Sciences

In light of the extensive curriculum assessment and review underway at the college level, less emphasis has been placed on department-level changes in the past year. The paragraphs below summarize on-going assessment activities and, where appropriate, include information on 2007-08 developments.

Agricultural and Applied Economics underwent an assessment by a team of outside reviewers for the Cooperative State Research, Education and Extension Service of the USDA in 2006-07. For ongoing assessment, the undergraduate program uses monitoring of student performance in the capstone course, exit interviews for seniors, and regular curriculum review. The graduate program uses measures of student performance in courses, prelims, research output, written and oral presentations; continuous study of admissions data and employment outcomes; and other forms of self-study and review, including student feedback. Given the CALS curriculum changes underway, AAE is actively evaluating its major names, marketing to students around campus and off campus, and service courses to the University. This evaluation is aimed at increasing the knowledge of students about the diverse offerings of AAE on issues related to biotechnology, environment and natural resources, globalization, and other pressing issues of our time. (Brad Barham)

Animal Sciences conducts exit interviews each semester with its graduating Seniors. Interviewees are asked to comment on any issue that pertains to their experience in the Animal or Poultry Sci major, curricular or extracurricular. In addition, each fall the department chair meets with the students in the capstone course (AS 435, Proseminar) to collect their strengths and weaknesses of the major. The event is dubbed "Dinner with Dan" (Dept. Chair). Both of these assessment tools are used to collect themes from student responses and then the chair considers what action is needed. In general, this feedback has provided evidence that our students appreciate the "hands-on" contact they have with animals and tissues. They also appreciate the approachability of their instructors. New courses have been recommended by Seniors and are coming to fruition. Specifically, we will have experimental courses in Spring 2009 on "animal diseases and health management" and "advanced equine production". Efforts are also underway to collaborate with Agricultural and Applied Economics to teach a "livestock and meat marketing" course. (Dan Schaefer)

Agronomy has developed and implemented three measures for assessment of our undergraduate curriculum: 1) an Agronomy Senior Learning Goals Survey is used by Agronomy seniors to assess their undergraduate education in terms of our departmental undergraduate learning goals; 2) an Agronomy Senior Capstone Student Assessment Worksheet is used by the capstone instructor to assess seniors in terms of our departmental undergraduate learning goals; and 3) a summary of academic

performance (GPA) of our majors in Agronomy courses. These measures are contributing to a data base from which our department can continue to improve the quality of our curriculum and the learning experiences of our undergraduates. (Bill Tracy)

Biochemistry. As part of the department's continuing academic program assessment effort, Biochemistry has a web-based exit survey for undergraduate students and has recently begun to assess the performance of biochemistry majors who took Biochemistry 507 (which the majority of Biochemistry majors take) relative to other students in this class. Furthermore, we used our undergraduate graduating survey to assess the professional direction of our graduating students. To further enhance our undergraduate assessment effort we will continue work at increasing the percentage of exit survey respondents. Our instructors in our capstone course, Biochem 511, are encouraged to inform students to complete the survey. Other ways to evaluate our teaching/training performance is by conducting a survey to evaluate the performance and satisfaction of our undergraduate alumni who have completed their degree within the past 2-3 years. We are still exploring this option, but are limited due to funding. (2007 report abridged by Sarah Pfatteicher, no updates received for 07-08)

Biological Systems Engineering has established an assessment protocol which requires each course to be reviewed by faculty annually to update content and focus. In addition to exit interviews with graduates, focus groups with stakeholders are conducted every few years to keep the curriculum current. This procedure was examined in 2006-07 as part of a six year Accreditation Board for Engineering and Technology (ABET) review. The Department process was determined to be a useful approach to supporting continuous improvement of its curriculum, and the program was re-accredited for a full six years. (Dick Straub)

Biology The Biology Major has completed several activities listed in its assessment plan and implemented a new Evolutionary Biology option within the major in response to prior years' feedback. The new ICBE director has not been named as of the time for submitting this report. (2007 report abridged by Sarah Pfatteicher, no updates received for 07-08)

Dairy Science. All of the proposed assessment methods described in the 2004 departmental plan are being done. Methods include course evaluations, senior exit interviews, alumni surveys, student performance in capstone classes, and intercollegiate contests. Level of satisfaction with curriculum by graduating seniors continues to improve. Changes in the curriculum to provide more applied and experiential courses and they have been well received by students (based on past senior exit interviews). Our department leads the nation in platinum finishes in the North American Intercollegiate Dairy Challenge contest which evaluates a group of four student's ability to analyze, troubleshoot, and problem solve on commercial dairy farms. Our Dairy Herd Management Practicum capstone course pulls together information from our curriculum and prepares students for this contest. Results from this contest are an excellent testimony to the quality of our curriculum. (Ric Grummer)

Entomology

Undergraduate Student Assessment: The Department has a questionnaire that is distributed to all students in ENT 468. This course is the capstone class if students are not involved in undergraduate research programs with individual faculty members. Second, we have placed a questionnaire on our departmental website asking both graduate and undergraduate alumni to respond.

Graduate Student Assessment: The Department of Entomology recently emailed out our exit interview questionnaire to students whom left and did not complete. Those in the local area are being contacted to also come in for an interview with the Chair and member of the Academic Affairs Committee.

We have implemented "M.S. Day" based upon survey feedback. This program, while not directly affecting the curriculum, does force the graduating student to draw on all of their previous academic experiences to synthesize a well-reasoned and thoughtful presentation to their peers and mentors. Following the seminars, we will hold a recognition lunch or dinner to honor the graduating students. (Walt Goodman)

Food Science In addition to our standard assessment tools (exit interviews, alumni survey, etc.), we have several new developments to report this year. In addition to making our exit interview survey web-based, with the aid of a UW Assessment Council grant, we have begun a major programmatic assessment initiative for specific learning outcomes (critical thinking, quantitative reasoning – statistical analysis, and technical writing).

We are implementing a programmatic portfolio based on embedded questions at different points (courses) in the curriculum to assess student skill level in each of these three important skills. A portfolio (file) will be compiled for each student that allows us to track their development through the curriculum and evaluate their skill level as they graduate. Based on the results of the portfolio assessment, we will identify whether our new curriculum promotes improvement in these three skill areas or whether instructors will need to develop new methods of integrating and developing these skills.

This past year, we developed the Critical Thinking and Statistical Reasoning tools and introduced them in several courses from freshman to senior years (primarily still our "old" curriculum). The Technical Writing tool is under development and will be implemented next year. We are currently determining what resources will be needed (and where to find them) to maintain this ongoing embedded-question portfolio approach to programmatic assessment. (Rich Hartel)

(Also see Food Science's Report on Use of 2007-2008 Assessment Council Funds, which appears at the end of this document.)

The Department of Forest and Wildlife Ecology was created on July 1, 2007 to merge two former departments into one larger and more diverse unit. The merger has gone remarkably well, at least in part due to the spatially adjacent facilities of the two former programs, but also to the common interests of the faculty in natural resources and prior research and teaching collaborations. The Forest Science major was reviewed in spring 2008 by an accreditation team from the Society of American Foresters as the first step towards receiving a 10-year reaccreditation of its curriculum. The team report was very positive but a final decision on reaccreditation will not be made until November.

Outcomes assessments of graduating Forest Science seniors have been conducted for about 15 years. Results of these outcomes assessment continue to inform the teaching programs. Recent changes there include: 1) revisions in the organization and topic coverage in selected courses; 2) expansion of our senior level capstone course (FOREST 590) to include Wildlife Ecology majors thereby broadening the range

of resources included in assessments and plans; and 3) the reintroduction of remote sensing and aerial photogrammetry instruction in the Forest Science major. All of these improvements have made a difference in student perceptions of their skills upon graduation as well as the quality of the undergraduate learning experience. Assessments from responding 2006-07 graduates are all very good to excellent (Table 1); response to our survey was about 70%.

The department continues to conduct annual exit interviews for graduating Wildlife Ecology seniors. Recent results remain very positive and highlighted the importance to the wildlife program continuing to expand student opportunities in the classroom and the field, including: 1) expansion of capstone course options for graduating seniors to include the Integrated Resource Management option formerly only available to Forest Science students; 2) expansion of field experiences in northern Wisconsin and western Mexico where students get to apply what they have learned in class; and 3) continued growth of the Student Chapter of The Wildlife Society which provides an important supplement to classroom work with field trips, bi-weekly programs, a national quiz bowl team, and a regional student conclave.

The Department continues to reorganize its administrative services in concert with the Department of Entomology and the Department of Plant Pathology to create a Russell Labs Service Center. The faculty believe this reorganization will reduce some redundancies in staffing and allow the Service Center to upgrade the quality and diversity of staffing to address emerging administrative needs, especially in the area of pre- and post-award grants management, human resources and graduate education support. (Ray Guries and Scott Craven)

Genetics The Genetics Department is following our assessment plan as adopted in January 2004. Graduating students are surveyed about their experiences in the Genetics major. In the most recent survey conducted in Spring 2008, we received 32 responses with 27 students expressing satisfaction in their major and 22 indicated that the major prepared them well for their next step. Seven students indicated they were undecided with regards to their career goals. The other students identified professional school (Med, Vet, Dental), graduate school (research), MD/PhD, genetics counseling, biotech industry, public policy, nanotechnology and cinematography for their next steps. The Undergraduate Curriculum Committee will use the data collected to assess adding new courses for our undergraduate majors, to review course classifications within our major requirements and to evaluate undergraduate advising. The Undergraduate Curriculum Committee now includes an undergraduate student, who is elected by members of the Undergraduate Genetics Association, in order to facilitate obtaining feedback from undergraduates majoring in Genetics. (Francisco Pelegri)

Horticulture is in the final phases of an academic review/curriculum revision for undergraduate student education. We used industry focus groups and student surveys to identify key student and employer needs. We've found in many cases that student and employer needs are not readily compatible with the current trend of academic hiring: students and employers tend to want more applied education which is often not a strong component of research-based faculty programs. Consequently, we've developed a mixed model to ensure some applied education is offered, partly ensconced in extramural experiences/internships, while promoting the benefits of utilizing research-based information in undergraduate study. We are restructuring our curriculum requirements to give students options which focus on organic/sustainable horticulture, ornamentals/turf, human health and nutrition, and science-based programs for students

interested in research. International experience is being incorporated into all options as student surveys showed a tremendous desire for international study. (John Stier)

Landscape Architecture

The department faculty members have two day-long retreats each year, in fall and spring. As part of each session, we review aspects of our academic programs. In Fall 2007, we hosted a routine Professional Accreditation Review of our ALA program. This process involves undertaking a self-study of the curriculum, which we did in conjunction with students, alumni, and area professionals, as well as an evaluation by outside professionals. As the result of this review, we have been granted full accreditation for the next 6 years, with no additional requirements. This fall, we plan to continue our review, started in 2006-07 of the core course sequence in the graduate program.

We use 4 tools to assess our Professional Design Program (BSLA) curriculum:

- Professional Accreditation Review every 6 years (Next Review, November 2013)
- Jury Week
At the end of the fall and spring semesters, students in all of our studio classes present their solutions to one of the design problems being addressed that semester. Alumni and faculty attend the juries and provide feedback to the students as well as to the faculty.
- Review of Products of the Senior Capstone Course
- Job Placements

We use 2 tools to assess our graduate program:

- Completion of Research and Project-Based Theses
- Job Placements

(Evelyn Howell)

Life Sciences Communication assesses learning outcomes in a number of ways. In 2007-8, the department conducted a survey of undergraduate majors across eight areas of assessment: instruction, curriculum and courses, advising, student services, facilities and resources, extracurricular activities, departmental climate, and LSC's influence on students' skills. Respondents rated the department "poor," "below average," average, "good," or "excellent." In brief, findings were very favorable with approximately ninety percent of students rating LSC "good" or "excellent" in instruction, advising, student services, and availability of professional courses, for example. On a five-point scale where 5 is most favorable, students rated the departmental climate as friendly (4.61), open-minded (4.48) and exciting (4.04). An external review panel of faculty from other campuses assembled by CSREES/USDA visited the department in September and interviewed students as part of an assessment process. The panel found that the department prepared majors well for successful careers in the media industry and in science communication, and applauded the opportunity for students to acquire a foundation in science while becoming adept at communicating using the latest technology. LSC continues to solicit student evaluations of all instructors and courses, using a 23 item questionnaire and open-ended comments. On a 5 point scale where 5 indicates strong agreement with the statement "The instructor is an effective teacher," LSC faculty and instructional staff have produced a steady departmental mean of approximately 4.5 every semester since fall of 2000. (Jacquie Hitchon)

Microbiology (formerly Bacteriology)

We have continued to utilize our web-based, anonymous exit interview of graduating seniors, which addresses all aspects of the major and its services. We have also improved the system by which we encourage student responses, so that this year, we had 39 total responses. We will simply mention the two broadest categories, though 13 separate categories of courses and services were analyzed: satisfaction with required Microbiology courses and overall satisfaction with the department. For the required courses, 17 students were extremely pleased, 16 were somewhat pleased, 5 were satisfied and one was extremely unhappy. For overall satisfaction with the department (courses, advising, support, etc): 25 were extremely pleased, 9 were somewhat pleased, 4 were satisfied and one was somewhat unhappy. As in the past, there were constructive criticisms of specific courses and department services and these will be passed along to the appropriate faculty and staff for action. Comments from previous years have been important for the recent curriculum redesign that the department has just implemented. (Gary Roberts)

Nutritional Sciences

The assessment efforts of the department for 2007-08 have focused on preparations for the Dietetics program's accreditation review. The full re-accreditation self-study is available as a separate document. Highlights are provided here. The DPD has a systematic assessment plan. Outcomes measures have been established to assess each of the program goals in order to assess the program's effectiveness. A diverse group of committees, groups, and individuals participate in the process of planning, implementation, and evaluation of the DPD at UW-Madison. The results of the recent self-study indicate that the UW-Madison DPD is highly effective in achieving its mission. Program strengths identified in the self-study include: a large pool of academically qualified students, faculty with tremendous expertise in the disciplines needed to support dietetics; the academic rigor of the program, the success of its graduates, and the committed and diverse instructional staff. In addition, the program faces the following issues: financial constraints combined with continued high enrollment, a desire to expand coverage of community nutrition, nutrition counseling, clinical nutrition, and applied clinical nutrition in the curriculum, and the potential for improvement in academic advising. (Lynette Karls)

Plant Pathology

The Plant Pathology Department updated its assessment plan in the summer of 2007. The department has identified objectives and goals for the undergraduate program, and relies on three mechanisms to assess student learning in these areas.

- Analysis of performance in PP300
- Analysis of performance in the capstone experience
- Pre-graduation exit interviews of Plant Pathology majors

The Curriculum Committee will collect the information on performance in PP300, evaluations of student capstone experience, and the results of the exit interviews. Evidence of deficiencies or general improvements that are required in the program will be taken under consideration by the departmental Curriculum Committee who will devise a plan for improvements. The materials will be used to prepare a report for the departmental Faculty.

Plant Pathology has also identified goals and required skills and knowledge for its graduate program. Student performance in the major requirements of the degree program will be used to assess student progress and student learning. Student learning

will be monitored in student seminars, teaching experience (Ph.D. only), Visiting Preliminary Exams (Ph.D. only), Oral Preliminary Exam (Ph.D. only), Final Oral Exam and Thesis. The Academic Affairs Committee composed of three faculty, one graduate student, and the departmental Student Services Coordinator, meets yearly to review the progress of students in these areas. The Curriculum Committee monitors student progress and student evaluations of the program to design improvements to the program. The impact of the program on the post-graduate activities of students will be accomplished by tracking graduates beyond completion of the degree. The department maintains records of graduates' addresses and occupations. Each graduate will be surveyed between 5 and 10 years post-graduation for their assessment of the impact of their education in this program and its importance on their current occupation. (Caitilyn Allen)

Rural Sociology

The Department of Rural Sociology continues to implement its established plan for the assessment of both undergraduate and graduate programs. The capstone course for undergraduates has proven to be especially fruitful as a vehicle for assessment. Student presentation of capstone research projects is now established as a permanent component of the regular department seminar series. This provides a means for all faculty members to participate in gauging student performance in a professional context, and serves additionally as a means of integrating undergraduate majors further into the life of the department. Exit interviews with graduating seniors have confirmed student satisfaction with the restructuring of major requirements undertaken in 2005. As a result of continuous program assessment, the department has proposed changing its name, and the name of its undergraduate major, to "Community and Environmental Sociology." Department faculty members believe that the new name will more accurately and engagingly reflect their research, instruction and outreach activities. Further, the renaming should enhance our program's visibility to undergraduates and assist them with clarifying the content of their education for prospective employers and graduate/professional programs. Jointly with the department of Sociology, Rural Sociology faculty members continue the practice of annually reviewing the status and progress of all students associated with the Sociology Graduate Program. (Jack Kloppenburg)

Soil Science

The Department of Soil Science uses course evaluations, exit interviews and surveys of stakeholders in its course instructional assessment. In 2007-8, this was supplemented by retreat which included a focus on curriculum for undergraduate majors. In addition, a "department climate" survey conducted in fall 2007 in cooperation with WISELI provided an indications of how graduate students perceived the learning environment of the department. This led to meetings with graduate students that students which yielded numerous suggestions about how to improve the learning environment, as well as some suggestions on program content and delivery. Faculty teaching our large enrollment campus-wide service courses (Balser, Bland and Balster for Soils 101, 132, and 230 respectively) all have customized learning assessments in their courses, in addition to the department course evaluations. These are before/after profiles of student attitudes and understanding of course "big picture" concepts (separate from testing on specific course information). In the fall of 2008, we will conduct a 10-year departmental review, which will include an extensive academic program assessment based on the "Outcomes Assessment" manual on the Provost's webpages. (Steve Ventura)

Urban & Regional Planning (URPL)

Master of Science in Urban & Regional Planning: The department recently completed a self study report for the Planning Accreditation Board (PAB) as part of the re-accreditation effort for its Masters Program. The PAB is the accreditation body for graduate planning programs in the United States. The re-accreditation effort will include a site visit in Fall of 2008 and an assessment report to be completed by the site visit team in early 2009. The self study applied assessment factors developed by the PAB that all Masters programs need to meet.

The department moved into the implementation phase of the "professional project" changes to the process for assessing student achievement. The Professional project replaces the oral exit examination process formerly used by the department. The professional project will provide the department with a better assessment tool of student performance.

The department also made changes to the application deadlines for students applying to the Masters program to bring the department's process in line with other programs nationally.

Doctor of Philosophy in Urban & Regional Planning: The department's Ph.D. program committee evaluated changes to the program's application deadlines and the department will make changes in 2008 - 09 to better reflect application deadlines at peer institutions. The Ph.D. program committee annually evaluates the progress of PhD students requiring that students complete a brief self-assessment. The Ph.D. program committee continued its evaluation of the doctoral program's preliminary exam process. The committee explored alternatives to and variations of the program's Prelim III (Research Methods) exam. There continues to be some interest among the faculty in broadening the exam's scope, but there is no consensus on this issue. No action was taken, during 2007-08, to revise the Ph.D. program's prelim exams. The faculty will reconsider this issue in 2008-09. (Brian Ohm)

4. Describe plans for academic assessment activities for the coming year in your school/college.

As noted above, CALS is undertaking a significant review of degrees and majors in the college. The structure that a new CALS Curriculum should take remains an open question, but there is broad agreement that review is needed, and there are many possibilities for what that review might produce.

In order to move that review forward, working groups will be named and will begin work by the start of the fall semester 2008, with a goal of crafting a proposal for a CALS Curriculum (including degree/major structure, college-wide requirements, etc.) that can be presented to campus by May 2009.

The working group will be given a charge for the year that will likely include the following goal and stages. The objective of this curriculum review is to establish an overall curricular **structure** that is appropriate to the college's resources and the students it serves. The goal is not to supplant departmental oversight of specific major requirements, but rather to identify an overarching system that will enable departments to nimbly and appropriately adapt and update their courses and curricula. It is

anticipated that the working groups will develop this CALS Curriculum in four (potentially overlapping) stages:

1. Agree on core principles & open questions
2. Develop 2-4 possible models for CALS curriculum
3. Seek broad input on draft models (from faculty, staff, students, alumni, employers)
4. Choose one model to design in detail

The working group will rely heavily on existing assessment and other data in the development of a new CALS curricular structure. Updates on the group's progress will be posted regularly to eCALS and to a project website.

Assessment in Food Science
Report on Use of 2007-2008 Assessment Council Funds
UW Department of Food Science

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Overview:

The Department of Food Science is currently undergoing a major curricular revision. We have revised our entire program so that it is based on learning outcomes that account for student development and growth as they progress from freshmen to seniors. In the proposal to the UW Assessment Council, we received funds for assistance in planning and developing a portion of the assessment program for our new curricula. Specifically, we are developing what might be called a programmatic student portfolio based on embedded questions throughout the curriculum. In this past year, we developed and implemented two of the three programmatic assessment pieces that will help us determine if our curriculum change is truly accomplishing the outcomes we anticipate.

Assessment Program Development:

An assessment subcommittee of the department's Curriculum Committee was formed including Rich Hartel, Monica Theis, and Patricia Lenz (PA). It was determined that we would assess three critical areas of our curriculum as students progress through the B.S. Food Science program, from sophomore (or freshman, where possible) through senior levels. The three critical areas for the programmatic assessment are:

- 1) Critical Thinking
- 2) Quantitative Reasoning

3) Technical Writing

With input from the curriculum committee as well as faculty and staff within the Food Science Department, these three topics were identified as need areas, and were considered to be primary targets for improvement with the new curriculum. All three of the assessment subjects were noted to be “growth” areas for our students and would benefit from an assessment feed-back loop.

The Nuts and Bolts:

The general idea of this part of our programmatic assessment plan is to develop a portfolio of student work throughout the curriculum (from sophomore to senior) based on assignments embedded into various courses by the Curriculum Committee. Assignments in each course will be collected, copies will be filed for each student in our program, and each portfolio of work will be evaluated when the student graduates according to a standardized rubric.

This past year, two of the assessment areas, Critical Thinking and Quantitative Reasoning, were fully developed and implemented. The Technical Writing assessment is still in the development stage.

Critical Thinking - It was determined that we would assess Critical Thinking at each level of our curriculum, starting with the freshman class (even though FS 201, our freshman class, is not required, it is strongly recommended and the majority of our students take it). The proposed plan for developing the Critical Thinking assessment can be found in Appendix A. The rubric we decided on for scoring these assignments was adapted from the rubric available at Washington State University (<http://wsuctproject.wsu.edu/ctr.htm>) Table 1 shows the courses in which assignments have been embedded to assess critical thinking:

Table 1. Courses with embedded assessments for Critical Thinking

<i>Spring '08</i>	<i>Spring '09</i>	<i>Spring '10</i>	<i>Spring '11</i>	<i>Spring '12</i>	<i>Spring '13</i>
FS 201	FS 201	FS 201	FS 201	FS 201	FS 201
FS 301 ¹	FS 301	FS 301	FS 301	FS 301	FS 301
FS 321	FS 321	FS 321	FS 321	FS 321	FS 321

FS 542	FS 542	FS 542	FS 603	FS 603	FS 603
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¹ Spring '08 had three Food Science majors

“old” curriculum

This plan allows us to generate data to compare the old curriculum to the new “integrated” curriculum, which is being phased in over time (i.e., the Spring 2008 Freshmen in FS 201 will be the first class to graduate under the new curriculum). Spring 2008 was the first time that FS 301 was taught; this course was introduced as part of our new curriculum. However, FS 301 also serves Dietetics students and these made up the majority of students in the Spring '08 offering.

Quantitative Reasoning – According to the faculty and staff, math skills are something with which our students struggle. One theory is that exposure to math word problems does not occur enough during the freshman and sophomore years. Through this assessment program we intend to ensure that mathematical reasoning is a focus area of our sophomore Gateway, FS 301, course as well as the junior and senior level Food Science courses.

As a result of feedback from our recent alumni survey, which indicated that students were not confident with but found statistics very useful in their vocations, we focused decided to initially focus on statistics for our quantitative reasoning assessment. The plan for developing the quantitative reasoning assessment is also provided in Appendix A. Here is where we plan to embed statistical quantitative reasoning problems in our “old” and “new” curriculum:

Table 2. Courses with embedded assessments for Quantitative Reasoning

Spring '08	Fall '08	Spring '09	F 09	Spring '10	Fall '10	Spring'11	Fall'11
FS 301(1)		FS 301 (2)		FS 301 (3)		FS 301 (4)	
	FS 310 (1)			FS 412 (2)		FS 412 (3)	
FS 542 (0)		FS 542 (1)			FS 542 (2)		FS 542 (3)

(#) indicate cohorts of students

“old” curriculum

Looking into the future, we anticipate that we will add other quantitative reasoning skills, such as mass balance or dilution calculations, to the programmatic assessment.

Technical Writing – This assessment area is still under development and should be completed in time for Fall 2008. This competency will be subjected to the same development process as Critical Thinking and Quantitative Reasoning:

- 1) Define competency
- 2) Inventory where competency currently exists in our curriculum
- 3) Determine which courses to include in the embedded assessment program
- 4) Develop rubric for assessing competency
- 5) Work with instructors to develop assignments for specific competency

IRB approval – The institutional review board was applied to and gave this assessment program an “exempt” review. The IRB approval form is available on request.

Future of the Food Science Programmatic Assessment:

Each embedded critical thinking assignment was/will be collected into a student portfolio and assessed by a subgroup of the Curriculum Committee. These results of this assessment will be used in two ways: 1) to provide feedback to both faculty and (potentially) to each individual student at his/her Exit Interview that documents the student’s progress and exit level of competence in each area and 2) as assessment data for our annual curriculum retreat to evaluate the “old” versus “new” curriculum.

At our June curriculum retreat, the important topic of resources needed to provide continuity of this programmatic assessment was discussed. It was decided to turn this back to the assessment sub-committee to develop a plan and

determine the necessary resources for implementing and maintaining this assessment over the long term. In the short term, the PA funded to work on this assessment project has agreed to continue to work through the summer to develop the third competency, Technical Writing. Funds to continue the PA through the 2008-2009 academic year are being solicited through departmental resources (combination of TA and Foundation funds). This will allow us to complete the development stage as we develop the long-term strategy for maintaining this assessment program.