Motion:

THAT the proposal for incorporating within programs of study the degree objectives of depth of knowledge, competencies, and the integrative, inquiry-based activity be approved effective 1 September 2008.

Details of the Proposal
The mandate of the Degree Objectives Committee (DOC) is to consider the full set of recommendations in the CRRC Final Report regarding the adoption of overall degree objectives for our honours bachelor degrees, stemming from the following overarching recommendation:

Recommendation 1: The Faculty of Arts and Science will adopt the following learning objectives as the general goal for all of our honours bachelor degrees:

a. Depth of knowledge that cultivates critical understanding and intellectual rigour in at least one field of study.

b. Competencies in learning and applying knowledge that are fundamental to responsible and effective participation in the workplace, in the community, in scholarly activity, and in personal life:
   i. Critical and Creative Thinking
   ii. Communication
   iii. Information Literacy
   iv. Quantitative Reasoning
   v. Ethical Thinking and Decision-Making [Renamed: Social and Ethical Responsibility]

c. Breadth of knowledge across a range of knowledge areas that reflect the richness of the arts, the complexity of global cultures, and the varied structures, processes, and concepts of the social and natural world.

d. Integration of skills and knowledge developed in a student’s course of study within an inquiry-based activity in the upper years.

For the academic year 2007-2008, the committee addressed Depth, Competencies, and Integration (items a, b, and d above), resulting in the current proposal. In academic year 2008-2009, the DOC will turn its attention to the development of an appropriate Breadth requirement, referred to in item c above.

The DOC focused first on Depth, Competencies, and Integration because they form a set of expectations for our graduates that are naturally incorporated into programs of study, whereas Breadth will be a complementary requirement to a student’s concentration(s). We propose that these three learning objectives be attained within our degrees by
ensuring that every Major and Specialist POSt explicitly address them. The four items below, with associated Attachments 1-4, explain the components of our proposal.

1. **Depth**: We define “depth of knowledge” as the achievement of several of a set of learning outcomes that contribute to mastery of an area through intense study. Depth of knowledge will be ensured through an appropriate sequence of courses or possible pathways through such courses, culminating in study at the 400-level for Specialist POSts (minimum 1.0 FCE) and Major POSts (minimum 0.5 FCE), and study at the 300-level for Minor POSts (minimum 1.0 FCE). A detailed statement of the proposal for the depth of knowledge objective is included in Attachment 1.

2. **Competencies**: The five competencies are defined as follows:
   
i. **Critical and Creative Thinking**: the purposeful and reflective examination of knowledge and ideas beyond memory and recall, whereby students can make informed judgments, synthesize what they have learned, and apply their ideas in novel ways.
   
ii. **Communication**: the ability to express ideas, arguments, and facts to convey an intended message in a manner that is cogent and effective.

iii. **Information Literacy**: the ability to effectively find, evaluate, create, use and present knowledge, data and critical analyses for scholarly and other purposes.

iv. **Quantitative Reasoning**: the ability to reason with basic mathematical, numerical and statistical concepts in order to enhance understanding of an area of study and to help navigate a data-driven world.

v. **Social and Ethical Responsibility**: the ability to engage in critical reflection upon questions of responsibility to oneself and society and to develop values of academic and personal integrity.

We have developed brief guidelines to help program sponsors determine effective ways for addressing each competency in their programs. The definitions and guidelines are included in Attachment 2.

3. **Integration**: We define the integrative, inquiry-based activity as a course or other activity that involves substantial investigation, synthesis of knowledge, and communication of results of the inquiry. This activity aims to further the development of critical thinking by providing students a significant inquiry-based learning experience that integrates knowledge within their area of study, and optionally across other areas, and allows them to apply their knowledge, skills, and experiences to a comprehensive project or essay. We have developed guidelines for this activity that adhere closely to the proposal in the CRRC Final Report, which was very
detailed. The goal of this activity and the guidelines for achieving it are included in Attachment 3.

4. **Implementation**: The DOC has chosen the POSSt as the vehicle to ensure these requirements are met, rather than making them separate degree requirements that involve extra monitoring mechanisms. Students, by virtue of completing their program requirements, will have ensured they meet these degree objectives. There will thus be no need for separate “tag and count” procedures for each requirement.

The definitions and guidelines for each of the objectives (depth, competencies, and integrative, inquiry-based activity) will form the basis for new program proposal forms (being developed by the POSSt Advisory Committee) that provide better guidance to program sponsors in making their learning objectives explicit. When program sponsors bring forward a new or changed program, they will be asked to detail: how the program achieves the depth of knowledge learning outcomes; how the program develops each competency to the degree relevant to the area of study; and what courses or activities in the program qualify as an integrative, inquiry-based activity. Details of the implementation proposal are provided in Attachment 4.

In elaborating these new degree objectives and the associated requirements, the DOC recognized many issues which need further discussion to support an effective implementation of the requirements. While it is beyond the scope of this committee to provide clear mechanisms for addressing these issues, we identify them here since they informed our discussion.

- Clearly, curriculum committees within each academic unit will need to review their undergraduate programs to determine how best to accommodate these new requirements, and possibly propose changes to improve their ability to achieve the degree objectives. The POSSt Advisory Committee can provide guidance in this process, and the Curriculum Renewal Initiatives Fund can help support curricular innovations that meet these goals.
- The Curriculum Committees in the Faculty will need to take seriously the goal of incorporating these degree objectives within the programs of study. At least in this time of transition over the coming years, it may make sense to have program proposals go to the POSSt Advisory Committee in advance of the Curriculum Committees in order for sponsors to receive constructive feedback on their proposals.
- Given the new UPRAC auditing procedures and the need to show that programs meet the Faculty’s statement of Degree Level Expectations, a process must be developed that ensures that all programs are brought into alignment with these new requirements, and that provides support for program sponsors in linking the degree objectives to the overall statement of degree level expectations for the Faculty. We propose that the Faculty devise a schedule that brings all programs into accord with these new requirements within a 5 year period (before the next UPRAC audit). Because all programs
will need to be reviewed by the Curriculum Committees, this schedule must distribute the workload across the next 5 years (i.e., not all programs can be reviewed in the fifth year).

- Although it is best for pedagogical reasons to incorporate these objectives into POSts as far as possible, some program sponsors may have trouble naturally accommodating a particular objective within a certain POSt without relying on courses outside their unit. Over the next few months, the Faculty should gather detailed information from program sponsors on the specific issues that arise. This information will help to inform the development of a new breadth requirement (the mandate of the DOC during 2008-2009), and will also help to guide the Faculty in brokering agreements among units that will best meet the goals of the objectives and the needs of the students, without placing undue burden on any particular units. (The latter may be especially important for college-based and stand-alone programs.)
Depth of Knowledge

Definition
Depth of knowledge is the achievement of several of a set of learning outcomes, detailed below, that contribute to mastery of an area through intensive study. Depth of knowledge is to be developed through an appropriate sequence of courses or possible pathways through such courses, culminating in study at the 400-level for Specialist and Major POSFs, and study at the 300-level for Minor POSFs.

Guidelines
Depth of knowledge includes the ability to:

• understand advanced subject material as determined by those in the discipline or interdisciplinary area of study;
• demonstrate a command of increasingly advanced material that progressively probes (an aspect of) the subject more thoroughly;
• use the scholarly materials and research tools relevant to the area(s) of study;
• produce a substantial research or inquiry-based work;
• draw together a broad range of prior learning and apply it to a challenging problem or topic.

Implementation
The depth requirement will be implemented in phases to enable POSFs for whom the minimum is a challenge to meet the requirement:

• For curricular approval, all POSFs will be required to include an explanation of how the POSF achieves depth of knowledge.
• All Specialist POSF requirements shall include in their requirements at least 1.0 FCE at the 400-level; all Major POSF requirements, at least 0.5 FCE. The current requirement that Minor POSFs contain at least 1.0 FCE at the 300-level or higher shall remain sufficient for Minors.
• All new proposals for POSFs, beginning with curriculum approved for the 2008-2009 Calendar, will be required to include the depth of knowledge requirement in their description.
• Existing POSFs will have a transition period of 3-5 years to demonstrate that they meet this requirement.
• POSFs may either provide the 400-series requirement from their own courses or cooperate with other units for student access to those units’ courses.
• Small advanced seminars or individually-designed research projects may be cited as evidence of depth but are not required as a necessary element of depth.
Competencies: Definitions and Guidelines

The outcomes we seek in our honours graduates go beyond basic writing and numeracy to much more sophisticated reasoning skills that will support a high level of responsible functioning in the world. We have identified competencies critical to learning and to applying knowledge for responsible, effective, and adaptable participation in the workplace, community, and daily life, regardless of the particular area of specialization. The competencies include critical and creative thinking, communication, information literacy, quantitative reasoning, and social and ethical responsibility. These competencies support: the gathering, manipulation, evaluation, and creation of a range of types of information; integration of new information with one’s knowledge and beliefs; decision-making and problem-solving that draw on critical analysis and assessment of various types of information, including social and ethical factors; and communication of these processes and their results to a range of audiences. All program sponsors are asked to develop each of these competencies to the degree relevant to the area of study. To provide guidance on aligning with these new requirements, we define each of the competencies on the following pages and give specific implementation suggestions; here we note general mechanisms that are relevant to addressing any competency within programs:

- Identification of appropriate existing courses or sequences of courses within the program.

Many programs of study already develop some or all of these competencies. If a POST addresses a particular competency, all that is required is to state explicitly how students progressing through the POST achieve an appropriate level of proficiency. Program sponsors are encouraged to take into account the competency guidelines in considering whether their coverage of a specific competency could be more fully developed to better meet the needs of their students.

- Specification of integrative, inquiry-based activities where competencies are developed.

Note that all Major and Specialist POSTs must include a requirement for an integrative, inquiry-based activity, so this would be a natural means for addressing at a relatively advanced level the competencies of critical and creative thinking, communication, and information literacy, as well as others relevant to the area of study.

- Development of new courses or modules within relevant courses.

This would be an opportunity for academic units to collaborate in creating/designing courses or course materials that develop appropriate skills
which are difficult to cover within the confines of a single program. For example, a group of humanities units may decide to collaborate in offering a course that develops quantitative reasoning skills relevant to the analysis of texts.

• Identification of appropriate breadth courses that students are encouraged to take.

A new breadth requirement will be developed over the 2008-2009 academic year. One of the goals of the requirement will be to identify how the various breadth areas cover relevant competencies, and so a program description might point to breadth courses that are especially complementary to that program.
Critical and Creative Thinking

Definition
The critical and creative thinking competency is defined as the purposeful and reflective examination of knowledge and ideas beyond memory and recall, whereby students can make informed judgments, synthesize what they have learned, and apply their ideas in novel ways.

Guidelines
This competency includes the ability to:
- read analytically;
- understand and analyze arguments;
- scrutinize and pose questions and hypotheses;
- gather, evaluate, and reason about evidence;
- examine assumptions, biases, and theoretical underpinnings of questions, evidence or concepts;
- solve problems and apply solutions;
- use one’s knowledge and skills in addressing real-world problems both within one’s domain(s) of expertise and in new domains;
- synthesize ideas and information into new patterns, theories or modes of understanding;
- develop well-informed new ideas, advocate for them, and defend them;
- apply knowledge to new situations and deal effectively with the unexpected.

Implementation
Programs and courses are encouraged to develop students’ critical and creative thinking abilities, and give them feedback on those skills, by providing many and varied opportunities to:
- examine the structures and connections among main ideas in the discipline and their relation to those from other disciplines;
- present the variety of theoretical constructs active in the area of study;
- examine how the knowledge within the area has been generated, what questions have been posed, what theoretical and conceptual assumptions lie behind those questions, and how evidence for the ideas is evaluated;
- scrutinize common misconceptions, faulty reasoning, and misapplications of knowledge in the discipline;
- assess the historical and theoretical context of inquiry within the area;
- develop an openness to new assumptions and modes of analysis;
- extrapolate from given knowledge to new ideas and theories;
- create valid arguments and justifications for their own ideas.
Communication

Definition
The communication competency is defined as the ability to express ideas, arguments, and facts to convey an intended message in a manner that is cogent and effective.

Guidelines
This competency includes the ability to:
• organize ideas into coherent arguments supported by appropriate kinds of evidence;
• structure one’s communications for varying audiences and contexts;
• produce effective written work;
• present one’s work orally and visually in a manner appropriate to the area of study.

Implementation
To develop communication skills most effectively within the disciplinary or interdisciplinary context of the student’s area of study, each academic unit should:
• develop a year-by-year statement of learning outcomes for communication skills that reflect the conventions and standards of the discipline;
• integrate throughout its courses the development of communication skills aimed at achieving the learning outcomes;
• ensure that student grades reflect an assessment of both the knowledge content acquired by the student and the ability to effectively communicate that knowledge;
• provide opportunities to practice communication skills in written, oral, and visual formats to various audiences.
Information Literacy

Definition
The information literacy competency is defined as the ability to effectively find, evaluate, create, use and present knowledge, data and critical analyses for scholarly and other purposes.

Guidelines
This competency includes the ability to:
- Develop familiarity with major resources for a discipline or field, including relevant finding aids (e.g. library web pages, research guides), databases (e.g. library catalogues, indexes, abstracts, bibliographies, numerical and other data), and tools for data creation and manipulation (e.g. software, mathematical models, experimental techniques);
- Construct and implement effectively designed strategies to locate and retrieve information;
- Use different kinds of resources and judge when each is appropriate (e.g. scholarly versus non-scholarly resources, encyclopedias, textbooks, books, journals, articles; primary versus secondary documents; fee-based versus free resources; music, images, videos, foreign language materials; software tools);
- Evaluate resources and the information they contain, assessing relevance, authority and reliability;
- Synthesize information from various sources;
- Understand the relevant economic, legal and social issues surrounding the use of information (e.g. intellectual property rights, plagiarism);
- Identify investigative methods (e.g. laboratory experiments, simulations, fieldwork, surveys, interviews) and use tools to analyze information to support a particular hypothesis or to produce an original argument;
- Create and then present reliable and meaningful information based on the results of the effective investigation or research undertaken.

Implementation
Implementation of the information literacy competency might involve:
- Integration into the fabric of courses (e.g. through objectives, wording of assignments, embedded library instruction, and graded course-based information literacy assignments);
- Collaboration among faculty, students, teaching assistants, discipline-specific liaison librarians, and IT specialists;
- Consideration of models of teaching information literacy (e.g. faculty-, librarian-, and TA-led workshops; course-customized online tutorials; and Blackboard modules);
- Recognition that information literacy is a cumulative process taking place over a student’s course of study and culminating in upper-level depth courses.
Quantitative Reasoning

Definition
The quantitative reasoning competency is defined as the ability to reason with basic mathematical, numerical and statistical concepts in order to enhance understanding of an area of study and to help navigate a data-driven world.

Guidelines
This competency includes the ability to:

- Approach complex problems with an understanding of the value of quantitative thinking;
- Make well-founded mathematical, numerical and statistical judgments (e.g., involving testing hypotheses, understanding arguments, analyzing evidence, and detecting fallacies);
- Develop skills to address problems that involve numerical data, uncertainty, statistics, or modeling (e.g., drawing conclusions from data, evaluating risk, understanding statistical significance and inference, and understanding how assumptions influence the conclusions drawn from mathematical models);
- Understand and use a range of algebraic, geometric, statistical, graphical and computational tools when needed in one’s fields of study and in one’s life beyond university.

Implementation
Program sponsors are encouraged to consider a range of options for enabling students to develop this competency to an appropriate level, including:

- identification of courses or sequences of courses within an academic unit that develop quantitative reasoning skills within the area of study;
- development of joint courses between units that share a common disciplinary outlook;
- development of teaching materials and course modules that could be integrated within a number of units that share a common disciplinary outlook;
- identification of courses in other units that are compatible with the program of study. (This requires coordination and cooperation among units and at the Faculty level.)
Social and Ethical Responsibility

Definition
The social and ethical responsibility competency is defined as the ability to engage in critical reflection upon questions of responsibility to oneself and society and to develop values of academic and personal integrity.

Guidelines
This competency includes the ability to:

- identify ethical dilemmas and consider one’s own values in comparison with differing cultural, philosophical or historical perspectives;
- understand the political, social and environmental consequences of applying academic knowledge and evaluate those consequences;
- recognize and act in accordance with personal responsibility to local and global communities.

Implementation
Integrating the ethical and social responsibility competency into programs might involve:

- Case studies and teaching modules that could be integrated into discipline-focused courses;
- Teaching materials on research ethics on a discipline-specific basis, to be integrated into introductory courses;
- New or existing courses with a significant focus on the issues in the guidelines (e.g., courses from a variety of disciplines that deal with theoretical or applied ethics, issues of social responsibility, value systems across cultures or time periods, etc.);
- Seminars on ethical dilemmas led by professionals in fields related to the area of study;
- Public issues forums or public lectures on the ethical dimensions of contemporary issues (e.g., ethics and scientific knowledge; bioethics; ethics and the environment) which students could attend and write about for academic credit;
- Service-learning activities (civic engagement and community outreach), with a writing component through which students reflect upon the broader social significance of their activities;
- Team-taught interdisciplinary lecture courses that include an ethics module.
Integrative, Inquiry-based Activity

Definition
All students must participate in a course or other activity that involves substantial investigation, synthesis of knowledge, and communication of results of the inquiry.

Guidelines
This activity furthers the development of critical thinking by providing students a significant inquiry-based learning experience that integrates knowledge within their area of study, and optionally across other areas, and allows them to apply their knowledge, skills, and experiences to a comprehensive project or essay. All inquiry-based learning should involve the (independent) framing and investigation of nontrivial questions. As an integrative activity, we intend that this requirement normally be fulfilled in the third or fourth year of study, to ensure that students can undertake a creative synthesis of the knowledge and methodological skills developed during their undergraduate education. The results of the investigation should be communicated in an effective, compelling, and justifiable manner in written and/or oral form. Some significant group activity would allow students to interact with one another in a way that facilitates discussion of their investigations, but this is not required to meet the goals of this activity.

A wide range of options is possible for providing integrative, inquiry-based learning opportunities, with some examples being:

- directed studies course, capstone project course, seminar course, or other in-depth course with significant project/essay, and possibly a presentation;
- laboratory course or substantial independent field work with significant project report;
- other significant creative product with associated report;
- senior thesis;
- in-depth project/investigation and report within the context of international study abroad or other exchanges, or within a government/public sector/industrial internship, co-op, or Professional Experience Year (PEY).

This is not an exhaustive list, and other frameworks may better suit specific disciplines or interdisciplinary programs. This type of experience should have some consistency in interpretation, but be flexible enough to accommodate disciplinary differences.

Implementation
Every Major and Specialist POSt will include as part of the program requirements the completion of an integrative, inquiry-based activity within the program. Each unit will thus need to specify the possible integrative, inquiry-based activities that are eligible for meeting this requirement in each of their Major and Specialist POSsts. As part of the curriculum approval process, the POSt Advisory Committee will review these to ensure that there is consistency in interpretation of the goals for this activity outlined above. Units are further encouraged to review the design for all four years of their programs to ensure that students are well prepared to engage in the activities they provide for meeting this requirement. The goal is that the design of a POSt will reflect the need for students to
engage in one of the integrative, inquiry-based activities in their upper years, and that preparatory experiences for such opportunities should occur at earlier stages in a program.
Implementation of Degree Objectives: Depth, Competencies, Integration

When program sponsors bring forward a new or changed program (Major or Specialist), they will be asked to detail how the program achieves each of the degree objectives of depth, competencies, and integration. A new Program Proposal Form will step program sponsors through these items, and will be accompanied by the guidelines for each objective (included here as Attachments 1, 2, and 3). Each program description will provide the depth of knowledge learning outcomes, as well as a statement of the 400-level requirement appropriate to the program (minimum 0.5 FCE for Majors, 1.0 FCE for Specialists). The proposal will also state what courses or activities in the program qualify as an integrative, inquiry-based activity.

With respect to the competencies, program sponsors will be expected to describe how each competency is addressed in the proposed program to the degree relevant to the area of study. In delineating the competencies, the Degree Objectives Committee was firmly persuaded that the competencies are best developed as an integral part of the program of study rather than separately, and that most programs should be able to incorporate the competencies to the extent necessary. In this way, students would achieve the five competencies by virtue of completing their program requirements.

In some cases, a program may have academic rationale for not developing a particular competency within the program. In such cases, the program sponsor must present the justification for this, and then explain the mechanism by which students in the program will acquire that competency. The program sponsor may do one of the following:

- Explain how the student will acquire the competency through normal satisfaction of their breadth requirements;
- Provide a list of course options that students in the program must take outside the program. The list must be sufficiently extensive that it does not place undue burden on other units to train these program students in the competency. The units offering the courses must be consulted.

Note, however, that we strongly encourage program sponsors in this situation to collaborate with related academic units to provide courses to develop competencies in the manner most relevant to the general area of study.

In order for this approach to be feasible, program sponsors must know whether satisfying a breadth requirement will address any particular competency. This would be a constraint on the new breadth requirement to be developed next year. Since we will need to develop guidelines for new breadth courses that better satisfy our students’ educational needs, the question of whether a breadth course satisfies particular competencies should be taken into account in this process.

1 Since Minor programs need only achieve the depth objective, they will likely use a different form, and we do not consider them further here.