



UNIVERSITY OF TORONTO
FACULTY OF ARTS & SCIENCE

June 15, 2026

Professor Nick Rule
Vice-Provost, Academic Programs
University of Toronto

RE: Interim Monitoring Report on UTQAP cyclical review of the Department of Physics

Dear Prof. Rule,

I write in response to your letter of September 12, 2025, requesting an Interim Monitoring Report on the June 17-18, 2021, UTQAP cyclical review of the Department of Physics and its undergraduate and graduate programs.

The UTQAP cyclical review process is an invaluable exercise that affords us the opportunity to take stock of our academic units and programs, to recognize achievement, and identify areas for improvement. As you note, under section 6.9.1.4 of the University of Toronto Quality Assurance Process, a brief status report on the implementation of plans outlined in the Dean's administrative response is due midway between the year of the last and next UTQAP review site visits.

I am pleased to send you this status report in the attached Table, where each of the Implementation Plan recommendations have been addressed with updates from the unit and from the Dean's office on progress made to date.

Thank you very much for the opportunity to prepare this Interim Monitoring Report. The reviewers' comments and recommendations continue to help inform the future priorities of the Department of Physics and its programs.

Sincerely,

Stephen Wright
Interim Dean, Faculty of Arts & Science
Professor, Department of Ecology & Evolutionary Biology

OFFICE OF THE DEAN

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UTQAP Cyclical Review Interim Monitoring Report

As required under [UTQAP section 6.9.1.4](#), the Vice-Provost, Academic Programs (VPAP) will request the Interim Monitoring Report from the Dean midway between the review and year of the next site visit.

Department of Physics, Faculty of Arts & Science
UTQAP Cyclical Review: June 17-18, 2021 (conducted remotely)
Review Reported to Governance: April 12, 2022

Request Prompt <i>verbatim from the request</i>	#	Dean’s Report <i>The status of the implementation of plans outlined in the Dean’s administrative response (e.g., are these proceeding within the original timeframe, have adjustments to the plan been necessary, have any unexpected challenges emerged, etc.?)</i>
The reviewers recommended updates to the undergraduate curriculum, including the addition of courses in computer science, statistics, and data science, as well as a re-evaluation of the timing and sequencing of required mathematics courses.	1	Since the 2020-21 UTQAP review, the Department has established a new Undergraduate Program Committee that replaced the previous Undergraduate Curriculum Committee. The Undergraduate Program Committee is mandated to examine undergraduate programs and experience holistically. The Department has been exploring revised programs of study that trade off courses in computer science and statistical science with third- and fourth-year Math and Physics content while satisfying mandated program requirements. A recent senior hire in Quantum Computing joint between Physics and Computer Science has also led the Department to look at reviving a previous joint undergraduate program in Computer Science and Physics, with an emphasis on modern topics of quantum computing and AI/ML. The Department is in active discussions with the Department of Mathematics regarding timing of required math courses. Changes have been implemented beginning in 2025-26 to expand options for first-year Physics major students to satisfy the calculus corequisite through either a proof-based formal course or a practical, calculation-focused course. Ongoing discussions with Mathematics have also identified concerns regarding the alignment of mathematics content with disciplinary needs in physics. Recognizing the importance of emphasizing more physical science relevant techniques, the Department is preparing to streamline the mathematics training in its program, with the aim to train students primarily in the key calculational tools they

		need for work in the physical sciences. This will require new courses that can be either taught by Physics or codeveloped with Physics but taught by Mathematics.
The reviewers noted “surprisingly low” uptake of active learning methods and other modern pedagogy in lectures by tenure stream faculty.	2	At the time of the external review, many courses in the Department had active learning methods, including all lab courses, JPH441H1: <i>Physical Science in Contemporary Society</i>, PHY1600H: <i>Effective Communication of Science</i>, and several others. Active learning methods have since been introduced in additional undergraduate and graduate courses led by tenure-stream faculty, including PHY151H1: <i>Foundations of Physics I</i> (introductory course for Physics majors), the cross-listed undergraduate/graduate <i>Atmospheric Physics</i> course (PHY492H1/PHY1498H), and PHY2405H: <i>Experimental High Energy Physics</i>. In the last two years, the department purchased a department-wide license for a classroom response application to encourage the uptake of such techniques. Mode of instruction remains at the discretion of the instructor for most courses, and the suitability of different pedagogical approaches is subject-matter and instructor dependent. Physics joined Arts & Science's Writing Integrated Teaching (WIT) program in 2022-2023. They've grown the program intentionally each year, starting from their third-year lab courses, and building out into the other years. Their participation in WIT is intentionally designed to help prepare students for lab report writing. For 2025-26, eight Physics courses are supported by WIT, reaching over 1,000 undergraduate enrolments and more than 40 teaching assistants. Those numbers are projected to increase for 2026–27. Supervised courses (including research project and independent study courses) have experienced significant growth in the Department since the external review and represent a substantial investment in active learning methods. These courses are heavily subscribed and involve individual or small-group supervision. In 2021, the number of students in these courses (as well as PHY299H1/Y1 and PHY399H1/Y1: Research Opportunity Program and various PHY398H0/Y0: Research Excursion courses) was 54 (82 HCE). In 2024 this had grown to 91 students (143 HCEs), with another 66 students (110 HCEs) in 2025. In 2025-26, the Department introduced a teaching credit system to systematize its approach to recognizing this work.
The reviewers noted undergraduate student comments regarding difficulty finding research opportunities in their first and second years of study	3	Physics programs of study have undergone rapid growth in absolute terms and as a fraction of Arts & Science total enrolment since the external review. The Department has seen overall 5-year increases of 64.5%, with recent annual year-over-year increases range from 10-15%. The Department had a total of 1084 undergraduate students enrolled in its programs in 2025-26, compared to 648 in 2019-20. This growth is straining program capacity, with second- to fourth-year labs at current space and supervisory limits. Despite this, supervised courses in the Department have experienced significant growth in recent years (see #2 above).

		The Department notes that offering meaningful research experiences to first- and second-year students is quite challenging given the number of students enrolled and recent program growth, as well as faculty and highly qualified personnel capacity for supervision, and the necessary mathematics and physics preparation required to carry out research in Physics. Its emphasis is on using the first and second years to prepare students for Physics research experiences in later years. Experience has shown that research experiences for third- and fourth-year students are most effective for future career development. Despite these limitations, the Department has worked to make research experiences available to students earlier in the program, including through the seminar course PHY198H1: <i>Physics at the Cutting Edge</i> and first-year foundations course PHY199H1: <i>Dark Matter and Dark Energy Are the New Black</i>. The Department has also offered many more PHY299 Research Opportunity Program (ROP) courses in recent years, thanks to efforts among faculty to promote this opportunity to junior students. Over the four years from 2022 to 2025, 25 students were offered such a course, compared to a total of 5 students over the previous four years. The Department has introduced PHY378H/379Y <i>Undergraduate Research Project</i>, which had previously been available only at the 400 level and can now be taken as early as the summer after the second year. The Department facilitates access to first- and second-year research internship opportunities (e.g., Centre for Global Change Science, externally funded opportunities in astrophysical sciences), and since Fall 2023 has become a formal participant in the Arts and Science Internship Program (ASIP). Physics lists information about supervised courses and job opportunities on its website to help with student wayfinding. There is also an initiative in the Department that provides undergraduate students with the opportunity for research engagement with a graduate student as early as their first year.
In order to encourage more students to choose undergraduate Physics programs, the reviewers recommended enhanced communication about the value of a Physics degree and the opportunities presented by joint programs in which the Department participates.	4	The Department has undertaken several initiatives to enhance communication about the value of a Physics degree. The Physics website has been updated with new content on career opportunities (see #3) and joint programs. A second-year Physics program introductory event works to introduce students to career choices in Physics and serves as a bridge to the Physics Career Accelerator Program, which provides mentorship and professional development. The Department has also been active in the Canadian Association of Physics lecture program, the Canadian Conference for Undergraduate Women & Gender Minorities in Physics, the Canadian Undergraduate Physics Conference, Science Rendezvous, and an initiative on Indigenous engagement spearheaded by a faculty member jointly appointed with Chemistry, in addition to its participation in ASIP (see #3).

		Rapid growth since the external review evidenced by enrolment trends indicates that more students are choosing undergraduate Physics programs.
The reviewers observed that limitations on international graduate enrolment and the end of provincial support for graduate enrolment expansion have made attracting top graduate students more difficult, and put pressure on individual faculty research grants to support students; they noted that enrolment caps may impact faculty research progress and lead to increased tensions within the tri-campus research environment.	5	The context for graduate enrolment, especially enrolment of international students, has been rapidly evolving, now including study permit limitations and the introduction of Arts & Science's New Budget Model (NBM). Under the NBM, with a fixed University of Toronto Fellowship (UTF) allocation, competition for these limited spots places additional pressure on resources. Any increase in cohort size (within the domestic PhD quota) requires higher RA commitments, leading to increased financial burden. Overall, the NBM amplifies the cost impact of even small increases in student enrolment. In upcoming admission cycles, the Department plans to actively recruit a strong cohort by adopting a pre-selection along with rolling admissions.
The reviewers commented that increases in graduate student enrolments have not been accompanied by corresponding increases in tenure stream faculty, and noted "clear issues regarding the number of graduate students per faculty" in some research groups; they recommended synergetic hires to strengthen the groups as well as the links among them and with other units.	6	The Department notes that under the NBM, the number of incoming domestic PhD students is limited by both the domestic PhD quota and fixed University of Toronto Fellowship resources. Some groups currently have many students per faculty member, while others have few. The admission plan described in #5 above is expected to help to reduce this imbalance. Physics has sought to grow its faculty complement through synergistic hires in quantum science, both experimental and theory, at a range of career stages. These hires include an Assistant Professor in experimental quantum optics (2022), Assistant Professor (joint with Chemistry) in experimental quantum condensed matter physics (2022), Assistant Professor in experimental quantum condensed matter physics (2023), Assistant Professor in theoretical quantum condensed matter physics (2025), Associate Professor in experimental quantum information (2026), and Professor in theoretical quantum information and quantum computing (joint with Computer Science, 2026). These hires are expected to allow more cohesion across current research groups with shared disciplinary interests across quantum information, quantum control and measurement, and quantum computing. The Department completed its Unit-Level Academic Plan (ULP) in 2023, which articulates future faculty complement priorities. The Department has also used non-budgetary cross appointments to help bridge gaps in expertise. The policy around these appointments is being revised to account for limits to the supply of graduate students and the finances to pay for them.
The reviewers recommended revitalizing a formal mentoring program for junior faculty members, with appropriate structures in place	7	The Department now ensures that each pre-tenure faculty member has two faculty mentors, one focused on research and the other on teaching.

to ensure that mentoring relationships are effective.		It is also exploring participation in the faculty mentorship program introduced by A&S in 2024-2025, with the objective of balancing effectiveness for mentees and workload commitment for mentors.
Noting that the COVID-19 pandemic may negatively impact faculty career progression, the reviewers commented that the University should formalize and communicate the ways in which pandemic-related interruptions in faculty research will be handled for promotion and tenure processes.	8	The Department has followed University and federal granting agency guidance on this and has worked to account for pandemic-related delays through evaluations for tenure, promotion, and annual progress through the ranks.
The reviewers noted that issues with Departmental space are a “significant threat to many of the experimental groups and to the department overall”; they note concerns regarding the ability to conduct modern research in the existing spaces, the potential impact on faculty recruitment, and issues regarding accessibility and equity.	9	Despite ongoing problems related to space and infrastructure, progress is being made. The Department held a faculty retreat in January 2025 on the renewal of the McLennan Physics building, with extensive faculty participation over two days. Feedback has fed into the McLennan Physical Laboratories Renewal Masterplan to undertake a building condition assessment and recommendations for renewal of the facility, which is now ongoing. A final draft of the Masterplan is due in Summer 2026. Several lab renovations have been completed since the external review, another two lab renovations are underway, and a major construction project for a new Quantum Information Science lab and Collaborative Hub is underway with completion scheduled for September 2026. The Library has been replaced with a renovated Collaborative Research and Learning Centre, which opened in Fall 2025. The Department is engaging with Facilities and Services to realize critical infrastructure improvements as part of project RISE, an historic \$300M investment over a three-year period (i.e., elevators, etc.) starting in 2026. The Department has also secured Canadian Foundation for Innovation funding for two major lab renovation projects that will take place in the coming five years. The Department is utilizing departmental funding opportunities, albeit limited, to gradually enhance shared spaces, such as the entrance lobby, graduate and staff lounge, and departmental reception area. It has consolidated its administrative support group from four offices to one, and conversion of the former administrative offices into a meeting room and graduate student space is ongoing, with completion anticipated in summer and fall 2026. Physics is working with A&S Advancement and through an expanded project coordination role for the Executive Assistant to the Chair, to help find funding for renewal projects. Physics has tasked its Departmental Space and Renovations Committee with a coordinating role for laboratory renovations, to gain efficiencies in future renovation projects. They have been engaged in the Renewal Masterplan project, providing input

		on lab design and requirements, and helping develop a departmental space policy covering graduate student, faculty, and laboratory space usage. The policy is scheduled to be released in Summer 2026. The Department has sought space and facilities outside McLennan Physics for use by newly recruited faculty, such as for the establishment of the new centre for Quantum Computing (Canada Excellence Research Chair in Quantum Computing) and fee-based use of the Toronto Nanofabrication Facility in Electrical and Computer Engineering. Overall, much progress has been made on work to enhance communication and accurate assessment of renovation needs.
The reviewers recommended continuing to strengthen relationships among Physics faculty across the three campuses, noting that the tri-campus structure presents significant challenges – particularly regarding departmental cohesion, information sharing, and allocation of graduate students – as well as opportunities for faculty hiring and strategic collaboration.	10	The Tri-Campus Graduate Department of Physics (UTSG, UTM, UTSC) has recently signed a “Tri-Campus Memorandum of Agreement” (2025) to provide a foundation for future cooperation and interaction across the graduate Department of Physics. They have worked to improve coordination of teaching assistant assignments between UTSG and UTSC to ensure Physics graduate students are teaching undergraduates at UTSC. The Department has also set up access to available office space for UTSG faculty to visit UTM, and discussions for a similar arrangement at UTSC are in progress. Furthermore, they have piloted a program to make it easier for graduate students at UTM and UTSG to travel between the two campuses for coordinated research activities, involving subsidized transportation costs beyond the available shuttle.
The reviewers recommended that the Department of Physics seek greater involvement and leadership in national and international research initiatives.	11	The Faculty of Arts & Science Research Services Office has continued to offer support to the Department in this area. Department of Physics faculty members are major institutional partners in national geoscience initiatives: the Canadian Space Agency’s High-Altitude Water Vapour and Clouds initiative (HAWC, announced 2025 and to be launched in 2031) and the Medium-Long Range Aircraft Platform for Environmental research airborne facility (MAPLE, announced 2024 and still in development). The Department is also seeking Canada Excellence Research Chair support in Quantum Computing. In 2025, Physics was successful in all of its applications to the CFI Innovation Fund, including two led at U of T via the Department of Physics and three in which they were the U of T leads on proposals led by other universities. The Department has a strong national and increasingly international leadership role, especially in the last four years, in the Super Cold Dark Matter Search (SuperCDMS) project at the Sudbury Neutrino Observatory Laboratory (SnoLab). Department of Physics faculty members will hold a Co-Chair role in the World Climate Research Program’s Atmospheric Processes and their Role in Climate project (WCRP APARC) starting in 2026.

The reviewers recommended the creation of a departmental diversity statement, and commented that the University should attempt to obtain more demographic data to support progress on issues of equity, diversity, and inclusion.	12	In 2022, the Department adopted its statement on “Physics as an Inclusive Community” after extensive internal consultation and coordination with A&S. In the same time frame, the Department established an Inclusion, Diversity, Equity, and Accessibility (IDEA) Committee, including faculty and student membership. This standing committee reports to the Chair and is the locus for initiatives such as the Department’s new Multipurpose Room for family care needs (opened 2025), personal observance, etc.; workshops; and community-building events. The IDEA committee was also responsible for the development of an online teaching-focused EDI module that is now included in the “Microteaching Minicourse” training taken by all incoming graduate students. The University launched a pilot of the Student Equity Census in 2020 as a tool to obtain more demographic data to support progress on issues of equity, diversity, and inclusion. Beginning in 2023, the census was fully embedded into U of T’s student information system, and all students are now required to complete the Census, though there is a “prefer not to answer” option for all questions. All students are encouraged to share their information to improve supports and services based on the data. These data are available to the Department of Physics.
Findings of assessments of program effectiveness, conducted as outlined in the self-study (<i>see section 3.4 of the self-study template for more information</i>)		As discussed in #1, the standing Undergraduate Program Committee replaced the former Standing Undergraduate Curriculum Committee and is tasked with a broad mandate of reviewing undergraduate programs and undergraduate experience as a whole in the Department. Analogously, the standing Graduate Program Committee has replaced the standing Graduate Curriculum Committee with a similar broadened mandate. An ad-hoc Workload Policy Committee was established in 2024 to work through various aspects of the Departmental Workload Policy. The intention is to adaptively update the Departmental Workload Policy more frequently than the mandated three-year cycle to better stay up to date. The standing Space and Renovations Committee has been tasked with coordinating renovations and communication with the Departmental CAO and A&S Vice Dean, Research and Infrastructure (VDRI). The standing Departmental Planning Committee’s mandate has been broadened from focusing mainly on faculty complement and UTQAP to also include involvement in budgetary decision-making, in light of the New Budget Model, through quarterly meetings. The standing Awards Nominations Committee has been put on a quarterly-meeting schedule to align with the annual cycle of awards and recognitions opportunities, as well as special opportunities.

		The standing Appointments and Promotions Committee and the Planning Committee have been tasked with helping the Chair formulate systematic approaches to non-budgetary appointments (including adjunct, status-only, and cross-unit appointments).
The status of any additional items discussed at the AP&P meeting as captured in the FAR/IP		N/A
A statement of who was consulted in developing this brief report and (where applicable) a statement of how the Faculty/division has monitored the implementation of review recommendations (<i>e.g., through annual meetings between the dean and chairs; through annual reports to Faculty governance, etc.</i>).		The Dean's Office consulted with members of the senior leadership and their staff in the Faculty of Arts & Science and with the Chair of the Department of Physics. The Physics Chair consulted internally with the Associate Chair Graduate Studies, Associate Chair Undergraduate Studies, Chief Administrative Officer, Planning Committee, and Space and Renovations Committee.