

UNIVERSITY OF WINDSOR
UNIVERSITY PROGRAM REVIEW (UPR)
REPORT ON: CHEMISTRY AND BIOCHEMISTRY
UNDERGRADUATE AND GRADUATE PROGRAMS
 January 2016

EXECUTIVE SUMMARY

Review Preparation

In preparing this document, the Program Development Committee reviewed the following: Chemistry and Biochemistry's Self-Study (SS) (2013/14), the report of the external reviewers (ER) (January 2015), the response from the Head (HR) (February 2015), and the response from the Dean (DR) (April 2015) to the above material. The external reviewers were: Dr. Richard J. Puddephatt, Department of Chemistry, Western University, Dr. Ann M. English, Department of Chemistry and Biochemistry, Concordia University, and Dr. Kevin Milne, Department of Kinesiology, University of Windsor.

Undergraduate and Graduate Programs

At the undergraduate level, the Department offers a Bachelor of Science (Honours) in Chemistry (with/without thesis), and a Bachelor of Science (Honours) in Biochemistry (with/without thesis). Students also have the option of combining their Honours Chemistry or their Honours Biochemistry major with a major from another discipline.

The Department also collaborates with other departments to offer a Bachelor of Science (Honours) in Chemistry and Physics (with/without thesis) (jointly offered with the Department of Physics), a Bachelor of Science (Honours) in Biology and Biochemistry (Health and Biomedical Stream) (jointly offered with the Department of Biological Sciences), and a Concurrent Bachelor of Science (Honours) Chemistry (with/without thesis)/Bachelor of Education (jointly offered with the Faculty of Education).

The Department is also heavily involved in the delivery of the Faculty of Science's General Bachelor of Science program, with a significant number of students in the program electing to focus on chemistry or biochemistry.

The Department offers a Minor in Chemistry and a Minor in Biochemistry, as well as Major and Minor Concentrations for the Bachelor of Arts and Science in both Chemistry and Biochemistry.

At the graduate level, the Department offers a Master of Science in Chemistry and Biochemistry, a Master of Medical Biotechnology (MMB) (primarily geared towards international students), and a PhD in Chemistry and Biochemistry.

Enrolments

Undergraduate

	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015
Full-Time	408.3	417.7	398.43	372.34	360.89
Part-Time	74.1	67.2	64.2	62.57	66.2

Graduate

	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015
MSc Full-Time	20	27	30	33	33
MSc Part-Time	0	0	0	1	0
MMB Full-Time	----	----	18	50	77
MMB Part-Time	----	----	0	0	0
PhD Full-Time	38	40	36	34	39
PhD Part-Time	1	0	0	1	0

Human Resources

Faculty/Instructors

Tenure/tenure-track faculty	19 (including Head, Acting Dean of Science, and Associate Dean (Undergraduate) of Science, Associate Dean of Graduate Studies)
Faculty members involved in graduate program delivery	17

Full/Part-time Staff

Chemical Technicians	2
Biotechnology Program Technician	.5
Instrument Specialist	1
Laboratory Technician	1
NMR Facility Coordinator`	1
Office Manager	1
Undergraduate Chemistry Lab Technician	1
Secretaries	2

FINAL ASSESSMENT REPORT (with Implementation Plan)

Significant Strengths of the Programs

The Department offers high quality undergraduate and graduate education delivered by a faculty complement with an excellent record of world-class research and awards in teaching excellence. (ER, p. 3, 5) The fact that “most students publish their research in top journals and present their findings at regional, national and international meetings” and the success of the students in receiving “high levels of tri-council, OGS and QSST funding” is evidence of the high caliber of the graduate programs. (ER, p. 7)

The Department has instituted a number of programs to assist students as they work their way through the rigorous studies. In addition to a well-developed mentoring program for first year students, “the Department also operates a Science Resource Centre, accessible to all students, and equipped with up-to-date computers and software. The Centre can be booked for hands-on instruction to enhance the learning environment.” “The faculty are committed to offering undergraduate students a research experience by a number of mechanisms: senior research project (59-410), Outstanding Scholars program, NSERC undergraduate summer research awards (USRA), and undergraduate research co-op and volunteer programs. In addition, the initiation of Chemistry & Biochemistry research internships for highly motivated high school students is commendable.” (ER, pp. 7-8)

Opportunities for Program Improvement/Enhancements

The department should continue to review its curriculum to ensure the appropriate foundations are provided for student transitioning from high school. In particular, addressing the gap in the math requirement likely will go a long way in enhancing retention from first to second year. ER, p. 9, HR, p.3, SS, p.115)

Facilities and equipment maintenance issues threaten the quality of the teaching, learning and research activities of the Department and hinder student recruitment efforts. Working with the Dean and others to develop a plan to systematically address building and equipment deficiencies will enhance the teaching, learning and research experience of students, faculty and staff. (ER, p.8, SS, p. 115) Further opportunities for program improvements are captured in the recommendations listed below.

IMPLEMENTATION PLAN

Recommendations (in priority order)

(Final recommendations arrived at by the Program Development Committee, following a review and assessment of the External Reviewers report, the Head's response and the Dean's response.)

Recommendation 1: That the Department continue with its major undergraduate curriculum review, with a view to enhancing student recruitment and retention.

Agents: Department Head, Department Council, Dean of Science

Completion by: Fall 2017

Recommendation 2: That the Department continue working with the Dean and central administration to correct deficiencies in the aging building, particularly those with imminent health and safety concerns. (Examples include malfunctioning fume hoods, missing eye wash and emergency shower equipment).

Agents: Department Head, Dean of Science

Completion by: Fall 2017

Recommendation 3: That the Department work with the Dean to develop a plan to proactively address maintenance and repair costs of major equipment.

Agents: Department Head, Dean of Science

Completion by: Fall 2017

Recommendation 4: That the Department explore all options for international student funding in order to increase international student enrollment in the Masters theses programs.

Agents: Department Head, Dean of Science, Dean of Graduate Studies

Completion by: Fall 2019

Recommendation 5: The Department make a case to the Dean for a faculty appointment in the organic/polymer/materials area, with ability to teach a range of organic chemistry and materials chemistry courses.

Agents: Department Head, Dean of Science

Completion by: Fall 2017

Recommendation 6: That the Department proactively plan for additional demands on space and resources, given the introduction and growth of new programs.

Agents: Department Head

Completion by: Fall 2017

Recommendation 7: That the Department submit:

- (a) learning outcomes for each of its undergraduate and graduate programs that clearly correspond to the University's stated "Characteristics of a University of Windsor Graduate" [*PDC understands that these have been developed but not approved by Council yet. Learning outcomes for existing programs are to be submitted to PDC/Senate prior to consideration by PDC of any new program proposals*], and
- (b) learning outcomes and assessment methods for each of its courses that clearly correspond to the program-level learning outcomes.

Agents: Department Council, Head, CTL, Vice-Provost, Teaching and Learning

Completion by: Fall 2017