

Biology Program Review (AAC, February 2016)

I. Introduction

The Biology Program offers disciplinary majors with 4 emphases (58~62 credits per emphasis), as well as a disciplinary minor (35~36 credits). The 4 emphases are titled as the following:

- Animal Biology
- Ecology & Conservation Biology
- Cell/Molecular Biology
- Biology for Educators

There are currently 14 full-time faculty members and the program is in a process of hiring 3 replacements.

The total number of undergraduate students maintained as Biology majors is 118~139 and the total number of graduates each year as Biology majors is 19~35. The homepage serves as a comprehensive reference for the program and related future careers and explains both very well.

Dr. Wolf, the chair of the Biology Program provided the Self-Study Report and the supporting materials on February 4, 2016, and the AAC reviewed and discussed the document on February 11 and 18, 2016. The AAC notes that the self-study document is very well organized and that it describes a clear mission statement sharing and supporting the mission of the UW-Green Bay Core/Select Mission and the Guiding Principles.

II. Assessment of Student Learning

The program developed an assessment plan since the last program review (2009) and has assessed the 5 newly developed student learning outcomes, with one new learning outcome for each year.

The program has limited experience with assessment since these were their first systematic assessments and evaluations. Assessment of student outcomes was restricted to one course per year. In 2014-2015, the program administered three assessment questions developed by Jaksetic, which could be compared to student scores at Bowling Green University. Even though the average score (0.265) of UWGB students is within a reasonable range (0.21~0.29), the score explains that a majority of students performed "very" poorly and only 10 (out of 22) students scored higher than 0.2. In their Self-Study Report, the program plans to use different methods or courses to assess student learning.

III. Program Accomplishments

The AAC noticed many accomplishments in several areas, of which some are:

- 3 biologists, Dr. Dornbush, Dr. Draney, and Dr. Wolf, have received the Founders Association Award for Excellence in Scholarship for last 3

years.

- Since the last review, Biology faculty members have published more than 100 papers. Among them, 55 papers were peer-reviewed publications and many of them were published in prestigious journals.
- Ongoing successful activities by The Cofrin Center for Biodiversity have provided many opportunities for students and faculty members. The director, Dr. Howe, was appointed as the Barbara Hauxhurst Cofrin Professor of Environmental Science (2007~2011) and received the Herbert Fisk Johnson Professorship in Natural Sciences in 2012.
- A fisheries research program led by Dr. Forsythe has recently been established successfully. The geographic location of Green Bay for Great Lakes research is also beneficial.
- Since 2008, nearly \$2 million of external funding has been generated by the Biology faculty members.

IV. Program Strengths and Areas in Need of Attention

Program Strengths:

- As described in the Program Accomplishments, the Biology program shows strength in many areas, including faculty productivity and funding.
- Biology students have developed their knowledge and skills using excellent facilities that include the Cofrin Center for Biodiversity and the remodeled (2003) Laboratory Science Building.
- The program offers many opportunities to students through internships, field work and lab experiences. The following are program indicators of high success rates for a science major: 2 out of 3 graduates with Biology majors had internship opportunities during their time at UW-Green Bay, 30% of Biology majors had international academic experiences including travel courses (Costa Rica, Panama, etc.), and 30% of Biology majors had independent studies under the Biology faculty members. These are examples of how successful and effective collaborations between students and faculty members have been built and is considered a vital element of the University.
- Biology faculty members have contributed strongly to the ES&P Graduate Program.
- Even though the Human Biology Program major curriculum is similar to the Biology Program, the co-existence of the programs seems to have benefited both programs as evidenced by the number of majors in both.

Program Areas of Concern:

- We are sure that our students have had best support by the Biology faculty. However, the 2014-2015 assessment report on the Learning Outcome 2 derives some concerns. We urge the Biology unit to put more focus on devising a strong assessment approach that provides clear and convincing evidence of the extent that students are learning

the core outcomes. In this way the unit can learn whether pedagogical improvement is needed. We recommend that the assessment should be conducted at an early point in students' core courses as well as closer to graduation.

- Student surveys show that they report some concerns on periodicity, frequency, and times of upper level classes. We encourage the unit to evaluate ways to ensure that students have access to the needed courses.
- The Biology program expressed concerns in needs for upgrading/updating/replacing equipment and lab resources. This will continue to be a challenge in the current budget crisis, and so we encourage continued pursuit of external funding and grants to maintain labs.

V. Conclusions and Recommendations

The UW-Green Bay's Biology Program is an attractive program to undergraduate students through its healthy and productive development and maintenance. The program offers many opportunities for students in supporting their academic studies in Green Bay, as well as in gaining experiences for their future careers.

To maintain and enhance its contribution to UW-Green Bay, the AAC recommends the following:

- The Biology Program needs to make a strong assessment plan that explains students' learning level well enough. It will be helpful if assessments are conducted at the beginning and the end of the program. Also, an assessment of one Learning Outcome using various courses could help to understand students' need better.
- Although the Biology Program and the Human Biology Program are both successful programs, we encourage the faculty to explore effective ways to collaborate and share resources to an even greater extent. If they can minimize the overlaps, both programs can solve some of their problems, including periodicity and a number of upper level classes. This will help to optimize the resources of both programs.
- We encourage the Biology program to offer more online courses to meet the needs of non-traditional students and to be accommodating and attractive to more students.
- To maintain excellent equipment and course materials, and to purchase/update ones in need. It will be helpful if these facilities are prioritized based on cost, timeline, and the level of urgency.