

## **Biology, Undergraduate and Graduate, Faculty of Science**

### **Cyclical Program Review – Undergraduate 2008 – 2015; Graduate 2010 - 2015**

#### **Final Assessment Report and Implementation Plan**

**Reported to Joint-Committee on Quality Assurance: June 6, 2016**

#### **Program Description**

At the undergraduate level students may pursue a BSc in Biology with the stream options in Biomedical Science or Biotechnology, International BSc in Biology, a BSc in Environmental Biology. The Specialized Honours BSc in Biochemistry was reviewed along with York's chemistry programs in 2014.

The York University Biology Graduate Program offers two research-intensive post-graduate degrees (MSc and PhD). Students undertaking these degrees are focused in one of three major fields: Animal Physiology, Molecular & Cellular Biology, and Ecology & Evolution.

Program	Accepts 2014	Enrolment FTES 2014	Degrees Awarded 2014
Biology	566	1617	179 (Hons) 74 (90-credit)
MSc	29	48	21
PhD	13	31	8

#### **Reviewers appointed by the Vice-Provost Academic:**

Dr. Richard A Collins, Professor, Department of Molecular Genetics, University of Toronto

Dr. Carol Pollock, Professor of Teaching, Department of Zoology, University of British Columbia.

Mr. Paul Delaney, Senior Lecturer, Department of Physics and Astronomy, York University

**Site Visit:** February 29 to March 1, 2016

In addition to meeting with Alice Pitt, Vice-Provost Academic, and Barbara Crow, Dean of the Faculty of Graduate Studies, the reviewers met with Sam Benchimol, Department Chair; Paula Wilson, Undergraduate Program Director; technical staff, including Senior Lab Technician, Maria Mazzurco and Operations Manager, Ming Jiang; undergraduate students; members of the undergraduate teaching



committee; administrative staff including Vanessa Broughton, Undergraduate Program Assistant, Dharti Patel, Undergraduate Program Secretary, and Esaias (Buks) Janse van Rensburg, Associate Dean of Science (Faculty Affairs); Sylvie Morin, Associate Dean of Science (Research); Bridget Stutchbury, Graduate Program Director; Cristalina Del Bindo, Graduate Program Assistant; graduate students; members of the Graduate Committee; Librarians, Catherine Davidson, Rajiv Nariani (Biology Program Support Librarian) and Ilo-Katryn Maimets. The Reviewers visited teaching and research labs in the Farquharson, Lumbers and Life Science Buildings.

**Outcome:**

The Joint-Committee on Quality Assurance concluded that the Decanal response adequately addressed the review recommendations. Progress on the recommendations will be included in the Follow-up Report due in December 2017. The next CPR will begin in the Fall of 2022.

**Strengths:**

- The Honours Research Thesis is an excellent opportunity for students who are highly motivated to engage in an authentic research project. Students are also able to volunteer in a research practicum.
- The staff in the Steacie Library are very engaged and supportive of Biology teaching and research.
- The Learning Outcomes mapping process for Biology has been completed thoroughly. Outcomes are posted online for courses so instructors can see the curriculum of students as they progress through their program.
- The technicians responsible for setting up labs are a collegial, supportive group.

**Opportunities for Enhancement:**

- Experiential learning is a priority, but the extent to which students who want to participate are able to find a faculty member who is willing warrants investigation.
- The program should remedy the lack of adequate fourth-year lab courses, especially for students not pursuing the research thesis or practicum.
- Enhanced counselling and advising for first year undergraduates, possibly including online resources, would benefit students.
- Students should be encouraged to develop their communication skills, and this includes providing logical arguments in an exam setting at all levels.
- Instructors should be encouraged to take advantage of professional development opportunities to enhance their classes and to incorporate interactive options to deepen student engagement.

- The department should focus its efforts on researching and then reducing the most common and/or tractable causes for extension requests.
- The Department should have a discussion about the purpose, nature, and length of the graduate programs, especially the MSc. Not all students are planning to complete a PhD, and a different approach to completion may be warranted.
- Departmental guidelines regarding student publications should be established to limit excessive variation among supervisors' requirements.
- A review should be undertaken to address: a) the allocation of TA hours among courses; b) allocation of TA hours toward training and ongoing mentoring. The lines of communication for graduate students and the GPD and Chair should be improved.

### **Dean's Implementation Plan (selected)**

The Department provided a detailed response to the Review Report to each of the Reviewers' recommendations and suggestions. There are incorporated into the Dean's Implementation Plan with an indication of who will be responsible for the item, the resources required and the timeline for completion.

The Department has determined that it is not feasible to act on the suggestion that senior undergraduates be used as peer graders.

Recommendation	Who	Timelines
Clarification regarding the allocation of TA hours, TA training and TA contract paper work will improve the TA experience.	Dean's Office, Chair, Undergraduate Program Director, Graduate Program Director, Administrative officers	Immediate
More frequent supervisory committee meetings for graduate students in the first 18 months of the program.	Graduate Program Director, Chair	Immediate
Exploration of supervisory capacity for undergraduate research experiences	Chair, Undergraduate Program Director	By June 2017
Ensure advising/counselling for first year undergraduate students with .5 FCE	Dean's Office, Chair	Already in place.
Increase opportunities	Chair, Undergraduate	ongoing

for professional development and best practices in undergraduate teaching	Program Director, Teaching Commons	
Increase the number and diversity of courses in fourth year and in the graduate program, perhaps through integrated UG and GR courses. Ensure senior laboratory experience for students (note: the department feels that adding a fourth year lab course cannot take the place of experience in a research laboratory).	Dean's Office, Chair, Course Directors, Undergraduate Program Director, Graduate Program Director	2016-2017 and beyond
Share best practices for admin staff and teaching lab technicians with peers from other universities.	Chair	2016-2017 fiscal year
Renovation of buildings to enhance learning and research.	Dean's Office and Vice-Provost Finance	Proposals for funding being considered
Department to prepare plan for fourth year enrolments that allow for maximum student engagement for consideration by the Dean.	Undergraduate Program Director, Chair, Dean's Office	May 2017

A report on the implementation recommendations and suggestions will form part of the follow-up report due in December 2017.

Alice J. Pitt  
Vice-Provost Academic  
York University