EXECUTIVE SUMMARY
WSU Department [Botany]
Self-Study Document, Fall 2012

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The following is a summary of the self-study document, highlighting important points. For complete information, please refer to the full, self-study document itself.

Botany Department Mission Statement:

In providing a quality undergraduate education to students at Weber State University, the Botany Department seeks to maximize opportunities for the promotion of effective education and communication about the value and intellectual appeal of plants. We attempt to inspire students to pursue the study of plants as an intellectual endeavor in understanding life's major component – the plants, with their physically and functionally dominant place in the world. In addition, botanists offer expertise about plants to policy-makers involved in agriculture, conservation, and protection of the environment. We also believe that a more knowledgeable public will be able to make more informed decisions with regard to plant derived products and environmental issues. This understanding should also lead to a paradigm shift that garners greater support for botany as a vitally important profession.

Curriculum:

Botany Major - B.S. degree
- Track A, Option 1: Laboratory Emphasis or Graduate School
- Track A, Option 2: Pre-Natural Medicine
- Track B: Field Botany Emphasis
- Track C: General Botany Emphasis
- Biology Composite Teaching Major

Botany Departmental Honors program

Pre-professional programs - Two year (no degree)
- Pre-Agriculture and Pre
- Pre-Forestry and Pre-Range Management

Botany Minor/BIS Emphasis

Biotechnician Training Program (Associate of Science Degree & Certificate) - with the Departments of Microbiology and Zoology)

General Education and Service Courses provided by the Program

The Botany Department offers four General Education courses, Botany LS1203 *Plant Biology*, Botany LS1303 *Plants in Human Affairs*, Botany LS1403 *Environment Appreciation*, and Botany LS1370 *Principles of Life Science*.

Botany LS1403 *(Environment Appreciation*) is required of all majors in the:
- **John B. Goddard School of Business and Economics,**
- **Automotive Technology program**
- **Construction Management program (College of Applied Science and Tech)**

Botany LS1370 (*Principles of Life Science*) serves students in the:

- Elementary Teaching program (College of Education)

2600 (Laboratory Safety) (cross-listed in five departments; coordinated by Botany) is required of all majors in:

- Forensic Science program (Department of Criminal Justice; College of Social and Behavioral Sciences

Botany LS1203, Botany 2104, and Botany 2114 serve as a pool from which one or more are chosen as a required course for majors in:

- Microbiology, Zoology, Geosciences, and Biology Composite Teaching

Botany 3214 (*Soils*) is recommended for majors in:

- Applied Environmental Geosciences major, (Geosciences)

Botany 3214 (*Soils*), Botany 3303 (*Plant Genetics*), or Botany 3473 (*Plant Geography*) are recommended for:

- Earth Science Teaching majors (Geosciences)

BTNY DV2303 (*Ethnobotany*) is the only diversity course in the College of Science

Student Learning Outcomes and Assessment:

DIRECT EVIDENCE of Learning: General Education Courses

Botany has four General Education Life Science courses; one is cross-listed in Microbiology and Zoology. To date, two of the Botany Gen Ed courses have been assessed using the Natural Science and Life Science Learning Outcomes. The Threshold for Student Learning that we have set is 65% for Gen Ed courses. (Results are in Appendix H of Self Study).

BTNY 1203, Plant Biology, Gen Ed LS course: Threshold of Student Learning met in all but two areas (a few questions requiring math to analyze data and a few on metabolism)

BTNY 1403, Environment Appreciation, Gen Ed LS course: Threshold of Student Learning met in all areas

DIRECT EVIDENCE of Learning: Course within the Major

Botany courses within the major are assessed using the Botany Department Learning Outcomes that are outlined in the **Botany Student Portfolio**, our major assessment tool for learning within the major. The complete portfolio outline can be found in Appendix G of the self study. The number of students in upper division courses is typically small, especially in the *Portfolio Summative Assessment* and *Senior Seminar* courses (taken the semester of graduation). Hence statistical results are difficult to assess. The threshold for Student Learning in all courses within the major is 75%. (Results are in Appendix H of Self Study).

BTNY 2104, Plant Form and Function: Threshold of Student Learning for all Botany Student Learning Outcomes assessed in this course were met (78%)

BTNY 3303, Plant Genetics: Threshold of Student Learning for all Botany Student Learning Outcomes assessed in this course were met (80%)

BTNY 3454, Plant Ecology: Threshold of Student Learning for all Botany Student Learning Outcomes assessed in this course were met (minimum 82%) with the exception of one quiz (69%)

BTNY 4980, Portfolio Summative Assessment: Threshold of Student Learning for all Botany Student Learning Outcomes was met (4 students)

BTNY 4990, Botany Senior Seminar: Threshold of Student Learning for all Botany Student Learning Outcomes was met (2 students)

INDIRECT EVIDENCE of Botany Department/Program Learning:

WSU Botany graduates are recognized nationally by the Botanical Society of America, Chicago Botanic Garden and agencies who hire CLM interns as being knowledgeable, capable, competent in the field, and highly competitive among other recent BS graduates in similar fields.

- **Two WSU Botany graduates** (2011-2012) received the **Young Botanist Award from the Botanical Society of America.** http://www.botany.org/awards_grants/detail/bsayby.php.
- **One graduate** (2011-2012) (double major, Zoology and Botany), received a **Conservation and Land Management (CLM) internship from Chicago Botanic Garden** (**only 14%** of applicants (new graduates) nation-wide were **hired**).
- In Spring 2009, **two Botany graduates** were also **awarded CLM Internships**
- Exit interviews with each graduating seniors suggest that students find value in the Student Portfolio requirement.

Academic Advising:

- Initial advising is done in a 30-60 minute meeting with the department chair.
    - Discuss career interests/plans, major tracks, courses, Student Portfolio (capstone, research, internships, scholarships), scheduling, minors, CatTracks planning tool, Gen Ed, degree, and graduation requirements.
    - Tour Botany facilities (labs, greenhouse, majors' room, etc.)
    - Student is introduced to faculty, staff, and Botany majors if available
- In BTNY 2121 (Career Planning for Botanists) students start drafts of some parts of the portfolio, learn about different areas of Botany, meet Botany faculty and learn of their areas of expertise/interest, hear from career counselor, potential employers, current and former Botany majors
- Majors are e-mailed each year by chair and are encouraged to meet to discuss summer employment opportunities, capstone projects, progress toward graduation, and progress toward career goals

Faculty:

Currently, the Department of Botany is made up of **4 ½ tenured faculty members, four Pull Professors, and one Associate Professor**. All are well-trained in diverse areas of expertise. They **all hold PhDs** from a variety of institutions both in the US and Canada. Two of the remaining tenured faculty have extensive post-doctoral experience. Faculty conduct research and remain current in their areas of expertise.

One of the five **adjunct faculty** members hired over the past five years has a PhD and all the rest have Master's degrees.

Program Support:

Staff: Adequate, but secretarial position could be full-time as recruitment efforts increase

Lab Manager: Botany has an extremely efficient Lab Manager who has a full-time, 11 month appointment

Secretary: Botany is in the process of hiring a new secretary (half-time, 10 month position)

Facilities and Equipment: Adequate for now, although the age of the Science Lab building creates issues with lack of space, design of rooms, greenhouse facilities, etc. Labs and lecture halls have AV equipment and some have been renovated over the years, Equipment generally meets our needs and lab fees and one time moneys have been able to replace microscopes, buy supplies, and replace larger pieces of equipment (spectrophotometer, etc.) over time. The herbarium may need to be expanded if more emphasis is put on ethnobotany. The greenhouse has been maintained so far through the department, Dean's office and Facilities Management. Research space in the Tech Ed building has helped.

Budget

The budget has been sufficient until recently. The department does not have an adequate instructional wage budget to hire any adjuncts, but the Dean's office and Continuing Education have been incredibly supportive as we have struggled with retirements.

Library

The library meets our current needs.

Relations with External Community: (See section H in Self Study)

Name	Organization
Gene Bozniak	The Leonardo Museum in Salt Lake City (2011)
Gene Bozniak	Wasatch Audubon Society
Gene Bozniak	Weber County Master Gardeners
Gene Bozniak	Davis County Master Gardeners
Gene Bozniak	Ogden City Urban Forestry Advisory Committee (Co-Chair)
Stephen Clark	various state, federal and community groups/ individuals (plant identification)
Stephen Clark	Representatives from Northern Ute and Shoshone Tribes
Stephen Clark	The Army Corps of Engineers
Stephen Clark	Rotary Club
Stephen Clark & Dawn Gatherum	Boy Scouts of America
S. Clark, D. Gatherum & B. Wachocki	USFS
Dawn Gatherum	Ritchey Science and Engineering Fair of Utah (director for many years)
Dawn Gatherum	Weber River Weed Management Cooperative
Sue Harley	Utah Science Olympiad (Event Supervisor)
Barbara Wachocki	National College of Natural Medicine (NCNM)
Barbara Wachocki	Ogden School District (various elementary & junior high schools)
Gene Bozniak, Stephen Clark, Barbara Wachocki	Ogden Nature Center
Barbara Wachocki	Shrub Research Consortium Executive Committee

The Botany Department **students** and Botany Club play many roles in the community, including working as volunteers (USFS, Red Butte Garden, etc.), Ogden River re-vegetation, working with schools/children (hikes, Science Saturdays, Science Fair, After School Science Program, etc.), fundraising for a scholarship, maintaining WSU Community Garden, etc.

Student, Faculty, Contract/Adjunct Faculty and Staff Statistics:

Contract/Adjunct Faculty Profile

Name	Gender	Ethnicity	Rank	Tenure Status	Highest Degree	Years of Teaching	Areas of Expertise
Contract Faculty							
Eugene Bozniak (half-time; half-retired since Summer 2009)	M	Canadian immigrant	Full Professor	Tenured	PhD	43	Algology, Marine Biology, Environmental Issues
Stephen Clark	M	Part Native-American	Full Professor	Tenured	PhD	47	Plant Taxonomy, Ethnobotany
Ron Deckert	M	Canadian Immigrant	Associate Professor	Tenured	PhD	10	Plant Anatomy & Morphology, Mycology, Endophytes
Sue Harley	F	American	Full Professor	Tenured	PhD	25	Plant Physiology, Plant Genetics
Barbara Wachocki (Chair)	F	American	Full Professor	Tenured	PhD	22	Plant Ecology, Environmental Issues
Retired as of Summer 2012: Dawn Gatherum	M	American	Full Professor	Tenured	PhD	36	Horticulture, Soils, Weed Science
Adjunct Faculty							
David Bracken Davis (2011-present)	M	American	Adjunct		MS	1	Natural Resource Mgt, GIS/Remote Sensing
Annita Peterson (2011-present)	F	American	Adjunct		PhD	4 yrs as instructor	Plant Physiology, Crop Science
Lynda Sperry (2010-2011)	F	American	Adjunct		MS	1	Habitat reclamation/Revegetation
Sonya Welsh (Fall 2012)	F	American	Adjunct		MS	½ year	Watershed Science, GIS, Ecogeo-morphology, Riparian Ecology
Susan Young (Fall 2012; 1994-2005)	F	American	Adjunct		MA	18 yrs	Anthropology, Paleoethnobotany

Staff Profile

Name	Gender	Ethnicity	Job Title	Years of Employment	Areas of Expertise
Sonya Welsh	F	American	Laboratory Manager; Professional Staff	1 ½ years	Chemical & media preps, Greenhouse management , Lab preparations Inventory mgt., Purchasing/Equipment acquisition, Writing lab protocols, Chemical & waste storage & mgt.
To be hired			Secretary II; Classified Staff		Departmental budget oversight, Proficient in all computer applications necessary, Scheduling (classes, rooms, etc.) Faculty support (exam prep, etc.)

Student and Faculty Statistical Summary

	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
Student Credit Hours Total[1]	4,351	4,060	4,196	4,528	4,654
Student FTE Total[2]	145.03	135.33	139.87	150.93	155.13
Student Majors[3]	37	35	45	64	62
Program Graduates[4]	8	5	10	4	1*
Student Demographic Profile[5]	**37**	**35**	**45**	**64**	**62**
Female	21	18	20	31	31
Male	16	17	25	33	31
Faculty FTE Total[6]	**7.45**	**7.05**	**6.77**	**7.07**	**8.22**
Adjunct FTE	1.67	1.49	1.16	1.64	3.16
Contract FTE	5.78	5.56	5.61	5.43	5.06
Student/Faculty Ratio[7]	**19.47**	**19.20**	**20.66**	**21.35**	**18.87**

Financial Analysis Summary

Department	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
Undergraduate					
Instructional Costs	655,003	678,712	581,602	631,197	610,487
Support Costs	660	801	605	587	3,965
Other Costs					
Total Expense	655,663	679,513	582,207	631,784	614,452
Cost Per Student FTE	$4,521	$5,021	$4,162	$4,186	$3,961
FTE	145.03	135.33	139.87	150.93	155.13
Cost per SCH	$150.54	$167.37	$138.75	$139.53	$132.03
SCH	4,351	4,060	4,196	4,528	4,654

Summary Information:

There has been a 7% increase in SCH & FTE production from 2007-2008 and 2011-2012. This is coupled with a decrease of 12.3% in the cost per SCH/student FTE. The decrease in cost per SCH & student FTE seen in 2009-2010 is accounted for by the half-retirement of Gene Bozniak. As part of the retirement incentive offered to Dawn Gatherum in 2012, he is paid during the 2012-2013 academic year. **If Dawn Gatherum and/or Gene Bozniak are replaced with new faculty, it will save the department and college money, allow the program to be maintained and grow, and decrease the cost per SCH.** 80% of the Botany SCHs generated are from Gen Ed courses, especially BTNY 1403. Much like Chemistry, Physics or Math, **BTNY 1403 is a SERVICE course**. **It is required for ALL majors in the John B. Goddard School of Business and Economics and in two programs in the College of Applied Science and Technology.**

Results of Previous Program Reviews:

Strengths:

1) The Botany Department is composed of excellent teachers, who have a genuine desire for the students to learn botany and love plants.
2) The Botany Department is unique in Utah and one of the few strong Botany Departments in the nation.
3) The Department is highly efficient with very limited resources.
    - The herbarium at Weber State University is superbly curated and represents well the flora of northern Utah.
4) This is a student-friendly department.

Challenges for Botany Department:

1) Department visibility and marketing to high school students and general education students at the university continues to be a challenge.
2) The Botany Department has done an effective job of cobbling together equipment from various sources to develop effective teaching labs.
3) The current semester schedule is a challenge for integrating field aspects of the taxonomy, ecology, and field botany courses.
4) The Department receives inadequate support from Facilities Management and Technology Support.
5) The Department currently has one-half of a full-time secretary.
6) Although some faculty have maintained strong research programs, in general faculty research has waned over the last decade.

Recommendations for Change:

1) The Department should consider methods to make its general education courses more competitive in the SCH market.
2) The Department does an excellent job teaching basic botany but needs to update its curriculum with current cellular and molecular techniques.
3) The Department should take advantage of Lisa Largent, the superb development person assigned to the College of Science.
4) The Department should find methods to channel the energy of Botany Club to increase department visibility and as a student recruiting tool.
5) Students seem anxious for more field experiences and the department may have to continue to experiment with summer field courses that will more closely fit student needs.

Additional Recommendations for Change:

1) The Department needs college or university support for marketing its program to potential majors and the community.
2) The Department needs better support from the academic support services on campus.
3) Faculty with external grant-funded research projects should receive support for purchasing, bookkeeping, and other administrative grant activities.
4) The department secretary position should be changed from half-time to full-time which would free considerable time for the chair.

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