

Department/Academic Unit: Biology

Degree Program: PhD

Degree Level Expectations, Learning Outcomes, Indicators of Achievement and the Program Requirements that Support the Learning Outcomes

Expectations (general descriptors from OCAV)	Learning Outcomes (program specific)** This degree is awarded to students who demonstrate...	Indicators of Achievement As evidenced by...	Relevant Courses and academic requirements (requirements that contribute to the achievement of learning outcomes and degree expectations)
Depth and breadth of knowledge	A thorough understanding of a major field of biology at a level that is at the forefront of the discipline, including a critical awareness of current problems and new insights. The department's main strengths are in the disciplines of (i) Ecology, Evolution and Behavior, and (ii) Molecular, Cell and Integrative Biology.	Successful completion of a comprehensive exam that focuses on both the thesis proposal and the relevant fields of study. Successful completion and defense of a dissertation that contains chapters that are publishable in high quality international journals.	A comprehensive exam focusing on the thesis research proposal. The exam to be completed during the first 18 months of study. A public seminar and defense of the thesis at the completion of the program.

<p>Research and scholarship</p>	<p>The ability to conceptualize, design, and implement a research program for the generation of new knowledge or understanding at the forefront of the field of study; to adjust the research design or methodology in the light of unforeseen problems.</p> <p>The ability to make informed judgments on complex issues in the field of study, sometimes requiring the development of new methodologies.</p> <p>The ability to produce original research of a quality to merit publication following peer review; and to present this work in seminars, and public forums.</p>	<p>Successful completion of: a comprehensive exam; annual supervisory committee reports; manuscripts submitted to scientific journals; dissertation requirements</p>	<p>Comprehensive exam based on research proposal.</p> <p>Dissertation and associated scientific papers.</p> <p>Thesis defense.</p> <p>Departmental seminar on thesis research.</p>
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<p>Application of Knowledge</p>	<p>The capacity to:</p> <p>Undertake research at an advanced level</p> <p>Develop and apply techniques, tools, practices, ideas, theories, approaches, and/or materials that contribute to field of study</p> <p>Collect and analyze data appropriate to the research program</p> <p>Write up the results of the research for scientific publication</p>	<p>Successful completion of comprehensive examinations;</p> <p>Successful completion of dissertation requirements;</p> <p>Application for internal and external awards;</p> <p>Application for internal and external grants;</p> <p>Presentation of research at scholarly conferences</p> <p>Publication of research in scientific journals</p> <p>Involvement in program development and delivery</p>	<p>Comprehensive examination based on dissertation proposal.</p> <p>Dissertation, which must be orally defended.</p> <p>Students who meet the criteria must apply for external funding.</p> <p>Conference presentations.</p> <p>Publication of research in scientific journal.</p> <p>RA work/lab experience; TA work/lab experience.</p> <p>Service on unit, university-wide, and external committees.</p>
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<p>Professional capacity/autonomy</p>	<p>Independent development of research ideas under direction of supervisor; interaction with scientific community.</p> <p>The qualities and transferable skills necessary for employment. requiring the exercise of personal responsibility and largely autonomous initiative in complex situations.</p> <p>The intellectual independence to be academically and professionally engaged, as well as current.</p> <p>Ethical behaviour consistent with the norms of academic integrity and the use of appropriate guidelines and procedures for responsible conduct of research.</p> <p>The ability to evaluate the broader implications of applying knowledge to particular contexts.</p>	<p>Successful completion of comprehensive examination.</p> <p>Successful completion of dissertation requirements.</p> <p>Successful completion of training activities during Orientation Week.</p> <p>Submission of applications for external funding, scholarships and fellowships.</p> <p>Presentation of research at scholarly conferences.</p> <p>Teaching, supervisory, and mentorship experiences.</p> <p>Development of academic and professional networks (e.g., conference attendance; service on unit, university-wide and external committees; engagement in collaborative research when appropriate).</p> <p>Participation in peer review processes.</p>	<p>Comprehensive examination based on dissertation proposal.</p> <p>Dissertation, which must be orally defended.</p> <p>Attendance at discipline seminars.</p> <p>Students who meet the criteria must apply for external funding.</p> <p>Mentorship and supervisory experiences.</p> <p>RA work and lab experience.</p> <p>Conference and other public presentations.</p> <p>Participation in peer review.</p> <p>Service on unit, university-wide, and external committees</p>
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<p>Communication Skills</p>	<p>The ability to:</p> <p>Communicate complex and/or ambiguous ideas, issues, and conclusions clearly and effectively in written and oral work;</p> <p>Engage in scholarly discussion and debate;</p> <p>Read and listen carefully and critically;</p> <p>Write scientific papers;</p> <p>Discuss research with the media and general public.</p>	<p>Successful completion of comprehensive exam.</p> <p>Successful completion of dissertation requirements.</p> <p>Attendance at departmental and discipline seminars.</p> <p>Presentation of research at scholarly conferences.</p> <p>Participation in question and answer periods at scholarly events.</p> <p>Submission of scientific papers to relevant journals.</p>	<p>Comprehensive examination based on dissertation proposal.</p> <p>Dissertation, which must be defended orally.</p> <p>Attendance at departmental and discipline seminars.</p> <p>Conference and other public presentations.</p> <p>Mentorship and supervisory experiences.</p> <p>Service on unit, university-wide, and external committees</p> <p>Presentation of public seminar on thesis research to department</p>
<p>Awareness of limits of knowledge</p>	<p>An appreciation:</p> <p>of the scope and limitations of one's own work and the research of others;</p> <p>of the complexity of scientific theories and knowledge</p>	<p>Successful completion of dissertation requirements, which includes an appreciation of the relevant literature, an oral defense before an interdisciplinary committee.</p> <p>Attendance at departmental and discipline seminars.</p>	<p>Comprehensive examination.</p> <p>Dissertation, which must be orally defended.</p> <p>Attendance at departmental and discipline seminars.</p>