



Cyclical Program Review Final Assessment Report and Implementation Plan for Chemistry Programs

Programs Reviewed:

Chemistry: BSc Honours - Specialization, Major
BSc General, Minor
BA General, Minor
Master of Science
Master of Applied Science
PhD

N.B. The Department also offers, jointly with the School of Environmental Studies, a BSc Hons Specialization in Environmental Chemistry. This program was reviewed in the cyclical review of programs offered by the School of Environmental Studies (2023-2024). Similarly, the Engineering Chemistry program, which is a collaboration between the Chemistry and Chemical Engineering Departments, is covered in the CPR reports by the Department of Chemical Engineering.

Overview

In accordance with Queen's University Quality Assurance Processes (QUQAP), this final assessment report (FAR) provides a synthesis of the external evaluation, internal responses, and assessment of the above programs. This report identifies the significant strengths of the programs, and opportunities for program improvement.

An implementation plan (IP) will be attached that identifies:

- How will the recommendations be implemented and the expected timeframe for completion?
- who will be responsible for acting on and monitoring progress on the recommendations,
- any resource or governance implications resulting from the recommendations, and
- timelines for implementation of the recommendations.

Final Assessment Report: Executive Summary

Summary of Review

- 1) The Department of Chemistry produced a self-study document that was reviewed by the Vice-Provost and Dean, School of Graduate Studies and Postdoctoral Affairs and the Vice-Provost, Teaching and Learning. The self-study was approved on February 13, 2025.
- 2) The review team visit took place on March 31-April 1, 2025. The review team members were:
 - i. Dr. Jay Wickenden, Associate Professor of Teaching, Department of Chemistry, University of British Columbia
 - ii. Dr. France-Isabelle Auzanneau, Professor, Department of Chemistry, University of Guelph
 - iii. Dr. Sébastien Sauvé, Professor, Department of Chemistry, Université de Montréal.
 - iv. Dr. Peter Taylor, Professor, Department of Mathematics and Statistics, Queen's University.
- 3) The visit included meetings with:
 - i. Students (undergraduate and graduate)
 - ii. Faculty
 - iii. Staff – administrative, laboratory and technical
 - iv. Postdoctoral Fellows
 - v. Librarian
 - vi. Department Head, Undergraduate Chairs and Graduate Coordinator
 - vii. Heads of Cognate Departments
 - viii. Dean and Associate Dean, Teaching and Learning, Faculty of Arts and Science
 - ix. Vice-Provost and Dean, School of Graduate Studies and Postdoctoral Affairs
 - x. Vice-Provost, Teaching and Learning
- 4) The review team reported on May 5, 2025. The Department Head, Faculty Dean and the Vice-Provost and Dean (School of Graduate Studies) provided responses to the review team report by May 8, 2026.
- 5) The Senate Cyclical Program Review Committee considered the review team report, internal responses and a draft Final Assessment Report and Implementation Plan at its meeting on May 21, 2026. The Report and Plan were approved on May 21, 2026, subject to small amendments that were agreed at the meeting.

The following strengths were noted:

- Both undergraduate and graduate programs are of high quality.
- The undergraduate programs are thoughtfully designed to provide a comprehensive education that evolves from foundational principles to advanced, contemporary topics in the field.

- Integrated upper-year teaching laboratories providing interdisciplinary, hands-on experience position Queen's as a leader in practical chemical education.
- Faculty are of the highest standard when compared with equivalent domestic and international programs. Their expertise spans all domains of chemistry and provides undergraduate and graduate students with an outstanding training environment. Faculty members have received numerous national and international awards.
- Undergraduate students are enthusiastic about the quality of the support they get from professors, teaching assistants and support staff.
- Faculty members, undergraduate and graduate students commented that the Department of Chemistry maintains a positive, inclusive and collaborative structure.
- The Department offers an outstanding research experience for graduate students. Its excellent research environment allows for a strong support and high-quality research environment for graduate students.
- There are many, varied graduate course offerings that contribute positively to students' training.
- Queen's University is one of only two Canadian Universities which offer formal graduate level training in the field of Chemical Education.
- EDI initiatives are very well integrated into the functioning and mind frame of the Department of Chemistry and its programs. This includes course discussions on issues such as decolonizing STEM, celebration of Pride festivities and regular wellness events.
- There is good communication among the different groups of the Department of Chemistry.
- The support infrastructure for instrument, electronics, analysis is exceptional and this is certainly a strong contributor to the research output generated by the professors and their teams. Any budgetary cuts in this sector should be made cautiously to minimize impacts on research productivity and graduate student programs.

The following opportunities for enhancement were noted:

N.B., the review team made a recommendation related to almost all areas where they identified an opportunity for enhancement; see recommendations below and in the Implementation Plan.

- Proactive planning is needed for anticipated faculty retirements over the next decade.
- Clearer messaging from higher administrative levels on the upcoming plans given the budgetary restrictions would be of great help to reduce the high levels of anxiety that current and anticipated cuts generate.
- Ensure that staff workload is manageable as the administrative hub structure becomes established.

Summary of Review Team Recommendations

The reviewers made 17 recommendations in the following areas. For a full list of the recommendations, please see the Implementation Plan.

Teaching

- Consider incentives to encourage faculty and lab instructors to further improve their teaching strategies.
- Create a committee to facilitate alignment of lecture and laboratory material.
- Consider re-increasing the number of required additional Chemistry courses in the new specialization plan (to commence Sep 2025) to increase depth of knowledge.
- Consider embedding seminars given by industry professionals into an undergraduate course.

Graduate Students

- Introduce graduate seminar course.
- Department to track regular reports by supervisors on graduate students' progress.
- Inform graduate students early in their programs of expectations regarding undergraduate student supervision.

Teaching assistants (TAs)

- Recommendations on improving training and maintaining TA to student ratio.

Indigenization, equity, diversity, inclusion and accessibility

- Ensure that the I-EDIAA committee meets regularly and continues to help the department in its mission to foster an inclusive academic environment.
- Implement adjustable lab benches and fume hoods to accommodate students with disabilities.

Various topics

- Consider transitioning term adjunct faculty to continuing adjunct status (a longer-term employment status).
- Address communication issues between department and Dean's office.
- Establish a contingency fund within the maintenance budget to pay for repairs to high-value equipment.

Status

The academic programs in the Department of Chemistry have been approved to continue.

Dates monitoring reports due: Nov 2027 & June 2030

Date of next review: 2031-2032 academic year

Prepared by Vice-Provost (Teaching and Learning), Academic Unit, Faculty Dean and Vice-Provost and Dean, School of Graduate Studies and Professional Affairs:

May 2025– May 2026

Approved by the Senate Cyclical Program Review Committee: May 21, 2026



Implementation Plan¹

Recommendation 1: *The expectations of undergraduate thesis project need to be reviewed. We recommend the development of an alternate laboratory course that could be taken by students instead of the thesis project to meet CSC accreditation requirements.*

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Internal study of undergrad thesis project requirements, execution, and availability.	Faculty Dean: N/A Vice-Provost and Dean, SGSPA: N/A	Department Head: reach out to our stakeholders Undergraduate Program Committee: internal review.	• Centre for Teaching and Learning • Timetabling • Registrar • Additional resources may be required depending on the findings in May 2026. For example, additional funding for TA positions and chemical technologists will be required	Short-term • September 2025- The Undergraduate Program Committee considered alternatives for the thesis course. The department selected the 60-unit major to supplement our 72-unit CSC-accredited major. • October 2025- The Undergraduate Chair submitted a proposal for a new modular major to the Curriculum Committee of the Faculty of Arts and Science.

¹ Notes:

1) Short-term = within 1 year, Medium-term = 1-3 years, Long-term = beyond 3 years.

2) Where Deans have not added comments, this denotes that they agree with the action plan and have no further comments.

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
			if a new laboratory course is required.	• By April 2026 – The 60-unit major (if approved by the curriculum committee) would be up for approval by faculty board. If approved, the new major will be in place for September 2026. • May 2026 update – The new major was approved by the Senate Agenda and Summer Action Committee and will be in place in September 2026.

Recommendation 2: *Clearly communicate to graduate students, at the outset of their programs, any expectations regarding the supervision of undergraduate students. This includes specifying limits on the number of undergraduates they may supervise and ensuring that such supervisory roles align with their own research projects. Establishing these expectations early promotes transparency and supports effective mentorship within the department.*

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Provide additional guidelines to graduate students	Faculty Dean: Support from Associate Dean (Graduate) if needed. Vice-Provost and Dean, SGSPA: we will be happy to assist the FAS Associate Dean (Graduate), if needed.	The Graduate Program Committee	As of Fall 2025, resources beyond departmental have not been identified. If this changes, we will approach the units we require for assistance.	Short-term Fall 2025 - Data review will start immediately, determining the number of undergraduate students who need supervision, the number of graduate students available for supervision, and poll faculty members to determine current participants in this program. The answers may change as a result of actions taken in response to recommendation #1 above. Winter 2025 - The Graduate Program Committee will determine the communications to be shared with Faculty members and graduate students in separate messages. This message will be reviewed by stakeholders before release. - This message will be shared in the Graduate Student Town Hall. Summer 2026 - The onQ Page "Chemistry Grad Platform" will be updated with an outline of undergraduate student supervision. - Our website for "Degree Programs (Graduate)" will be updated to reinforce the same message. Fall 2026 - During graduate student orientation, the same messaging as above will be reinforced (as many of our graduate students are together at this time). Winter 2026 - Graduate student supervision of undergraduates will be reviewed.

Recommendation 3: *Consider forms of incentive or time relief to encourage faculty and lab instructors to further improve their teaching strategies.*

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Determine a means to encourage faculty and lab instructors to further improve their teaching strategies.	Faculty Dean: Support from Associate Dean (Teaching and Learning) as needed. Could expertise in the department be recruited to help, perhaps as a service component? Vice-Provost and Dean, SGSPA: N/A	Undergraduate Program Committee	TBD	Medium-term - Fall 2025 – the Undergraduate Program Committee will collect information on the subject (e.g., how do other units execute this task? Who in our department is already engaged in these activities? etc.) - Winter 2026- the Undergraduate Program Committee will report their findings and two solutions to the Department. - Implementation will depend on the solution; however, it is expected before the end of Fall 2027 term.

Recommendation 4: *Consider the mandatory training of TAs in teaching strategies and pedagogies, that could be embedded in a graduate course.*

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Consider the addition of teaching strategies and pedagogies into current graduate course	Faculty Dean: Support from AD (teaching and learning) as needed. Vice-Provost and Dean, SGSPA: N/A	Graduate Programs Committee	We will need to work with the Centre for Teaching and Learning, the Department of Physics, Engineering Physics and Astronomy, and potentially the Engineering Teaching and Learning Team. If we are able to keep the expertise within Queen's, it's not anticipated that additional funds are required.	Medium-term • Winter 2026: The Graduate Program Committee will review the request and reach out to stakeholders (e.g., Graduate students, Centre for Teaching and Learning, TA supervisors, Physics). • Fall 2027: New program will be in place.

Recommendation 5: *If not already in progress, the Department should encourage the I-EDIAA committee to resume regular meetings. Consistent engagement will help advance and maintain the Department as a leader in the important work involving equity, diversity, Indigeneity, inclusion, antiracism, and accessibility, aligning with its broader mission to foster an inclusive academic environment.*

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Have committee chairs provide periodic updates from committees in monthly Department meetings.	Faculty Dean: Support from the Vice Dean as needed. The department's I-EDIIA committee could join with that of a cognate department to share the workload. Vice-Provost and Dean, SGSPA: N/A	• Department Head • Chair of the I-EDIAA committee	Additional administrative resources (we currently have open positions).	Short- term. Effective immediately.

Recommendation 6: *Implement adjustable lab benches and fume hoods to accommodate students with disabilities.*

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Action A: Building accessibility review and scope of work.	Faculty Dean: Advocate to central physical plant services and accessibility services for doing the review. Vice-Provost and Dean, SGSPA: N/A	• FAS/ Facilities • Supported by Department Manager/Space Committee.		Short-term Fall 2026- we request FAS and Facilities to determine the cost and funding model of providing adjustable lab benches and fume hoods.
Action B: Renovations as needed.	Faculty Dean: Advocate to central physical plan services and accessibility services for funding. Vice-Provost and Dean, SGSPA: N/A	• FAS/ Facilities • Supported by Department Manager/Space Committee.	Significant funding will need to be obtained, depending on how many fume hoods should be replaced.	Long-Term Fall 2028 – renovations of adjustable lab benches and fume hoods.

Recommendation 7: Consider re-increasing the number of required additional CHEM courses for the CHEM-S-BSH to increase the depth of knowledge mentioned in PLO #1 for this program.

(Academic unit notes the reviewers are referring to the CHEM-P-BSH, the Specialization program.)

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Following the implementation of the new CHEM-P-BSH, review and assess if courses can be added to the program without risking enrolments lower than 10.	Faculty Dean: Support from AD (teaching and learning) as needed. 78 units of required courses would make the degree plan much higher than peer institutions and much higher than other science programs at Queen's. Vice-Provost and Dean, SGSPA: N/A	Undergraduate program committee	It's not anticipated that additional funds will be required.	Short-term • Winter 2026: The Undergraduate Program Committee will review the request and reach out to stakeholders. • Spring 2026: The Undergraduate Program Committee will report their findings and recommendations to the Department. • September 2026: Assess if the required number of courses can be increased while maintaining minimum enrolment in all courses. • Fall 2026 or 2027. Any recommended changes will be in place.

Recommendation 8: *Introduce an actual graduate seminar course for MSc students in which these students present their proposed research.*

N.B.: In the Final Assessment Report, the Department notes restrictions on offering additional graduate courses.

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Review opportunities for MSc/MASc research presentations.	Faculty Dean: N/A Vice-Provost and Dean, SGSPA: N/A	Graduate Program Committee	TBD	Medium-term The Graduate Programs Committee will develop an alternative solution to give our Master's students more exposure to presenting their own research. E.g.: • Oral presentations given by students during our Queen's Chemistry Innovation Council (QCIC) meeting. • Oral presentations at the annual research symposium organized by the Queen's Chemistry Graduate Society. • Presentation of proposed research during CHEM 803. • Reserving one seminar series spot per term, for our Master's students to present project summaries. Timeline: Fall 2027- solution implemented.

Recommendation 9: *Create a departmental committee which consists of key stakeholders in the programs’ lecture and laboratory teaching programs to facilitate conversations and alignment of lecture and laboratory material.*

Planned Action(s)	Deans’ Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Action A: Review alignment of lecture and laboratory material	Faculty Dean: Support from AD (teaching and learning) as needed. Vice-Provost and Dean, SGSPA: N/A	Undergrad Programs Committee	N/A	Medium-term - July 2026- a Faculty member will be assigned to review CHEM 211 and 212 - May 2027 – new plan presented to the Department. - September 2027 – Implementation of solution.

Recommendation 10: *The Department should establish clear tracking of regular reports by supervisors and their students’ progress. This should occur yearly, where progress is reported orally to the supervisory committee, supported by PowerPoint slides. This presentation should include a report on progress, as well as recommendations.*

Planned Action(s)	Deans’ Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Action A: Annual Progress Report process for all Graduate Students	Faculty Dean: Support from AD (graduate) as needed. Vice-Provost and Dean, SGSPA: We would be more than happy to assist the FAS Associate Dean (Grad) in monitoring progress.	• Graduate Coordinator • Graduate Assistant	• We may require additional OnQ support from the Faculty office and administration support from SGSPA. • It would be beneficial for the annual reporting to be a centralized processes with the support of SGSPA.	Short-term • Fall 2025: Release new annual progress reporting
Action B: Review Process	Faculty Dean: N/A Vice-Provost and Dean, SGSPA:	• Graduate Coordinator • Graduate Assistant • Graduate Program Committee	N/A	Medium-term • Spring 2026, review process • Fall 2026- implement any additional modifications.

Recommendation 11: *Develop a mechanism (Excel or other) to track students enrolled in the graduate programs and encourage supervisors and students to respect maximum program durations.*

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Update OnQ page to include submission of annual progress reports (and other essential submissions) and assemble a master spreadsheet.	Faculty Dean: N/A Vice-Provost and Dean, SGSPA: happy to support the Associate Dean (Grad), if necessary.	- Graduate Coordinator - Graduate Assistant - Head of Department	- Resources are not required at this time. However, we encourage SGSPA to review our onQ platform and consider replicating the process for all departments. - The development of a centralized and integrated database that is linked to other information sources (e.g. SOLUS) would be a much better long-term solution.	Short-term - Fall 2026: Release new annual progress reporting Medium-term - Monitor change in procedure.

Recommendation 12: *With the increase in the use of Artificial Intelligence and the advent of translation apps, it would be in the best interest of the Department to continue the ability for a supervisor to waive the English Language Proficiency Test, but to include and emphasize at least one virtual meeting between the applicant and prospective supervisor.*

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Communication reminding faculty members of English language proficiency test and encouragement of meetings prior to accepting students.	Faculty Dean: N/A Vice-Provost and Dean, SGSPA: While the English language proficiency test (ELPT) will continue to be a key component of the admissions process, the SGSPA is pleased to consider, on a case-by-case basis, any requests for exemptions from the ELPT.	Graduate Program Committee	We encourage SGSPA to help create consistency between departments. Due to the nature of our research, we have a high overlap with those in Smith Engineering and our students struggle if there are differences between the two programs.	Short-term Winter 2026: A communication by the Graduate Program Committee and will be updated and released annually by the Graduate Assistant with application packages.

Recommendation 13: *For program continuity, and long-term retention of talent, we would recommend transitioning term adjunct faculty to continuing adjunct status.*

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation.	Resource and/or Governance Implications	Timeline and Milestones
Action A: Review current workload to appropriately identify USW vs QUFA tasks.	Faculty Dean: Support from the Vice Dean as appropriate Vice-Provost and Dean, SGSPA: NA	• Department Manager • Project Manager • Associate Head • Department Head	• FAS Human Resources • FAS Vice-Dean	Short-term Spring 2026- Identify tasks and appropriate union.
Action B: Continuing Adjunct Contracts	Faculty Dean: Support from the Vice Dean as appropriate. Vice-Provost and Dean, SGSPA: N/A	• Department Manager • Project Manager • Associate Head • Department Head	• FAS Human Resources • FAS Vice-Dean	Medium-term The Department will continue to hire Term Adjuncts under existing provisions and will support eligible Members in applying for conversion to Continuing Adjunct status in accordance with Article 32 of the Collective Agreement.

Recommendation 14: *Overall, the comments around the use of human and financial resources have not changed dramatically from the last review cycle. Communication between all members of the Department, and at the Dean's office level continually causes either frustration or anxiety, or both. We recommend the Department address the issues of communication in the next cycle.*

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Action A: Dean's office review communications	Faculty Dean: Communications are currently sent through the committee of departments, undergrad chairs, and Departmental Manager networks in addition to townhalls. Contribution will be to review this communication. Vice-Provost and Dean, SGSPA: N/A	• FAS Dean • FAS Vice-Dean • Department Manager • Undergrad Chair • Department Head	It's not anticipated that additional funds will be required.	Medium-term Summer or Fall 2026 – identify and implement opportunities for better communications
Action B: Departmental and Dean's Office to review community-focused communications.	Faculty Dean: Support from Faculty Office communications team Vice-Provost and Dean, SGSPA: N/A	• Department Manager • Department Head • FAS representatives		Short-term Winter 2026
Action C: Departmental meeting schedule update. Ensure approximately monthly department meetings One meeting per semester with staff	Faculty Dean: N/A Vice-Provost and Dean, SGSPA: N/A	• Department Head • Department Manager		Short-term Immediately

Recommendation 15: *The Department and College must find a way to preserve the ratio of TA to the number of students enrolled in the Chemistry programs.*

N.B.; it is presumed that “College” refers to the Faculty of Arts and Science.

Planned Action(s)	Deans’ Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Action A: Final registration numbers provided to the Department Manager	Faculty Dean: Support from AD (teaching and learning) as needed Vice-Provost and Dean, SGSPA: N/A	Associate Dean (Teaching and Learning)	We do not anticipate a need for additional funding for this action.	Short-term March 2026
Action B: Final TA budget provided to the Department Manager	Faculty Dean: Support from finance team in the Faculty Office Vice-Provost and Dean, SGSPA: N/A	Finance Team FAS	We do not anticipate a need for additional funding for this action.	Short-term March 2026

Recommendation 16: Re: High value scientific instruments. *Some budget mechanism must be put in place (a portion of user fees, increases of user fees, etc.) to ensure that the required funds are available when needed for repairs.*

Planned Action(s)	Deans’ Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Instrumentation Chart Fields preserved for repairs on associated instrumentation.	Faculty Dean: Hold discussions with the unit concerning how to resource these requests, following appointment of new Dean (July 1, 2026). Vice-Provost and Dean, SGSPA: N/A	- Department Manager - Appropriate Finance representatives	TBD	Short-term Collect and review data at the end of the fiscal year 2025-26. Discussions summer-fall 2026.

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Department to make grant application to Canada Foundation for Innovation for new instruments.		- Faculty member Cathy Crudden. - Department Head		Following pre-defined grant application schedule.

Recommendation 17: *We recommend that the scheduling of seminars given by industry professionals be made with considerations of the 3rd/4th year undergraduate schedules to encourage their attendance. This could also be embedded in one of the undergraduate courses.*

Planned Action(s)	Deans' Contributions to Plan, where appropriate	Person(s) Responsible for Leading Implementation	Resource and/or Governance Implications	Timeline and Milestones
Action A: Review opportunities for undergraduate engagement with industrial seminars.	Faculty Dean: N/A Vice-Provost and Dean, SGSPA: N/A	- Seminar Committee - Undergraduate Program Committee	Potential for speaker funding.	Medium-term Winter 2026 Investigate options. Fall 2026 Implementation Fall 2027 Changes to seminar series, if necessary. Fall 2028 Guest speakers, if necessary.