# BIOLOGICAL SCIENCES - ECOLOGY AND EVOLUTIONARY BIOLOGY - PH.D.

**College of Sciences and Humanities**
Department of Biological Sciences
www.kent.edu/biology/graduate

## About This Program

Investigate the processes that shape life on Earth while conducting original research in ecology, evolution and environmental change. This Ph.D. program offers immersive field and lab experiences, flexible specialization and close faculty mentorship as you design and lead independent scientific studies. Graduating with advanced analytical expertise and a strong research portfolio, you'll be prepared to drive discovery and impact in academia, conservation and beyond. Read more...

## Contact Information

- **Oscar Rocha** | bscigrad@kent.edu | 330-672-2297
- Connect with an Admissions Counselor

## Program Delivery

- **Delivery:**
  - In person
- **Location:**
  - Kent Campus

## Examples of Possible Careers and Salaries*

### Biological science teachers, postsecondary

- 9.3% much faster than the average
- 64,700 number of jobs
- $85,600 potential earnings

### Biological scientists, all other

- 2.2% slower than the average
- 44,700 number of jobs
- $85,290 potential earnings

### Environmental science and protection technicians, including health

- 8.4% much faster than the average
- 34,700 number of jobs
- $46,850 potential earnings

### Natural sciences managers

- 4.8% about as fast as the average
- 71,400 number of jobs
- $137,940 potential earnings

* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics' Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at which half of the workers in the occupation earned more than that amount and half earned less.

For more information about graduate admissions, visit the graduate admission website. For more information on international admissions, visit the international admission website.

## Admission Requirements

- Bachelor's degree or higher from an accredited college or university
- Strong background in biology and related subjects such as chemistry and mathematics[1]
- Minimum 2.750 GPA on a 4.000-point scale
- Official transcript(s) - copies of official transcripts can be submitted for initial review of application
- Résumé or curriculum vitae
- Personal statement that clearly explains why the applicant wishes to pursue an advanced degree, describes research experience and interest; statement must include a list of potential faculty mentors
- Three letters of recommendation that comment on chance of success in an advanced degree program, with minimum one from someone who can comment on research aptitude
- English language proficiency - all international students must provide proof of English language proficiency (unless they meet specific exceptions to waive) by earning one of the following:[2]
  - Minimum 94 TOEFL iBT score
  - Minimum 7.0 IELTS score
  - Minimum 65 PTE score
  - Minimum 120 DET score

[1] Student deficiencies in these areas at the time of admission shall be rectified during the first year of graduate study.

[2] International applicants who do not meet the above test scores will not be considered for admission.

## Application Deadlines

- **Fall Semester**
  - Priority deadline: November 15

*All application materials (including applicable fee, transcripts, recommendation letters, etc.) submitted by this deadline will receive the strongest consideration for admission*.

## Program Requirements

### Major Requirements

| Code | Title | Credit Hours |
|---|---|---|
| **Major Requirements** | | |
| BSCI 70104 | BIOLOGICAL STATISTICS | 4 |

| | | |
|---|---|---|
| BSCI 70184 | RESPONSIBLE CONDUCT IN RESEARCH AND TEACHING-BIOLOGICAL SCIENCES [1] | 2 |
| BSCI 70191 | SEMINAR IN BIOLOGY (taken 2-4 times) | 2-4 |
| or BSCI 70391 | SEMINAR IN ECOLOGY | |
| Ecology and Evolutionary Biology Electives, choose from the following: | | 6 |
| BSCI 70370 | ECOLOGICAL AND EVOLUTIONARY GENETICS | |
| BSCI 70371 | EVOLUTIONARY BIOLOGY | |
| BSCI 70372 | COMMUNITIES AND ECOSYSTEMS | |
| BSCI 70373 | POPULATION AND COMMUNITY ECOLOGY | |
| Major Electives, choose from the following: | | 14-46 |
| ESCI 72065 | WATERSHED HYDROLOGY | |
| GEOG 79070 | GEOGRAPHIC INFORMATION SCIENCE | |
| GEOG 79073 | ENVIRONMENTAL DATA ANALYSIS IN R | |
| GEOG 79230 | REMOTE SENSING | |
| Any Biological Sciences (BSCI) Doctoral Electives (70000 level or higher) | | |
| Other graduate courses as approved by guidance committee | | |
| *Culminating Requirement* | | |
| BSCI 80199 | DISSERTATION I [2] | 30 |
| **Minimum Total Credit Hours for Post-Baccalaureate Students** | | **90** |
| **Minimum Total Credit Hours for Post-Master's Students** | | **60** |

[1] Students are required to enroll in BSCI 70184 their first semester (or the following fall semester for those starting their studies in the spring semester).

[2] Upon admission to candidacy, students must register for BSCI 80199 for a total of 30 hours. It is expected that doctoral candidates will continuously register for BSCI 80199, and thereafter BSCI 80299, each semester, until all requirements for the degree have been met. Credit hours for BSCI 80299 do not count toward the degree. Candidates will present the results of their research in a defense open to students and faculty, at which the dissertation will be presented and defended before the dissertation committee.

# Graduation Requirements

| Minimum Major GPA | Minimum Overall GPA |
|---|---|
| - | 3.000 |

- Post-baccalaureate students must complete a minimum of 60 credit hours prior to enrolling in BSCI 80199. A minimum of 20 credit hours of those 60 must be graduate courses beyond BSCI 80198.
- Post-master's students must complete a minimum of 30 credit hours prior to enrolling in BSCI 80199. They should consult with their guidance committee to determine how many courses are required beyond BSCI 80198.
- Students are required to present at least one departmental seminar about their work.

## Candidacy for the Degree

**Candidacy Exams:** Students are admitted to doctoral candidacy following successful completion of both written and oral candidacy examinations. These exams are based on prior coursework and coursework taken in this graduate program as determined by students' academic guidance committee, which must consist of at least three eligible faculty members. The advisor(s) and a majority of members of the guidance committee must be members of the appropriate graduate program. This committee is responsible for determining the student's academic curriculum and for administering the candidacy exams.

**Prospectus:** Following completion of the candidacy exam, doctoral students must successfully prepare, present and defend a formal prospectus of the research project before their dissertation committee.

**Dissertation and Final Defense:** Doctoral candidates must complete a dissertation. It is expected that candidates will present the results of their research in a defense open to students and faculty, during which they will present and defend their dissertation before their dissertation committee, with not more than one negative vote, in order to be recommended to the department and College of Sciences and Humanities for degree conferral.

# Program Learning Outcomes

Graduates of this program will be able to:

1. Synthesize complex biological theories and empirical findings in ecology and evolutionary biology beyond the master's level.
2. Formulate and test novel hypotheses using advanced research techniques.
3. Produce original research that contributes new knowledge to the biological sciences and defend findings.
4. Disseminate scientific research through professional presentations and publications for diverse audiences with colleagues as well as with those outside their research field.

# Full Description

The Ph.D. degree in Biological Sciences - Ecology and Evolutionary Biology provides opportunities to study in areas such as animal behavior, entomology, limnology, microbial ecology, ornithology, systems ecology, systematic and evolutionary biology, environmental physiology, vertebrate ecology and population and community ecology. Although courses of study are tailored to students' interests and needs, the program for all students normally includes training in population, community, ecosystems and evolutionary ecology and statistical theory.

Because of the interdisciplinary nature of ecology, students are encouraged to take courses in geology, mathematics, chemistry and other disciplines.