

Final Assessment Report
Submitted by SUPR-G to SCAPA

Program:	Biochemistry	
Degrees Offered:	MSc (Thesis & Non-Thesis) PhD	
Approved Fields:	<ul style="list-style-type: none"> • Genome Dynamics, Epigenetics and Gene Expression • Human Genetics and Clinical Biochemistry • Signal Transduction and Intracellular Communication • Macromolecular Structure and Dynamics • Proteomics • Bioinformatics 	
External Consultants:	Dr. Liliana Attisano Department of Biochemistry University of Toronto	Dr. Caroline Cameron Department of Biochemistry and Microbiology University of Victoria
Internal Reviewers:	Paula Dworatzek, PhD RD Chair and Associate Professor, School of Food and Nutritional Sciences Brescia University College, at Western University	Jenna Kitz Graduate Student (Anatomy & Cell Biology)
Date of Site Visit:	January 17-18, 2018	
Evaluation:	<i>Good Quality</i>	
Approved by:	<i>SUPR-G on May 14, 2018</i> <i>SCAPA on May 30, 2018</i>	

Executive Summary

The graduate program in Biochemistry (<http://www.biochem.uwo.ca/grad/default.html>) has been in existence since the arrival of Dr. R.J. Rossiter as Department Head in 1947. The program originally focused on lipid research and has since expanded through several phases of faculty recruitment and through diversification of research into new fields of investigation. At present, the program is composed of 40 members with supervisory privileges and about 80 graduate students. Research laboratories of participating members are located within Western University and its affiliated Institutions including Robarts Research Institute, Lawson Health Research Institute, the Child Health Research Institute and the London Regional Cancer Program.

Faculty in the Department of Biochemistry have active and productive research programs that have direct or translational aspects related to health sciences. The environment both on campus and at satellite facilities offers graduate students an exceptional training environment which provides ample scientific and career development opportunities.

Until 2014, the program offered a traditional Master's program (thesis-based) leading to the degree of MSc and a doctoral program leading to the degree of PhD. In 2012, they introduced an Accelerated MSc program which facilitates early registration and an anticipated early completion of the thesis-based Master's. In 2015, they introduced an additional option for the Master's program, a one-year Non-thesis MSc program. This is a course-based MSc program that includes two streams, a research-based individual project stream and a non-research collaborative project option. Currently (Sept, 2017), there are 35 students enrolled in the thesis-based MSc program, 14 in the Non-thesis, and 36 in the PhD program.

The learning outcomes were presented in a clear and cohesive manner and were appropriately tailored for the various streams (MSc non-thesis, and MSc or PhD thesis). The methods used to measure

whether these objectives have been achieved are well thought out and reflect the most appropriate means to assess their achievement in each stream.

Faculty have been proactive in developing graduate training programs to meet the changing needs of graduate training and expectations of students by creating a non-thesis-based Master's that has an optional research/laboratory track; prioritizing the direct-entry PhD track in an effort to maximize research productivity; and the willingness of faculty to tailor teaching styles and be flexible with teaching workloads to instruct the thesis-based and non-thesis-based students within the graduate course offerings. The new non-thesis based Master's was created to meet the needs of students not wanting a thesis-based degree as well as the evolution of the biomedical sciences job market.

The external reviewers recommended that the Schulich School of Medicine and Dentistry restructure their funding formula to provide increased financial support to the Graduate Program within the Biochemistry Department and other basic science departments, to ensure faculty members can continue to train graduate students within their research programs. While this may be a valid opinion, it is deemed outside of the scope of the reviewers to make this a recommendation.

Significant Strengths of Program:

- Expertise of the faculty who have a national and international reputation for research excellence.
- Dedication of the faculty to revising the graduate program to suit the needs of today's biomedical students.
- The technical resources to assist students and faculty achieve their research goals.

Potential weaknesses:

- Potential vulnerability of the traditional thesis Master's, which has been the most consistent source of incoming students, due to the removal of a minimum stipend and the option for a non-thesis Master's.
 - The Department has noted that: they "encourage Faculty members to provide at least a base stipend equivalent to the cost of graduate tuition (~\$9000). Thus far all thesis MSc students enrolled in our program receive a stipend. We will closely monitor our thesis MSc student numbers to determine whether our decision to not guarantee a minimum stipend for these students affects enrolment as we understand that this could affect PhD enrolment and overall student numbers." Furthermore, the department response acknowledges that while the annual funding per Master's student has decreased, it has increased for PhD students and as such there is an overall increase for the program.
- Lack of transparency about where financial resources provided by the University go once they reach the Schulich School of Medicine and Dentistry.

Suggestions for improvement & enhancement:

- Engage in strategic planning to identify core research pillars for their research vision, and to demonstrate to the University the need to retain a full complement of faculty positions.
 - The Department has stated: "We agree that the development of a succession plan to replace retiring Faculty members over the next 5 years is a high priority. The Department has a committee in place (the Strategic Planning Committee) that is identifying the core research pillars that are of importance to the Department's research and to the Graduate program."
- Develop a plan to optimize the core graduate courses to suit the differing needs of the thesis and non-thesis Master's ensuring the research-intensive courses are offered often enough to meet the needs of the thesis students.
 - The department has responded that they "agree that we can expand our set of courses by offering additional topics, and faculty are encouraged to do so every year. We have initiated this in the 2017-18 academic year by offering a new course (Bioc 9525R, Modern Applications of Biological NMR Spectroscopy). We will therefore set in place a process to add one or 2 courses that students will be able to substitute for a core course."

- Tailor the graduate course offerings to increase the opportunities for developing written competency skills.
 - The program response indicates they have adequately addressed this, i.e., “Developing written competency skills is one of the priorities of our graduate program. We have a Writing Course that specifically teaches writing skills. Up to now, this course has been offered in the Fall Semester. We plan to offer this Writing course in both the Fall and the Winter Semesters to accommodate all the student requests starting next academic year (2018-19). In addition, 5 other courses have learning outcomes that include communication skills and have a writing component (9511Q, 9606S, 9516S, 9500R, 9505R), and both the Ideas to Innovation and the Advanced Research Project Course include a major writing component.”
- Move away from an exam-based approach for performance assessment for students undertaking a thesis-based graduate program.
 - Again, the program has addressed this comment. Specifically, “The large majority of our graduate courses do not have exam-based student assessments. Only 1 course (9522R, Applied Proteomics) has an exam that constitutes 30% of the final mark. While this represents a small fraction of the total assessment, we will phase out this exam component and replace it with a written assignment.”
- Develop a “new student” document that outlines the degree expectations and scientific rigor that is expected for each of the graduate programs
 - The Graduate Chair expects to have this complete for new students beginning in Sept.

Recommendations required for Program sustainability:	Responsibility	Resources	Timeline
Develop a plan to collect metrics from the non-thesis Master’s to assess student outcomes	Graduate Chair Associate Graduate Chair Graduate Program Administrator	Faculty time Administrative time	Ongoing
Ensure greater clarity on program website for prospective student recruitment	Graduate Chair Associate Graduate Chair Graduate Program Administrator	Faculty time Administrative time	January 2019