

FACULTY OF ARTS & SCIENCE
PROGRAM PROPOSAL PACKAGE FOR NEW PROGRAMS 2009-2010

Please note that all new program proposals and major program changes must be reviewed by the POST Advisory Committee before they are considered by the Curriculum Committees. **Deadlines** for review by the POST Advisory Committee are **October 1** (for review at the October 8 meeting of the POST Advisory Committee) or **October 8** (for review at the October 15 meeting).

A new program proposal must include: (1) the Calendar description of the proposed program; (2) the academic rationale for proposing the introduction of this program this year; (3) the learning outcomes of the program, i.e. the knowledge, methodologies and skills students will have acquired by the time they complete the program; (4) (for proposed new specialist and major programs) the means by which students in the program will satisfy the degree objectives of all Faculty of Arts and Science undergraduate major and specialist programs, namely depth of knowledge, the required competencies and an integrative, inquiry-based activity; (5) the resource implications of the proposed program.

As a result of the Curriculum Renewal process in the Faculty of Arts and Science there are new rules for major and specialist programs:

All specialist POSTs require a minimum of 10 FCEs and a maximum of 14 FCEs (only in exceptional circumstances can up to 16 FCEs be allowed for a specialist program that draws heavily on courses in more than one unit);

Every unit that offers a specialist POST must have at least one specialist program of 14 FCEs or fewer;

No POST can require more than 3 FCEs to be completed within the first year of study (where more than 3 first-year FCEs are required, students must be able to take the fourth FCE as a co-requisite in their second year);

All specialist POSTs require at least 1 FCE at the 400-level;

All major POSTs require at least 0.5 FCE at the 400-level.

These are in addition to existing requirements that:

All specialist POSTs must include at least 4 FCE at the 300+-level;

Major POSTs require a sequence of 6 to 8 FCEs, at least 2 FCEs of which must be at the 300+-level;
and

Minor POSTs require a sequence of 4 FCEs, including at least 1 FCE at the 300+-level.

Note that the Calendar description should include some of what you include under Learning Outcomes. Both may usefully include an indication of the possible career paths which graduates of the program will be equipped to embark upon. In the Calendar description and/or the Learning Outcomes section you should indicate the steps to achieve the learning outcomes in each year of study (so that students are aware of what they should have accomplished by the end of each year). The description should list all the courses or groups of courses required for completion of the program and should provide the names/subjects of the courses or groups of courses as well as their course numbers. In addition, units proposing new programs are encouraged to indicate other programs or courses in other disciplines that might be complementary to their proposed program.

With respect to the Degree Objectives required for specialist and major programs, the meanings of Depth of Study, the Competencies (Critical and Creative Thinking, Communication, Information Literacy, Quantitative Reasoning, and Social and Ethical Responsibility), and Integrative, Inquiry-Based Activity are provided in the attached Guidelines, which also include suggested ways of implementing them within your program.

Proposers of new minor programs are not required to describe means of satisfying the Degree Objectives, and therefore do not need to complete Section 4, but they must provide a description of the learning outcomes in Section 2.

Please note (in Box 1) the need for a Course Cross-Listing and Access Agreement form in cases where you are cross-listing another unit's courses in your requirements.

**FACULTY OF ARTS & SCIENCE
NEW PROGRAM FORM for 2009-2010 CALENDAR**

Please fill in spaces with your own words.
Delete text if not applicable.

1. Department or Program

Mathematics and Philosophy (Science program)

Provide an EXACT PROGRAM DESCRIPTION as it is to appear in the Calendar, including all required courses and recommended electives and their prerequisites. As well as following the rules and guidelines in the General Instructions above, you should particularly indicate which courses are required in first year (maximum 3FCEs), and the courses required at the 300- and 400-levels. For any courses included in your list that are offered by another unit, you must provide a Course Cross-Listing & Access Agreement form that indicates you have secured the consent of the head of the unit sponsoring the courses you are cross-listing. As part of your program proposal package, you should thus have one Course Cross-Listing & Access Agreement form for each unit providing courses listed in your program. When submitting your proposal package, cc the head of the other unit so both parties will have a record of this agreement.

Specialist program:

(12 full courses or their equivalent including one full course at the 400-level)

First year:

MAT157Y1, 240H1, 247H1; PHL245H1

Higher years:

1. MAT 257Y1, 327H1, 347Y1, 354H1/357H1
2. PHL 345H1/H5, MAT 309H1 / PHL 348H1/H5
3. Four of: PHL 246H1/H5, 346H1/H5, 347H1/H5, 349H1, 451H1/H5, 480H1
4. One full course from PHL200Y1 / PHL205H1 / PHL206H1 / PHL210Y1
5. PHL265H1 / 275H1
6. 2 additional PHL or MAT courses, to a total of 12.

NOTE: The logic component of this program is offered jointly with the Department of Philosophy at the University of Toronto, Mississauga. Students enrolling in this program must be prepared to travel to the UTM campus in order to complete program requirements with an H5 designation.

2. Academic Rationale

Please outline the reasons for creating this program at this time. These should include the relation of the proposed program to the unit's plans and priorities, and whether it reflects changes in the discipline and/or changes in student interests and academic needs.

Note: If this is a specialist program with greater than 14 FCEs, please give the explicit rationale in terms of the multi-unit training necessary.

This is a modification of an existing program. Changes have been made on the philosophy side only. At the moment, the St. George Department of Philosophy has been suffering from a shortage of logicians, while the UTM Department is in surplus. The logic programs on the two campuses coincide, and for two years now St. George students enrolled in this program have been travelling to UTM to complete certain requirements. These modifications formalize the arrangement, and provide enrolment priority to St. George students with this POSt at UTM. This is in points 2-3. Changes in 4-5 are intended to bring the program into conformity with the revisions made to the primary PHL programs in 08-09, and to satisfy curriculum renewal objectives.

3. Learning Outcomes

Please give a detailed description of the learning outcomes of this program, including those which are in the Calendar description. They should include the goals concerning the disciplinary and/or interdisciplinary knowledge, understanding of relevant methodologies, and the skills which will have been acquired by a student on completion of the program; and, if not clear from the Program Description, the way these outcomes are achieved as the student progresses through the program.

The program will provide students with in-depth knowledge and expertise in the area of mathematics and formal logic. Students will acquire the skills to analyze arguments and construct formal proofs, to test the soundness and completeness of logical systems, etc. (PHL245-345) With mastery of these areas, students will be able to move on to study topics in the more advanced field of metamathematics, which considers the relationship between logic and mathematics, the status of mathematical objects, and the nature of mathematical truth (PHL346-349). At the same time, requirements in the history of philosophy and moral/political philosophy will provide students with an understanding of the way that formal techniques of reasoning have influenced broader currents of thought, from Aristotle to the present.

4. Degree Objectives

Means by which students will satisfy the following DEGREE OBJECTIVES (with reference to the attached guidelines):

a. DEPTH OF KNOWLEDGE

Please state how particular courses and/or course sequences in your program achieve depth as defined in the attached Depth of Knowledge definition and guidelines.

This program contains strong course sequences on both sides: PHL245 – PHL345-9 – PHL451/480H, as well as, e.g., MAT157Y – MAY257Y – MAT347Y. The nature of the subject-matter, in both cases, is such that the later courses build upon results established in the earlier. There is also one FCE required at the 400-level.

b. COMPETENCIES

Please describe how each of the following competencies (as defined in the attached Competencies: Definitions and Guidelines) is developed within the program to the degree relevant to the area/discipline. If the program does not address a particular competency, please explain why that competency is not relevant to your area/discipline

and how students in your program are expected to attain that competency within their overall degree program.

i. Critical and Creative Thinking

Requirement 4 has students doing one Y course in ancient, medieval, or early modern philosophy. The surface goal is to instill a comprehensive understanding of the Western philosophical tradition. In philosophy, however, the past is always relevant to the present, and critical engagement with the texts is presupposed. Thus students will acquire competence in careful textual analysis, research and critical reading and thinking skills.

ii. Communication

Apart from heavy emphasis upon effective writing and argumentation in philosophy, the courses listed in requirements 4 and 5 all have small group (20) tutorials, always with a participation grade. Thus students must learn to express their understanding of philosophical ideas and argument verbally, as well as to engage with their fellow students.

iii. Information Literacy

Apart from the need to master the usual research tools offered through the library and information commons (e.g. online journal articles access), PHL245 is now taught using an interactive web-based system (Logic 2000), which students must master.

iv. Quantitative Reasoning

Self-evident.

v. Social and Ethical Responsibility

Requirement 5 consists of a half-course in either moral or political philosophy (i.e. “value theory”). Through these courses, student develop ethical reasoning skills.

c. AN INTEGRATIVE, INQUIRY-BASED ACTIVITY

Please indicate which course(s) or other appropriate activities are eligible means for satisfying this program requirement. The attached Integrative, Inquiry-based Activity description provides both definition and guidelines, with examples of the many types of appropriate courses or other activities.

The program requires one FCE at the 400-level, as well as PHL451H/PHL480H in the primary list of advanced logic courses. 400-level courses in philosophy are all small-group seminars (20 cap) or cross-listed graduate courses. The standard requirement in such courses is an in-depth research essay (20-25 pages).

5. Departmental/College Resource Implications The Office of the Dean requires a statement of the resource requirements for the proposed program, and an indication of whether you can meet these requirements through your existing resources, or have received additional resources from the Dean. Please give details of the resource areas below.

| | |
|---|---------------------|
| Estimated Enrolment per Academic Year in this program (please explain) | 5 (current average) |
| New courses necessary to mount for this program | none |
| Additional Instructor(s) Requirements | none |
| Teaching Assistant(s) Requirements | No change |
| Laboratory Equipment Requirements | No change |

| | |
|---|---|
| Computing Resources Requirements | No change |
| Other | |
| DELETE the statement that DOES NOT apply: | |
| I will provide these resources required for this Program from my existing budget. | |
| | |
| DATE October 3, 2008 | Name of Chair/Program Director Joseph Heath, Philosophy Robert Jerrard, Mathematics |

CHECK LIST

For Specialist Programs

1. Is the number of required courses at least 10 and not more than 14?
2. If the number of required courses is above 14 (maximum 16) has the justification been provided?
3. Does your unit offer at least one Specialist program with 14 FCEs or fewer required courses?
State which program(s).
4. Does the program have at least one FCE required at the 400 level?
5. Does the program have at least 4 FCEs required at the 300+ level?
6. Which courses (maximum 3 FCEs) are required of first year students?
7. Does your description of the Learning Outcomes indicate how the outcomes are accomplished in each year?
8. Which courses achieve the Depth of Knowledge in the program?
9. Will the following Competencies be satisfied? (Yes/no)
 - i. Critical and Creative Thinking
 - ii. Communication
 - iii. Information Literacy
 - iv. Quantitative Reasoning
 - v. Social and Ethical Responsibility

If any competency cannot be satisfied within the proposed program, have you explained why not and how the students are expected to acquire that competency?
10. Is there an integrative, inquiry-based activity within the program?
11. If you are including courses offered by another unit(s) in your program description, provide a *Course Cross-Listing & Access Agreement* signed by the academic head of the other unit for each unit providing courses in your program.

For Major programs

1. Is the number of required courses at least 6 and not more than 8?
2. Does the program have at least 0.5 FCE required at the 400 level?
3. Does the program have at least 2 FCEs required at the 300+ level?
4. Does your description of the Learning Outcomes indicate how the outcomes are accomplished in each year?
5. Which courses achieve the Depth of Knowledge in the program?
6. Will the following Competencies be satisfied? (Yes/no)
 - i. Critical and Creative Thinking
 - ii. Communication
 - iii. Information Literacy
 - iv. Quantitative Reasoning
 - v. Social and Ethical Responsibility

If any competency cannot be satisfied within the proposed program, have you explained why not

and how the students are expected to acquire that competency?

7. Is there an integrative, inquiry-based activity within the program?
8. If you are including courses offered by another unit(s) in your program description, provide a *Course Cross-Listing & Access Agreement* signed by the academic head of the other unit for each unit providing courses in your program.

For minor programs

1. Are there at least 4 required FCEs?
2. Does the program include at least 1 required FCE at the 300+ level?
3. Have you indicated how the Learning Outcomes of the program will be satisfied by the sequence of courses?
4. If you are including courses offered by another unit(s) in your program description, provide a *Course Cross-Listing & Access Agreement* signed by the academic head of the other unit for each unit providing courses in your program.

For all programs

Have you completely described the resource implications and how the resources will be made available?