



UBC Curriculum Proposal Form Change to Course or Program

Category: Okanagan

Faculty: Barber School Unit: Biology and Physical Geography Faculty Approval Date: Effective Session: W Term 1 Year 2006	Date: 20 February 2006 Contact Person: Louise Nelson Phone: 250-807-8152 Email: louise.nelson@ubc.ca
Proposed Calendar Entries: BIOLOGY <i>Degrees Offered: Ph.D., M.Sc.</i> Professors L. Nelson Associate Professors W. Bates, J. Boon, D. Durall, M. Forrest, M. Jones, R. Lalonde, B. Mathieson, S. Reid, I. Walker Assistant Professors K. Hodges, J. Pither, M. Rheault, M. Russello Program Overview The Biology Graduate Program offers the research-based degrees Master of Science in Biology and Doctor of Philosophy in Biology. Research interests of Biology faculty members include Cell and Developmental Biology, Genetics and Molecular Biology, Microbiology, Paleoecology and Climate Change, Biochemistry, Ecology, Conservation Biology, Plant-Microbe Interactions, Evolution, and Physiology. Doctor of Philosophy Admission Requirements The program is governed by the general graduate guidelines of the University of British Columbia Okanagan College of Graduate Studies' policies and procedures, including its standards for admission of students. Ph.D. applicants will normally have an M.Sc. in biology or a related field,	URL: (URL from the current web Calendar – not the draft calendar. This URL is not needed if you are only making changes to existing content - for course entries simply list the course number.) Present Calendar Entry: n/a Type of Action: New program proposal Rationale: See attached supporting documentation (Notice of intent, full program proposal, course descriptions, library consultation).



with a B+ (76%) average or better in their M.Sc. coursework and thesis. Their background training must be sufficient for advanced work in their chosen field. For non-native speakers of English, minimum acceptable TOEFL scores are 570 (paper), 230 (computer), and 86 (internet).

In exceptional cases, applicants who do not meet the requirements stated above but who have had significant formal training and relevant professional experience to offset such deficiencies, may be granted admission on the recommendation of the Biology Graduate Program Committee and approval of the Dean of the College of Graduate Studies.

Program Requirements

The Ph.D. degree is based on substantial original thesis research under the supervision of a faculty member in the Biology Graduate Program. Ph.D. students are not required to complete coursework unless required by the supervisory committee, or as a condition of admission. Within 18 months of registering in the

Program, Ph.D. students are required to present a research proposal and pass a comprehensive oral examination designed to assess the student's breadth of knowledge in the general subject area(s) of the proposed research. Ph.D. students must have had (or must take) at least one semester of upper-level undergraduate or graduate coursework in the following areas: (a) a taxonomically-based course, (b) physiology / cell biology, (c) genetics / molecular biology, (d) ecology / evolution. Ph.D. students must also conduct outreach based on their research (e.g. participation in government committees, leading field trips, developing school curricula).



Students registered in the M.Sc. program may transfer to the Ph.D. program after 12 to 18 months, if approved by their research committee. Transferring is possible only if the student has completed 12 credits of coursework in the first 18 months of their program with First Class standing and has successfully defended a research proposal. Such transfers must comply with the regulations of the College of Graduate Studies.

Master of Science

Admission Requirements

The program is governed by the general graduate guidelines of the University of British Columbia Okanagan College of Graduate Studies' policies and procedures, including its standards for admission of students. Applicants to the M.Sc. program are expected to have a B.Sc. in biology or a related field, with a B+ (76%) average or better in their third and fourth year classes or at least 12 credits in third and fourth year classes in their intended field of study with an A- (80%) or better average. Their background training must be sufficient for advanced work in their chosen field. For non-native speakers of English, minimum acceptable TOEFL scores are 570 (paper), 230 (computer), and 86 (internet).

In exceptional cases, applicants who do not meet the requirements stated above but who have had significant formal training and relevant professional experience to offset such deficiencies, may be granted admission on the recommendation of the Biology Graduate Program Committee and approval of the Dean of the College of Graduate Studies.

Program Requirements



The M.Sc. degree requires completion of 12 credits of coursework (with a standing of $\geq 75\%$) and 18 credits of thesis research. The required Biology Seminar provides 3 credits, and the remaining 9 credits may be obtained from an array of courses. M.Sc. students are required to conduct research for a thesis.



<p>Faculty: Barber School Unit: Biology and Physical Geography Faculty Approval Date: not applicable Effective Session: Winter Term 1 Year 2006-2007</p>	<p>Date: 20 February 2006 Contact Person: Louise Nelson Phone: 250-807-8152 Email: louise.nelson@ubc.ca</p>
<p>Proposed Calendar Entries:</p> <p><i>BIOL 501 (3) BIOLOGY SEMINAR</i> (Required for all M.Sc. students) This course is team-taught and centered on the thesis topics of the students enrolled. Each student will present a seminar on their proposed research and provide background readings. Students will be assessed on presentations, class participation, and a written paper.</p>	<p>URL: N/A</p> <p>Present Calendar Entry: n/a</p> <p>Type of Action: New Course</p> <p>Rationale: See attached supporting documentation (Notice of intent, full program proposal, course descriptions, library consultation).</p>
<p>Proposed Calendar Entries:</p> <p><i>BIOL 502 (3) THE CULTURE OF SCIENCE</i> Practical and philosophical grounding in the practice of professional research and ancillary activities in the biological sciences. Sources of funding and grant writing; scientific publication and peer review; scientific objectivity and advocacy; communicating with scientific and non-scientific audiences; application of scientific results to societal problems. [3,0,0]</p>	<p>URL: N/A</p> <p>Present Calendar Entry: n/a</p> <p>Type of Action: New Course</p> <p>Rationale: See attached supporting documentation (Notice of intent, full program proposal, course descriptions, library consultation).</p>
<p>Proposed Calendar Entries:</p> <p>BIOL 503 (3) INTEGRATED APPROACHES TO SCIENTIFIC PROBLEMS Seminar on a major biological question with readings from the molecular through the ecosystem levels of biological organization, using a variety of taxa. Example topics: genetically modified organisms, cataloging and preserving biodiversity, controlling malaria, and plant secondary metabolites. [0,0,3]</p>	<p>URL: N/A</p> <p>Present Calendar Entry: n/a</p> <p>Type of Action: New Course</p> <p>Rationale: See attached supporting documentation (Notice of intent, full program proposal, course descriptions, library consultation).</p>



<p>Proposed Calendar Entries:</p> <p>BIOL 510 (3) PLANT-MICROBE INTERACTIONS</p> <p>A broad review of root-associated microorganisms with the potential to benefit plants. Lectures, seminars, and discussions of the primary literature will cover these associations from ecological, physiological and molecular perspectives. Implications for agriculture, forestry, bioremediation and conservation will be discussed.</p>	<p>URL: N/A</p> <p>Present Calendar Entry: n/a</p> <p>Type of Action: New Course</p> <p>Rationale: See attached supporting documentation (Notice of intent, full program proposal, course descriptions, library consultation).</p>
<p>Proposed Calendar Entries:</p> <p><i>BIOL 512 (3) SPATIAL ECOLOGY</i></p> <p>Examination of major spatial patterns in ecology, exploring ways to describe variation and the mechanisms that give rise to patterns. Dispersal, metapopulation and source-sink dynamics, connectivity and fragmentation, heterogeneity, disturbance, edges, and dynamics of geographical ranges. [3,0,0]</p>	<p>URL: N/A</p> <p>Present Calendar Entry: n/a</p> <p>Type of Action: New Course</p> <p>Rationale: See attached supporting documentation (Notice of intent, full program proposal, course descriptions, library consultation).</p>
<p>Proposed Calendar Entries:</p> <p>BIOL 513 (3) CONSERVATION BIOLOGY</p> <p>In this course, students will learn the scientific basis of conservation biology. Students will learn how to obtain and analyze demographic data, develop population models, and project extinction risks. Students will develop an appreciation for the complex habitat, landscape, genetic and trophic interactions that affect population dynamics. Conservation approaches including habitat planning, reserve design, surrogacy, and policy will be addressed.</p>	<p>URL: N/A</p> <p>Present Calendar Entry: n/a</p> <p>Type of Action: New Course</p> <p>Rationale: See attached supporting documentation (Notice of intent, full program proposal, course descriptions, library consultation).</p>



<p>Proposed Calendar Entries:</p> <p>BIOL 520 (3) Special Topics in Biology Advanced or specialized topics in biology. Topic and prerequisites vary each time the course is offered. Lectures provide background information and recent advances. Students will present a seminar based on original literature. Students enrolling in BIOL 520 will conduct additional work compared to those in BIOL 420. Cross-listed with BIOL 420.</p>	<p>URL: N/A</p> <p>Present Calendar Entry: n/a</p> <p>Type of Action: New Course</p> <p>Rationale: See attached supporting documentation (Notice of intent, full program proposal, course descriptions, library consultation).</p>
<p>Proposed Calendar Entries:</p> <p>BIOL 567 (3) COMPARATIVE ENVIRONMENTAL PHYSIOLOGY.</p> <p>Advanced principles of environmental physiology. Examines the responses of adapted and non-adapted vertebrates to changes in the environment. Physical constraints on evolution will be discussed in the context of adaptations. Typical stressors include salinity, water limitation, hypoxia, altitude, depth, temperature extremes, or exercise. [3,0,0]</p>	<p>URL: N/A</p> <p>Present Calendar Entry: n/a</p> <p>Type of Action: New Course</p> <p>Rationale: See attached supporting documentation (Notice of intent, full program proposal, course descriptions, library consultation).</p>
<p>Proposed Calendar Entry: BIOL 599 (18) M.Sc. Thesis</p>	<p>URL: N/A</p> <p>Present Calendar Entry: n/a</p> <p>Type of Action: New Course</p> <p>Rationale: See attached supporting documentation (Notice of intent, full program proposal, course descriptions, library consultation).</p>
<p>Proposed Calendar Entry: BIOL 699 (0) Ph.D. Thesis</p>	<p>URL: N/A</p> <p>Present Calendar Entry: n/a</p> <p>Type of Action: New Course</p> <p>Rationale: See attached supporting documentation (Notice of intent, full program proposal, course descriptions, library consultation).</p>