FOR APPROVAL

TO: Arts & Science Council

SPONSOR: Dwayne Benjamin, Vice-Dean, Graduate Education

CONTACT INFO: vicedeangraduate.artsci@utoronto.ca

DATE: March 11, 2020 for March 18, 2020

AGENDA ITEM: 5

ITEM OF BUSINESS:
Major Modification – Approval of New Concentration in Philosophy of Science within the Master of Arts in Philosophy

JURISDICTIONAL INFORMATION:
The Arts & Science Council has delegated authority to approve modifications to existing degree programs that are defined in the University of Toronto Quality Assurance Process (UTQAP) as major modifications, such as new program requirement options within an existing graduate program.

GOVERNANCE PATH:
1. Graduate Curriculum Committee – March 9, 2020 (for approval)
2. Arts & Science Council – March 18, 2020 (final approval)
3. Office of the Vice-Provost, Academic Programs (for information), in turn reported to the Committee on Academic Policy & Programs (for information) – May 6, 2020

The Office of the Vice-Provost, Academic Programs will also report this major modification to the Ontario Universities Council on Quality Assurance in the summer of 2020.

HIGHLIGHTS:
The Department of Philosophy is proposing a new concentration in Philosophy of Science, to be part of the existing Master of Arts program, effective September 2021. Philosophy of Science has been a central subdiscipline of philosophy since the late nineteenth century, with important connections to the natural and social sciences. Philosophy in general has over the last twenty or so years accelerated its use and connection of the natural and social sciences to shed light on traditional philosophical problems and to contribute to foundational questions in natural and social sciences.

This concentration will tap into the pool of strong students with (a) philosophical promise but who may not yet have had the chance to acquire extensive training in philosophy or (b) students with strong natural science and social science backgrounds who want to explore in a more focused way
philosophical foundations and issues related to their area of scientific expertise. It will put students in a strong position to contribute to philosophy as the field continues to develop this empirically informed methodology.

Students in the Philosophy of Science concentration will take seven courses (3.5 FCE), including a core course which introduces contemporary work in philosophy of science and will provide students with the background and general perspective in the philosophy of science to be able to situate further, more detailed, coursework. In addition to courses in the philosophy of science or cognate areas of philosophy, students will be required to take two half courses in the history of science offered by the Institute for the History and Philosophy of Science and Technology (IHPST); these courses will provide students with a different perspective on issues in philosophy of science.

The Department of Philosophy has historically been very strong in the philosophy of science, and continues to be strong. New hires in the Department of Philosophy and IHPST make for a large contingent of faculty able to give students both a general and specialized training in the philosophy of science. It is expected that the department will admit five students per year into this concentration.

This proposal has been developed in consultation with the Office of the Vice-Provost, Academic Programs.

**MOTION:**

a) THAT the proposed new concentration in Philosophy of Science within the Master of Arts in Philosophy, described in the attached proposal dated March 10, 2020 be approved effective for the academic year 2021-22.
University of Toronto
Major Modification Proposal:
New Field or Concentration Within an Existing Graduate Program

This template should be used to bring forward all proposals for new fields or concentrations in existing graduate programs for governance approval under the University of Toronto’s Quality Assurance Process. A field or concentration within a graduate program refers to an area of specialization or focus that is related to the demonstrable and collective strengths of the program’s Faculty. Graduate programs are not required to have fields or concentrations in order to highlight an area of strength within a program. The two terms are used interchangeably but one should be used consistently in the context of a specific program. In establishing fields or concentrations, select whichever term resonates most in your context.

<table>
<thead>
<tr>
<th>Program:</th>
<th>Philosophy</th>
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<tr>
<td>e.g., Child Study and Education, Linguistics</td>
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<tr>
<th>Existing fields or concentrations:</th>
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<tr>
<th>Proposed new field or concentration:</th>
<th>Philosophy of Science Concentration (MA)</th>
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<td>specify what level program this will apply to; i.e., master’s, doctoral or both.</td>
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<tr>
<th>Unit (if applicable):</th>
<th>Philosophy</th>
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<tr>
<td>Faculty/academic division:</td>
<td>Faculty of Arts and Science</td>
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<tr>
<td>Dean's office contact:</td>
<td>Sharon Kelly</td>
</tr>
<tr>
<td>Graduate unit contact:</td>
<td>Gurpreet Rattan</td>
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</table>

| Version date: | please change as you edit this proposal. | March 10, 2020 |

1 Summary

Please provide a brief summary or overview of how the proposed field or concentration relates to existing fields or concentrations in the program summarizing many of the key points found in more detail elsewhere in the proposal. Please include:

- A clear statement of purpose
- Identification of existing fields or concentrations
- A description of the proposed field or concentration
- Rationale for its inclusion in the program
- The impetus for its development (including student demand) and how it fits with existing fields or concentrations
- Faculty and programmatic strength in the proposed area
**Purpose.** The MA concentration in Philosophy of Science will allow the department to attract high quality students with strong academic backgrounds in the natural and social sciences, but who may not have extensive preparation in philosophy. The existing MA and PhD programs in philosophy require strong backgrounds in philosophy; the Philosophy of Science concentration will tap into the pool of strong students with (a) philosophical promise but who may not yet have had the chance to acquire extensive training in philosophy or (b) students with strong natural science and social science backgrounds who want to explore in a more focused way philosophical foundations and issues related to their area of scientific expertise. This concentration will also serve as a pipeline for strong students into PhD programs in Philosophy.

**Faculty and programmatic strength.** The Graduate Department of Philosophy has a history of research and teaching excellence in the philosophy of science, with University Professor Emeritus Ian Hacking being among the world’s most distinguished philosophers of science of any generation. The Department has a strong complement of faculty members working in either general philosophy of science, or philosophy of particular sciences (incl. philosophy of physics and philosophy of biology). Additional faculty members work in adjacent fields, such as logic, formal epistemology, and metaphysics. There is also relevant expertise in the faculty at the Institute for the History and Philosophy of Science and Technology (IHPST).

**Impetus for development.** The department receives applications and inquiries concerning application from students with varying academic backgrounds. Some students possess strong backgrounds in natural and social sciences, but without extensive background in philosophy. These students are often possessed of advanced formal skills, which are often crucial to philosophy and the philosophy of science, and put them ahead in this respect of students with a more traditional philosophical background. The MA concentration in Philosophy of Science will allow a route for these students into Master’s studies in philosophy, and, for some, into PhD work, by providing advanced, graduate level, exposure to the methodology and content of philosophy of science and cognate areas of philosophy. In addition, IHPST courses complement but have a distinct focus from the issue central to traditional philosophy of science in the analytic tradition. However IHPST will be contributing its own courses, including relevant courses in philosophy (like Social Epistemology), and the history and philosophy of science, which provide a different perspective on issues in philosophy of science, to the new concentration.

**Identification of Existing Fields or Concentrations.** The Department of Philosophy offers MA and PhD programs in philosophy. IHPST offers an MA in History and Philosophy of Science, and have agreed to contribute its courses to the new concentration in Philosophy of Science. Students in the MA concentration in Philosophy of Science will be required to take two half courses in the history of science at IHPST.
Description. The MA concentration in Philosophy of Science is a 7 course (3.5 FCE) program focusing on philosophy of science. The concentration will have its own core course, the Core Seminar in the Philosophy of Science, which will introduce students to contemporary work in philosophy of science and will provide students with the background and general perspective in the philosophy of science to be able to situate further, more detailed, coursework. In this further coursework students will acquire expertise in more specific areas of philosophy of science, incl. the history of science. This concentration is an alternative and appropriate track for coursework in preparation for PhD applications, although students need not be intent on further graduate study to apply for and gain admission into the program. But it also lets students acquire deeper knowledge of the philosophical issues around their own field of scientific expertise.

Rationale. To attract academically strong students with strong interests but insufficient background in philosophy. To set up a differently oriented pipeline into the PhD program. Admission to the MA of course does not guarantee admission into the PhD in the department. Much cutting-edge research in philosophy is now done by scholars with a strong scientific background. Without this new MA concentration, we risk losing out in recruiting the strongest talent to our field.

Demand. The need for the MA concentration in Philosophy of Science comes in part from existing demand. The philosophy department receives close to 400 applications for graduate study, including over 100 applications for MA study. A concentration MA in Philosophy of Science would elicit even more applications at the MA level, and would also provide a mechanism to admit students who are routinely denied admission because of a lack of background in philosophy. We would like to tap into the large untapped well of academically strong students with science backgrounds who are looking for positions in Master’s programs in philosophy. Applications for the existing MA program in Philosophy are very strong, so we believe that we will have no problem recruiting talented students into the new concentration. IHPST offerings in the history and philosophy of science complement but have a distinct focus from traditional philosophy of science in the analytic tradition.

The existing Master’s program in Philosophy, including its program requirements, will remain unchanged.* The proposed Philosophy of Science concentration will be a distinct offering with unique admission and program requirements, which are outlined in Sections 5 and 6 of this proposal. Please refer to Appendix A for the admission and program requirements for the existing (undifferentiated) MA program.

*We do propose a minor correction to the existing MA program requirements as outlined in the SGS calendar copy. The calendar copy currently states that MA students must take a teaching workshop, PHL 2152H: Philosophy and Teaching (0.5 FCE). This is an error; in fact, the teaching workshop that students are required to take is PHL 3000H: MA Professional Development. We would like to update the calendar to accurately reflect the number and title of this course (see Appendix A for this change).
2 Effective Date

| September 2021. We would open up admissions for the concentration next year, and recruit our first class for September 2021. |

3 Academic Rationale

Identification of existing fields or concentrations.
Description of the field or concentration (its intellectual focus, etc.) and its relationship to existing fields or concentrations.
Address how the proposed field or concentration relates to the current state of the discipline or area of study. Identify pedagogical and other issues giving rise to the creation of this program. Where appropriate, speak to changes in the area of study or student needs that may have given rise to this development.
Appropriateness and consistency of the field or concentration name.
Distinctiveness.

- Identify any distinctive or innovative aspects of the proposed field or concentration.
- To what extent is what is being proposed “the norm”? As appropriate, speak to similar offerings elsewhere at the University of Toronto or at other universities.

Identification of Existing Fields or Concentrations. The Department of Philosophy offers MA and PhD programs in philosophy. IHPST offers an MA in History and Philosophy of Science. The MA in History and Philosophy of Science has a different but complementary focus on science, and students from both IHPST and the Department of Philosophy will benefit from the complementarity, with students from IHPST MA in the History and Philosophy of Science taking philosophy of sciences courses from Philosophy and students in the Department of Philosophy taking courses in the history and philosophy of science. Students in the MA Philosophy of Science concentration will have access to IHPST graduate courses in both the philosophy and history of science and will be required to take two half courses in the history of science at IHPST. The department routinely manages students with different background in the MA in Philosophy, with the ambition of making all students achieve learning outcomes for the MA. This will be the same for the MA concentration in Philosophy of Science. These students will typically bring a different mix of skills and content proficiency, with typically advanced formal skills, but less exposure to other aspects of philosophical methodology. The exposure at an advanced (graduate) level will elevate students methodological and content proficiency to meet learning outcomes.

Description and Relation Current State of Discipline. Philosophy of Science has been a central subdiscipline of philosophy since the late nineteenth century. The University of Toronto’s Department of Philosophy has historically been very strong in the philosophy of science, and continues to be strong. New hires in the Department of Philosophy and IHPST make for a large contingent of faculty able to give students both
a general and specialized training in the philosophy of science. Philosophy of science has important connections to the natural and social sciences, and philosophy in general has over the last twenty or so years accelerated its use and connection of the natural and social sciences to shed light on traditional philosophical problems and to contribute to foundational questions in natural and social sciences. The MA concentration in the Philosophy of Science put students in a strong position to contribute to philosophy as the field continues to develop this empirically informed methodology.

Distinctiveness: It is uncommon in philosophy departments to offer programs other than the MA and PhD in Philosophy, so the MA concentration in Philosophy of Science is something that will make our unit stand out. However, the size and strengths of the Graduate Department of Philosophy (which comprises faculty members from all three campuses), together with relevant expertise at IHPST make this possible at the University of Toronto.

4 Need and Demand

Provide a brief description of the need and demand for the proposed field or concentration focusing, as appropriate, on student interest, societal need, employment opportunities for prospective graduates, accreditation requirements, etc.

The need for the MA concentration in Philosophy of Science comes from the existing demand in the huge numbers of applications that the department receives, and from new demand from students with strong academic backgrounds in the sciences but not in philosophy. There is an untapped well of academically strong students with a background in the natural and social sciences who are looking for positions in Master’s programs in philosophy. These students often possess skills that already are or translate into philosophical skills, but the admissions requirement for the MA in Philosophy require background equivalent to a major. Applications for the existing MA program in Philosophy are very strong, so we will have no problem recruiting talented students into the new concentration. IHPST offerings in the history and philosophy of science complement but have a distinct focus from traditional philosophy of science in the analytic tradition.

Table 1: Graduate Enrolment Projections*

<table>
<thead>
<tr>
<th>Year in Program</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
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<tr>
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<td>Total #</td>
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<tr>
<td>1</td>
<td>27</td>
<td>5</td>
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<td>Total</td>
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Developed by the Office of the Vice-Provost, Academic Programs
Template updated on March 7, 2017
*Steady state projected in 2021 – We anticipate being up to full capacity in the first year of the program

Please adjust the table as necessary. Please show total registration in the program and indicate whether the addition of the new field or concentration will result in an overall increase in the total number of students or will be accommodated within the existing number of spaces. In either instance, please show the relative proportion of spaces in the proposed field or concentration.
Below please provide any relevant information or comments on the enrolment projections above (e.g., relationship of field or concentration to existing field or concentration, etc.)

## 5 Admission Requirements

Comment on the relationship of the admission requirements for the field or concentration to those of the parent program.

- If the same, describe the program admission requirements.
- If different, describe the field or concentration admission requirements; indicate how they are different from those of the parent program, and provide a rationale for the difference in relation to the focus and learning outcomes of the field or concentration; i.e., how are these admissions requirements suitable to help support the success of students.

How will these be administered?

### Here are the requirements for the MA in Philosophy:

“Admission to the MA program requires a bachelor’s degree from a recognized university. The applicant must have a strong background in philosophy (roughly equivalent to an undergraduate major), with minimum average grades of mid-B in the applicant’s overall program and A- in the philosophy courses.”

The one-year MA program is intended primarily for those seeking only a more comprehensive and concentrated training in philosophy than undergraduate study permits. The MA also serves as preparation for a PhD program; graduates of the Toronto MA program have gone on to top philosophy PhD programs in Canada and internationally, as well as to law school and careers in government, business and the non-profit sector.

The requirements for the MA concentration in Philosophy of Science will drop the requirement of a strong background in philosophy.

Admission to the MA concentration in Philosophy of Science requires a bachelor’s degree from a recognized university. The applicant must have strong interest in philosophy (evidenced in a strong writing sample, personal statement, and letters of reference) and a strong academic background in either philosophy or, typically, a subject in the natural or social sciences, with minimum average grades of A-.
The one-year Philosophy of Science concentration is intended primarily for those seeking a more comprehensive and concentrated training in philosophy and the philosophy of science than undergraduate study permits. The concentration also serves as preparation for a PhD program; like other graduates of the Toronto MA in Philosophy, graduates of the MA concentration in Philosophy of Science will be competitive for application to PhD programs in Canada and internationally, as well as to law school and careers in government, business and the non-profit sector. There is no distinct concentration in philosophy of science at PhD level at the University of Toronto, but of course students can choose to focus on this as part of their dissertation research. In rare cases, there is such a concentration (or even department) at the PhD level at other institutions (for example the Logic and Philosophy of Science department at UC Irvine, which is distinct from the philosophy department there).

### 6. Program Requirements

Describe the requirements of the field or concentration. Please comment on the relationship of the requirements of the field or concentration to those for the program in general and any other fields or concentrations.

- Provide, as an appendix, proposed calendar copy (with all changes tracked) including the specific program requirements, required courses, electives and prerequisites.

Provide as an appendix, where appropriate:

- A full list of the course numbers and titles, indicating clearly whether they are new or existing. Please note that new courses need to be proposed and approved separately following established Faculty/divisional procedures.

Seven courses (3.5 FCE) which meet the following requirements:

- In the fall term, PHLXX: Advanced Introduction to Philosophy of Science (0.5 FCE), will be offered. All full-time MA students in the Philosophy of Science concentration students will be required to take this course. The course will provide an introduction to contemporary work in philosophy of science.

- Three additional graduate seminars in philosophy of science or cognate areas of philosophy such as logic, philosophy of language, epistemology, metaphysics, or philosophy of mind.


- Students will also be required to enrol in PHL3000H, the MA Professional Development Seminar, restricted to MA students. The course will meet 4 times during the fall term, be led by a different member of faculty each time, and count as one of the 7 courses needed for the degree. Students will discuss issues about the graduate research, teaching, and the profession and its norms and expectations. The course will be graded as CR (Credit), or NCR (Non-Credit).
Students may take one term of Independent Studies as part of the degree as a replacement for one of the three additional philosophy graduate seminars. This must be done with a faculty member of the Department, and only when a suitable regular course is not available.

The student’s choice of courses must be approved by the Associate Chair, Graduate Studies.

The Advanced Introduction to the Philosophy of Science course is meant to bring students up to speed in the methodology of philosophy and the content of philosophy of science. Courses in cognate areas further contribute methodological training as well as bring students to a level of content proficiency that will allow them to be candidates for PhD positions in philosophy.

Please see Appendix A for proposed calendar copy.

Please see Appendix B for a full list of the course numbers and titles (new and existing).

7 Degree-Level Expectations (DLEs), Program Learning Outcomes and Program Structure

Clearly outline the learning outcomes as they relate to the proposed field or concentration, underlining where these are similar to or different from those for existing fields or concentrations. Indicate the means by which students will satisfy the relevant DLEs.

Demonstrate the clarity and appropriateness of the program’s requirements and associated learning outcomes in addressing the institution’s DLEs.

Table 2: Master’s DLEs

<table>
<thead>
<tr>
<th>Master’s Degree-Level Expectations (Based on the Ontario Council of Academic Vice-Presidents [OCAV] DLEs)</th>
<th>Master’s Program Learning Outcomes</th>
<th>How the Program Design and Requirement Elements Support the Attainment of Student Learning Outcomes</th>
</tr>
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<tbody>
<tr>
<td>** Expectations:** The MA in Philosophy of Science is awarded to students who have demonstrated 1. Depth and Breadth of Knowledge A systematic understanding of knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of</td>
<td>Depth and breadth of knowledge is defined in the MA in Philosophy as familiarity with some of the central problems and debates of philosophy and their history.</td>
<td>The program design and requirements for the MA Program that ensure these student outcomes for depth and breadth are the breadth</td>
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the academic discipline, field of study or area of professional practice.  

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<td><strong>This is manifested in students’ ability to explain and articulate, both in discussion and in writing, some of the main problems of metaphysics, epistemology, and ethics in depth, including from a historical perspective.</strong></td>
<td><strong>and distribution requirements for the MA Program.</strong></td>
</tr>
</tbody>
</table>

MA students in the **undifferentiated program** have to complete 3.5 FCEs of courses. Of these at least 1.0 FCE has to be in the history of philosophy. Another 1.0 FCE has to be from courses on contemporary problems in philosophy, in distinct areas from among the following three: (1) Metaphysics, Epistemology, and Science (2) Mind, Language, and Logic (3) Values (including ethics, metaethics, political philosophy, aesthetics, philosophy of religion).

MA students in the **Philosophy of Science concentration** have to complete 3.5 FCEs of coursework. Of these at least 1.0 FCE has to be in the history of science. 2.0 FCE has to be in philosophy of science (incl. general philosophy of science) and cognate areas of philosophy of science (such as logic, philosophy of language, epistemology, metaphysics, or philosophy of mind).

**2. Research and Scholarship**

A conceptual understanding and methodological competence that enables a working comprehension of how established techniques of research and inquiry are used to create and interpret knowledge in the discipline; enables a critical evaluation of current research and

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<tr>
<td><strong>Research and Scholarship is defined in the MA in Philosophy as conducting self-driven research in one or more specific area(s) of philosophy.</strong></td>
<td><strong>Students in the undifferentiated program are required to take seven courses in philosophy in accordance with specified breadth requirements.</strong></td>
</tr>
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</table>

This is manifested by the ability to write substantial research essays, by taking into account existing research, and by articulating a new and original point of view or approach.

Students in the **Philosophy of Science concentration** are required to take seven courses in philosophy of science and cognate areas in accordance
### 3. Level of Application of Knowledge

Competence in the research process by applying an existing body of knowledge in the critical analysis of a new question or of a specific problem or issue in a new setting.

Application of Knowledge is defined in the MA in Philosophy as (a) the critical application of an existing body of philosophical arguments and theories to a new set of problems and (b) as communicating this application in various contexts.

This is manifest in students’ abilities to (a) produce insightful pieces of research in which they apply an existing body of philosophical arguments and theories to a new set of problems and (b) communicate their results and approaches clearly in oral or written form.

The program design and requirements ensure these student outcomes in a mandatory graduate seminar, in which students are taught to apply an existing body of knowledge to a new problem, either of their choosing (in the research essays) or of the instructor’s choosing (in the philosophical issues dealt with in class). The students learn to communicate this application both in their graduate courses as well as in their own teaching, if they work as teaching assistants or graduate course instructors.

### 4. Professional Capacity/Autonomy

The qualities and transferable skills necessary for employment requiring

Professional Capacity/Autonomy is defined in the MA in Philosophy as the ability to (a) conduct research autonomously and according to the discipline’s standards, (b) in the undifferentiated program, two mandatory MA seminars and PHL 3000H, the teaching workshop for MA students, ensure these student
the exercise of initiative and of personal responsibility and accountability; and decision-making in complex situations; The intellectual independence required for continuing professional development; The ethical behavior consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of research; and The ability to appreciate the broader implications of applying knowledge to particular contexts.

develop a clear sense of how to conduct oneself as an instructor of philosophy, (c) finish coursework and teaching assignments in a timely manner.

This is manifested in an ability to (a) conduct research autonomously and according to the discipline’s standards, (b) develop a clear sense of how to conduct oneself as an instructor of philosophy, (c) finish coursework and teaching assignments in a timely manner.

outcomes for professional capacity/autonomy.

In the Philosophy of Science concentration, the core course (PHL XXXXH), PHL 3000H and courses in cognate areas support professional capacity and autonomy by simultaneously immersing students in methodology and delivering content.

The program as a whole and its intensity also contribute in multiple ways to the development of professional capacity.

5. Level of Communication Skills

Communication Skills is defined in the MA in Philosophy as the ability communicate complex ideas and arguments clearly, both orally and in writing.

Many program design features and requirements ensure these student outcomes. Transferable communication skills, especially for written communication, are taught in all philosophy courses and especially in those on the graduate level.

8 Assessment of Teaching and Learning

Please describe the methods of evaluation for the various program requirements as they relate to the proposed field or concentration. Describe how the methods for assessing student achievement are appropriate and effective relative to established program learning outcomes and DLEs (in other words, how will faculty be able to determine whether students have learned and can do what we expect them to by the end of the program). How will the program document and demonstrate the level of performance of students consistent with the University’s DLEs?
Method of Evaluation. Coursework Master’s. Course graded in accordance with standard grading procedures, including principally, the assessment of written essay assignments, but also presentations, reports, and in some cases, exams.

9 Consultation

Describe the expected impact of what is being proposed on the nature and quality of the unit’s/division’s program of study and any impact on other units/divisions. Describe any consultation with the Deans of Faculties/divisions that will be implicated or affected by the creation of the proposed field or concentration.

The MA concentration in Philosophy of Science will supplement the philosophy department’s existing programs and allow the department access to a new pool of academically strong students for MA study in the department. We expect that these students will complement the students in the general program, and make for an overall MA cohort with a broad range of philosophically important skills, with students in the MA concentration in Philosophy of Science bringing strong formal and empirical backgrounds to the cohort.

The MA concentration in Philosophy of Science capitalizes on the strengths of the IHPST in the history of science and science and technology studies. It differs from IHPST’s MA in history and philosophy of science in focussing on the philosophy aspect, rather than the history of science and technology studies. The two disciplines (Philosophy and HPS) have very different approaches to science and technology. The program thus fills a new void in the curriculum, on a subdiscipline of philosophy that is both of historical and contemporary importance. The Department of Philosophy has consulted with the Acting Chair of IHPST, who has expressed enthusiasm about the program and what it means for the IHPST, which will make contributions to both required and elective courses for the concentration. The Acting Chair has declared that she sees no overlap – or competition – with IHPST’s existing graduate programs. The program is also supported by faculty who teach in philosophy of science in the philosophy department.

The Department also consulted with the Office of the Dean, which is supportive of this initiative.

10 Resources

Describe any resource implications of the change(s) including, but not limited to, faculty complement, space, libraries and enrolment/admissions. Please specify where this may impact significant enrolment agreements with the Faculty/Provost’s office.
Indicate if the major modification will affect any existing agreements with other institutions, or will require the creation of a new agreement to facilitate the major modification (e.g., Memorandum of Understanding, Memorandum of Agreement, etc.). Please consult with the Provost’s office (vp.academicprograms@utoronto.ca) regarding any implications to existing or new agreements.

The creation of an MA concentration in Philosophy of Science will require the Department of Philosophy to increase the size of its typical MA admissions from 12 to 15, with 10 students entering the general MA program and 5 students entering the Philosophy of Science concentration. The small increase in students may require some extra space for student carrels and meetings, which will be addressed by existing means of allocating carrels.

10.1 Faculty Complement

Brief statement to provide evidence of the participation of a sufficient number and quality of faculty who will actively participate in the delivery of the program.

- Comment on the expertise of the faculty who will actively support or participate in the field or concentration and discuss the role of any adjunct or contractual faculty.
- Comment on the impact of the field or concentration on the parent program, focusing on the extent of the diversion of faculty from existing graduate courses and/or supervision.
- Comment on the provision of supervision of experiential learning opportunities, as appropriate.
- If relevant, describe the plan to provide additional faculty resources to support the program.

The Graduate Department of Philosophy has a number of faculty working in the philosophy of science and closely related areas, including senior faculty William Seager, Denis Walsh, Mohan Matthen, and Jessica Wilson; mid-career faculty Jonathan Weisberg and Franz Huber; and junior faculty Mike Miller and Trevor Teitel. The department is also currently searching to fill a position in philosophy and statistics. Another junior search for philosophy of science will take place in 2020-2021 (the search was approved last year, but postponed to allow for a rethink of the Department’s offerings in philosophy of science). Faculty in areas adjacent to philosophy of science include Phil Kemer, Byeong-uk Yi, and Michael Caie. There is further faculty support in IHPST. Since this is a coursework Master’s, there are no issues about supervision.

Table 4: Detailed Listing of Committed Faculty

<table>
<thead>
<tr>
<th>Faculty Name and Rank</th>
<th>Home Unit</th>
<th>Graduate Faculty Membership (all in the)</th>
<th>Area(s) of Specialization</th>
</tr>
</thead>
</table>

Developed by the Office of the Vice-Provost, Academic Programs
Template updated on March 7, 2017
10.2 Space/Infrastructure

This program has no implications for space or equipment. It can rely on existing space in the Department of Philosophy.

11 UTQAP Process

The UTQAP pathway is summarized in the table below.

<table>
<thead>
<tr>
<th>Steps</th>
<th>Approval</th>
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<tbody>
<tr>
<td>Development/consultation within unit</td>
<td></td>
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<tr>
<td>Consultation with Dean’s office (and VPAP)</td>
<td>Graduate unit approval as appropriate</td>
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<tr>
<td></td>
<td>Faculty/divisional council</td>
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<tr>
<td>Submission to Provost’s office</td>
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Appendix A: Calendar Copy

Master of Arts

Program Description

The MA may be taken on a full-time or part-time basis.

Applicants should consult the department’s web page for complete details on graduate programs, course offerings, short academic profiles of graduate faculty, and application procedures.
**Minimum Admission Requirements**

- Applicants are admitted under the General Regulations of the School of Graduate Studies. Applicants must also satisfy the Department of Philosophy's additional admission requirements stated below.

- Admission requires an appropriate bachelor's degree from a recognized university. Applicants must have a strong background in philosophy (roughly equivalent to an undergraduate major), with an average grade of at least a mid-B in the applicant's overall program and at least an A– in the applicant's philosophy courses. In certain cases, an applicant whose background in philosophy is deficient may be admitted to the MA program but be required to take one or two additional courses, possibly at the undergraduate level.

- Applicants whose primary language is not English and who are not graduates of a university whose language of instruction is English must complete the Test of English as a Foreign Language (TOEFL) with the following minimum scores:
  - paper-based TOEFL exam: 600 and 5 on the Test of Written English (TWE)
  - Internet-based TOEFL exam: 100/120 and 22/30 on the writing and speaking sections.

- Equivalent results in some other recognized test of English-language proficiency are acceptable.

**Program Requirements**

- **Coursework.** Students must successfully complete 3.5 full-course equivalents (FCEs) in philosophy including:
  - at least 1.0 FCE in the history of philosophy
  - at least 1.0 FCE in the problems of philosophy
  - 1.0 FCE designated courses only for MA students. One 0.5 FCE in the broad area of ethics/politics and the other 0.5 FCE in the broad area of metaphysics and epistemology. Either could be historical. The timing of the course requirements is:
    - 0.5 FCE taken in the first session
    - 0.5 FCE taken in the second session

- teaching workshop PHL 2152H Philosophy and Teaching (0.5 FCE)

- MA Professional Development Seminar PHL 3000H (0.5 FCE)

- Each MA student is assigned an advisor who will recommend a suitable program of philosophy courses. The student's choice of courses must be approved by the department.

- It is possible for a full-time student to complete all requirements for the MA degree in the Fall and Winter sessions; however, the department encourages students to take no more than 3.0 FCEs during the Fall and Winter sessions and to complete the last course during the Summer session.

**Program Length**

3 sessions full-time (typical registration sequence: F/W/S);
5 years part-time

**Time Limit**

3 years full-time;
6 years part-time

**Concentration: Philosophy of Science**

Developed by the Office of the Vice-Provost, Academic Programs
Template updated on March 7, 2017
The Philosophy of Science concentration will provide students with a background in general philosophy of science and with specific topics in philosophy of science that will prepare them for academic work at the PhD level in philosophy and for non-academic career tracks that require strong critical thinking skills as well as an understanding of science and its role in knowledge and society.

**Minimum Admission Requirements**

- Applicants are admitted under the General Regulations of the School of Graduate Studies. Applicants must also satisfy the Department of Philosophy's additional admission requirements stated below.

- Admission requires an appropriate bachelor's degree from a recognized university. Applicants must have a strong interest in philosophy (evidenced in a strong writing sample, personal statement, and letters of reference), and a strong academic background in either philosophy or, typically, a subject in the natural and social sciences, with minimum average grades of A-.

- Applicants whose primary language is not English and who are not graduates of a university whose language of instruction is English must complete the Test of English as a Foreign Language (TOEFL) with the following minimum scores:
  - Paper-based TOEFL exam: 600 and 5 on the Test of Written English (TWE)
  - Internet-based TOEFL exam: 100/120 and 22/30 on the writing and speaking sections.

- Equivalent results in some other recognized test of English-language proficiency are acceptable.

**Program Requirements**

- **Coursework.** Students must successfully complete 3.5 full-course equivalents (FCEs) including:
  - PHL XXXXH: Advanced Introduction to Philosophy of Science (0.5 FCE)
  - 1.5 FCE in graduate seminars in philosophy of science or cognate areas of philosophy such as logic, philosophy of language, epistemology, metaphysics, or philosophy of mind.
  - PHL 3000H: MA Professional Development Seminar (0.5 FCE)

- Each MA student is assigned an advisor who will recommend a suitable program of philosophy courses. The student's choice of courses must be approved by the department.

- It is possible for a full-time student to complete all requirements for the MA degree in the Fall and Winter sessions; however, the department encourages students to take no more than 3.0 FCEs during the Fall and Winter sessions and to complete the last course during the Summer session.

**Program Length**

3 sessions full-time (typical registration sequence: F/W/S): 5 years part-time

**Time Limit**

3 years full-time; 6 years part-time
Appendix B: List of Courses associated with the new field

Department of Philosophy

Philosophy of Science
JPH 2192H Philosophy of Science
JPH 2194H Topics in the History of the Philosophy of Science
PHL 2127 Philosophy of Mathematics
PHL 2195H Philosophy of Biology
PHL 2196H Topics in the Philosophy of Science
PHL 2199H Seminar in the Philosophy of Science

NEW
PHL XXXH: Advanced Introduction to Philosophy of Science (core course)
- An introduction to a collection of core issues in contemporary philosophy of science. Topics may include: explanation, confirmation, realism and anti-realism, reduction and emergence, causation, theories and models, or laws of nature.
- Upon completion of the course, students will be prepared to engage with many of the core topics in contemporary philosophy of science.

PHL XXXH: Philosophy of Physics
- Description: Analysis of epistemological and metaphysical issues arising in quantum mechanics, relativity, statistical mechanics, or other physical theories of philosophical interest.
- Learning Outcomes: Upon completion of the course, students will be prepared to engage with core philosophical questions arising from physical theories.

Metaphysics and Epistemology
PHL 2100H Metaphysics
PHL 2101H Seminar in Metaphysics
PHL 2105H Topics in Metaphysics
PHL 2110H Epistemology
PHL 2111H Seminar in Epistemology
PHL 2115H Topics in Epistemology
PHL 2117H Formal Epistemology
PHL 2119H Philosophical Foundations of Multidisciplinary Studies
PHL 2171H Philosophy of Mind
PHL 2172H Seminar in Philosophy of Mind
PHL 2174H Freud's Philosophy of Mind
PHL 2175H Philosophy of Perception
PHL 2181H Philosophy of Religion
PHL 2182H Seminar in Philosophy of Religion

Logic and the Philosophy of Language
PHL 2120H Introductory Mathematical Logic

Developed by the Office of the Vice-Provost, Academic Programs
Template updated on March 7, 2017
PHL 2122H Advanced Logic
PHL 2124H Seminar in Logic
PHL 2125H Many Valued and Modal Logics
PHL 2126H Philosophy of Logic
PHL 2127H Philosophy of Mathematics
PHL 2128H Decision and Game Theory
PHL 2130H Topics in Informal Logic
PHL 2137H Philosophy of Action
PHL 2190H Philosophy of Language
PHL 2191H Seminar in the Philosophy of Language
PHL 2197H Foundations of Computation and Information

IHPST

HPS 2000H History of Mathematics
HPS 2001H History of Physics
HPS 2003H History of Biology
HPS 2004H History of Medicine
HPS 2007H History of Astronomy
HPS 2008H History of Psychology
HPS 2009H History and Philosophy of the Social Sciences
HPS 4101H Topics in the History of Physics
HPS 4105H Topics in the History of the Social and Behavioural Sciences