Assessment Plan – Botany Department
M.S. and Ph.D. Programs

Include the following in an outcomes assessment plan:

1. **Name of the Academic Program**
   Botany Department

2. **Degree programs that are assessed in this plan**
   Master of Science in Botany
   Doctor of Philosophy in Plant Science

3. **Mission, objectives or goals of the degree program(s). The mission statement and educational objectives or goals for the academic program should guide the assessment process. Assessment should be designed to provide feedback on the extent to which the program is accomplishing its publicly stated goals.**

   Programs of research and study leading to the degrees of Master of Science and Doctor of Philosophy are offered in many areas of botany, including plant cell biology, ecology, physiology, taxonomy, population biology, genetics and development, and biotechnology-related areas such as tissue culture.

   Majors with a M.S. degree may qualify for secondary school science teaching licensure, for technical positions with the federal and state governments in plant inspection and plant introduction work, for plant breeding programs, and for various activities concerned with plants in private industry, such as plant biotechnology. Those with the Ph.D. may qualify for faculty positions at colleges or research universities, or positions in industry or government research laboratories that require the individual to function as an independent researcher.

4. **Expected student outcomes for the degree program(s). Student outcomes are statements of the knowledge, skills, (and possible attitudes or values) that graduates of the program will possess. What will students know or be able to do upon degree completion?**

   Applicants for admission must have received a baccalaureate degree from an accredited college and should have had 40 semester hours (or equivalent) in upper-division courses in the biological and physical sciences. A grade-point average of 3.00 (on a 4.00 scale) or above is required for unconditional admission. All applicants are required to submit scores for the Aptitude portion of the Graduate Record Examination.

   Prerequisites for graduate degrees include successful completion of courses in the areas of plant taxonomy or field botany, plant anatomy, plant pathology or microbiology, plant physiology, genetics and ecology. Chemistry through organic and mathematics through trigonometry are also required. Students with an undergraduate major in plant science will have completed a substantial portion of this minimal list upon matriculation; those with a less closely related major may be required to take some background courses

without graduate credit. Final authority for each student's plan of study, including courses to be taken at the undergraduate level, resides with the student's advisory committee.

A potential graduate student may be required to take one or more advisory examinations covering the various subject matter areas of botany. The examination to be taken will be determined by the student's screening or advisory committee. The results will be used to determine course work needed or the level at which the student should proceed.

Demonstrated research competence through submission and acceptance of a thesis or dissertation is required for all graduate degrees. A minimum of one semester teaching experience is required of all M.S. and Ph.D. candidates. This requirement may be satisfied by enrollment in a college teaching practicum course (GRAD 5990) or by one semester teaching experience. The requirement for competence in a foreign language will be determined by the student's advisory committee.

All graduate students are expected to attend and participate in departmental seminars.

Specific Student Outcomes for the Degree Programs

Botany M.S.

Graduates will demonstrate academic maturity in:
1) application of the scientific method and the use of basic botanical science.
2) understanding the properties of plant life from the subcellular to the ecosystem level of organization.
3) use of critical thinking, oral and written communication skills.
4) completion of a research thesis or report.
5) presentation of a seminar on their research

Plant Science Ph.D.

Graduates will demonstrate the capacity to do independent research through:
1) the presentation of a technical seminar on their research.
2) development of research skills appropriate to their area of specialization.
3) completion of original research of quality suitable for publication in a refereed journal.

5. **Identify the methods used to evaluate student achievement of the expected outcomes.**

- Name of each assessment method

  Direct Assessment

  Thesis defense
  Seminar presented as part of the departmental seminar series

  Indirect Assessment

  Alumni surveys (departmental and OUA)
  Tracking of employment success
  Focus group discussions
  Tracking of scholarly work (publications, presentations, etc.)

- Describe what is assessed by each method

  Direct Assessment

  The thesis defense and seminar require the degree candidate to present information about their research, answer questions about the work, and communicate with other biologists using terminology and methods shared by scholars in the field.

  Indirect Assessment

  The indirect assessments indicate how satisfied the degree candidates are with their experience here at OSU and how well the degree they completed here has served them after they have left the University.

- Map each method to one or more expected student outcomes listed above.

  Direct Assessment

  Thesis defense
  At the thesis defense a candidate is expected to demonstrate mastery and understanding of their coursework. They will be able to use the technical vocabulary of biologists as well as analyses such as statistics or computer modeling to process and analyze data gathered in their research.

Seminar
The scope of the seminar is more limited, but during the question period after the presentation the candidate faces questions on the material presented, usually the candidate's thesis research. The candidate is expected to be able to communicate about his or her research using the vocabulary and analytical methods used by scholars of biology.

Indirect Assessment

Alumni Surveys
Alumni surveys will assess how satisfied individuals are at various times after receiving their degree.

Tracking of employment success
Employment success will assess how successful degree recipients have been in obtaining employment and attaining professional goals.

Focus groups
Focus groups will assess the satisfaction and academic development of graduate students while they are at OSU.

Tracking of scholarly work (publications, presentations, etc.)
Scholarly work will assess the contributions made by graduates to the scientific and academic communities.

- Show timetable for implementing each method (e.g., annually, bi-annually, etc.)

Direct Assessment

Thesis defense: upon completion of coursework and thesis.

Seminar: presented as part of the departmental seminar series. It is required of graduate students during their studies here. Some student seminars will be given every year.

Indirect Assessment

Alumni surveys (departmental and OUA): yearly
Tracking employment success: 1, 3, and 5 years after completion of degree
Focus group discussions: every year
Tracking scholarly work (publications, presentations, etc.): annual questionnaire in the *Bluestem*

6. **Identify how assessment results will be used in curriculum planning and program development.**

   - Describe how assessment information will be shared with faculty members in the program and how the information will be used in curriculum planning.

     The results of assessment will be shared with the faculty at faculty meetings. Any specific problems will be brought to the attention of the appropriate individual(s).

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