

# Annual Report on Academic Program Assessment for 2006-07

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. The revised plan was submitted as a part of last years Annual Assessment Report from the College. 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

There has not been a college wide effort to examine the learning outcomes for students. There has been a general discussion of assessing how well the college is helping first year students achieve learning outcomes that were adopted first by the campus and then by our college curriculum committee. This is still in process and will likely get keener attention in the coming year.

## 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.

## **Department Assessment Updates from the College of Agricultural and Life Sciences**

**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. Department committees produced a comprehensive self-study analyzing a decade of data and identifying issues for the team's consideration. The review report provided insights and recommendations that are still under discussion by the graduate and undergraduate committees, and the department as a whole. For the undergraduate program, the team suggested growing courses through the use of teaching assistants, rewarding undergraduate advising, proactively recruiting new majors in service courses, and making several curricular changes. The graduate committee is considering recommendations for the Master's program, major fields, and preliminary exams. It has already implemented the proposal to provide teaching assistants for two courses.

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.

**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 I meet with the students in our 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 I consider 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.

In May 2007, I had two comments made to me by students regarding this department's need for cultural diversity in its faculty and sensitivity to LGBT issues. In response to these comments, I have arranged with one of our graduates (Harpreet Singh) to conduct a workshop on diversity topics for our faculty and staff. The target date for this workshop is the first week of September 2007.

Independently, this dept and Dairy Science have been exercising an initiative to reinstate an undergraduate animal health course. Both depts consider this course to be integral to our curriculum. Hopefully with the opportunity presented by the hiring of Amin Fadl, we will address this void in our curriculum.

We have implemented two initiatives to institute a Senior-Frosh mentor program. Both initiatives have failed due to lack of communication from the Frosh mentees. The Frosh did not respond to contact from their mentor. One mentor (Andy Peterson) had some success. Personality and visibility of the mentor may be a large factor in the success of a mentor program.

Mark Richards has an initiative underway to conduct a focus group meeting with some of our alums in the greater Madison area. More on that next year.

**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; the survey was completed by students enrolled in Agronomy 500 Senior Capstone Experience in 2006 and 2007, 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; students were assessed in Agronomy 500 in 2006 and 2007, 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.

#### **Bacteriology (Microbiology)**

We have continued to utilize our web-based, anonymous exit interview of graduating seniors, which addresses all aspects of the major and its services. The evaluations and added comments were extremely positive this year: On the broadest question of the overall satisfaction with the department and major, 13 were "extremely pleased," 3 were "somewhat pleased" and 2 were "satisfied." Nevertheless, there were constructive criticisms of specific courses and department services and these have been 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.

**Biochemistry.** As part of our continuing academic program assessment effort we have a web-based exit survey for our undergraduate students and have recently begun to assess the performance of our biochemistry majors who took Biochemistry 507 relative to other students in this class.

Our web based exit survey has historically provided us with a ~40% of our matriculating seniors. However, in the academic year of 2006-2007 we obtained only 32% response rate. The survey can be viewed at (<http://www.biochem.wisc.edu:9006/survey/entry.jsp?id=1126286645107>) and a summary of recent survey evaluations is available upon request. Overall, students have reported an average score of 4.44 of the overall effectiveness of the biochemistry major. Please see question 18 and the responses from 2006, 2005, and 2004.

**18) Please provide a numerical rating on a scale of 1 to 5 (5=best) of the overall effectiveness of the Biochemistry Major.**

2006

|                                  | 1 | 2 | 3 | 4  | 5  | Total Students | Average Score |
|----------------------------------|---|---|---|----|----|----------------|---------------|
| <b>Overall Program Effective</b> |   | 1 | 5 | 19 | 20 | 45             | 4.28          |

2005

|                 | 1 | 2 | 3 | 4 | 5  | Total Students | Average Score |
|-----------------|---|---|---|---|----|----------------|---------------|
| <b>Advising</b> | 0 | 0 | 1 | 7 | 47 | 55             | 4.84          |

2004

|                                  | 1 | 2 | 3 | 4  | 5  | Total Students | Average Score |
|----------------------------------|---|---|---|----|----|----------------|---------------|
| <b>Overall Program Effective</b> | 1 |   | 5 | 23 | 17 | 46             | 4.19          |

In 2007, we started to evaluate the performance of our majors in Biochemistry 507, which the majority of our undergraduate students take, in order to assess their knowledge of biochemistry. We examined how many Biochemistry students took this sequence and the grade distribution of Biochemistry students compared to other UW Madison students. Another reason we chose Biochemistry 507 for assessment of our students is because the course utilizes the textbook, **Lehninger Principles of Biochemistry**, written by Professor Cox and Nelson. This biochemistry textbook occupies 40-50% of the US market and larger shares in Canada and Europe, making it the most widely used biochemistry text for use in courses directed at undergraduate majors. The text book has major adoptions at Yale, Brandeis, MIT, Johns Hopkins, Michigan, Stanford, 9 of the 10 UC campuses including Berkeley and UCSF, Univ Colorado, Univ Washington, Columbia, Cornell, Duke, Brown Univ, etc. Thus we believe that our students are receiving comparable biochemistry instruction as the students at these other top USA biochemistry programs.

We analyzed the total number of students enrolled in 507 and the percentage of grades Biochemistry students earned versus other UW Madison science students.

2007 – 507

|                       | A   | AB  | B   | BC | C   | D&F | Total Students | Total Biochem                          |
|-----------------------|-----|-----|-----|----|-----|-----|----------------|--|
| # of Biochem students | 32  | 12  | 22  | 3  | 14  | 2   | 179            | 85                                     |
| % of Biochem Majors   | 38% | 14% | 25% | 4% | 17% | 2%  |                | % of Biochem students in course<br>48% |

2006 - 507

|                       | A   | AB  | B   | BC  | C   | D&F | Total Students | Total Biochem                          |
|-----------------------|-----|-----|-----|-----|-----|-----|----------------|--|
| # of Biochem students | 25  | 11  | 18  | 12  | 16  | 7   | 181            | 90                                     |
| % of Biochem Majors   | 28% | 12% | 20% | 14% | 18% | 8%  |                | % of Biochem students in course<br>50% |

2005 - 507

|                       | A   | AB  | B   | BC | C   | D&F | Total Students | Total Biochem                          |
|-----------------------|-----|-----|-----|----|-----|-----|----------------|--|
| # of Biochem students | 34  | 18  | 23  | 5  | 10  | 5   | 194            | 95                                     |
| % of Biochem Majors   | 37% | 19% | 24% | 6% | 10% | 6%  |                | % of Biochem students in course<br>49% |

Furthermore, we used our undergraduate graduating survey to assess the professional direction of our graduating students. We discovered that ~30% go onto professional schools (med school, pharmacy school, dental school, veterinarian school, law school etc), ~30% go onto life science graduate school, and the remaining 40% go into the work force (research assistants, sales, teaching, etc). These figures closely match those of Genetics which is a comparable department.

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 do to funding.

**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 this year 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

**Biology** During the past year, the Biology Major has completed several activities listed in its assessment plan. As we have done over the past several years, we conducted fall and spring semester surveys of our soon-to-be graduates. We also conducted a mid-semester survey of all students in the major that dealt with our student support services and communications, curricula and social activities. This survey also asked students whether they transferred into the major and, if so, their previous major; and whether they were considering transferring out of the major. We also surveyed faculty advisors this year to determine their opinions about the advising process and student expectations and preparation for meetings with their advisors. As a result of these

surveys, we will be working at getting important advising-relating information out to students and advisors in multiple, easy-to-use formats. A new assessment activity we did this year was to survey 500 former students who had graduated since the inception of the major.

This survey had a 53% return rate and showed that half of the respondents felt that their UW-Madison education made them "very well prepared" for pursuing their professional post-graduate goals. This survey showed a high level of satisfaction among students in the Neurobiology option. Feedback such as this has contributed momentum to the drive to create additional options within the major. We hope to offer an Evolution option during the coming academic year.

**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.

### **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.

**Food Science** continues to implement a variety of undergraduate assessment tools, including annual exit interviews and alumni surveys every 3 years (current survey is going out Summer 2007). This past year, we also had a very successful focus group meeting with representatives of recent graduating classes to solicit their input on specific elements of our curriculum. The result of these assessments is a significant revision of our entire undergraduate curriculum, which will now focus on sequenced student learning outcomes with substantive assessment at all stages of the curriculum. Informal assessment of our graduate courses in the past year, based on student frustrations and comments to faculty, has led to a new initiative in the Curriculum Committee to redesign our graduate course offerings.

**The Department of Forest Ecology & Management and the Department of Wildlife Ecology** have recently (July 1, 2007) merged to form the Department of Forest and Wildlife Ecology. Future reports will represent the collective assessment of our forestry and wildlife programs.

For about ten years, Forest Ecology and Management has conducted “exit assessments” of graduating Forest Science seniors. Results of our outcomes assessment led the Department to 1) revise the organization and topic coverage in the Forest 655 field skills course; 2) incorporate a weekend field trip and practicum into the Forest 300 (‘biometry’) course; 3) revise the Forest Science curriculum to provide greater clarity of the three options offered; 4) develop a senior level ‘capstone’ management course (FOREST 590) that integrated many skills and concepts presented in earlier coursework; and 5) initiate a new course in “Scientific and Professional Computing in Natural Resources” (FOR205) to increase students’ competency and professionalism in use of computer software. 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%.

Students completing the ‘capstone’ management experience (FOR 590) consider it to be an important conclusion to their careers. Our ‘capstone’ teams have won the annual Upper Midwest Capstone Competition on several occasions (most recently in 2006). In 2006, we completed the second iteration of our reorganized Forestry 655 (summer camp) course. It is more comprehensive in terms of basic inventory and monitoring skills and received strong student evaluations. During Fall, 2007, our Curriculum Committee will take up the issue of integrating this course with an existing Wildlife Ecology field skills course as part of a joint offering of the Forestry and Wildlife Ecology programs.

Beginning in 2003, we began to survey graduating Recreation Resources Management majors as well. We modified the “exit assessment” to reflect the different skills and outcomes expected here relative to the Forest Science major and have results from two years of such interviews. Scores from these graduating seniors are lower than those for Forest Science majors (Table 1) and are consistent among students. Comments received as a part of the assessment indicate that students perceive this major to be “narrow” with a focus primarily on the sociology of recreation. Students recognized that the program was now managed by a single faculty member who balanced teaching with a busy research agenda. Enrollment in the major continued to decline and a decision was made in early 2007 to close admission of new majors into the program. At this point in time, it appears unlikely that the College will be able to dedicate sufficient faculty/staff resources to this major and it will become ‘dormant’ for the foreseeable future. Given the recent merger, we will have some 200 undergraduate students distributed across the Wildlife Ecology and Forest Science majors, so also managing a Recreation Resources Management major appears untenable at this time.

#### Forestry SENIOR ASSESSMENTS - 2006-07

|   | student | student | student | student | student | Avg |
|---|---------|---------|---------|---------|---------|-----|
|   | 1       | 2       | 3       | 4       | 5       |     |
| Obj 1 - ecosystem structure & fct.        | 5       | 5       | 5       | 5       | 4       | 4.8 |
| Obj 2 - measurements and inventories      | 4       | 5       | 5       | 5       | 5       | 4.8 |
| Obj 3 - management & tradeoffs            | 4       | 5       | 5       | 5       | 4       | 4.6 |
| Obj 4 - political, social and legal envi. | 3       | 5       | 4       | 4       | 4       | 4.0 |
| Obj 5 - reading and interpreting literatu | 4       | 5       | 5       | 4       | 4       | 4.4 |
| Obj 6 - standard field skills             | 3       | 5       | 4       | 5       | 5       | 4.4 |
| Obj 7 - computer applications             | 3       | 4       | 4       | 5       | 3       | 3.8 |
| Obj 8 - oral & written communications     | 5       | 5       | 5       | 4       | 5       | 4.8 |

Obj 9 - working as a team                      4                      5                      5                      5                      4                      4.6

### **Genetics**

**Undergraduate Program:** The Genetics Department is following our assessment plan as adopted in January 2004. Graduating seniors are surveyed about their experiences in the Genetics major. In the most recent survey conducted in Spring 2007, we received 61 responses with 51 students expressing satisfaction in their major and 49 indicating that the major prepared them well for their next step. Nine students indicated they were undecided with regards to their career goals. The other students identified professional school (Med, Vet, Dental), graduate school (research), genetics counseling, biotech industry, teaching, science writing, health care administration, conservation biology and military intelligence for their next steps. The Undergraduate Curriculum Committee will use the data collected to assess adding new courses for our undergraduate majors.

**Graduate Program:** Assessment of the doctoral program in Genetics is ongoing. The program holds annual Town Meetings of all genetics graduate students and faculty trainers. The Graduate Curriculum Committee meets regularly to discuss changing curriculum needs and a graduate student is an active member of the committee. The program is funded by an NIH training grant, and is evaluated for progress yearly, with a comprehensive review every five years. In the recent annual campus competition of the Biological Sciences graduate program recruitment funding, the Genetics Predoctoral Program was ranked at the top of the programs for quality of entering graduate students and quality of research carried out by students in our program. The program was also highly ranked for its efforts or success in recruiting under represented students.

**Horticulture** is in the process of an academic review/curriculum revision. This involves our curriculum committee taking the lead for the department and working with the office of quality improvement. We anticipate the process to be complete within the next year. We will be contacting former students, current students, industry, and other universities to assist in the process.

### **Landscape Architecture**

The department faculty have two day-long retreats each year, in fall and spring. As part of each session, we review aspects of our academic programs. These discussions have resulted in course additions and sequence changes in the past, and also influence faculty and staff position descriptions, particularly as vacancies occur. In 2006-07, these discussions resulted in proposals for new courses in “green design” and urban landscapes, and in the development of two faculty position descriptions, one to be shared with Life Sciences Communication, and one in the area of cultural landscapes and landscape history. In addition, we held several discussions with the Department of Horticulture, as to how we might modify some of our existing courses to facilitate the training of students interested in careers in the Green Industry.

In Fall 2007, we will be hosting our routine Professional Accreditation Review of our ALA program. This process involves undertaking a self-study of the curriculum, which we do in conjunction with students, alumni, and area professionals.

This fall, we plan to continue our review, started in 2006-07 of the core course sequence in the graduate program.

### **Professional Design Program (BSLA) Assessment Tools**

We use 4 tools to assess our first professional design program curriculum:

Professional Accreditation Review every 6 years (Next Review, November 2007)

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

**Graduate Program Assessment Tools**

Completion of Research and Project-Based Theses  
Job Placements

**Life Sciences Communication (Currently developing Assessment for CSREES Review in this Fall.)**

**Nutritional Sciences**

(I) The Department of Nutritional Sciences at UW-Madison offers a professional program in dietetics, formally the Didactic Program in Dietetics (DPD). The DPD in Dietetics is currently granted approval by the Commission on Accreditation for Dietetics Education (CADE) of the American Dietetics Association (ADA), a specialized accrediting body recognized by the Council on Postsecondary Accreditation and the United States Department of Education. As a result of the ADA approval process, a plan for assessment of student learning was implemented in 1998 and is an on-going process.

(ii) Ongoing assessment of our programs is conducted annually in exit interviews of our graduates by the department chair. Graduating Seniors continue to be generally pleased with the courses, degrees and instructors. Nutritional Sciences majors have increased to 253 officially, which is 22% higher than in 2004, and 175% higher than in 1990. Our office tally of advising indicates that we now have 333 current advisor assignments. Issues raised in the exit interviews include reduced availability of required courses due to our increasing enrollment.

(iii) In addition to the ongoing assessment activity, the department is scheduled for a site visit review in fall 2008 with the self-study document due in June 2008. The accreditation process requires a detailed self-study document as well as the site visit. To help prepare for the self-study document, a proposal for “A Survey of Alumni of the DPD (1996-2006)” was submitted and funded through the UW-Madison Assessment Council in 2006-07. Those results are now being evaluated (see #4 below).

(iv) Lastly, the department is undergoing a Strategic Planning activity, led by the UW Office of Quality Improvement. The result will likely identify goals to examine and refine both the undergraduate and graduate curriculum.

(I) Survey of Alumni of the DPD (1996-2006): The data from this survey (see #3 above) are being evaluated in 2007-08. This data will allow us to frame appropriate questions for an employer focus group, evaluate outcome measures for our program, and identify necessary program and curriculum changes needed for our accreditation.

(ii) In addition, a proposal entitled, “Self-Study Document for Accreditation of the Didactic Program in Dietetics, 2007-08,” was submitted in May 2007 to the University Assessment Council to further continue with the assessment and self-study as part of the accreditation process. A detailed assessment of the program will result, and be presented in the 2008 self-study.

**PLANT PATHOLOGY ASSESSMENT PLAN 2003; July 2007 DRAFT**

**THE OBJECTIVES THAT GUIDE OUR EDUCATIONAL PROGRAMS AT THE GRADUATE AND UNDERGRADUATE LEVEL ARE:**

- to educate a broad audience of students about the unique perspective on biology offered by the field of plant pathology
- to train students in the skills, techniques, and concepts of the field of plant pathology
- to provide a core curriculum with adequate breadth and depth in plant pathology

## **UNDERGRADUATE MAJOR IN PLANT PATHOLOGY**

### **Goals and Required Skills and Knowledge**

Plant pathology is an interdisciplinary science that synthesizes knowledge in the basic biological sciences to develop a basic understanding of the causes of plant disease, mechanisms of disease development, and strategies for disease management.

#### Specific goals of our major requirements are:

- to provide an understanding of the biology of plants and the major groups of microorganisms that are causal agents of plant disease (pathogens);
- to provide an understanding of the interaction between the causal agents of disease and their hosts at the molecular, cellular, whole organism, population, and community level;
- to provide examples of how knowledge of the interaction of the environment with pathogens and their hosts lead to informed decisions on disease management strategies.

#### General Skills and Knowledge.

Students should:

- develop strong skills in communication and quantitative reasoning, as prescribed by the general education requirements.
- build a strong foundation in the sciences, including chemistry, physics, and general biology.

#### Skills and Knowledge Specific to the Plant Pathology Major.

Students should:

- Have knowledge of the biology of plants and the microorganisms that interact with plants in the environment, including bacteria, fungi, viruses, and nematodes. This understanding should include knowledge of life cycles, molecular biology, physiology, morphology, and taxonomy for these organism groups.
- Have a basic understanding of the causes and management of plant diseases and the mechanistic bases for disease development. Specifically, students will:
  - a) have an understanding of the biology of disease-causing organisms and the mechanisms they use to cause disease,
  - c) have a working knowledge of the specialized terms used in plant pathology,
  - b) recognize major types of disease and know specific details about 15-20 diseases,
  - d) have the skills to interact intelligently and productively with crop specialists and plant pathologists,
  - e) know what questions to ask to approach the understanding of a plant disease,
  - f) be able to implement disease management strategies and evaluate their effectiveness.
- Have an understanding of social and economic impacts of plant disease on the uses of plants in agriculture and forestry.

### **Mechanisms to Assess Student Learning.**

The goals of the major are met by the general education requirements of the curriculum and by the major courses and electives. Plant Pathology 300 and the capstone experience are key requirements in the Plant Pathology major. Required skills and knowledge for the major correspond closely to those articulated for PP300.

Our assessment of student learning will be based on three mechanisms

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

- Analysis of performance in PP300.

PP300 is a required course for all Plant Pathology majors and students typically take it in the Fall semester of their junior year. The goals for learning and required skills and knowledge for the major correspond closely to those articulated for PP300. Thus, student learning in PP300 provides an assessment of the effectiveness of the program for students at an intermediate level.

Performance on assignments, laboratory exercises, and exams directly test the degree to which students have achieved the goals and required skills and knowledge of the program. Grades and evaluations for Plant Pathology majors will be examined to determine how closely the students come to meeting the expectations of the program.

- Analysis of performance in the capstone experience

All Plant Pathology majors are required to have two credits of a “capstone” experience that the student completes in the senior year. The capstone experience is typically a laboratory- or field-based research experience or an experience in disease diagnostics and management. Each capstone experience is tailored to the unique interests and ambitions of the student. Students in the capstone experience work closely with a faculty mentor.

Faculty mentors will prepare written evaluations of student performance in the capstone experience, with attention to how well the students’ skill and knowledge levels meet the requirements of the major and how well the goals of the major have been met in serving the student.

- Pre-graduation exit interviews of Plant Pathology majors

Plant Pathology majors will be invited to an “exit interview” in their final semester, prior to graduation. Students will discuss their perception of their learning experience, strengths and weaknesses of the program, ideas for program improvement, and importance of the program to their future plans. Interviews will be conducted by the departmental Student Services Coordinator. Since the Plant Pathology major has served a low number of students over the past 10 years (less than 10 per year) the interviews may be readily managed by one person.

### **Use of Assessment in Improving the Undergraduate Program and Student Learning**

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.

A recent advance in the curriculum is the development of a Plant Pathogenic Agents course at the 300 level. This course will be open to both undergraduate and graduate students. We will continue to assess the needs of our students and address those needs in new or revised courses.

## **GRADUATE MAJOR IN PLANT PATHOLOGY**

### **Goals and Required Skills and Knowledge**

Plant pathology is an interdisciplinary science that synthesizes knowledge in the basic biological sciences to develop an understanding of plant-microbe interactions at the population, organismal, cellular, and molecular levels, and to understand the impact of biotic and abiotic environmental factors on these interactions. This fundamental understanding is directed to understanding the causes of plant disease, mechanisms of disease development, and developing strategies for disease management.

- Graduate degrees in Plant Pathology (MS and PHD) are research degrees. Students must demonstrate an ability to conduct independent investigation. Ph.D. candidates are expected to attain a high level of skill as independent scientists, demonstrating the ability to think creatively about and critically of their own scholarly work and the work of others.
- Entering graduate students typically have a general background in biology and may have specialization in a sub-discipline, for example botany, microbiology, agronomy, molecular biology, but may not have previous formal training in plant pathology. Thus, students are expected to acquire an understanding of biology and plant pathology equivalent to that expected of undergraduate Plant Pathology majors in the course of their graduate education. Furthermore, students are expected to achieve a sufficient understanding of the breadth of Plant Pathology to be able to learn more deeply about any aspect of Plant Pathology, through examination of the literature or interactions with other professionals, for example.
- Students are expected to become skilled communicators of their scientific knowledge and thinking.

### **Mechanisms to Assess Student Learning.**

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.

### Indicators of Research Skills

Students demonstrate their research skills to an audience beyond their advisor and research group through yearly research presentations, through the oral prelim exam, and through the final prelim exam and thesis. As part of the oral prelim exam, the student is required to write a research proposal for the thesis research that demonstrates their background knowledge and ability to develop a line of scientific inquiry. This proposal is presented in departmental seminar and defended at the oral prelim exam. The final oral exam and the thesis are the final test of a student's knowledge and demonstration of their skills as a scientist. Performance in these requirements will be monitored by the Academic Affairs Committee and the Curriculum Committee.

Publications are taken as a strong indicator of progress and productivity in academic life. Publications will be included in the student's file and this record will be reviewed as part of the assessment of the quality research conducted by the students in the program.

### Indicators of Breadth of Knowledge

Students acquire a knowledge of the breadth of Plant Pathology in the courses required for the major and in electives. Performance on visiting preliminary exams (Ph.D. only) is a demonstration of student learning in these areas. Students are required to take five visiting

preliminary exams in their first two years, one exam in each of four categories and a fifth in the area of their choice. Faculty (4 per semester) participate in the exam. Students prepare a written response to the question and meet with the faculty member for an oral exam. Students are evaluated at each exam and the evaluations are reviewed by the departmental Academic Affairs Committee. The visiting preliminary exam written portion and evaluations are also reviewed by the student's guidance committee and at the oral prelim exam by the examining committee.

#### Indicators of Communication Skills

Students present yearly seminars and at least one (M.S.) or two (Ph.D.) departmental seminars to develop skill in communicating about their scholarly activities with peer scientists. The effectiveness of the departmental seminar in describing the student's research accomplishments and goals is assessed by the faculty member in charge of the seminar course (PP923) and by the students' guidance committee.

Students participate in a teaching experience equivalent to at least one semester as a teaching assistant. By teaching, students gain experience and skill conveying information about science to people in a teaching/learning environment. Teaching requires the use of multiple communication methods. In cooperation with the departmental Curriculum Committee, each faculty member who requests a graduate student assistant to help with teaching a course will develop a set of goals for the graduate student and a plan for meeting the goals. Both the student and the faculty member submit evaluations of the experience that indicate the level of success that they had in meeting the self-set goals.

We have also developed a series of courses in the department related to teaching biology. Students are encouraged to participate in the course prior to their teaching experience. In addition to acquainting the students with the lab exercises in the courses they will TA they also have the opportunity to develop mentoring skills and instructional lab materials. These courses are coordinated by the Instructional Specialist in the department.

In response to student request and assessment of current curriculum we have implemented a new course, Plant Path 875, Special Topics. These are modular 1 credit courses that are required for both M.S. and Ph.D. students. There will be a new topic each semester centering on the current themes in the field of plant pathology.

The visiting prelim exams, oral prelim exam, and final exam, which have both a written and oral component, are all indicators of communication skill. Performance of the students on these exams is reviewed yearly by the Academic Affairs Committee.

#### Measuring the Impact of Student Learning on Students' Post-graduate Activities

The impact of the program on the post-graduate activities of students will be accomplished by tracking graduates beyond completion of the degree. We will maintain 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.

#### **Use of Assessment in Improving the Undergraduate Program and Student Learning**

The Curriculum Committee will collect the information on performance of students in the designated requirements and the results of the post-graduate surveys. This process is facilitated by a departmental staff person (Student Services Coordinator) who is a member of the committee. The material will be used to prepare a report for the departmental Faculty. Evidence of deficiencies or general improvements that are required in the program will be taken under consideration by the Curriculum Committee who will devise a plan for improvements.

*Sources used in preparation of this document:*

Department of Plant Pathology Comprehensive Program Review - 1992

Department of Plant Pathology Long Range Plan – 1995

### **Rural Sociology**

The Department of Rural Sociology continues to implement its established plan for the assessment of both undergraduate and graduate programs. The continued development of the capstone course for undergraduates has proven to be especially fruitful as a vehicle for assessment. Student presentation of capstone research projects has been incorporated into the regular department seminar series. This provides a means for all faculty to participate in gauging student performance in a professional context. Further, exit interviews with graduating seniors have confirmed student satisfaction with the restructuring of major requirements undertaken in 2005. 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.

### **Soil Science**

The Department of Soil Science has used two approaches for assessment of academic programs. The first was based on collection of course syllabi and exams to create a longitudinal record of content and evaluations; this approach has not been useful due to lack of faculty participation. The second approach is based on interviews and surveys of stakeholders. A focus group meeting in Spring 2006 involving faculty, potential employers, and current and former students yielded numerous suggestions about program content and delivery. Since then, Professor Teri Balsler has developed a process for program assessment based on surveys of stakeholders. The survey includes a matrix of skills and their relevance, used to evaluate programs, and a questionnaire to learn details of strengths and weaknesses of program components. This process has already yielded some suggestions for program improvements that will be considered by department faculty in the fall of 2007.

### **Urban & Regional Planning (URPL)**

**Master of Science in Urban & Regional Planning:** The department's curriculum committee continued with program assessment activities that were initiated in the 2005-06 academic year. During 2006-07, the committee developed and evaluated several options that could be implemented to ensure that graduating students demonstrate competency at the Masters level. The current "exit exam" process is useful, but relatively superficial compared to other alternatives. In May 2007, the faculty agreed in concept to replace the exit exam with a required "professional project" – entailing a ten-page report and an oral presentation -- for which students will earn two credits. The topic of the project will be determined by the student, in consultation with his or her advisor. The work will be evaluated (high pass, pass, fail) by a committee of two faculty members. If a student fails one or both parts, a retake and appeal process will be available. This program change will be implemented in 2007-08.

**Doctor of Philosophy in Urban & Regional Planning:** The department's 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 is some interest among the faculty in broadening the exam's scope, but there is not consensus on this issue. No action was taken, during 2006-07, to revise the Ph.D. program's prelim exams. The faculty will reconsider this issue in 2007-08.

**Wildlife Ecology** recently merged with the Department of Forest Ecology (July 1 2007) to form the Department of Forest and Wildlife Ecology. The wildlife degree programs will remain distinct but this will likely be the final independent assessment of the wildlife program.

We continued to conduct annual exit interviews for graduating seniors and graduate students. Interviews in 2006-07 were very positive and highlighted the importance to the wildlife program of:

1. The 2 capstone options with a third now available with the addition of For 590.
2. The 2 field experiences in northern Wisconsin and West Mexico where students get to "do" what they have learned in class.
3. 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.
4. The We 100 Orientation class which gets the students off to a good start on program policies and procedures and career orientation.

We also surveyed all wildlife graduate students to collect their ideas on program improvements/opportunities post-merger. Prior to advertising our Conservation Biologist position, the Department examined our curriculum and all course evaluations in preparation for assignments to a new faculty colleague. We are also developing a proposal for a graduate level leadership program for the new Department.

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

For next year, the oversight of academic program assessment has been moved to the College Curriculum Committee. This group will take on the responsibility for reviewing and working with units to refine and improve their individual unit plans. They will also look more broadly at the College and its goals for learning outcomes. Prior to this time, a working group of faculty worked with individuals and became peer consultants to departments, helping them to think about assessment strategies and processes that were locally appropriate and affordable. Moving this into one of the Colleges major academic oversight committees will reinforce its significance and value to the college.