The internal reviewer echoes the sentiment of the external reviewer who notes that “the Department of Environmental and Plant Biology is a strong, well-developed academic unit.” In accordance with their mission of “education and professional service focusing on plants and their environmental interactions,” the Department of Environmental and Plant Biology has a thriving undergraduate program with four tracks (Applied Ecology, Environmental Biology, Plant Biology, Cell Biology and Biotechnology) and a robust graduate program that offers a Master’s and Ph.D. in plant biology. The department offers four popular courses for non-majors. The department has twelve Group I faculty (5 professors, 3 associate professors, 4 assistant professors) who have a strong track record of research productivity and service. The department is supported by one administrative assistant. The department has excellent laboratory and teaching facilities in Porter Hall, which includes a herbarium and genomics facility. The department has adequate teaching and research field sites, with the exception of the greenhouse, which is “badly in need of renovation,” according to the external reviewer.

Commendations

The Department of Environmental and Plant Biology should be commended for the strong collegiality and productivity of its faculty; its commitment to strong basic scientific literacy, as evidenced by the research opportunities for undergraduates and the content-specific junior writing course; the success of recent and former graduates of the program; and the below-the-national-average time to complete the Ph.D. program.

Concerns and Recommendations

Areas of concern for the Department include minimal gains in faculty and student diversity during the period of the review, inadequate secretarial/clerical support, substandard greenhouse space, and the low number of undergraduate majors in the Cell Biology and Biotechnology major.

The external reviewer recommends that the Department should consider restructuring the Cell Biology and Biotechnology major, offer graduate students training in Responsible Conduct of Research, increase efforts to attract diverse faculty and students, institute mentoring program for junior faculty, provide additional clerical/secretarial support, provide funds to renovate and expand greenhouse facility, especially in light of the fact that the switch to semesters may reduce the opportunity to view plants in the field (i.e. May, June), and provide a long-term solution for the Paleobotanical collection.

1Prepared by Robert G. Brannan (brannan@ohio.edu) of the School of Human and Consumer Sciences. The external reviewer was Dr. Richard E. Triemer, Chair, Department of Plant Biology, Michigan State University, East Lansing, MI. The internal reviewers were Robert G. Brannan (brannan@ohio.edu) and Dr. Jeff Geisey (geisey@ohio.edu) of the Department of Electrical Engineering And Computer Science
General Program Summary

The Department of Environmental and Plant Biology has an undergraduate program with four tracks (Applied Ecology, Environmental Biology, Plant Biology, and Cell Biology and Biotechnology) that trains students for the job market or graduate school, and a graduate program that offers a Master’s degree and a Ph.D. in plant biology. The department also offers four courses for non-majors. The department has twelve Group I faculty (5 professors, 3 associate professors, 4 assistant professors) who, in addition to their teaching responsibilities, have a strong track record of research productivity and service. The department is supported by one administrative assistant. The department has excellent laboratory and teaching facilities in Porter Hall, which includes a herbarium and genomics facility. The department has adequate teaching and research field sites, with the exception of the greenhouse, which is “badly in need of renovation,” according to the external reviewer. The internal reviewer echoes the sentiment of the external reviewer who notes that “the Department of Environmental and Plant Biology is a strong, well-developed academic unit.”

Faculty Profile

The department has twelve Group I faculty consisting of five full professors, three associate professors, and four assistant professors (one of which is tenured).

The internal reviewer acknowledges the comments of the external reviewer, who states “The overall productivity of the faculty is strong as measured by publications in scientific journals, extramural funding, and research presentations at scientific meetings.”

Senior faculty averaged about four publications per year over the period of the review, and assistant professors averaged about 1.6 publications per year. Most faculty have received extramural funding from agencies that include the National Science Foundation, the United States Department of Agriculture, the Department of Energy, and the Environmental Protection Agency. A faculty member who focuses more on teaching has twice been named a University Teaching Professor.

The external reviewer states that “diversity remains a concern,” but notes that efforts have been made by the department and that there are very few African Americans, Native Americans, or Hispanics receiving Ph.D.’s in Plant Biology from which to recruit. However, the external reviewer does note that there is an opportunity to recruit women to increase gender diversity and efforts should be made in this area.

Programmatic Practices

With respect to promotion and tenure, the policies are well-documented. Junior faculty are released from teaching and given lighter service loads early in their career. Junior faculty also are encouraged to choose an informal faculty mentor, but the external reviewer notes that “the department should consider requiring a mentoring program.”
All faculty are evaluated annually in accordance with the policies documented by the Ohio University Faculty Handbook. An assessment committee composed of peers of all faculty ranks makes recommendations to the Chair. The external reviewer cautions that “if a junior faculty member recommends an unsatisfactory evaluation for a faculty member who later votes against them in a tenure decision, this could establish grounds for a grievance.”

The level of teaching and service (including student advising) is allocated based on rank and research productivity. All senior faculty are expected to assume the role of Chair, Associate Chair, or Graduate Chair at some point in their careers.

Curriculum

Undergraduate:

Students choose one of four tracks within the undergraduate major: Applied Ecology, Environmental Biology, Plant Biology, or Cell Biology and Biotechnology. Applied Ecology students generally enter the job market after completion of their degree, whereas students in the other three tracks tend to seek post baccalaureate training. During the period of the review, only three percent of students have chosen the Cell Biology and Biotechnology track, a trend that continued from the previous review period. The external reviewer cautions that, “with an average enrollment of only one student per year over a fourteen year period, this is not a viable major.”

Six core courses are required of all majors. All majors are required to perform independent research or complete an internship. Anecdotal evidence suggests that many students perform both.

In addition, the department offers four courses for non-majors, all of which have large enrollments. Of particular importance is PBIO 103 (Plants and People), which has served as a reliable tool for recruiting students into the major, as evidenced by the fact that nearly half of the students in the major consist of those who have taken this course. The external reviewer notes that this “speaks well to the quality of teaching … and the enthusiasm the instructors are able to generate.”

Graduate:

The Master of Science degree requirements are a minimum of 45 hours of coursework, 30 credits of graded graduate-level coursework, a thesis based on original research, an oral thesis defense, presentation of two research seminars, one public, at least two quarters as a teaching assistant, and a 3.0 G.P.A. There is also a non-thesis option in which the thesis requirement is replaced by additional coursework and a short paper based on independent research. Requirements for the Ph.D. degree in Plant Biology include at least 135 credits of graduate coursework, at least 35 or 45 credits of graded graduate-level coursework, written and oral comprehensive examinations, a dissertation of publishable quality, an oral dissertation defense, four seminars, one public, a minimum of two quarters as a teaching assistant, and a 3.0 G.P.A. For both the M.S. and Ph.D. degrees, coursework is approved by the student’s committee.
Research

Nearly all of the faculty are research-active and highly productive. During the period of review, the faculty produced 258 scientific publications and presented 216 papers. Faculty have been successful in obtaining extramural funding every year during the review. High caliber graduate students entered the program during the period of review with relatively even distribution among faculty.

New faculty receive generous start-up packages that include funding and reduced teaching expectations. The four tenure-track faculty hired during the period of the review received $100K, $145K, $270K, and $300K in start-up funding. In addition, research laboratory space in Porter Hall is well-established, so infrastructure is generally not a concern. As reported in the self-study, teaching for new tenure-track faculty is kept “light,” which was described as a release from one course during the first year. Service remains light for several years after hire.

Students

Overall, about 75% of students who applied to the M.S. program and 69% of students who applied to the Ph.D. program were admitted, and about 53% of admitted M.S. students and 50% of Ph.D. admitted students enrolled in the program. Graduate student enrollment during the period of the review ranged from 35 to 43. Of those students, 48% to 57% were enrolled in the Ph.D. program. All students admitted into the program received financial support.

International students accounted for 58% of Ph.D. and 12% of M.S. students. Of the American students, one was an African-American. Most international students came from China or India. There was a nearly equal mix of male (52%) and female (48%) students. The external reviewer notes that racial diversity at the undergraduate level in this field has been slow to emerge such that recruiting qualified minority students that are U.S. citizens is a systemic challenge that is not unique to this department.

The self-study identifies the quality of graduate students as “high” and the internal reviewer agrees with this assessment. Graduate students have been successful in obtaining prestigious fellowships and awards. Graduate students have produced at least 16 and as many as 31 publications per year during the period of the review, and presented at least 36 and as many as 58 scholarly posters and talks. In addition, students have received an impressive number of internal and external research grants ranging from 12 to 26 per year.

Alumni Profile

Of the 23 graduate students who completed a Ph.D. during the period of the review, 44% obtained a post-doctoral position, 35% received a university position (generally tenure-track), and the remaining were hired into public, private, or not-for-profit industry positions. Of those earning M.S. degrees, 22% continued on to a doctoral degree and 55% are research technicians.
Students from the graduate program whose graduation predates this review have had “markedly successful careers in academia, industry, and government” according to the self-study.

Adequacy of Resources

The majority of the budget is allocated to faculty salaries. During the period of the review, the department lost funding for a clerical position and is now supported by a single Administrative Assistant.

The department has excellent laboratory and teaching facilities in Porter Hall, which includes the herbarium and genomics facility. Field sites at the West State Street Research Area, Ridges Land Lab, and the Dysart Woods Land Laboratory are “excellent” according to the external reviewer.

The external reviewer is concerned about two facilities. The paleobotanical collection is currently housed in “substandard” space at The Ridges. The greenhouse is “badly in need of renovation or replacement.” The external reviewer notes that the condition of the greenhouse has been a concern since the previous review and seems to be getting worse. The internal reviewer feels it best to restate this passage from the internal review:

“The need for adequate greenhouse space will become increasingly important as the University moves from quarters to semesters. Many of the courses that are now taught in the spring quarter take advantage of the availability of outdoor plants during the season; now they will need to rely on greenhouse plants during the spring semester when many of the plants will not be available in the field. This is a serious consideration that will need to be addressed prior to the shift to semesters.”

Commendations

The internal reviewer echoes the sentiment of the external reviewer who notes that “the Department of Environmental and Plant Biology is a strong, well-developed academic unit.”

The Department of Environmental and Plant Biology should be commended for the strong collegiality and productivity of its faculty; its commitment to strong basic scientific literacy, as evidenced by the research opportunities for undergraduates and the content-specific junior writing course; the success of recent and former graduates of the program; and the below-the-national-average time to complete the Ph.D. program.

Concerns

Areas of concern for the Department include minimal gains in faculty and student diversity during the period of the review, inadequate secretarial/clerical support, substandard greenhouse space, and the low number of undergraduate majors in the Cell Biology and Biotechnology major.

Recommendations
The external reviewer recommends that the Department should consider restructuring the Cell Biology and Biotechnology major, offer graduate students training in Responsible Conduct of Research, increase efforts to attract diverse faculty and students, institute mentoring program for junior faculty, provide additional clerical/secretarial support, provide funds to renovate and expand greenhouse facility, especially in light of the fact that the switch to semesters may reduce the opportunity to view plants in the field (i.e. May, June), and provide a long-term solution for the Paleobotanical collection.