

# University of Toronto Quality Assurance Process (UTQAP) Cyclical Review: Final Assessment Report and Implementation Plan

<b>Program Reviewed:</b>	Pharmaceutical Chemistry, B.Sc. (Hons.): Specialist
<b>Division/Unit offering program:</b>	Faculty of Arts & Science
<b>Commissioning Officer:</b>	Dean, Faculty of Arts & Science
<b>Reviewers (Name, Affiliation):</b>	<ol style="list-style-type: none"> <li>1. Professor Hans-Peter Loock, Department Head, Department of Chemistry, Queen's University</li> <li>2. Professor Gerhard Multhaup, Department Chair, Department of Pharmacology and Therapeutics, McGill University</li> </ol>
<b>Date of review visit:</b>	February 12, 2018
<b>Date reported to AP&amp;P:</b>	November 1, 2018

Unless otherwise noted, all bulleted comments apply to all programs reviewed.

## 1 Outcome

The Committee on Academic Policy and Programs (AP&P) concluded that there were no issues to be drawn to the attention of the Agenda Committee but requested a follow up report in one year on the relocation of the program to the Department of Chemistry. The follow-up report will be considered by AP&P at the Cycle 2 meeting in 2019-20.

## 2 Significant Program Strengths

- Highly motivated, enthusiastic students who show keen interest in graduate studies
- Experiential learning opportunities available in lab courses and through the Professional Experience Year (PEY)
- Strong research levels when compared to peer programs

### **3 Opportunities for Program Enhancement**

The reviewers recommended that the following be considered:

- Exploring structural changes to ensure the program has a clear home, including clarifying the leadership structure, determining authority for making teaching assignments, and creating a formal agreement between the Faculty of Arts & Science and the Faculty of Pharmacy
- Establishing a cross-Divisional curriculum committee and holding regular meetings
- Articulating learning outcomes and mapping program requirements to those outcomes
- Undertaking a number of changes to the curriculum including introducing additional courses, reorganizing the timing of course requirements, and increasing student exposure to research opportunities
- Addressing the program's retention and graduation rate
- Better communicating program requirements and educational opportunities to students
- Creating a faculty complement plan
- Engaging in development and fundraising initiatives

## 4 Administrative Response & Implementation Plan



UNIVERSITY OF TORONTO  
FACULTY OF ARTS & SCIENCE

October 2, 2018

Professor Susan McCahan  
Vice-Provost, Academic Programs  
University of Toronto

### **Re: UTQAP cyclical review of Pharmaceutical Chemistry**

Dear Professor McCahan,

Along with the faculty, staff, and students of the Pharmaceutical Chemistry program, I welcome the external reviewers' assessment of Pharmaceutical Chemistry, B.Sc., Hons., (Specialist). While the report reveals significant challenges for the program, the external reviewers conclude that *"it is apparent to the reviewers that the program serves a purpose and should continue, but the program administration would have to be fundamentally overhauled."*

The Faculty of Arts & Science is committed to making substantive administrative changes to the program, including the administrative transfer of Pharmaceutical Chemistry from the Faculty of Pharmacy to the Department of Chemistry. Based on the significant nature of the implementation items we describe below, we are requesting a two-year follow-up report.

In your letter dated June 28, 2018, you identify several areas of the review report that are key items requiring attention. The response to these items and implementation plan are separated into immediate (6 months), medium (one to two years), and longer (three to five years) terms, where appropriate, along with who (Director, Dean) will take the lead in each area. The Pharmaceutical Chemistry program has discussed the reviewers' comments through consultation with various groups and has begun to implement changes where appropriate and that are consistent with Pharmaceutical Chemistry's mission.

### **Strategic Planning**

**The reviews found that the program "is compromised by a set of structural weaknesses" and conclude that it has "failed to launch." Please indicate whether there continues to be interest in offering this program to Faculty of Arts and Science students, and clarify how you will evaluate how the program relates to the academic plans of the Faculties of Arts & Science and Pharmacy.**

The Faculty of Pharmacy has a deep interest in continuation of the Pharmaceutical Chemistry program. This program educates students about the science, technology, and research methods underlying drug development and drug therapy, which is central to pharmacy-related research. The Pharmaceutical Chemistry program is distinct from programs that train Pharmacists, and instead addresses a critical need to educate students interested in pursuing graduate studies or

working in the pharmacy industry. The Faculty of Arts & Science is also committed to the continuation of the Pharmaceutical Chemistry program, as it is a research-intensive faculty deeply committed to excellence in undergraduate education in the life sciences, which includes the field of pharmaceutical chemistry. As we explain below, the structural weaknesses that have compromised the success of the program will be addressed in large part by transferring its administrative home to the Department of Chemistry.

**The reviewers commented that there is no administrative structure to support the program, and no formal agreement between Arts & Science and Pharmacy regarding program responsibilities.**

Immediate-to-medium-term response: The Faculties of Arts & Science and Pharmacy have agreed to transfer the administrative home of the Pharmaceutical Chemistry Specialist program from the Faculty of Pharmacy to the Department of Chemistry in the Faculty of Arts and Science. The Department of Chemistry has extensive experience operating undergraduate programs, and will provide the necessary administrative structure that is required to have the program thrive.

In accordance with procedures of the Office of the Vice-Provost, Academic Programs, for transferring undergraduate programs, the Deans of both Faculties will co-sign a letter addressed to the Provost which details the terms of the transfer, and specifically addresses the following: the academic rationale; transition planning for students, faculty, space, budget, and timeline; and consultation. The Associate Dean, Undergraduate Issues and Academic Planning in the Faculty of Arts & Science, is currently working with the Director of the Pharmaceutical Chemistry Program, the Acting Dean of Pharmacy, and the Chair of the Department of Chemistry to agree upon the detailed terms of the transfer; these terms will clearly state the program responsibilities. The proposed timeline for the Deans to send the letter to the Provost is late fall 2018, with the formal transfer occurring May 1<sup>st</sup>, 2019.

**The reviewers recommended exploring structural changes to ensure the program has a clear home, and clarifying the leadership structure and how authority for making teaching assignments is determined.**

Immediate-term response: In addition to transferring the administrative home of the Pharmaceutical Chemistry program to the Department of Chemistry, a new leadership structure will be implemented. A faculty member from the Faculty of Pharmacy will continue to serve as Program Director and will work with a newly created Curriculum Committee regarding all program proposals and changes. This Curriculum Committee will be Chaired by the Program Director and will include representation from the Faculty of Pharmacy, the Department of Chemistry, the Human Biology program, and the Department of Pharmacology and Toxicology. This Curriculum Committee will begin meeting in January 2019 and will meet twice per year.

Medium-to-longer-term response: The terms of the transfer will specify how teaching assignments will be determined. In brief, the unit administering the course will be responsible for assigning an instructor to teach that course. In the past, assignment of teaching for courses offered in the program by the Faculty of Pharmacy has been somewhat ad-hoc; however, going forward the Dean of the Faculty of Pharmacy will assume responsibility (directly, or through delegation) for teaching assignments to courses offered by Pharmacy in the Pharmaceutical Chemistry program, in accordance with its work-load policies.

**The reviewers recommended establishing a cross-Divisional curriculum committee and holding regular meetings.**

Immediate-to-longer-term response: As described above, a Curriculum Committee will begin meeting in January 2019 and will meet twice per year.

### **Undergraduate Program**

**The reviewers noted that the program has not articulated learning outcomes or mapped program requirements to those outcomes.**

Immediate-to-medium-term response: The Pharmaceutical Chemistry Program Director will engage in a Curriculum Mapping exercise, which includes articulating clear learning outcomes and associated program requirements, defining assessment of learning, and aligning these with program and degree learning expectations. The Director will conduct this mapping exercise in consultation with the program's newly created Curriculum Committee. The mapping exercise will be initiated in January 2019 and be completed by the end of that year.

**The reviewers suggested a number of changes to the curriculum including introducing additional courses, reorganizing the timing of course requirements, and increasing student exposure to research opportunities.**

Medium-to-longer-term response: The completion of Curriculum Mapping will identify where additional course(s) are required. The Curriculum Committee will then determine whether existing courses (offered by other units) could be offered to meet the program needs, and if not, the Curriculum Committee will propose the creation of new course(s) to meet student learning requirements. New course proposals will be submitted to the Sciences Curriculum Committee by the appropriate unit (Chemistry or Pharmacy, depending on the discipline-specific nature of the course).

By moving the administrative home of the program to the Department of Chemistry and establishing a cross-divisional Curriculum Committee, there is the potential for new research opportunities for Pharmaceutical Chemistry students. The existing and potentially new opportunities will be communicated to students through the existing email communication between the Program Director and the Pharmaceutical Chemistry students, but also through the more established student communication lines within the Department of Chemistry.

**The reviewers expressed concern with the 50% program completion rate.**

Medium-term response: The program is currently listed in the Life Sciences Stream, when, in fact, the discipline is more consistent with the Physical Sciences, and this misrepresentation may have contributed to the relatively high attrition rate. The Program Director will work with the Faculty of Arts & Science Registrar to have the program listed as a Physical Science. In addition, the Curriculum Mapping exercise will identify whether gaps exist in student knowledge (e.g. Physical Chemistry); if gaps are identified, they will be addressed through the inclusion of additional courses in the program or modification of existing program courses to ensure that students have the required knowledge to be successful in their required courses.

**The reviewers observed that program requirements and educational opportunities could be better communicated to students.**

Immediate-to-longer-term response: As described above, the transfer of the program's administrative home to the Department of Chemistry will provide an established set of student communication channels that the program will use to ensure students are aware of the program requirements and educational opportunities.

### **Faculty Resources**

**The reviewers indicated there is an urgent need for a faculty complement plan.**

Immediate-term response: Faculty members are hired by the Faculty of Pharmacy and the Faculty of Arts and Science, in accordance with their academic and complement plans; faculty members are not hired by the program. However, both Faculties understands the need to ensure that teaching assignments are made in a stable manner. For Pharmaceutical Chemistry courses the Dean of Pharmacy will assign teaching, while the Chair of the Department of Chemistry will assign teaching for the Chemistry courses, both in accordance with their respective workload policies.

### **Administration**

**The reviewers stated that development and fundraising initiatives are urgently needed.**

Medium-term response: The Program Director will work with the Advancement Offices in the Faculties of Pharmacy and Arts & Science to determine whether fundraising opportunities exist for the program.

To conclude, we appreciate that the external reviewers identified Pharmaceutical Chemistry's strengths and noted a few areas for development. Pharmaceutical Chemistry has already begun to move forward with plans to address the recommendations as presented by the reviewers.

Sincerely,



David Cameron, CM, FRSC  
Dean and Professor of Political Science

cc.

Rob Macgregor, Director, Pharmaceutical Chemistry

Poppy Lockwood, Vice-Dean, Academic Planning and Strategic Initiatives, Faculty of Arts & Science

Christine Allen, Acting Dean, Faculty of Pharmacy

Daniella Mallinck, Director, Academic Programs, Planning & Quality Assurance, Office of the Vice-Provost, Academic Programs

Andrea Benoit, Academic Review Officer, Office of the Dean, Faculty of Arts & Science

## 5 Executive Summary

The reviewers identified the program's strengths as the highly motivated, enthusiastic students who show keen interest in graduate studies; experiential learning opportunities available in lab courses and through the Professional Experience Year (PEY); and strong research levels when compared to peer programs. The reviewers recommended that the following issues be addressed: exploring structural changes to ensure the program has a clear home; establishing a cross-Divisional curriculum committee and holding regular meetings; articulating learning outcomes and mapping program requirements to those outcomes; undertaking a number of changes to the curriculum; addressing the program's retention and graduation rate; better communicating program requirements and educational opportunities to students; creating a faculty complement plan; and engaging in development and fundraising initiatives. The Dean's Administrative Response describes the Faculty and program's responses to the reviewers' recommendations, including an implementation plan for any changes necessary as a result. The Committee on Academic Policy and Programs (AP&P) concluded that there were no issues to be drawn to the attention of the Agenda Committee but requested a follow up report in one year on the relocation of the program to the Department of Chemistry. The follow-up report will be considered by AP&P at the Cycle 2 meeting in 2019-20.