BIOLOGICAL SCIENCES - CELL BIOLOGY - PH.D.

Description
The Ph.D. degree in Biological Sciences–Cell Biology is an individualized program of study and research that prepares students for career opportunities in teaching and research in academic, governmental and industrial settings. A core series of courses sets a rigorous foundation in theory, experimental design and technical knowledge of contemporary investigations at the cellular level of organization. Areas of research include developmental biology, cellular and developmental neuroscience, immunology, reproductive biology, cellular endocrinology and molecular genetics.

FULLY OFFERED AT:
• Kent Campus

Admission Requirements
• Official transcript(s)
• GRE scores
• Goal statement
• Three letters of recommendation
• A list of up to five potential faculty advisors
• Baccalaureate in the natural sciences with a minimum of two years of chemistry, one year of calculus, one year of physics and two years of biology, including genetics, plant or animal physiology and morphology. Deficiencies at the time of admission shall be rectified during the first year of graduate study

English Language Proficiency Requirements for International Students: All international students must provide proof of English language proficiency (unless they meet specific exceptions) by earning a minimum 587 TOEFL score (94 on the Internet-based version), minimum 82 MELAB score, minimum 7.0 IELTS score or minimum 65 PTE Academic score. For more information on international admission, visit the Office of Global Education’s admission website. Effective spring 2018.

Before admission can be completed, a prospective student must be accepted by a faculty member in the program who will act as advisor.

For more information about graduate admissions, please visit the Graduate Studies website.

Program Learning Outcomes
Graduates of this program will be able to:

1. Understand advanced biological concepts beyond the scope of the typical undergraduate degree and to increase the depth of their knowledge through coursework and hands-on experiences.

2. Apply scientific principles and appreciate work outside of their particular field.

3. Effectively communicate about science with colleagues as well as those outside of the student’s area of expertise.

4. Develop the necessary laboratory skills that will allow testing of hypotheses.

Program Requirements
Major Requirements
[AS-PHD-CELL]

<table>
<thead>
<tr>
<th>Major Requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BSCI 70184 RESPONSIBLE CONDUCT IN RESEARCH AND</td>
<td>0-2</td>
</tr>
<tr>
<td>TEACHING-BIOLOGICAL SCIENCES 1</td>
<td></td>
</tr>
<tr>
<td>BSCI 70491 SEMINAR IN PHYSIOLOGY 2</td>
<td>1</td>
</tr>
<tr>
<td>BSCI 80199 DISSERTATION I 3</td>
<td>30</td>
</tr>
<tr>
<td>Courses selected in consultation with academic faculty</td>
<td>27-30</td>
</tr>
<tr>
<td>advisor 4</td>
<td></td>
</tr>
<tr>
<td>Departmental Seminar Presented by Student 5</td>
<td></td>
</tr>
<tr>
<td>Minimum Total Credit Hours for Post-Baccalaureate</td>
<td>90</td>
</tr>
<tr>
<td>Students</td>
<td></td>
</tr>
<tr>
<td>Minimum Total Credit Hours for Post-Master’s Students</td>
<td>60</td>
</tr>
</tbody>
</table>

1. Students who will serve as teaching assistants are required to take BSCI 70184 their first semester (or the following fall semester for those starting their studies in spring semester).

2. Pre-candidacy students must enroll in BSCI 70491 each semester (repeatable for credit).

3. Doctoral candidates, upon admission to candidacy, 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, including one term each summer, until all requirements for the degree have been met. It is expected that candidates will present the results of their research in a defense open to students and faculty, at which the dissertation will be presented an defended before the dissertation committee, with not more than one negative vote, in order to be recommended to the Department of Biological Sciences and the College of Arts and Sciences for degree conferral.

4. Students must take at least one course in each of the following areas: cell biology/molecular biology (such as Eukaryotic Cell Biology) and biochemistry (such as Bioenergetics). Students are required to enroll in at least one graduate level statistics course. Students must complete the required OSHA Training Session prior to working with radioactive materials. Students should enroll in additional courses that provide necessary skills for completion of research projects and that will be beneficial for their professional development. Students with coursework deficits in curricula of prior degrees should enroll in appropriate graduate-level courses (permission must be obtained from the department to enroll in undergraduate-level courses).

5. Students are required to present at least one departmental seminar about their research.

Candidacy and Prospectus
After completing their coursework, students will complete the doctoral program by being admitted to candidacy, by proposing a research project...
to the faculty and by completing and defending that research with a written dissertation before a faculty committee. 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 the 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 students’ academic curriculum and for administering the candidacy exams.

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