Institutional Effectiveness
2019-2020

Program: Environmental Sciences Ph.D.

College and Department: College of Interdisciplinary Studies – School of Environmental Studies

Contact: Dr. Hayden Mattingly

Mission:

Assessment Methods:

1. Comprehensive Exam – Outcome 1.1 The EVS faculty will monitor student understanding of the interdisciplinary nature of environmental science by the administration of oral and written comprehensive exams. The comprehensive exam is interdisciplinary and is comprised of questions written by each member of the graduate advisory committee. The results of these exams are kept on file by the EVS Director.

   The timing of the comprehensive exams represents an ideal opportunity for assessment because the student has just completed all or nearly all of his/her coursework. The exams are provided in two different formats (written and oral) that allow better insight into the student's interdisciplinary knowledge and proficiency. The student's graduate advisory committee discusses the results and provides paper copies of the exams to the Director, who monitors the results to maintain integrity and consistency.

2. Student Annual Reports – Outcomes 2.1 and 2.2 In December of each year, the program Director requests annual reports from each student that cover the previous 12 month period. Reports are due by the end of January. For example, student reports received in January 2019 covered the reporting period of January – December 2018. Students are provided with a template to follow when preparing reports. The Director and academic staff members review each report and tally the total papl-6.4 ( )10.7 (l)-3.2-5 (t)- (s61 (k)-1.4 ( )-5.9 (l)-5..7 (u)-0.7 (s)-40.7 -0.7 (e)4 (h)-0. (n (t)-h)-0.7 (2.2(r)11

Results:

1.1. Students will demonstrate understanding of the interdisciplinary nature of environmental sciences such that they are aware of a wide range of environmental concerns beyond the boundaries of any single, specific discipline.

All six of the EVS students taking their comprehensive exams successfully passed during the 2019 reporting period. Student performance and interdisciplinary proficiency on both written and oral aspects were approved by the EVS faculty graduate advisory committees.

2.1. Students will improve oral and written communication skills by giving technical presentations at symposia, conferences, and similar venues where abstracts are reviewed for acceptance.

2.2. Students will improve written communication skills by submitting manuscripts to peer reviewed publications such as scholarly journals, conference proceedings, books, or similar outlets.

Student productivity related to written and oral communication in 2019 was similar to data from the previous two years for conference attendances and poster and oral presentations (Table 1). In 2019, students made 32 conference attendances and gave 15 poster presentations and 16 oral presentations. However, the number of manuscripts submitted (n = 27) was nearly twice the number submitted in 2018 and set a new high point for manuscript production. Furthermore, the number of manuscripts published reached a new high mark of 16 publications in 2019, again exceeding the written productivity achieved during previous reporting periods. Productivity in written and oral communication was present in most EVS concentrations but was especially evident in the Biology Concentration which currently houses the greatest number of enrolled students (Table 2). One EVS Biology student submitted 10 journal manuscripts in 2019, which obviously accounts for some of the increase in manuscript submissions. However, increased manuscript productivity could also reflect overall enrollment growth of the EVS program, which has seen enrollment increase from 17 students in 2017 up to 20 in 2018 and again up to 24 in 2019. The 16 manuscripts published in 2019 appeared in a wide range of journals. EVS students were first authors on seven of the 16 publications.

Table 1. Scholarly activity related to oral and written communication skills shown by EVS Ph.D. students in the current (2019) and previous five calendar year reyear reym003 Tw mheoam-6.6 (li0.7 (t)-6 (s)-4)-2.8 (e)4.7 (a

Table 2. EVS student activities during the reporting period of January–December for 2018 and 2019 in

One. Preprint at https://www.biorxiv.org/content/10.1101/787895v1.article-metrics doi: https://doi.org/10.1101/787895

- Lancaster, J.D., S.E. McClain, M.C. Gross, C.N. Jacques, J.M. Mesa, R.M. Kaminski, and H.M. Hagy. 2019. Assessment of excreta collection methods to estimate true metabolizable energy of waterfowl foods in wild ducks. The Wildlife Society Bulletin 43:282–290.
- McKay, T., P. Bowombe Toko, L.A. Starkus, F.H. Arthur, and J.F. Campbell. 2019. Monitoring of

As part of emphasizing the interdisciplinary nature of environmental sciences, the EVS Curriculum Committee presented a short narrative to the EVS Executive Committee for approval in 2018. The narrative was designed to inform students about interdisciplinary learning and to better communicate faculty expectations about interdisciplinary learning associated with the comprehensive exams. The approved narrative is now posted on the EVS program website: https://www.tntech.edu/cis/pdf/soes/InterdisciplinaryLearningforAnInterdiscpinaryDegree.pdf

In Spring 2021, the EVS Executive Committee will be discussing the possibility of creating a small bank of interdisciplinary learning questions that could be used during the comprehensive exams. Student performance can be more effectively tracked if all students are being asked questions from a common pool. A further topic that will be discussed