

UTQAP Cyclical Review: Final Assessment Report and Implementation Plan

1. Review Summary

Program(s) Reviewed:	History and Philosophy of Science and Technology, BA (Hons): Major, Minor Science and Society: Minor History and Philosophy of Science and Technology, MA, PhD
Unit Reviewed:	Institute for the History and Philosophy of Science and Technology, Faculty of Arts and Science
Commissioning Officer:	Dean, Faculty of Arts & Science (FAS)
Reviewers (Name, Affiliation):	<ol style="list-style-type: none">1. Professor Don Howard, Professor of Philosophy, Department of Philosophy, University of Notre Dame2. Professor Eda Kranakis, Department of History, Faculty of Arts, University of Ottawa3. Professor Robert Smith, Department of History and Classics, University of Alberta
Date of Review Visit:	November 15 – 16, 2018
Date Presented to AP&P:	May 6, 2020

Previous UTQAP Review

Date:

Summary of Findings and Recommendations

1. Undergraduate Programs

The reviewers observed the following strengths:

- The reviewers highlighted that IHPST is “uniquely positioned” within the university to offer “courses that are rigorous and offer students not only insight into the practices of history and philosophy as methods of inquiry, but also into the methods and practices of the natural sciences and mathematics.”

The reviewers made the following recommendations:

- The reviewers recommended that the undergraduate program be broadened, building on strengths in life sciences in particular
- There are other opportunities for development of history of technology, in particular development in areas related to scientific instruments and museums
- The reviewers recommended that the Institute should evaluate the nature and content of undergraduate courses “especially in the light of new hires, seeking to renew and if possible expand its teaching mission

2. Graduate Programs

The reviewers observed the following strengths:

- The reviewers report that the Institute has responded to the recommendations of the 2007 OCGS appraisal including major additions to the philosophical content of the program, especially in the philosophy of biology, and the overall strength of the faculty
- Overall, “the students were very satisfied with the level of education they were receiving, and their levels of accomplishment certainly attested to the fact that they were being well mentored and encouraged.”

The reviewers identified the following areas of concern:

- The reviewers reported that graduate students were unclear about how teaching assistantships were assigned and the timeliness of information concerning course planning was not available in a timely manner
- Given the expansion of the Institute’s graduate program, there are at times not enough teaching assistantships for them

The reviewers made the following recommendations:

- The “robust affiliation” with medicine should continue and perhaps connections with public health can be explored
- The reviewers suggested that the “Institute may have to consider what level of graduate admission is appropriate for the job market, and perhaps think more strategically about how it is preparing students for employment” especially in

non-academic career paths

Faculty/Research

The reviewers observed the following strengths:

- The history and philosophy of science faculty have an excellent record of publication and a high level of funding. Senior faculty members have a good international reputation, and junior faculty members are highly productive.

Administration

The reviewers observed the following strengths:

- "In recent years the Institute has excelled in building relations to external academic organizations." The reviewers commented that such connections greatly "benefit the graduate students at IHPST, not only in their research training but also in their professionalization."
- The Institute's administrative structure (director, graduate director, undergraduate director, and various administrative committees) is working well. The reviewers recommended that the current Director be reappointed to a second term.

The reviewers identified the following areas of concern:

- "In the last five years the Institute has almost doubled its number of graduate students and increased its faculty number by one third. The reviewers note that, given Institute's operating budget has remained the same, it is unclear how the unit is able to maintain its activities."

Last OCGS review(s) date(s): 2007

Current Review: Documentation and Consultation

Documentation Provided to Reviewers

Terms of reference; Self-study and appendices; Previous review report including the administrative response; Access to all course descriptions; Access to the curricula vitae of faculty.

Consultation Process

Reviewers met with the Dean, Faculty of Arts & Science, and Vice-Dean, Academic Planning, Faculty of Arts & Science; Principal, Victoria College; Director, IHPST; Director of Undergraduate Studies; Director of Graduate Studies; Junior and senior faculty, Chairs/Directors of cognate units including the Centre for Medieval Studies, Department of History, Mathematics Department, Department of Philosophy; Associate Director, Jackman Humanities Institute; Undergraduate and graduate students; administrative staff, and business manager.

Current Review: Findings and Recommendations

1. Undergraduate Program

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

The reviewers observed the following **strengths**:

- Objectives
 - Course content is well-aligned with Faculty's undergraduate learning objectives for courses in the areas of depth of knowledge, critical and creative thinking, communication, information literacy and social and ethical responsibility
 - Upper level courses appropriately focus on writing, oral presentation, and emphasizing clear and logical exposition
- Curriculum and program delivery
 - Recent focus on enhancing undergraduate programs has led to introduction of new and popular courses
 - Course content covers a range of scientific, historical, and philosophical areas and engages with a variety of primary and secondary sources, including texts, artifacts, images and film
- Innovation
 - Impressive collaborative effort with Victoria College to offer attractive interdisciplinary minor in Science and Society
 - Institute's Scientific Instrument Collection provides opportunities for learning beyond the traditional classroom in the growing area of material culture
- Student engagement, experience and program support services
 - Undergraduate student society is active and enthusiastic; and activities include supporting journal for publication of undergraduate papers
- Quality indicators – undergraduate students
 - Course enrolments have increased at a time of declining humanities enrolments

The reviewers identified the following **areas of concern**:

- Curriculum and program delivery
 - Recent effort to increase course enrolments has not been accompanied by the development of a fully coherent and well-integrated set of undergraduate courses
- Quality indicators – faculty
 - Fewer than half of the undergraduate courses offered in 2018-19 academic year, and only two at the 100-level, were taught by tenure-stream faculty

The reviewers made the following **recommendations**:

- Objectives
 - Shift program focus to offering unique, high-quality curriculum in the history and social study of science and technology; de-emphasize philosophy component of curriculum in order to avoid duplication of effort with FAS Philosophy Department
- Curriculum and program delivery
 - Prioritize enhancements to program quality; e.g., increase emphasis on honing of critical thinking and research skills that help students understand how the worlds of science and technology intersect with the worlds of politics, governance, etc., and the implications of these interactions
 - Continue to develop the Scientific Instrument Collection, as well as to develop Museum Studies, as major resources for teaching purposes
 - Conduct a curriculum review in the near future with emphasis on re-examining overall structure of course offerings, creating more coherent and more thought-provoking course titles, increase course offerings to cover more diverse (non-Western) cultural contexts, and improvements to introductory-level courses in history of science and technology, and coordinate better with the Department of Philosophy.

2. Graduate Program

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

The reviewers observed the following **strengths**:

- Overall quality
 - Graduate programs have a long and distinguished history, with several strong and creative attributes
- Curriculum and program delivery
 - Positive change to MA curriculum to offer new, required proseminar course introducing core theoretical frameworks in history and philosophy of science
- Student engagement, experience and program support services
 - “Active, creative, valued” graduate student organization provides mentoring for incoming students, manages a successful online journal, and collaborates with cognate graduate student association at York University to offer an annual conference
 - Generous allocation of dedicated study space for graduate students
- Quality indicators – alumni
 - Distinguished Ph.D. alumni have since become leaders in various fields
- Student funding
 - Funding system for domestic graduate students is a program strength, providing base funding, fellowships, and additional funds for travel and research

The reviewers identified the following areas of concern:

- Objectives
 - IHPST is navigating a transitional period in the discipline, from an earlier focus on the intellectual history and philosophy of science to a newer model with links to other social science disciplines (e.g., sociology, anthropology); current strategy to increase faculty complement, without meaningful curricular adjustments to keep pace with overarching trends in the discipline, is unsustainable and risks weakening the graduate programs
- Admissions requirements
 - Concerns regarding communication of availability of faculty members for supervision of incoming doctoral students
- Curriculum and program delivery
 - No significant restructuring of the MA curriculum for a long time
 - Required proseminar course for MA students may not adequately cover theoretical frameworks necessary for further study in the discipline
 - Student concerns about the lack of courses dealing with gender and science/technology or with non-Western science and technology
 - Many IHPST courses seem not to be taught on a regular basis
- Accessibility and diversity
 - Strong interest from graduate students in finding ways to “to welcome and to mentor a more diverse and more international student population”
- Student engagement, experience and program support services
 - Concerns about clarity and consistency of communications regarding important rules and deadlines affecting students, as well as year-to-year variability of incoming student orientation program
- Quality indicators – graduate students
 - Recent strategy of increasing undergraduate enrolments has a cascading effect of creating pressure to admit more, and possibly less well-prepared, students to graduate programs; IHPST PhD offer rate is higher than rates of SGS Humanities Division and U of T overall
 - IHPST has a significantly higher ratio of graduate students relative to the size of its tenure-stream faculty than other comparable programs
- Quality indicators – alumni
 - Low rate of placement in tenure-track positions for recent Ph.D. graduates
- Quality indicators – faculty
 - Some doctoral dissertations are supervised by non-tenure stream faculty members or by professors from other universities
 - Nearly one-third of graduate courses offered in 2018-19 were taught by non-tenure stream faculty
- Student funding
 - Concerns about funding structure for international students limiting ability to attract strong international applicants; issue at least partly resolved by university’s recent decision to reduce tuition for international PhD students

The reviewers made the following recommendations:

- Objectives
 - Expend more effort to determine how the programs can improve intellectual coherence and excellence
- Admissions requirements
 - Ensure that incoming graduate students are paired with supervisors who are core, tenured or tenure-track IHPST faculty; “in general, students whose scholarly interests do not fit appropriately with the expertise of core IHPST faculty should not be admitted to the IHPST doctoral program.”
- Curriculum and program delivery
 - Graduate curriculum should be updated with the following aims:
 - Achieve greater coherence in the structure of graduate course offerings in line with the current state of the discipline
 - Avoid duplication with the Philosophy Department in offering philosophy of science courses
 - Expand course offerings dealing either with gender and science/technology, or with non-Western science and technology
 - Develop more thought-provoking course titles
 - Update IHPST graduate course catalog to more accurately reflect the courses that are taught on a regular basis
 - Consider organizational solutions to problem of duplication of effort between IHPST and the Philosophy department, including restructuring the Ph.D. program as a collaborative effort of the two departments, and generally encourage collaboration with other departments
- Accessibility and diversity:
 - Encourage collaboration between students and faculty to address student concerns about the need to better welcome and mentor a more diverse and more international student population
- Student engagement, experience and program support services
 - Develop a consistent orientation program for incoming graduate students, including written materials, to ensure understanding of rules, deadlines traditions, and the availability of student support services
- Quality indicators – alumni
 - Designate a placement officer to provide career development guidance (e.g., constructing CVs, mock interviews) to improve placement record for Ph.D. graduates

3. Faculty/Research

The reviewers observed the following **strengths**:

- Faculty
 - Institute has distinguished 50-year history, having been home to a number of the world’s most prominent historians and philosophers of science

- Current faculty includes some superbly talented and highly regarded scholars

The reviewers identified the following **areas of concern**:

- Overall quality
 - Reputation for leadership in research and teaching has declined in recent years
- Faculty
 - Procedures for mentoring junior faculty are not functioning properly
 - Serious concerns about seemingly regular practice of having administrative and doctoral supervision duties being performed by faculty who are not full-time, tenured or tenure-stream
 - Serious concerns about the overall lack of full professors

The reviewers made the following **recommendations**:

- Faculty
 - Urgent need to address shortage of full-time, tenured or tenure-stream faculty

4. Administration

The reviewers observed the following **strengths**:

- Organizational and financial structure
 - Current space allocation and staff complement are “more than generous”

The reviewers identified the following **areas of concern**:

- Relationships
 - Status and profile of Philosophy in the Institute's vision has deteriorated significantly; due in part to a strained relationship between IHPST and the Philosophy Department
 - Relationship with Philosophy Department raises three issues with significant negative impacts on IHPST:
 - Faculty members with joint appointments at both departments have divided allegiance
 - Possible duplication of teaching effort with graduate students studying philosophy of science in two separate graduate programs
 - Collaborative tensions between the two programs
- Organizational and financial structure
 - Lack of senior leadership at the full professor level puts future of IHPST at risk
 - Absence of clear internal governance and record-keeping procedures
 - Lack of transparency and consultation in preparation of the Institute's self-study suggests disturbing lack of trust and collegiality in the unit
 - Concerns regarding equitable use and allocation of space, as well as the distribution of responsibilities among staff and faculty complements

- International comparators
 - "Although straight comparisons between programs are complicated by differences in size, mission, organization, and other variables, we would be inclined to place the IHPST in the second tier of such programs in North America."

The reviewers made the following **recommendations**:

- Organizational and financial structure
 - Ensure that senior leadership is in place to take IHPST into the future
 - Immediate attention is required from both the IHPST and the Faculty to address "remarkable and unacceptable" issues around governance and administration and lack of trust and collegiality
 - Improve record-keeping procedures for the graduate programs; graduate director should produce a standardized report annually to collect and preserve essential data and statistics
- Long-range planning and overall assessment
 - "major changes are needed to sustain...[IHPST's] record of achievement and to maintain the IHPST's relevance in a rapidly evolving scholarly and institutional landscape, changes that will affect every aspect of the IHPST's structure and functioning"
 - Committee strongly recommends that IHPST focus mainly on the history of science and technology and that philosophy of science be taught primarily by the Philosophy Department
 - Explore new directions in teaching and research in the history of science and technology, e.g., museum studies, science and technology policy studies, the social impacts of science and technology, and medical humanities



2. Administrative Response & Implementation Plan

UNIVERSITY OF TORONTO
FACULTY OF ARTS & SCIENCE

February 27, 2020

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

Re: UTQAP cyclical review of the Institute for the History and Philosophy of Science and Technology (IHPST)

Dear Professor McCahan,

I am writing in response to the external reviewers' assessment of the IHPST and its programs: Hons. BA, History and Philosophy of Science and Technology (Major, Minor); and MA, PhD, History and Philosophy of Science and Technology. The reviewers complimented the IHPST on its "*proud history, having been home to a number of the world's most prominent historians and philosophers of science.*"

As per your letter dated July 31, 2019, the review report raises a number of issues and challenges. I am writing to address the areas of the review report that you identify as key. The responses to these items and implementation plan are separated into immediate- (six months), medium- (one to two years), and longer (three to five years) terms, where appropriate, along with who (unit, Dean) will take the lead in each area. The Dean's office has discussed the reviewers' comments through consultation with the Acting Director of IHPST and senior leadership within the Dean's office to develop the following implementation plan incorporating the reviewers' recommendations.

Implementation Plan

The reviewers "strongly recommend...that the IHPST reconceive itself as focusing mainly on the history of science and technology as well as, perhaps, the social study of science and technology", and recommend that responsibility for philosophy of science (undergraduate and graduate) should reside in the Department of Philosophy. The reviewers identify opportunities for new directions and urge that planning "look less toward older ways of parsing the field of science studies and more toward the new ways in which science studies is developing"; they state that "[a]t the very least, there must be more effort to determine how the IHPST graduate programs can maintain intellectual coherence and excellence" given changes in the discipline and the IHPST's relationships with other units.

The IHPST has engaged in a series of in-depth consultations regarding the review, including the possibility of reconceiving itself as focusing primarily on history of science and technology. In consultation with the Department of Philosophy, the two units together decided not to pursue this

direction. Instead, the Director has been working with the Dean's office and with the Chair of Philosophy to respond to the curricular concerns raised by the reviewers, and to establish more effective internal and external relationships. The Dean is satisfied that the unit has made remarkable progress over the past year in addressing the reviewers' comments.

Immediate-term response: The program has successfully submitted five new courses and modifications to two existing courses through A&S governance. The new courses address the ways in which the discipline is developing.

Medium-term response: The Acting Director of IHPST has engaged with the Chair of the Department of Philosophy to initiate more direct collaborations between the Department and the IHPST. The two units plan to submit a proposal for graduate program modifications that will enhance ties between the two units. In addition, the Department of Philosophy is planning to submit a new Philosophy of Science minor that will include a requirement for 1.0 FCE in IHPST, and IHPST will more formally draw on philosophy of science courses in the Department of Philosophy, both undergraduate and graduate. The Acting Director of IHPST has initiated discussions with the Chair of the Department of History to establish similar curricular collaborations. Any proposed undergraduate curricular changes will be developed in consultation with the Vice-Dean, Undergraduate, and will be reviewed through the A&S Curriculum Committees and Faculty Council.

Taken together, these curricular changes will build important connections between the IHPST and cognate units and will ensure that IHPST is offering programs that are at the forefront of developments within the discipline.

The reviewers stated that “immediate attention” was required to address the lack of procedures for “coherent, internal governance,” “gathering and preserving” graduate program records, and “mentoring of junior faculty”; and the “lack of trust and collegiality” reflected by the lack of a “consultative and collaborative” processes for developing a self-study.

Immediate-term response: The Institute has already gathered records related to the graduate programs, including a placement record of graduate students from 1971 to present, time-to-completion, and scholarships. The IHPST has also instituted a more formal record-keeping system.

The Institute has already engaged in several processes to address and begin building collegiality. First, the previous Director conducted numerous meetings with faculty and with graduate students in late 2018 and early 2019. Working with the Office of the Dean and the Vice-Dean, Graduate, eight consultation meetings led to the formation of four working groups, comprising faculty, staff, undergraduate, and graduate students, to consider the IHPST's Intellectual Mission and Vision, its Graduate Programs, its Undergraduate Program, and its Governance and Administration. The Acting Director then met with each faculty member individually in the fall of 2019 and held a graduate town hall for further feedback and clarification in these areas. As well, a collegial and consultative approach to producing the response to the reviewer report, working with the senior leadership team in the Faculty of Arts & Science, reflected the increased sense of trust and collaboration being cultivated within the unit.

A governance review has been conducted and implemented.

Medium-term response: The IHPST has started the process of improving mentorship. Pre-tenure faculty will be assigned a senior faculty member as a mentor, with a scheduled set of meetings to monitor progress and provide sustained support through the tenure process.

The reviewers stated “strongly and unanimously that the IHPST, as currently constituted and staffed, lack[ed]...the kind of senior leadership at the full professor level...necessary to take it into the future” and, given pending retirements and the “comparative professional youth” of current faculty, recommended “a targeted, senior search to identify a new, long-term director of the IHPST.”

Immediate-term response: A targeted senior search has been concluded and we expect that a new Director will be appointed, subject to Agenda Committee approval, effective July 1, 2020. The new Director will be mentored by the outgoing Acting Director.

The reviewers expressed concern about the overall lack of full professors in the complement, and the proportion of graduate courses taught by non tenure-stream faculty. They also expressed concern that it appears to be common practice to entrust faculty who are not full-time, tenured or tenure-stream with administrative duties and dissertation direction.

Immediate-term response: The Acting Director has already had one-on-one meetings with each Associate Professor to plan a route to full professorship. The Acting Director has also confirmed that only tenure-stream faculty are teaching graduate courses.

Flagging “intellectual-academic problems that must be addressed to maintain excellence and enhance the potential of the IHPST graduate programs,” the reviewers noted that the MA curriculum had not been restructured in some time and recommended updating it: to achieve greater coherence in structure and create conceptual space for science, technology, and society (STS); avoid duplication with the Department of Philosophy; address student concerns about the lack of courses on gender and science/technology or non-Western science/technology; improve course titles; and pare down the course list to reflect actual offerings.

Immediate- to medium-term response: As discussed above, the MA program will, in cooperation with the Department of Philosophy, undergo restructuring to broaden its scope as well as to eliminate duplication of courses. The curriculum will be scrutinized to determine where courses may be eliminated and/or renamed to better reflect the topics taught, the expertise of faculty, and student interest.

The Institute is in the process of completing a search for a tenure-stream faculty member in science, technology, and society (STS) to broaden its expertise in the societal and ethical impact

of emerging technologies. This new faculty member will provide teaching capacity in areas relevant to gender and non-western science.

They also recommended that the IHPST offer a consistent graduate student orientation from year to year; improve graduate record keeping; ensure that doctoral students are only admitted if they fit appropriately with supervisors who are core, tenured or tenure track IHPST faculty; and improve services to assist with post-graduate placements for PhDs. They recommended that students and faculty should collaborate on finding better ways to welcome and mentor a more diverse and international student population.

Immediate-term response: The Institute has already gathered records related to the graduate programs as discussed above. The incoming graduate cohort in 2020-21 will experience a new orientation program, which will remain relatively consistent from year to year.

Medium- to longer-term response: For the 2020-21 cohort and moving forward, graduate students will be admitted only if a suitable tenured graduate supervisor can be identified. Supervisory capacity will be monitored by paying close attention to the size of incoming graduate cohorts. The Institute is appointing a dedicated placement officer to redesign and implement the placement process, and it is a priority for the incoming Director and the Director of Graduate Studies to foster and support a more diverse graduate population in the next couple of years.

The reviewers recommended that the IHPST focus on “developing high-quality undergraduate programs that help students understand conceptual changes in science and how the worlds of science and technology (and their systems of knowledge and practice) intersect with the worlds of politics, governance, institutions, culture, environment, etc.” They recommended conducting a curriculum review addressing the overall structure of course offerings, course titles, the teaching of courses that deal with geographical regions beyond Europe and North America, and strategies for introducing students to the history of science and technology to draw them into further study in the area.

Immediate-term response: As noted above, a review of the undergraduate curriculum is now underway. For instance, the online HPS 100 course will no longer be offered. The Acting Director has reviewed and made changes to teaching assignments, which has allowed for more senior and tenure-stream faculty to teach the introductory courses.

Medium-term response: Once the new Director is in place in July 2020, a more extensive curriculum review, including an extensive curriculum mapping exercise, will take place to further develop and refine program learning outcomes at the undergraduate level and how course offerings will support these. This review will include considering options for courses that deal with “geographical regions beyond Europe and North America.”

In addition, the IHPST is currently working with Victoria College to determine the best model for delivering the Science and Society minor. Together with Victoria College, the Institute is exploring options to enhance the minor as needed to further attract students to the discipline.

The Dean's office will monitor the implementation of recommendations through ongoing meetings with the IHPST Director, and through the A&S unit-level planning process. A brief report to the Office of the Vice-Provost, Academic Programs, between the November 15-16, 2018 site visit and the year of the next site visit, will be prepared.

To conclude, we appreciate that the external reviewers identified the IHPST's strengths and noted significant areas for development. Given the concerns raised in the review, the next review will take place in **2021-22**. The IHPST has already begun to move forward with plans to address the recommendations as presented by the reviewers.

Sincerely,

A handwritten signature in black ink that reads "M Woodin". The signature is written in a cursive, flowing style.

Melanie Woodin
Dean and Professor of Cell and Systems Biology

cc.

Cheryl Misak, Acting Director, IHPST, Faculty of Arts & Science

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

Asher Cutter, Associate Dean, Undergraduate Issues and Academic Planning, Faculty of Arts & Science

Daniella Mallinick, 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 and Science

3. Committee on Academic Policy & Programs (AP&P) Findings

The spokesperson for the Reading Group reported that the summary covered the full review. However, the Group did not feel that the Administrative response adequately registered the severity of the review. The Reading Group had questions concerning whether there had been a successful hire for a new Director (beginning on July 1, 2020), what steps had been taken to prepare graduate students for non-academic career paths, as well as what actions specifically had been taken to repair the rift between Philosophy and IHPST.

Professor Cheryl Misak, Interim Director, IHPST confirmed that a new Director had been appointed for a term beginning July 1, 2020. He would be joining the University with tenure as an Associate Professor. In terms of preparation of graduate students, Professor Misak reported that four professional development workshops had been held, which had been very well attended. These included alumni as well as representatives from industry and the public policy sector. There had been two other workshops planned which had been cancelled due to the COVID-19 situation. Finally, Professor Misak highlighted the many steps that had been taken to create a more collegial working environment between Philosophy and IHPST. These included increasing consultations with the Chair of Philosophy on faculty appointments and teaching responsibilities as well as collaboration on undergraduate and graduate curriculum development.

The Reading Group noted that under normal circumstances, a follow-up report would be requested. However, since another review of the Institute was scheduled for 2021-22, no follow-up was requested.

4. Institutional Executive Summary

The reviewers underscored that IHPST has a record of achievement that is worth celebrating, having been home to a number of the world's most prominent historians and philosophers of science. They highlighted the Institute's distinguished Ph.D. graduates, who have gone on to become leaders in their fields, the programs' impressive resources, including the IHPST scientific instrument collection, the active graduate and undergraduate student organizations, and the collaborative effort between Victoria College and the IHPST to deliver the undergraduate program. The reviewers recommended that the following issues be addressed: focusing mainly on the history of science and technology and possibly the social study of science and technology; addressing the lack of procedures for coherent internal governance, maintaining graduate program records, and mentoring of junior faculty; the lack of a consultative and collaborative process for developing the unit's self-study; the lack of senior leadership at the full professor level and the proportion of graduate courses taught by non-tenure-stream faculty; updating the MA curriculum; the need to avoid duplication with the Department of Philosophy; addressing student concerns about the lack of courses on gender and science/technology or non-Western science/technology; offering a consistent graduate student orientation from year to year; improving graduate record keeping; and conducting a curriculum review addressing the overall structure of course offerings and strategies for

introducing students to the history of science and technology to draw them into further study in the area. The Dean's Administrative Response describes the Faculty, unit, and programs' responses to the reviewers' recommendations, including an implementation plan for any changes necessary as a result.

5. Monitoring and Date of Next Review

The Dean's office will monitor the implementation of recommendations through ongoing meetings with the IHPST Director, and through the A&S unit-level planning process.

The year of the next review will be 2021-22.

6. Distribution

On October 26, 2020, the Final Assessment Report and Implementation Plan was posted to the Vice-Provost, Academic Programs website and the link provided by email to the Dean of the Faculty of Arts & Science, the Secretaries of AP&P, Academic Board and Governing Council, and the Ontario Universities Council on Quality Assurance. The Dean provided the link to the Director of the Institute.