

**CARLETON UNIVERSITY COMMITTEE ON  
QUALITY ASSURANCE  
Cyclical Review of the undergraduate programs  
In Biochemistry  
Executive Summary**

This Executive Summary and Final Assessment Report of the cyclical review of Carleton's undergraduate programs in Biochemistry are provided pursuant to the provincial Quality Assurance Framework and Carleton's Institutional Quality Assurance Process (IQAP).

**EXECUTIVE SUMMARY**

The undergraduate programs in Biochemistry reside in the Institute of Biochemistry, housed within the Departments of Biology and Chemistry, a unit administered by the Faculty of Science.

As a consequence of the review, the programs were categorized by Carleton University's Senate Quality Assurance and Planning Committee (SQAPC) as being of good quality. (Carleton's IQAP 7.2.13).

The External Reviewers' report offered a very positive assessment of the programs. Within the context of this positive assessment, the report nonetheless made a number of recommendations for the continuing enhancement of the programs. These recommendations were productively addressed by the Director of the Institute of Biochemistry and the Dean of the Faculty of Science in a response to the External Reviewers' report and Implementation on Plan that was submitted to SQAPC on November 25, 2021.

## UNIT RESPONSE AND IMPLEMENTATION PLAN

Programs Being Reviewed: Undergraduate programs in Biochemistry

Prepared by (name/position/unit):

External Reviewer Recommendation & Categorization	Unit Response: 1- Agreed to unconditionally 2- Agreed to if additional resources permit (describe resources) 3- Agreed to in principle 4- Not agreed to Rationales are required for categories 2, 3 & 4	Action Item	Owner	Timeline	Will the action described require calendar changes? (Y or N)
<p><b>Weakness (Faculty Complement):</b> It is essential, in the short-term, to continue to increase the critical mass of faculty with direct hires who are assigned to the Biochemistry Institute and its programs.</p>	<p>2. Agreed to if additional resources permit (describe resources)</p>	<p>Biochemistry will continue to request Faculty (Professor and Instructor) positions as this is essential for the success of its programs and growth of the Institute. More specifically, at least three Faculty members over the next CPR cycle will be requested.</p>	<p>Director</p>	<p>Beginning next fiscal year (2022-2023) and ongoing thereafter</p>	<p>N</p>
<p><b>Weakness (Physical Teaching Space):</b> Space planning on the campus is required. Increased capacity and modernisation for teaching laboratories and the addition of space for computer stations in Biochemistry is an urgent requirement. The additional teaching laboratory space should be located in close proximity to research labs and offices, preferably in the same building. Additional modern laboratory space is required for new faculty recruitment in Biochemistry. A meeting room and office space is essential for students. Ideally, a new or refurbished building to house and consolidate the teaching and research activities in the Biochemistry Institute/future Biochemistry Department in modern facilities is required. This building could also include the Biology teaching laboratories and provide for expansion of the Biology research labs.</p>	<p>2. Agreed to if additional resources permit (describe resources)</p>	<p>Biochemistry will continue to lobby for physical space for the Institute. At present, the Institute of Biochemistry does not possess physical space of its own, which causes ongoing issues. This not only includes teaching space, but also research and office space for current and new Faculty members hired into the Institute (see Weakness (Faculty Complement) above). This is essential for the success of its programs and growth of the Institute. This could initially be space belonging to the Institute of Biochemistry, but shared within the physical space of the Departments of Biology and/or Chemistry. However, this system of lodging Institute members within the physical space attributed to its two associated Departments has been impractical, and even problematic, in the past. Biochemistry requires dedicated space to improve student experience and growth of the Institute.</p>	<p>Director and Dean of Science</p>	<p>Summer 2021 and ongoing thereafter</p>	<p>N</p>

<p><b>Weakness (Student Space-Lack of Perceived Home):</b> A common meeting space is required urgently for Biochemistry students and this needs to be modern and have natural light for an uplifting experience.</p>	<p>2. Agreed to if additional resources permit (describe resources)</p>	<p>Biochemistry will lobby for Student Meeting space as with Teaching and Research space (see Weakness (Physical Teaching Space) above). This will improve the student experience for the Biochemistry cohort. Other units in Science have been provided such spaces, but none exist for Biochemistry.</p>	<p>Director and Dean of Science</p>	<p>Summer 2021 and ongoing thereafter</p>	<p>N</p>
<p><b>Weakness (Curriculum Review):</b> A curriculum review that focuses on (i) teaching gaps and redundancies as there appears to be both considerable content overlap between year 2 and 3 courses and potential omissions; (ii) quantification of assessment methods as it is not clear if the learning outcomes of the program are being met. Students in the Biochemistry program should be involved on the Curriculum review committee together with faculty, and in the cyclic program review process.</p>	<p>1. Agreed to unconditionally.</p>	<p>The Institute of Biochemistry has recently established a Curriculum Committee which will assess a) teaching gaps and redundancies within the Biochemistry Programs and b) quantification of assessment methods for learning outcomes, both within programs and within courses. Students within the Biochemistry programs will be recruited in future Biochemistry Curriculum Committees and will continue to be recruited in Cyclic Program Review Committees.</p>	<p>Curriculum Committee and Director</p>	<p>Action partly taken and ongoing thereafter</p>	<p>Y</p>
<p><b>Weakness (Retention):</b> Rendering courses in years 3 and 4 that are more attractive to students will improve retention in the program.</p>	<p>3. Agreed to in principle.</p>	<p>Addition of a number of new courses to the third and fourth year of all Biochemistry programs have improved the overall variety. Addition of Biotechnology courses into the Biochemistry and Biotechnology program have also improved this program and distinguished it from other Biochemistry programs. However, the lack of available Full-Time Faculty has caused some courses to not be delivered on a yearly basis, if at all. Biochemistry will re-prioritize the delivery schedule of these courses and request addition CIs in the short term, although Full-Time Faculty (FTE) will be required to ensure consistency and stability in the delivery of these highly attractive courses. Additional courses will be discussed within the Curriculum Committee, to align the Institute's offerings with modern teaching and relevant topics for Biochemistry Programs.</p>	<p>Curriculum Committee and Director</p>	<p>Beginning Fall 2021 and ongoing thereafter</p>	<p>Y</p>
<p><b>Concern (Assessment and Accommodations):</b> Develop policies and procedures to improve clarity for assessment and communication of accommodations for students.</p>	<p>1. Agreed to unconditionally.</p>	<p>Methods of assessment and accommodation for students should be assessed by the Biochemistry Curriculum Committee (see Weakness (Curriculum Review) above). Policies and procedures to improve clarity for assessment and communication of accommodations for</p>	<p>Curriculum Committee and Director</p>	<p>Beginning Summer 2021-Fall 2021</p>	<p>N</p>

		students should be implemented into Biochemistry courses where they are lacking.			
<b>Concern (Co-op Program):</b> If consistent, valuable and impactful experiences cannot be guaranteed for students in the co-op stream, the Institute should dissolve the co-op program.	4. Not agreed to.	All units within Science have the Co-op option in all of their programs. What should be sought after is to improve the number, variety, and quality of Co-op placements for Biochemistry students. This will involve working closely with the CU Cooperative Office to attain high quality placements, and successfully competing with other units both within and outside of the University to acquire them. Cooperative programs at other Canadian Universities should be analyzed for their procedures and successful practices should be implemented into the existing Biochemistry Co-op programs.	Co-op Coordinator and Director	Ongoing	N
<b>Opportunity (Creation of a Department of Biochemistry):</b> A Department of Biochemistry should be a long-term goal with the build-up of a critical mass of faculty.	1. Agreed to unconditionally.	An ultimate goal for the Institute. With other units in Science, this will depend upon direct hires of Faculty into the Institute of Biochemistry to generate a critical mass. Neuroscience started as an Institute within Science, and with a dedicated group of Faculty and Administrators, was able to attain Department status. Biochemistry lacks the critical mass of Faculty. The graduate Specialization in Biochemistry within the Grad Programs of Biology and Chemistry furthers this goal and will be further developed as full programs (rather than Specializations). The realization of Departmental status will allow standalone graduate programs (MSc/PhD) in Biochemistry and allow Faculty (specifically Professors) to be appointed 100% to Biochemistry, without the need to be cross-appointed to another Department in order to supervise Graduate Students.	Director	Ongoing	N