UNIVERSITY OF TORONTO SCARBOROUGH

OFFICE OF THE CAMPUS COUNCIL

FOR APPROVAL **PUBLIC** **OPEN SESSION**

TO: UTSC Academic Affairs Committee

SPONSOR: Prof. William Gough, Vice-Principal Academic and Dean
CONTACT INFO: 416-208-7027, vpdean@utsc.utoronto.ca

PRESENTER: Prof. Mark Schmuckler, Vice-Dean Undergraduate
CONTACT INFO: 416-208-2978, vicedean@utsc.utoronto.ca

DATE: Tuesday, February 28, 2017

AGENDA ITEM: 5

ITEM IDENTIFICATION:

Minor Undergraduate Curricular Changes (for approval)

JURISDICTIONAL INFORMATION:

University of Toronto Scarborough Academic Affairs Committee (AAC) "is concerned with matters affecting the teaching, learning and research functions of the Campus" (*AAC Terms of Reference, Section 4*). Under section 5.6 of its terms of reference, the Committee is responsible for approval of "Major and minor modifications to existing degree programs." The AAC has responsibility for the approval of Major and Minor modifications to existing programs as defined by the University of Toronto Quality Assurance Process (*UTQAP, Section 3.1*).

GOVERNANCE PATH:

1. **UTSC Academic Affairs Committee [For Approval] (February 28, 2017)**

PREVIOUS ACTION TAKEN:

No previous action in governance has been taken on this item.

HIGHLIGHTS:

This package includes minor modifications to undergraduate curriculum, submitted by the academic units identified below, which require governance approval. Minor

modifications to curriculum are understood as those that do not have a significant impact on program or course learning outcomes. They require governance approval when they modestly change the nature of a program or course.

Undergraduate Minor Curriculum Modifications for Approval, Report 3 includes changes submitted by:

- The Department of Arts, Culture and Media
  - 4 new courses
  - Minor program modifications
- The Department of Computer and Mathematical Sciences
  - Course changes
  - 3 new courses
  - Minor program modifications
- Health Studies
  - 14 new courses
- The Department of Historical and Cultural Studies
  - 10 new courses
- The Department of Physical and Environmental Sciences
  - 4 new courses
- The Department of Sociology
  - 4 new courses
  - Minor program modifications
- Combined Degree Programs, Honours Bachelor of Science or Honours Bachelor of Arts/Master of Teaching
  - Minor program modification

FINANCIAL IMPLICATIONS:

There are no net financial implications to the campus operating budget.

RECOMMENDATION:

Be It Resolved,

THAT the minor modifications to undergraduate programs, submitted by UTSC undergraduate academic units, as described in Undergraduate Minor Curriculum Modifications for Approval, Report 3, dated February 9, 2017, and recommended by the Vice-Principal Academic and Dean, Professor William Gough, be approved effective April 1, 2017 for the academic year 2017-18.

DOCUMENTATION PROVIDED:

1. 2017-18 Curriculum Cycle: Undergraduate Minor Curriculum Modifications for Approval Report 3, dated February 9, 2017.

UNIVERSITY OF TORONTO SCARBOROUGH

2017-18 Curriculum Cycle
Undergraduate Minor Curriculum Modifications for Approval
Report 3

February 9, 2017

Department of Arts, Culture and Media

New Courses

MDSB09H3 Kids These Days: Youth, Language and Media
Across the globe, youth represent both positive and negative aspects of the future. Drawing on ethnographic examples from many cultural contexts, this course asks how youthful generations form around changing language and new media technologies. Topics include: gender, sexuality, indigeneity, race/ethnicity, class, diaspora.
Same as ANTB35H3
Prerequisite: ANTA02H3 or MDSA01H3
Exclusion: ANTB35H3, (MDSB02H3), (ANTB21H3)
Breadth Requirement: Arts, Literature & Language

Rationale:
This course is designed to address the need for a more general B-level offering on the topics of language and media, and cultural issues of communicative process.

- The course is designed for the Socio-Cultural stream of Anthropology and for Media Studies.
- It replaces ANTB21/MDSB02 "Anthropology of Language and Media" as the foundational course in this area of study.
- The course is distinctive in that it will address specifically the communicative aspects of youth as a cultural category, looking at how language and media become principal expressions of "youth."

Consultation:
Within the academic unit and with the Department of Anthropology. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

MDSD11H3 Senior Research Seminar in Media and Journalism
Focusing on independent research, this course requires students to demonstrate the necessary analysis, research and writing skills required for advanced study. This seminar course provides the essential research skills for graduate work and other research-intensive contexts. Students will design and undertake unique and independent research about the state of journalism.
Same as JOUD11H3
Prerequisite: ACMB02H3 and [an additional 4.5 credits in MDS or JOU courses, 1.0 credit of which must be at the C-level]
Exclusion: JOUD11H3
Breadth Requirement: Arts, Literature & Language

Rationale:
This course will be one half of a double-numbered pairing with the existing course – JOUD11H3. It will support both the Media Studies and the proposed Journalism Studies streams of the Major in Media Studies by expanding the available upper-level course offerings.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

VPSC76H3 The Documentary Image
Lens-based art forms such as photography and video have a rich tradition as a documentary practice. These media have engendered their own techniques, aesthetic, and cultural context. This course is designed to introduce students to the role of the documentary image in contemporary art practice, through personal, conceptual, and photo-journalistic projects accomplished outside of the studio.
Prerequisite: VPHA46H3 and VPSB56H3 and [VPSB58H3 or VPSB67H3] and [1.0 additional credit at the B-or C-level in Studio courses]; students enrolled in the Specialist and Major programs in Studio must also complete ACMB01H3
Enrolment Limits: 20
Breadth Requirement: Arts, Literature & Language

Rationale:
This course will combine VPSB87H3 Documentary Photography and VPSC52H3 Documentary Video into a single course so as to provide a more accessible and interdisciplinary framework for documentary studies. VPSB87H3 Documentary Photography and VPSC52H3 Documentary Video are being deleted.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

VPSC77H3 Interdisciplinary Photo Concepts
This course will expand photographic practice into a range of other media. Students will explore the sculptural, temporal, performative, and painterly potential of the photograph and photographic technologies.
Prerequisite: VPHA46H3 and VPSB56H3 and VPSB67H3 and [1.0 credit at the B- or C-level in Studio courses]; students enrolled in the Specialist and Major programs in Studio must also complete ACMB01H3
Exclusion: VIS318H, FAS347Y
Enrolment Limits: 15
Breadth Requirement: Arts, Literature & Language

Rationale:
The proposed course replaces VPSC58H3 Photo III. It takes an interdisciplinary approach to concepts in photography, and will provide a more accessible C-level photo related course.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Program Changes

Major (Joint) program in New Media Studies (BA)

Overview of Changes:

1. Add ACMB01H3 as a required course to component 1 of the program requirements; total credits of the component increases from 1.0 to 1.5;
2. Decrease the total credits of component 2 of the program requirements from 1.5 to 1.0 to be chosen from MDSB61H3, MDSB62H3, MDSB63H3;
3. Remove component 3 and 4 of the program requirements; reduces total credits to complete program by 1.0 credit.

Calendar Copy Showing Changes:

MAJOR (JOINT) PROGRAM IN NEW MEDIA STUDIES (ARTS)

Undergraduate Advisor: 416-287-7184 Email: nme-undergrad-advisor@utsc.utoronto.ca

Program Requirements

Students must complete ~~9.0~~ 8.0 full credits of which at least 2.0 must be at the C- or D-level, including:

1. ~~1.0~~ 1.5 credits:
MDSA01H3 Introduction to Media Studies
MDSA02H3 History of Media
ACMB01H3 Critical Reading, Thinking and Writing for ACM Programs

2. ~~1.5 credits:~~ 1.0 credit from the following:
MDSB61H3 Mapping New Media
MDSB62H3 Visual Culture and Communication
MDSB63H3 Sound and Visual Media

~~3. 0.5 additional credit in MDS courses~~

~~4. 0.5 credit from the following:~~
~~CSCA20H3 Computer Science for the Sciences~~
~~VPAA06H3 Visual and Performing Arts Management in the Digital Age~~
~~VPMC91H3 Electronic Music I~~
~~VPMC97H3 Music, Technologies, Media~~
~~VPSA62H3 Foundation Studies in Studio~~
~~VPSA73H3 Video I~~
~~VPSA74H3 Digital Studio I~~
~~VPSB67H3 Photo I~~
~~VPSB72H3 Digital Publishing~~
~~VPSB75H3 Photo II~~
~~VPSB76H3 Video II~~
~~VPSB80H3 Digital Studio II~~
~~VPSB86H3 Sculpture and Technology~~
~~VPSB87H3 Documentary Photography~~

~~VPSB88H3 Sound Art~~
~~VPSB89H3 Digital Animation I~~
~~VPSC52H3 Documentary Video~~
~~VPSC70H3 Theory and Practice: New Media in Studio~~
~~VPSC89H3 Digital Animation II~~
~~Note: Additional courses with a media focus offered by other programs and departments may be eligible to meet this requirement (with permission of the program director).~~

~~5.~~ 3. 4.5 credits from Centennial College:
New Media Group 1.
NMEA01H3 Digital Fundamentals
NMEA02H3 Introduction to New Media Communications
NMEA03H3 The Language of Design
NMEA04H3 Interface Design, Navigation and Interaction I

New Media Group 2.
[Students will be eligible to enrol in these courses after successfully completing all courses in New Media Group 1]
NMEB05H3 Interface Design, Navigation and Interaction II
NMEB06H3 Project Development and Presentation
NMEB08H3 Application Software for Interactive Media
NMEB09H3 Sound Design
NMEB10H3 Design for New Media

~~6.~~ 4. 1.0 full credit:
NMED01H3 New Media Senior Project
NMED20H3 Theory and Practice of New Media
Note: NMED01H3 and NMED20H3 are taught at UTSC. All other NME courses are taught at Centennial College.

Rationale:
1. ACMB01H3 Critical Reading, Thinking and Writing for ACM Programs is a core course among all ACM programs. Adding it to requirement #1 brings New Media Studies into conformity with other programs.
2. MDSB61H3, MDSB62H3 and MDSB63H3 are designated as digital practice courses. Requiring students to take 1.0 credits instead of 1.5 provides more flexibility in completing the major without compromising program learning outcomes. Course selection guidelines still encourage students to take all three.
3. Major programs in ACM typically require 8.0 credits for completion so that students can more easily combine Major programs. Reducing the number of required credits from 9.0 to 8.0 will bring New Media Studies into conformity with other programs, including Media Studies.

Although there is no substantive change to the program learning outcomes as a result of these changes:
1. Learning Outcome #3 (Develop a capacity to critically evaluate the content of media, including the visual and aural, and analyze its underlying ideologies and implications) is emphasized with the addition of ACMB01H3 Critical Reading, Thinking and Writing for ACM programs, which gives students a broad-based foundation in the critical evaluation skills developed in Learning Outcomes #3.

Learning Outcome #6 (Use digital technologies to create media projects and thereby also acquire basic media production and dissemination skills as well as a better understanding of media platforms, rhetoric and logic) remains a central focus through courses taken at Centennial College and digital practice courses MDSB61H3, MDSB62H3 and MDSB63H3.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Specialist in Studio (BA)
Major in Studio (BA)
Minor in Studio (Arts)

Overview of Changes:
Specialist

1. move VPSA70H3 from component 1 to component 2; changes from required course to optional; update course code for VPSA70H3 to VPSB70H3
2. add VPSB56H3 to component 1; remove VPSB74H3 from component 1
3. add VPSB58H3 and VPSB59H3 as options in component 2
4. add VPSC56H3 and VPSC59H3 as options in component 3

Major

1. add VPSB56H3 as a required course – now component 4
2. add VPSB58H3 and VPSB59H3 as options in component 5; update course code for VPSA70H3 to VPAB70H3 in component 5
3. add VPSC56H3 and VPSC59H3 as options in component 6

Minor

1. VPSA70H3 in component 4 changes from required to optional; update course code for VPSA70H3 to VPAB70H3 in component 4
2. add VPSB56H3, VPSB58H3, and VPSB59H3 as options to component 4
3. add VPSC56H3 and VPSC59H3 as options in component 5

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SPECIALIST PROGRAM IN STUDIO (ARTS)

Undergraduate Advisor (General): Email: studio-program-supervisor@utsc.utoronto.ca

Enrolment in the Specialist in Studio is limited. Students must apply to enter the program after completing four credits including VPSA62H3 and VPSA63H3. Decisions are made on program admissions only twice a year, in May and August, and are based on student requests submitted to the registrar through ROSI. Admission is determined on the basis of a student's overall GPA and grades in VPSA62H3 and VPSA63H3. For students applying after 8-10 credits, admission will be based on the overall GPA and grades in VPS courses taken.

Program Requirements
This program requires the completion of 14.0 credits, including 4.0 ~~full~~ credits at the C-or D-level of which at least 1.0 credit must be at the D-level.

1. (3.~~5~~0 credits)
ACMB01H3 Critical Reading, Thinking and Writing for ACM Programs
MDSA01H3 Introduction to Media Studies
VPSA62H3 Foundation Studies in Studio
VPSA63H3 But Why is it Art?
~~VPSA70H3 Drawing I~~ (*moved to component 2*)
VPSB56H3 Digital Studio I
VPSB73H3 Curatorial Perspectives I
~~VPSB74H3 Drawing II~~

2. (0.5 credit)
One of the following:
VPSB58H3 Video I
VPSB59H3 Sculpture I
VPSB70H3 Drawing I (*moved from component 1*)

~~2.~~ 3. (0.5 credit)
One of the following:
VPSC56H3 Studio Practice
VPSC59H3 Theory and Practice: Three-Dimensional Work
VPSC66H3 Theory and Practice: Two Dimensional Work
VPSC68H3 Theory and Practice: Time-Based Work
VPSC69H3 Theory and Practice: Art in a Globalizing World
VPSC70H3 Theory and Practice: New Media in Studio

~~3.~~ 4. (6.0 credits)
6.0 additional credits from VPS of which at least 1.5 credits should be at the C- level and 1.0 credit at the D level.

~~4.~~ 5 (3.0 credits)
VPHA46H3 Ways of Seeing: Introduction to Art Histories
2.5 additional credits in art history of which 1.0 ~~full~~ credit should be at the C- level.

~~5.~~ 6 (1.0 credit)
1.0 credit from the following:
ENGB12H3 Life Writing
ENGB70H3 Introduction to Cinema
ENGB75H3 Cinema and Modernity I
GASC42H3 Film and Popular Culture in South Asia
MDSA02H3 History of Media
MDSB05H3 Media and Globalization
MDSB61H3 Mapping New Media
MDSB62H3 Visual Culture and Communication

MAJOR PROGRAM IN STUDIO (ARTS)

Undergraduate Advisor (General): Email: studio-program-supervisor@utsc.utoronto.ca

Enrolment in the Major in Studio is limited. Students must apply to enter the program after completing four credits including VPSA62H3 and VPSA63H3. Decisions are made on program admissions only twice a year, in May and August, and are based on student requests submitted to the registrar through ROSI. Admission is determined on the basis of a students overall GPA and grades in VPSA62H3 and VPSA63H3.

Program Requirements
Students must complete 8.0 ~~eight full~~ credits as follows ~~including~~:

1. VPSA62H3 Foundation Studies in Studio
   VPSA63H3 But Why Is It Art?
2. ACMB01H3 Critical Reading, Thinking and Writing for ACM Programs
3. VPHA46H3 Ways of Seeing: Introduction to Art Histories
4. VPSB56H3 Digital Studio I
5. At least ~~one-half~~ 0.5 credit from:
   VPSB58H3 Video I
   VPSB59H3 Sculpture I
   ~~VPSB74H3 Drawing II~~
   ~~VPSA70H3~~ VPSB70H3 Drawing I
6. At least ~~one-half~~ 0.5 credit from:
   VPSC56H3 Studio Practice
   VPSC59H3 Theory and Practice: Three-Dimensional Work
   VPSC66H3 Theory and Practice: Two-Dimensional Work
   VPSC68H3 Theory and Practice: Time-Based Work
   VPSC69H3 Theory and Practice: Art in a Globalizing World
   VPSC70H3 Theory and Practice: New Media in Studio
7. 3.5 additional credits from courses in VPS, at least one full credit of which must be at the C-level.
8. ~~One full~~ 1.0 credit at the D-level in VPS

MINOR PROGRAM IN STUDIO (ARTS)

Undergraduate Advisor (General): Email: studio-program-supervisor@utsc.utoronto.ca

Enrolment in the Minor in Studio is limited. Students must apply to enter the program after completing four credits including VPSA62H3 and VPSA63H3. Decisions are made on program admissions only twice a year, in May and August, and are based on student requests submitted to the registrar through ROSI. Admission is determined on the basis of a student's overall GPA and grades in VPSA62H3 and VPSA63H3.

Program Requirements
Students are required to complete a total of 4.0 ~~four full~~ credits as follows:

5. VPSA62H3 Foundation Studies in Studio
6. VPSA63H3 But Why is it Art?
7. VPHA46H3 Ways of Seeing: Introduction to Art Histories

8. At least 0.5 credit from:
   VPSB56H3 Digital Studio I
   VPSB58H3 Video I
   VPSB59H3 Sculpture I
   ~~VPSA70H3~~ VPSB70H3 Drawing I
9. 1.0 credits at the B-level in VPS
10. 0.5 credit~~s~~ from the following:
    VPSC56H3 Studio Practice
    VPSC59H3 Theory and Practice: Three-Dimensional Work
    VPSC66H3 Theory and Practice: Two-Dimensional Work
    VPSC68H3 Theory and Practice: Time-Based Work
    VPSC69H3 Theory and Practice: Art in a Globalizing World
    VPSC70H3 Theory and Practice: New Media in Studio

An additional 0.5 credits at the C-level in VPS

Rationale:
Changes are necessary to give students more options in completing program requirements. Students indicate difficulty in finding enough C-level courses to meet both program and university requirements for graduation, and these changes will help rectify the problem and streamline the process toward graduation.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Department of Computer and Mathematical Sciences

Course Changes

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CSCB07H3 Software Design
An introduction to software design and development concepts, methods, and tools, using a statically-typed object-oriented language such as Java. Topics from: version control, build management, unit testing, refactoring, object oriented design and development, design patterns and advanced IDE usage.
Prerequisite: CSCA48H3 and [CGPA 2.75 or enrolment in a CSC Subject POSt or enrolment in a non-CSC Subject POSt for which this course is needed to satisfy program requirements]
Exclusion: CSC207H
Breadth Requirement: Quantitative Reasoning

CSCB09H3 Software Tools and Systems Programming
Software techniques in a Unix-style environment, using scripting languages and a machine-oriented programming language (typically C). What goes on in the system when programs are executed. Core topics: creating and using software tools, pipes and filters, file processing, shell programming, processes, system calls, signals, basic network programming.

Prerequisite: CSCA48H3 & [CGPA 2.75 or enrolment in a CSC Subject POSt or enrolment in a non-CSC Subject POSt for which this course is needed to satisfy program requirements]
Exclusion: CSC209H
Breadth Requirement: Quantitative Reasoning

CSCB36H3 Introduction to the Theory of Computation
Mathematical induction with emphasis on applications relevant to computer science. Aspects of mathematical logic, correctness proofs for iterative and recursive algorithms, solutions of linear and divide-and-conquer recurrences, introduction to automata and formal languages.
Prerequisite: CSCA48H3 & [(CSCA65H3) or CSCA67H3] & [CGPA 2.75 or enrolment in a CSC Subject POSt or enrolment in a non-CSC Subject POSt for which this course is needed to satisfy program requirements]
Exclusion: CSC236H, CSC240H
Breadth Requirement: Quantitative Reasoning

CSCB58H3 Computer Organization
Principles of the design and operation of digital computers. Binary data representation and manipulation, Boolean logic, components of computer systems, memory technology, peripherals, structure of a CPU, assembly languages, instruction execution, and addressing techniques. There are a number of laboratory periods in which students conduct experiments with digital logic circuits.
Prerequisite: [CSCA48H3 or PSCB57H3] & [CGPA 2.75 or enrolment in a CSC Subject POSt or enrolment in a non-CSC Subject POSt for which this course is needed to satisfy program requirements]
Exclusion: CSC258H
Breadth Requirement: Quantitative Reasoning

CSCB63H3 Design and Analysis of Data Structures
Design, analysis, implementation and comparison of efficient data structures for common abstract data types. Priority queues: heaps and mergeable heaps. Dictionaries: balanced binary search trees, B-trees, hashing. Amortization: data structures for managing dynamic tables and disjoint sets. Data structures for representing graphs. Graph searches.
Prerequisite: CSCB36H3 & [CGPA 2.75 or enrolment in a CSC Subject POSt or enrolment in a non-CSC Subject POSt for which this course is needed to satisfy program requirements]
Exclusion: CSC263H, CSC265H
Breadth Requirement: Quantitative Reasoning

Rationale:
1. The CGPA prerequisite has been increased from 2.5 to 2.75 because an increase in enrolment numbers mandates stricter admission controls to our B-level courses, to stay within our resource constraints.
2. The addition of "or enrolment in a non-CSC Subject POSt for which this course is needed to satisfy program requirements" is added as there are programs other than CSC that require a "B-, C- or D-level CSC course" and with the new CGPA of 2.75 some students in those programs might otherwise have been prevented from enrolling as they are not in a CSC Subject POSt.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

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CSCD18H3 Computer Graphics

~~Identification and characterization of objects manipulated in computer graphics, operations on these objects, efficient algorithms to perform these operations, and interfaces to transform one type of object to another. Display devices, display data structures and procedures, graphical input, object modeling, transformations, illumination models, light effects; graphics packages and systems.~~

The course will cover in detail the principles and algorithms used to generate high-quality, computer generated images for fields as diverse as scientific data visualization, modeling, computer aided design, human computer interaction, special effects, and video games. Topics covered include image formation, cameras and lenses, object models, object manipulation, transformations, illumination, appearance modeling, and advanced rendering via ray-tracing and path-tracing. Throughout the course, students will implement a working rendering engine in a suitable programming language.

Prerequisite: MATB24H3 and MATB41H3 and [CSCB09H3 or proficiency in C]
and CSCC37H3 and [a CGPA of at least 3.0 or enrolment in a Computer Science Subject POSt]
Exclusion: CSC418H
Breadth Requirement: Quantitative Reasoning

Rationale:

The course description has been updated to reflect an updated course outline that covers current image rendering techniques, and that provides students with a solid grasp of how these techniques can be implemented. The updated course will allow students a realistic chance of continuing work on computer graphics, either at work, or as part of a graduate degree.

The ***current*** course covers the following topics (shown in course-sequence):

- Image representation, image storage and manipulation
- Simple primitives in 2D (lines and circles)
- Modeling curves and surfaces in 2D and 3D
- Transformations (rigid, conformal, affine)
- Projection (image formation) and projection matrices
- Coordinate frames and coordinate frame conversion
- Illumination
- Textures and appearance models
- Animation
- Ray tracing
- Distribution ray tracing and improvements to the simple ray tracer

The ***revised*** course will cover the following (also in course-sequence)

- Image formation process (what elements intervene in creating a picture)
- Rendering images by reversing the image formation process – introduction to ray tracing
- Object modeling: points, vectors, lines, 2D and 3D curves
- Coordinates and coordinate systems
- Transformations
- Projection and projection matrices
- Illumination, textures, and appearance models
- Simple ray tracing with local illumination
- Simple global illumination with reflection and refraction
- Realistic global illumination – path tracing

- Sampling light to reduce computational complexity
- Advanced rendering topics

While the two courses share a core set of learning outcomes the **revised** course is heavily oriented toward current state-of-the-art rendering algorithms, and is built around a solid understanding of the image formation process. Students will develop a solid grasp of these new techniques and also a more complete understanding of the image formation process. By the end of the course students will understand in detail all the elements involved in creating an image, and of how a simple, reverse model of image formation can be used to create high-quality renders. Students will attain a thorough understanding of each step in the process of modeling a scene, and of creating a realistic render of the scene using modern computer graphics techniques.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

New Courses

CSCC46H3 Social and Information Networks
How networks underlie the social, technological, and natural worlds, with an emphasis on developing intuitions for broadly applicable concepts in network analysis. Topics include: introductions to graph theory, network concepts, and game theory; social networks; information networks; the aggregate behaviour of markets and crowds; network dynamics; information diffusion; popular concepts such as "six degrees of separation", the "friendship paradox", and the "wisdom of crowds".
Prerequisite: CSCB63H3 and STAB52H3 and [MATA22H3 or MATA23H3] and [a CGPA of 3.0 or enrolment in a CSC Subject POSt]
Breadth Requirement: Quantitative Reasoning

Rationale:
CSCC46H3 will fill a significant gap in the spectrum of courses offered by CMS. It introduces students to a rapidly emerging area of network analysis and big data at the boundaries of computational social science and big data analysis. This is a very important area that address internet-scale data analysis, online human interaction (e.g., in online social networks) and commerce (e.g., computational economics). It does not overlap in content with any other course in CMS.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

MATA22H3 Linear Algebra I for Mathematical Sciences
A conceptual and rigorous approach to introductory linear algebra that focuses on mathematical proofs, the logical development of fundamental structures, and essential computational techniques. This course covers complex numbers, vectors in Euclidean n-space, systems of linear equations, matrices and matrix algebra, Gaussian reduction, structure theorems for solutions of linear systems, dependence and independence, rank equation, linear transformations of Euclidean n-space, determinants, Cramer's rule, eigenvalues and eigenvectors, characteristic polynomial, and diagonalization.
Prerequisite: Grade 12 Calculus and Vectors or [Grade 12 Advanced Functions and Introductory Calculus & Geometry and Discrete Mathematics]

Exclusion: MATA23H3, MAT223H
Breadth Requirement: Quantitative Reasoning

Rationale:
MATA22H3 will deliver a stronger, more rigorous exposure to linear algebra and algebraic-logical reasoning to students than the current linear algebra course, MATA23H3. It is designed to provide students with a theoretical basis and a rigorous exposure to proofs in linear algebra that will enable them to perform better in MATB24H3 (Linear Algebra II) and several upper-level mathematics courses, including MATC01H3 (Groups and Symmetry), MATC15H3 (Introduction to Number Theory), MATC32H3 (Graph Theory and Algorithms for its Applications), MATD01H3 (Fields and Groups).

MATA22H3 will replace MATA23H3 as a first-year program requirement for the Specialist and Major Programs in Computer Science, Mathematics, and Statistics. It will also complement the required calculus sequence MATA31H3/MATA37H3 for our CMS Specialist Programs. Those courses, along with CSC/MATA67H3, form a very solid first-year course package that is in keeping with the high academic standards we have for our CMS students and programs.

Consultation:
Within the academic unit. There has also been consultation with Program Supervisors of all UTSC programs currently using MATA23H3. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

STAA57H3 Introduction to Data Science
Reasoning using data is an integral part of our increasingly data-driven world. This course introduces students to statistical thinking and equips them with practical tools for analyzing data. The course covers the basics of data management and visualization, sampling, statistical inference and prediction, using a computational approach and real data.
Prerequisite: CSCA08H3
Exclusion: STAB22H3, STA130H, STA220H
Breadth Requirement: Quantitative Reasoning

Rationale:
STAA57H3 will reinforce and expand the Statistics curriculum at UTSC, while also supporting other programs within CMS. More specifically, the course is designed to be a practical and accessible introduction to Statistics/Data Science for first-year CMS students. It will help to attract students into the Major and Specialist programs in Statistics in a way that is complementary to the existing curriculum in these programs. Moreover, it will introduce students from other disciplines to Statistics/Data Science and equip them with basic knowledge in the field.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Program Changes

Specialist in Computer Science (BSc)
Specialist (Co-operative) in Computer Science (BSc)

Overview of Changes:
1. Increase the CGPA requirement for admission to the program from 2.5 to 2.75
2. Add MATA22H3 as an optional course in component 1
3. Add CSCC10H3 and CSCC46H3, and remove CSC318H as optional courses in all streams

Calendar Copy Showing Changes:

SPECIALIST PROGRAM IN COMPUTER SCIENCE (SCIENCE)

Supervisor of Studies: R. Pancer (416-287-7679) Email: pancer@utsc.utoronto.ca

Program Objectives
This program provides a working knowledge of the foundations of computer science: modern computer software and hardware, theoretical aspects of computer science, and relevant areas of mathematics and statistics. It also imparts an appreciation of the discipline's transformative impact on science and society. The program prepares students for further study and for careers in the computing industry. It comprises five streams with different emphases:

The Comprehensive Stream provides a broad and balanced exposure to the discipline. It is the stream best-suited for students planning to pursue graduate study in computer science, but it is also suitable for other career paths.

The Software Engineering Stream places a greater emphasis on the engineering side of the discipline, including computer systems and core applications.

The Information Systems Stream has a similar focus as the Software Engineering Stream, but it provides additional exposure to certain aspects of business management. It is of special interest to students wishing to pursue careers in technical management but who have a deep interest in the technology.

The Health Informatics Stream provides a broad perspective of the discipline and exposure to additional subjects, including statistics and social sciences, that are useful for a career as a computer scientist in the health sector.

The Entrepreneurship Stream includes a solid core of computer science and software engineering, while exposing students to the framework and methodologies that underlie the development of innovative technology ideas into viable commercial opportunities. Enrolment into the Entrepreneurship stream will be limited to highly qualified and motivated students, and preference will be given to students enrolled in the Specialist (Co-operative) program.

The structure of the program requirements allows one to easily switch streams until relatively late in the program. Consequently, these streams should not be viewed as rigidly separated channels feeding students to different career paths, but as a flexible structure that provides computer science students guidance in their course selection based on their broad (but possibly fluid) interests.

Program Admission
Enrolment in the Specialist in Computer Science (all streams) is limited.

Students may apply to enter the program after completing 4.0 credits, and must have passed all of the A-level CSC and MAT courses required in the program. Students with a CGPA of ~~2.5~~ 2.75 or greater across the core A-level courses (CSCA08H3, CSCA48H3, CSCA67H3, MATA22H3, ~~MATA23H3~~, MATA31H3, and MATA37H3) are guaranteed admission. Admission to the Entrepreneurship stream also requires the submission of a Supplementary Application Form (SAF) available from the CMS website.

Students who are not admitted as above, may apply after completing at least 7.5 credits, including CSCA08H3, CSCA48H3, CSCA67H3, MATA22H3, ~~MATA23H3~~, MATA31H3, MATA37H3, CSCB07H3, CSCB09H3, CSCB36H3, CSCB63H3, and [one of MATB24H3 or STAB52H3]. The CGPA will be calculated across these 11 courses, and a CGPA of ~~2.5~~ 2.75 or greater guarantees admission to the Specialist. Admission for students with a CGPA that is less than ~~2.5~~ 2.75 will depend on their CGPA, and the space available in the program.

Program Requirements
To remain in the program, a student must maintain a CGPA of 2.0 or higher throughout the program. To complete the program, a student must meet the course requirements described below. (One credit is equivalent to two courses). The program requirements comprise a core of 18 courses (9.0 credits), common to all streams and additional requirements which depend on the stream, for a total of 27 courses (13.5 credits) for the Comprehensive, Software Engineering, and Entrepreneurship streams, 29 courses (14.5 credits) for the Information Systems stream, and 30 courses (15.0 credits) for the Health Informatics stream.

Note: Many Computer Science courses are offered both at U of T Scarborough and at the St. George campus. When a course is offered at both campuses in a given session, U of T Scarborough students are expected to take that course at U of T Scarborough. The Department of Computer Science at the St. George campus cannot guarantee space for U of T Scarborough students in their courses, especially those offered at both campuses.

Core (9.0 credits)

1. Writing Requirement (0.5 credit) (*)
One of: ANTA01H3, ANTA02H3, (CLAA02H3), (CTLA19H3), CTLA01H3, ENGA10H3, ENGA11H3, ENGB06H3, ENGB07H3, ENGB08H3, ENGB09H3, ENGB17H3, ENGB19H3, ENGB50H3, (ENGB51H3), GGRA02H3, GGRA03H3, GGRB05H3, (GGRB06H3), (HISA01H3), (HLTA01H3), ACMA01H3, (HUMA01H3), (HUMA11H3), (HUMA17H3), (LGGA99H3), LINA01H3, PHLA10H3, PHLA11H3, WSTA01H3.
(*) It is recommended that this requirement be satisfied by the end of the second year.

2. A-level courses (3.0 credits)
CSCA08H3 Introduction to Computer Science I
CSCA48H3 Introduction to Computer Science II
CSCA67H3 Discrete Mathematics
MATA22H3 Linear Algebra I for Mathematical Sciences
MATA23H3 Linear Algebra I
MATA31H3 Calculus I for Mathematical Sciences
MATA37H3 Calculus II for Mathematical Sciences

3. B-level courses (3.5 credits)

CSCB07H3 Software Design
CSCB09H3 Software Tools and Systems Programming
CSCB36H3 Introduction to the Theory of Computation
CSCB58H3 Computer Organization
CSCB63H3 Design and Analysis of Data Structures
MATB24H3 Linear Algebra II
STAB52H3 Introduction to Probability

4. C-level courses (1.5 credits)
CSCC43H3 Introduction to Databases
CSCC69H3 Operating Systems
CSCC73H3 Algorithm Design and Analysis

5. D-level courses (0.5 credit)
CSCD03H3 Social Impact of Information Technology

A. Comprehensive Stream
This stream requires a total of 27 courses (13.5 credits). In addition to the core requirements 1-5 common to all streams, 9 other distinct courses (4.5 credits) must be chosen satisfying all of the following requirements:

6. Additional required courses (2.5 credits)
MATB41H3 Techniques of the Calculus of Several Variables I
CSCC24H3 Principles of Programming Languages
CSCC37H3 Introduction to Numerical Algorithms for Computational Mathematics
CSCC63H3 Computability and Computational Complexity
CSCD37H3 Analysis of Numerical Algorithms for Computational Mathematics

7. Electives from courses on computer systems and applications (1.0 credit)
Two of:
CSCC01H3 Introduction to Software Engineering
CSCC09H3 Programming on the Web
CSCC11H3 Introduction to Machine Learning and Data Mining
CSCC10H3 Human-Computer Interaction
CSCC46H3 Social and Information Networks
CSCC85H3 Introduction to Embedded Systems
CSCD01H3 Engineering Large Software Systems
CSCD18H3 Computer Graphics
CSCD27H3 Computer and Network Security
CSCD43H3 Database System Technology
CSCD58H3 Computer Networks
CSCD84H3 Artificial Intelligence
~~CSC318H Design of Interactive Computational Media~~
CSC320H Visual Computing
CSC321H Introduction to Neural Networks and Machine Learning
CSC401H Natural Language Computing
CSC469H Operating Systems Design and Implementation
CSC485H Computational Linguistics
CSC488H Compilers and Interpreters

8. Electives from courses related to the theory of computing (0.5 credit)
One of:
MATC09H3 Introduction to Mathematical Logic
MATC16H3 Coding Theory and Cryptography
MATC32H3 Graph Theory and Algorithms for its Applications
MATC44H3 Introduction to Combinatorics
CSC438H Computability and Logic
CSC448H Formal Languages and Automata
CSC465H Formal Methods in Software Design

9. CSC, MAT, or STA elective (0.5 credit)
One of:
Any C- or D-level CSC, MAT, or STA course, excluding MATC82H3, MATC90H3, and STAD29H3.

B. Software Engineering Stream
This stream requires a total of 27 courses (13.5 credits). In addition to the core requirements 1-5 common to all streams, 9 other distinct courses (4.5 credits) must be chosen satisfying all of the following requirements:

6. Additional required courses (3.0 credits)
MATB41H3 Techniques of the Calculus of Several Variables I
CSCC01H3 Introduction to Software Engineering
CSCC24H3 Principles of Programming Languages
CSCC37H3 Introduction to Numerical Algorithms for Computational Mathematics
CSCC63H3 Computability and Computational Complexity
CSCD01H3 Engineering Large Software Systems

7. Electives from courses on computer systems and applications (1.5 credits)
Three of:
CSCC09H3 Programming on the Web
CSCC10H3 Human-Computer Interaction
CSCC46H3 Social and Information Networks
CSCC11H3 Introduction to Machine Learning and Data Mining
CSCC85H3 Introduction to Embedded Systems
CSCD18H3 Computer Graphics
CSCD27H3 Computer and Network Security
CSCD43H3 Database System Technology
CSCD58H3 Computer Networks
CSCD84H3 Artificial Intelligence
~~CSC318H Design of Interactive Computational Media~~
CSC320H Visual Computing
CSC321H Introduction to Neural Networks and Machine Learning
CSC401H Natural Language Computing
CSC469H Operating Systems Design and Implementation
CSC485H Computational Linguistics
CSC488H Compilers and Interpreters

C. Information Systems Stream
This stream requires a total of 29 courses (14.5 credits). In addition to the core requirements 1-5 common to all streams, 11 other distinct courses (5.5 credits) must be chosen satisfying all of the following requirements:

6. Required management courses (1.5 credits)
MGTA01H3/(MGTA03H3) Introduction to Business
MGTA02H3/(MGTA04H3) Managing the Business Organization
MGHB02H3 Managing People and Groups in Organizations

7. Additional required mathematics and computer science courses (3.0 credits)
MATB41H3 Techniques of the Calculus of Several Variables I
CSCC01H3 Introduction to Software Engineering
CSCC37H3 Introduction to Numerical Algorithms for Computational Mathematics
CSCC63H3 Computability and Computational Complexity
CSCD01H3 Engineering Large Software Systems
CSCD43H3 Database System Technology

8. Electives from courses on computer systems and applications (1.0 credit)
Two of:
- CSCC09H3 Programming on the Web
- CSCC10H3 Human-Computer Interaction
- CSCC46H3 Social and Information Networks
- CSCC11H3 Introduction to Machine Learning and Data Mining
- CSCC85H3 Introduction to Embedded Systems
- CSCD18H3 Computer Graphics
- CSCD27H3 Computer and Network Security
- CSCD58H3 Computer Networks
- CSCD84H3 Artificial Intelligence
- ~~CSC318H Design of Interactive Computational Media~~
- CSC320H Visual Computing
- CSC321H Introduction to Neural Networks and Machine Learning
- CSC401H Natural Language Computing
- CSC469H Operating Systems Design and Implementation
- CSC485H Computational Linguistics
- CSC488H Compilers and Interpreters

D. Health Informatics Stream
This stream requires a total of 30 courses (15.0 credits). In addition to the core requirements 1-5 common to all streams, 12 other distinct courses (6.0 credits) must be chosen satisfying all of the following requirements:

6. Additional courses related to health studies (2 credits)
PHLB09H3 Biomedical Ethics
(MGTA06H3) Introduction to Health Management*
One of: (courses on health policy and politics)
- HLTB16H3 Introduction to Public Health
- HLTB17H3 Conceptual Models of Health
- HLTB40H3 Health Policy and Health Systems

(HLTC40H3) Introduction to Health Economics
One of: (other courses on health studies)
HLTB22H3 Biological Determinants of Health
HLTC05H3 Society, Health and Illness*
(*) These courses have prerequisites not included in this program's requirements.

7. Additional required computer science and statistics courses (1.5 credits)
CSCC01H3 Introduction to Software Engineering
STAB57H3 Introduction to Statistics
STAC50H3 Data Collection

8. Additional CSC, MAT and STA courses (2.5 credits)
MATB41H3 Techniques of the Calculus of Several Variables I
Four of:
any other C- or D-level CSC or STA courses, excluding STAD29H3 **†

NOTE: Of the five courses taken to satisfy this requirement, at least one must be a D-level course, and at least three must be CSC courses.
** Some C- and D-level CSC and STA courses have prerequisites that are not included among the required courses for this stream. Review the prerequisites carefully before selecting courses for this requirement. One or more courses taken to satisfy this requirement can be prerequisites for other courses also taken to satisfy this requirement.
† Among the CSC courses that can be used to satisfy this requirement there are two categories of courses that are particularly well aligned with the goals of the Health Informatics stream: software engineering and systems, and computer science applications. Courses in the category of software engineering and systems include: CSCC09H3, CSCC85H3, CSCD01H3, CSCD43H3, and CSCD58H3. Courses in the category of computer science applications include: CSCC11H3, CSCD18H3, and CSCD84H3.

E. Entrepreneurship Stream
This stream requires a total of 27 courses (13.5 credits). In addition to the core requirements 1-5 common to all streams, 9 other distinct courses (4.5 credits) must be chosen satisfying all of the following requirements:

6. Additional required courses (3.0 credits)
CSCC01H3 Introduction to Software Engineering
CSCC37H3 Introduction to Numerical Algorithms for Computational Mathematics
CSCC63H3 Computability and Computational Complexity
CSCD01H3 Engineering Large Software Systems
CSCD54H3 Technology Innovation and Entrepreneurship
CSCD90H3 The Startup Sandbox

7. Electives from courses in computer science, mathematics, and statistics (1.5 credits)
Three of:
MATB41H3 Techniques of the Calculus of Several Variables I
STAB57H3 Introduction to Statistics
CSCC09H3 Programming on the Web
CSCC10H3 Human-Computer Interaction

CSCC46H3 Social and Information Networks
CSCC11H3 Introduction to Machine Learning and Data Mining
CSCC24H3 Principles of Programming Languages
CSCC85H3 Introduction to Embedded Systems
CSCD18H3 Computer Graphics
CSCD27H3 Computer and Network Security
CSCD43H3 Database System Technology
CSCD58H3 Computer Networks
CSCD84H3 Artificial Intelligence
~~CSC318H Design of Interactive Computational Media~~
CSC320H Visual Computing
CSC321H Introduction to Neural Networks and Machine Learning
CSC401H Natural Language Computing
CSC469H Operating Systems Design and Implementation
CSC485H Computational Linguistics
CSC488H Compilers and Interpreters

SPECIALIST (CO-OPERATIVE) PROGRAM IN COMPUTER SCIENCE (SCIENCE)

Supervisor of Studies: R. Pancer (416-287-7679) Email: pancer@utsc.utoronto.ca
Co-op Contact: askcoop@utsc.utoronto.ca

Program Objectives
This program combines the coursework of the Specialist Program in Computer Science described above with paid work terms in public and private enterprises. It shares the goals and structure of the Specialist Program in Computer Science, including its five streams (Comprehensive, Software Engineering, Information Systems, Health Informatics, and Entrepreneurship), but complements study of the subject with considerable work experience.

Program Admission
Refer to the Program Admission requirements for the Specialist Program in Computer Science described above and section 6B.5 (Co-operative Programs) in this Calendar. Students entering this program after first year must have a CGPA of at least 2.75. Admission to the Entrepreneurship also requires the submission of a Supplementary Application form available from the CMS website.

Program Requirements
To remain in the program, a student must maintain a CGPA of 2.5 or higher throughout the program. To complete the program, a student must meet the work term and course requirements described below.

Work Term Eligibility & Requirements
Students must successfully complete three work terms, at most one of which can be during the summer. In addition, prior to their first work term, students must successfully complete a minimum of 7.0 credits, including all first year required courses (CSCA08H3, CSCA48H3, CSCA67H3, MATA22H3, ~~MATA23H3~~, MATA31H3, MATA37H3), as well as the non-credit Arts & Science Co-op Navigating the World of Work Course (COPD01).

Course Requirements
The Co-operative Program can be taken in conjunction with any of the streams in the Specialist Program in Computer Science. For the course requirements of each stream, please refer to the description of the Specialist Program in Computer Science.

Rationale:
1. The CGPA requirement for admission to the program has been increased from 2.5 to 2.75 to help alleviate the growing enrolment pressure on our B, C and D-level computer science courses, arising from a dramatic increase in the number of first year students who wish to enter one of the Computer Science programs, from100 students in 2009, to 490 students in 2015 to 680 students in 2016. Based on our prior experience and a recent survey we conducted, the majority of these students plan to pursue a subject POSt in Computer Science.

This increase in enrolment has created a number of problems as our resources, in particular space in our lab facilities and the availability of qualified instructors, are limited and at this point seriously overbooked. Teaching the practical aspects of computer science is only possible if we can provide students with adequate access to lab space to work on their course assignments. While this is already difficult with current enrolment numbers, it will become impossible if numbers further increase, to the point that it will prevent us from effectively teaching core components of the computer science curriculum. To provide one concrete example, most of our more applied courses, including our two largest second year courses, CSCB07 and CSCB09, but also many third and fourth year courses (e.g. C09, C10, D27, D58), require students to work / take tutorials in our Linux lab, which has only 40 seats. Besides lab facilities, we are severly constrained by the number of available qualified instructors to teach the additional sections we would need to add to our courses. Already we are relying excessively on sessional instructors, with one third of our courses being offered by sessional instructors, and are at the point where we have exhausted the pool of qualified applicants (for which there is heavy competition as UTM and StG face similar enrolment pressures).

To serve our students well within our given resource constraints 150 major and specialist students in second year would be an ideal number, while 200 major and specialist students would be the maximum upper bound our programs could tolerate and still function. Achieving the ideal of 150 student would require raising the GPA cutoff to 3.0, which would pose a drastic change from the status quo. Instead we propose to increase the CGPA cutoff for all computer science programs for 2017/18 to 2.75, which we predict will yield between 195 and 200 second year major and specialist students and around 225 second year students in all computer science programs (including the minor) in 2017/18. This will keep enrolment just within our maximum upper bound and at levels comparable to enrolment for the 2016/17 cohort.

We note that the same pressures also exist at the St George campus, where they have led to an even higher increase of the GPA cutoff.

2. MATA22H3 will become the new prerequisite for MATB24 and therefore our CS programs need to be modified accordingly. MATA22 has similar content to MATA23, however more emphasis will be put on proof techniques, and it will consequently better prepare students for our B-level linear algebra course MATB24 (Linear Algebra II) and other courses that rely on proofs.
3. CSC10H3 is a new course, which has strong overlap with CSC318H1 offered at St George and was designed with the intention to substitute CSC318H1.

4. CSCC46H3 is a new course on social and information networks that introduces students to the rapidly emerging area of network analysis and big data at the boundaries of computational social science and big data analysis.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Major in Computer Science (BSc)
Major (Co-operative) in Computer Science (BSc)

Overview of Changes:
1. Increase the CGPA requirement for admission to the program from 2.5 to 2.75
2. Add MATA22H3 as an optional course in component 1

Calendar Copy Showing Changes:

MAJOR PROGRAM IN COMPUTER SCIENCE (SCIENCE)

Supervisor of Studies: R. Pancer (416-287-7679) Email: pancer@utsc.utoronto.ca

Program Objectives
This program provides basic knowledge of the foundations of computer science: modern computer software and hardware, theoretical aspects of computer science, and relevant areas of mathematics and statistics. This program is intended to be combined with other programs, typically a major program in another discipline.

Program Admission
Enrolment in the Major in Computer Science is limited.

Students may apply to enter the program after completing 4.0 credits, and must have passed all of the A-level CSC and MAT courses required for the Major. Students with a CGPA of ~~2.5~~ 2.75 or greater across the core A-level courses (CSCA08H3, CSCA48H3, CSCA67H3, MATA22H3, ~~MATA23H3,~~ MATA31H3, and MATA37H3) are guaranteed admission.

Students who are not admitted as above, may apply after completing at least 7.5 credits, including CSCA08H3, CSCA48H3, CSCA67H3 MATA22H3, ~~MATA23H3,~~ MATA31H3, MATA37H3, CSCB07H3, CSCB09H3, CSCB36H3, CSCB63H3, and [one of MATB24H3 or STAB52H3]. The CGPA will be calculated across these 11 courses, and a CGPA of ~~2.5~~ 2.75 or greater guarantees admission to the Major. Admission for students with a CGPA that is less than ~~2.5~~ 2.75 will depend on their CGPA, and the space available in the program.

Program Requirements
This program requires a total of 16 distinct courses (8 credits) satisfying all of the requirements listed below.

Note: Many Computer Science courses are offered both at U of T Scarborough and at the St. George campus. When a course is offered at both campuses in a given session, U of T Scarborough students are

expected to take that course at U of T Scarborough. The Department of Computer Science at the St. George campus cannot guarantee space for U of T Scarborough students in their courses, especially those offered at both campuses.

1. A-level courses (3 credits)
CSCA08H3 Introduction to Computer Science I
CSCA48H3 Introduction to Computer Science II
CSCA67H3 Discrete Mathematics
MATA22H3 Linear Algebra I for Mathematical Sciences
~~MATA23H3 Linear Algebra I~~
MATA31H3 Calculus I for Mathematical Sciences
MATA37H3 Calculus II for Mathematical Sciences

2. B-level courses (3 credits)
CSCB07H3 Software Design
CSCB09H3 Software Tools and Systems Programming
CSCB36H3 Introduction to the Theory of Computation
CSCB58H3 Computer Organization
CSCB63H3 Design and Analysis of Data Structures

One of: (*)
MATB24H3 Linear Algebra II
STAB52H3 Introduction to Probability
(*) In making this choice, students should consider the prerequisites of courses they plan to take to satisfy requirements 3-4.

3. C-level courses in numerical computation and theory of computing (1 credit)
CSCC37H3 Introduction to Numerical Algorithms for Computational Mathematics
One of:
CSCC63H3 Computability and Computational Complexity
CSCC73H3 Algorithm Design and Analysis

4. CSC electives (1 credit)
Two of:
Any C- or D-level CSC courses.

Writing Recommendation:
Students are urged to take a course from the following list of courses by the end of their second year: ANTA01H3, ANTA02H3, (CLAA02H3), (CTLA19H3), CTLA01H3, ENGA10H3, ENGA11H3, ENGB06H3, ENGB07H3, ENGB08H3, ENGB17H3, ENGB19H3, ENGB50H3, (ENGB51H3), GGRA02H3, GGRA03H3, GGRB05H3, (GGRB06H3), (HISA01H3), (HLTA01H3), (HUMA01H3), (HUMA11H3), (HUMA17H3), (LGGA99H3), LINA01H3, PHLA10H3, PHLA11H3, WSTA01H3.

MAJOR (CO-OPERATIVE) PROGRAM IN COMPUTER SCIENCE (SCIENCE)

Supervisor of Studies: R. Pancer (416-287-7679) E-mail: pancer@utsc.utoronto.ca
Co-op Contact: askcoop@utsc.utoronto.ca

Program Objectives

This program combines the coursework of the Major Program in Computer Science described above with paid work terms in public and private enterprises. It shares the objectives of the Major Program in Computer Science, but complements study of the subject with considerable work experience. This program must be combined with a major program in another discipline.

Program Admission
Refer to the Program Admission requirements for the Major Program in Computer Science described above and section 6B.5 (Co-operative Programs) in this Calendar. Students entering this program must have a CGPA of at least 2.75.

Program Requirements
To remain in the program, a student must maintain a CGPA of 2.5 or higher throughout the program. To complete the program, a student must meet the work term and course requirements described below.

Work Term Eligibility & Requirements
Students must successfully complete three work terms, at most one of which can be during the summer. In addition, prior to their first work term, students must successfully complete a minimum of 7.0 credits, including all first year required courses (CSCA08H3, CSCA48H3, CSCA67H3, MATA22H3, ~~MATA23H3,~~ MATA31H3, MATA37H3), as well as the non-credit Arts & Science Co-op Navigating the World of Work Course (COPD01).

Course Requirements
The course requirements of the Co-operative Major Program in Computer Science are identical to those of the Major Program in Computer Science described above.

Rationale:
1. The CGPA requirement for admission to the program has been increased from 2.5 to 2.75 to help alleviate the growing enrolment pressure on our B, C and D-level computer science courses, arising from a dramatic increase in the number of first year students who wish to enter one of the Computer Science programs, from100 students in 2009, to 490 students in 2015 to 680 students in 2016. Based on our prior experience and a recent survey we conducted, the majority of these students plan to pursue a subject POSt in Computer Science.

This increase in enrolment has created a number of problems as our resources, in particular space in our lab facilities and the availability of qualified instructors, are limited and at this point seriously overbooked. Teaching the practical aspects of computer science is only possible if we can provide students with adequate access to lab space to work on their course assignments. While this is already difficult with current enrolment numbers, it will become impossible if numbers further increase, to the point that it will prevent us from effectively teaching core components of the computer science curriculum. To provide one concrete example, most of our more applied courses, including our two largest second year courses, CSCB07 and CSCB09, but also many third and fourth year courses (e.g. C09, C10, D27, D58), require students to work / take tutorials in our Linux lab, which has only 40 seats. Besides lab facilities, we are severly constrained by the number of available qualified instructors to teach the additional sections we would need to add to our courses. Already we are relying excessively on sessional instructors, with one third of our courses being offered by sessional instructors, and are at the point where we have exhausted the pool of qualified applicants (for which there is heavy competition as UTM and StG face similar enrolment pressures).

To serve our students well within our given resource constraints 150 major and specialist students in second year would be an ideal number, while 200 major and specialist students would be the maximum upper bound our programs could tolerate and still function. Achieving the ideal of 150 student would require raising the GPA cutoff to 3.0, which would pose a drastic change from the status quo. Instead we propose to increase the CGPA cutoff for all computer science programs for 2017/18 to 2.75, which we predict will yield between 195 and 200 second year major and specialist students and around 225 second year students in all computer science programs (including the minor) in 2017/18. This will keep enrolment just within our maximum upper bound and at levels comparable to enrolment for the 2016/17 cohort.

We note that the same pressures also exist at the St George campus, where they have led to an even higher increase of the GPA cutoff.

2. MATA22H3 will become the new prerequisite for MATB24 and therefore our CS programs need to be modified accordingly. MATA22 has similar content to MATA23, however more emphasis will be put on proof techniques, and it will consequently better prepare students for our B-level linear algebra course MATB24 (Linear Algebra II) and other courses that rely on proofs.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Minor in Computer Science (Science)

Overview of Changes:
1. Increase the CGPA requirement for admission to the program from 2.5 to 2.75
2. Add MATA22H3 as an optional course in component 2
3. Remove PHLB05H3 as an optional course in component 2

Calendar Copy Showing Changes:

MINOR PROGRAM IN COMPUTER SCIENCE (SCIENCE)

Supervisor of Studies: R. Pancer (416-287-7679) Email: pancer@utsc.utoronto.ca

Program Objectives
This program provides a basic introduction to the tools and methodologies of computer science and equips students with the knowledge necessary to use the tools and methodologies as they relate to other subjects. The program is intended to complement programs in other disciplines.

Program Admission
Enrolment in the Minor in Computer Science is limited.

Students may apply to enter the program after completing 4.0 credits, and must have passed all of the A-level CSC and MAT courses required for the Minor. Students with a CGPA of at least ~~2.5~~ 2.75 across CSCA48H3 and their chosen MAT course (MATA22H3, MATA23H3, MATA30H3, MATA31H3, MATA32H3, or CSCA67H3/MATA67H3) are guaranteed admission. Admission for students with a CGPA that is less than ~~2.5~~ 2.75 will depend on their CGPA, and the space available in

the program. Students in the Minor may take a maximum of 3 CSC elective courses (1.5 credits) at the C-level and D-level.

Program Requirements
This program may not be combined with any Major or Specialist Program in Computer Science, Mathematics or Statistics. It requires 4.0 credits as follows:

1. Introductory programming courses (1.0 credit)
CSCA08H3 Introduction to Computer Science I (*)
CSCA48H3 Introduction to Computer Science II
(*) CSCA20H3 may be substituted for CSCA08H3 with permission of the Supervisor of Studies.

2. Basic mathematics courses (0.5 credit)
One of:
CSCA67H3/MATA67H3 Discrete Mathematics
MATA22H3 Linear Algebra I for Mathematical Sciences
MATA23H3 Linear Algebra I
MATA30H3 Calculus I for Physical Sciences
MATA31H3 Calculus I for Mathematical Sciences
MATA32H3 Calculus for Management I
~~PHLB50H3 Symbolic Logic I~~

3. Intermediate programming, systems, and theory courses (1.5 credits)
Three of:
CSCB07H3 Software Design
CSCB09H3 Software Tools and Systems Programming
CSCB20H3 Introduction to Databases and Web Applications
CSCB36H3 Introduction to the Theory of Computation(**)
CSCB58H3 Computer Organization
CSCB63H3 Design and Analysis of Data Structures(***)
(**) CSCB36H3 requires CSCA67H3
(***) CSCB63H3 requires CSCB36H3

4. CSC electives (1.0 credit)
Two of:
Any C- or D-level CSC courses (*)
(*) Some C- or D-level courses have prerequisites that would have to be taken in addition to the 4 credits required for this program. Check the prerequisites carefully before selecting courses to satisfy this requirement.

Rationale:
1. The CGPA requirement for admission to the program has been increased from 2.5 to 2.75 to help alleviate the growing enrolment pressure on our B, C and D-level computer science courses, arising from a dramatic increase in the number of first year students who wish to enter one of the Computer Science programs, from100 students in 2009, to 490 students in 2015 to 680 students in 2016. Based on our prior experience and a recent survey we conducted, the majority of these students plan to pursue a subject POSt in Computer Science.

This increase in enrolment has created a number of problems as our resources, in particular space in our lab facilities and the availability of qualified instructors, are limited and at this point seriously overbooked. Teaching the practical aspects of computer science is only possible if we can provide students with adequate access to lab space to work on their course assignments. While this is already difficult with current enrolment numbers, it will become impossible if numbers further increase, to the point that it will prevent us from effectively teaching core components of the computer science curriculum. To provide one concrete example, most of our more applied courses, including our two largest second year courses, CSCB07 and CSCB09, but also many third and fourth year courses (e.g. C09, C10, D27, D58), require students to work / take tutorials in our Linux lab, which has only 40 seats. Besides lab facilities, we are severly constrained by the number of available qualified instructors to teach the additional sections we would need to add to our courses. Already we are relying excessively on sessional instructors, with one third of our courses being offered by sessional instructors, and are at the point where we have exhausted the pool of qualified applicants (for which there is heavy competition as UTM and StG face similar enrolment pressures).

To serve our students well within our given resource constraints 150 major and specialist students in second year would be an ideal number, while 200 major and specialist students would be the maximum upper bound our programs could tolerate and still function. Achieving the ideal of 150 student would require raising the GPA cutoff to 3.0, which would pose a drastic change from the status quo. Instead we propose to increase the CGPA cutoff for all computer science programs for 2017/18 to 2.75, which we predict will yield between 195 and 200 second year major and specialist students and around 225 second year students in all computer science programs (including the minor) in 2017/18. This will keep enrolment just within our maximum upper bound and at levels comparable to enrolment for the 2016/17 cohort.

We note that the same pressures also exist at the St George campus, where they have led to an even higher increase of the GPA cutoff.

2. MATA22H3 is a new course that covers content that is similar to that of MATA23, but puts a stronger focus on proof techniques. For students in the minor program either course is suitable and hence MATA22 has been added to the list of courses that satisfy the math requirement.

3. Including PHLB50H3 as one of the basic math courses students can choose from is misleading, as this course is not among the courses students can use to gain program admission. In order to gain program admission they must have completed one of (MATA23H3, MATA30H3, MATA31H3, MATA32H3, or CSCA67H3/MATA67H3) and their CGPA across CSCA48H3 and the math course from this list (not including PHLB50H3) must be above some threshold.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Health Studies

New Courses

HLTC19H3 Chronic Diseases
This course will introduce students to the regional, national, and global patterns of chronic disease and demonstrate how demography, behaviour, socio-economic status, and genetics impact patterns of chronic disease in human populations. Using epidemiological studies we will examine these patterns, assess their complex causes, and discuss strategies for broad-based preventative action.
Prerequisite: HLTB22H3 or HLTB41H3
Exclusion: (HLTC07H3), (HLTC21H3)
Enrolment Limits: 60
Breadth Requirement: Natural Sciences

Rationale:
This course will examine the current and increasing burden of chronic disease globally. Given the growing prevalence of chronic diseases in high, middle, and low-income countries, it is important that Health Studies students are familiar with these trends and their highly complex causes. The proposed course will make HLTC21H3 (Patterns of Health, Disease and Injuries) redundant due to the overlapping content (HLTC21H3 is being retired this curriculum cycle). While there might be elements of chronic disease taught within other courses at the University of Toronto, this is will be an original course dedicated solely to the biological and socioeconomic reality of chronic disease. This course is also intended to pair with HLTC25H3 (Infectious Diseases). Students who take both courses will obtain an understanding of the global distribution of infectious and chronic diseases, their causes, and the current concerns about "the double disease burden" – that is, the low-income and mid-income countries that suffer high prevalence of both infectious and chronic diseases.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTC27H3 Community Health and Epidemiology
Epidemiology is the study of the pattern and causes of health-related outcomes and the application of findings to improvement of public health. This course will examine the history of epidemiology and its principles and terminology, measures of disease occurrence, study design, and application of concepts to specific research areas.
Prerequisite: HLTB15H3 and HLTB16H3 and any statistics course
Exclusion: ANTC67H3
Breadth Requirement: Quantitative Reasoning
Enrolment Limits: 60 students
Note: Priority will be given to students enrolled in the Major/Major Co-op programs in Health Studies.

Rationale:
The proposed course is an integral component of the Health Studies curriculum in that it teaches principles of population health, study design, and quantitative data analysis, which are key to our interdisciplinary program. Such skills are expected of students who go on to work in public health settings or to pursue Master of Public Health programs at the University of Toronto and elsewhere. A similar course, ANTC67H3, is taught in the Anthropology Department, however, it is narrower in scope. ANTC67H3 focuses on "biomedical paradigms" and "investigation of epidemics." In contrast,

the proposed course will offer a much broader introduction to epidemiology, including rich discussions of study design and data analysis relevant to chronic medical conditions and social determinants of health. These components of epidemiology are critical for our Health Studies students, particularly given the rapid increase in chronic medical conditions in Canada and other industrialized countries, and the resulting need for health and social scientists equipped to study and address these conditions in public health settings. There will necessarily be several areas of overlap between ANTC67H3 and HLTC27H3, as these building blocks are key to any discussion of epidemiology. These are:

- Measures of disease occurrence and association;
- Epidemiologic study design (note, however, that two full weeks in HLTC27H3 will be spent on study design, while this topic comprises only part of one lecture in ANTC67);
- Confounding; and
- Infectious disease epidemiology.

Novel topics to be covered in HLTC27H3, which are not covered in ANTC67H3 are:

- Bias in epidemiologic studies; and
- Application of epidemiologic principles to specific areas of epidemiology, including:
    - Chronic disease epidemiology;
    - Clinical epidemiology;
    - Social epidemiology;
    - Environmental epidemiology; and
    - Application of epidemiology to public health policy.

A distinctive element of HLTC27H3 is its tutorials, which are based on case studies. For example, students will participate in study design sessions in which they are presented with a timely public health issue and asked to work in groups to design a case-control or cohort study to address that issue. Students will also complete assignments highly relevant to the skills expected of public health professionals, including a chronic disease surveillance report and a study design proposal.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTC28H3 Special Topics in Health Studies
An examination of a current topic relevant to health studies. The specific topic will vary from year to year, and may include: Ecosystem Approaches to Zoonotic Disease; Climate Change and Health; Food Insecurity, Nutrition, and Health; Health and the Human-Insect Interface.
Prerequisite: HLTB22H3
Breadth Requirement: Natural Sciences
Enrolment Limits: 60
Note: Priority will be given to students enrolled in the Major/Major Co-op programs in Health Studies.

Rationale:
The proposed special topics course will accomplish three goals: (1) it will enable faculty to develop and experiment with a course at the C level before proposing that the course be formally added to the calendar, (2) it will enable us to expand our existing array of C level courses through offering rotating topic courses, some of which may be offered by sessional instructors, in order to enrich the C level electives available to students, and (3) it will enable newly hired faculty to offer C level courses in their

area of expertise. All proposed topics will be assessed to ensure that they build on knowledge and skills acquired in B level courses and that they provide some introduction to more advanced D level courses.

The process for approving topics courses includes the following steps: (1) the topics chosen will be decided by the Curriculum Committee, or may be proposed by a regular faculty member interested in developing a new course; (2) all course syllabi must be reviewed and approved by the DCC.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTC29H3 Special Topics in Health Studies
An examination of a current topic relevant to health studies. The specific topic will vary from year to year, and may include: Ecosystem Approaches to Zoonotic Disease; Climate Change and Health; Food Insecurity, Nutrition, and Health; Health and the Human-Insect Interface.
Prerequisite: HLTB22H3
Exclusion:
Breadth Requirement: Natural Sciences
Enrolment Limits: 60
Note: Priority will be given to students enrolled in the Major/Major Co-op programs in Health Studies.

Rationale:
The proposed special topics course will accomplish three goals: (1) it will enable faculty to develop and experiment with a course at the C level before proposing that the course be formally added to the calendar, (2) it will enable us to expand our existing array of C level courses through offering rotating topic courses, some of which may be offered by sessional instructors, in order to enrich the C level electives available to students, and (3) it will enable newly hired faculty to offer C level courses in their area of expertise. All proposed topics will be assessed to ensure that they build on knowledge and skills acquired in B level courses and that they provide some introduction to more advanced D level courses.

The process for approving topics courses includes the following steps: (1) the topics chosen will be decided by the Curriculum Committee, or may be proposed by a regular faculty member interested in developing a new course; (2) all course syllabi must be reviewed and approved by the DCC.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTC46H3 Gender, Health and Society
This interdisciplinary course draws on diverse theoretical and analytic approaches that span the humanities, social sciences and life sciences to critically explore the diverse relationships between gender and health, in local and global contexts. Particular attention is given to intersections between sex, gender and other social locations and processes that impact health and health inequities across the lifespan, including the impacts of ableism, colonialism, hetero-normativity, poverty, racialization, and sexism on women's and men's health, and related health research and practice. Through course readings, case studies, group discussion, class activities, and course assignments, students will apply these theoretical lenses and develop analytic skills that: (1) advance a more contextualized understanding of gender and health across the lifespan, (2) provide important insights into gendered

health inequities, and (3) speak to strategies and social movements that begin to address these challenges.
Prerequisite: HLTB41H3 or IDSB04H3
Breadth Requirement: Social & Behavioural Sciences.
Enrolment Limits: 60
Note: Priority will be given to students enrolled in the Major/Major Co-op program in Health Studies.

Rationale:
It is now widely understood that gender is a key determinant of health (see for example policies and discussion papers by Health Canada, Public Health Agency of Canada, World Health Organization, Centres for Disease Control calling for sex- gender- and intersectional analyses). The proposed course reflects this new emphasis and encourages a richer understanding of women's and men's health across the lifespan, and related research, clinical and public health practice, and policy.

The course reflects the emphasis on criticality, social justice, and interdisciplinarity that the Health Studies program's five-year plan emphasizes. Also, the introduction of this new C-level course is well aligned with student's movement through the HS program, and the knowledge and skills the program helps them build. For instance, it allows students to explore in greater depth, themes introduced in A- and B- level Health Studies courses, including HLTA02, HLTA03, HLTB16 (Introduction to Public Health), HLTB15 (health research methodologies), and HLTB41 (Social Determinants of Health").

Consultation:
Within the Health Studies faculty. There has also been consultation with Dr. G. Einstein, Director of the Collaborative Graduate Program in Women's Health, and with faculty in the Dept. of Historical and Cultural Studies, and Centre for Critical Development Studies. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTC47H3 Special Topics in Health Studies
An examination of a current topic relevant to health studies. The specific topic will vary from year to year, and may include: Social Justice and Health Activism; Climate Change and Health; Labour, Precarity, and Health.
Prerequisite: HLTB41H3
Breadth Requirement: Social & Behavioural Sciences
Enrolment Limits: 60
Note: Priority will be given to students enrolled in the Major/Major Co-op programs in Health Studies.

Rationale:
The proposed special topics course will accomplish three goals: (1) it will enable faculty to develop and experiment with a course at the C level before proposing that the course be formally added to the calendar, (2) it will enable us to expand our existing array of C level courses through offering rotating topic courses, some of which may be offered by sessional instructors, in order to enrich the C level electives available to students, and (3) it will enable newly hired faculty to offer C level courses in their area of expertise. All proposed topics will be assessed to ensure that they build on knowledge and skills acquired in B level courses and that they provide some introduction to more advanced D level courses.

The process for approving topics courses includes the following steps: (1) the topics chosen will be decided by the Curriculum Committee, or may be proposed by a regular faculty member interested in developing a new course; (2) all course syllabi must be reviewed and approved by the DCC.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTC48H3 Special Topics in Health Studies
An examination of a current topic relevant to health studies. The specific topic will vary from year to year. Topics may include: Social Justice and Health Activism; Climate Change and Health; Labour, Precarity, and Health; etc.
Prerequisite: HLT B41 (Introduction to the Social Determinants of Health).
Breadth Requirement: Social & Behavioural Sciences
Enrolment Limits: 60
Note: Priority will be given to students enrolled in the Major/Major Co-op programs in Health Studies.

Rationale:
The proposed special topics course will accomplish three goals: (1) it will enable faculty to develop and experiment with a course at the C level before proposing that the course be formally added to the calendar, (2) it will enable us to expand our existing array of C level courses through offering rotating topic courses, some of which may be offered by sessional instructors, in order to enrich the C level electives available to students, and (3) it will enable newly hired faculty to offer C level courses in their area of expertise. All proposed topics will be assessed to ensure that they build on knowledge and skills acquired in B level courses and that they provide some introduction to more advanced D level courses.

The process for approving topics courses includes the following steps: (1) the topics chosen will be decided by the Curriculum Committee, or may be proposed by a regular faculty member interested in developing a new course; (2) all course syllabi must be reviewed and approved by the DCC.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTD13H3 Special Topics in Health: Global Health and Human Biology
An examination of a current topic relevant to global health, especially diseases or conditions that predominantly affect populations in low-income countries. The specific topics will vary from year to year, and may include: HIV/AIDS; insect-borne diseases; the biology of poverty and precarity. The course will provide students with relevant information about social context and health policy, but will focus on the processes of disease transmission and its biological impact on human health.
Prerequisite: Completion of at least 6.0 credits including 2.0 credits at the C-level in HLT courses taken from the requirements of the Major/Major Co-op programs in Health Studies; and permission of the instructor.
Enrolment Limits: 30
Breadth Requirement: Natural Sciences

Rationale:
The proposed special topics course will accomplish three goals: (1) it will enable faculty to develop and experiment with a course at the D level before proposing that the course be formally added to the calendar, (2) it will enable us to expand our existing array of D level courses through offering rotating topic courses, some of which may be offered by sessional instructors, in order to enrich the D level electives available to students, and (3) it will enable newly hired faculty to offer D level courses in their

area of expertise. All proposed topics will be assessed to ensure that they build on knowledge and skills acquired in C level courses.

The process for approving topics courses includes the following steps: (1) the topics chosen will be decided by the Curriculum Committee, or may be proposed by a regular faculty member interested in developing a new course; (2) all course syllabi must be reviewed and approved by the DCC.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTD20H3 Special Topics in Health: Sex, Gender, and the Life Course
An examination of a current health topic relevant to sex, gender, and the life course. The specific topic will vary from year to year, and topics may include: reproductive health; the biology and health impacts of aging; infant feeding, weaning, and nutrition; sexual health among youth. The course will provide students with relevant information about social context and health policy, but will focus on biological processes at specific life stages.
Prerequisite: Completion of at least 6.0 credits including 2.0 credits at the C-level in HLT courses from the requirements of the Major/Major Co-op programs in Health Studies; and permission of the instructor.
Enrolment Limits: 30
Breadth Requirement: Natural Sciences

Rationale:
The proposed special topics course will accomplish three goals: (1) it will enable faculty to develop and experiment with a course at the D level before proposing that the course be formally added to the calendar, (2) it will enable us to expand our existing array of D level courses through offering rotating topic courses, some of which may be offered by sessional instructors, in order to enrich the D level electives available to students, and (3) it will enable newly hired faculty to offer D level courses in their area of expertise. All proposed topics will be assessed to ensure that they build on knowledge and skills acquired in C level courses.

The process for approving topics courses includes the following steps: (1) the topics chosen will be decided by the Curriculum Committee, or may be proposed by a regular faculty member interested in developing a new course; (2) all course syllabi must be reviewed and approved by the DCC.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTD29H3 Special Topics in Health: Inequality, Inequity, and Health
An examination of a current topic in inequality, inequity, marginalization, social exclusion, and health outcomes. Topics may include: health and homelessness, poverty and sexual health, political conflict and refugee health. The course will provide students with relevant information about social context and health policy, but will focus on the physical and mental health impacts of various forms of inequity.
Prerequisite: Completion of at least 6.0 credits including 2.0 credits at the C-level in HLT courses from the requirements of the Major/Major Co-op programs in Health Studies; and permission of the instructor.

Enrolment Limits: 30
Breadth Requirement: Natural Sciences

Rationale:
The proposed special topics course will accomplish three goals: (1) it will enable faculty to develop and experiment with a course at the D level before proposing that the course be formally added to the calendar, (2) it will enable us to expand our existing array of D level courses through offering rotating topic courses, some of which may be offered by sessional instructors, in order to enrich the D level electives available to students, and (3) it will enable newly hired faculty to offer D level courses in their area of expertise. All proposed topics will be assessed to ensure that they build on knowledge and skills acquired in C level courses.

The process for approving topics courses includes the following steps: (1) the topics chosen will be decided by the Curriculum Committee, or may be proposed by a regular faculty member interested in developing a new course; (2) all course syllabi must be reviewed and approved by the DCC.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTD47H3 Special Topics in Health: Advanced Topics in Health and Wellness
An examination of a current topic in health and wellness. Topics may include: disability, addiction, psychosocial wellbeing, social activism around health issues, Wellness Indices, Community Needs and Assets Appraisals. The course will focus on the contributing historical, social, and/or cultural factors, as well as relevant health policies.
Prerequisite: Completion of at least 6.0 credits including 2.0 credits at the C-level in HLT courses from the requirements of the Major/Major Co-op programs in Health Studies; and permission of the instructor.
Enrolment Limits: 30
Breadth Requirement: Social & Behavioural Sciences

Rationale:
The proposed special topics course will accomplish three goals: (1) it will enable faculty to develop and experiment with a course at the D level before proposing that the course be formally added to the calendar, (2) it will enable us to expand our existing array of D level courses through offering rotating topic courses, some of which may be offered by sessional instructors, in order to enrich the D level electives available to students, and (3) it will enable newly hired faculty to offer D level courses in their area of expertise. All proposed topics will be assessed to ensure that they build on knowledge and skills acquired in C level courses.

The process for approving topics courses includes the following steps: (1) the topics chosen will be decided by the Curriculum Committee, or may be proposed by a regular faculty member interested in developing a new course; (2) all course syllabi must be reviewed and approved by the DCC.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTD48H3 Special Topics in Health: Current Issues in Global Health

An examination of a current topic in global health, especially a disease or condition that predominantly impacts populations in low-income countries. The specific topic will vary from year to year. Topics may include: HIV/AIDS; war and violence; insect-borne diseases; policies and politics of water and sanitation; reproductive health and population policies; etc. The course will focus on historical factors, socio-political contexts, and health policies.
Prerequisite: Completion of at least 6.0 credits including 2.0 credits at the C-level in HLT courses from the requirements of the Major/Major Co-op programs in Health Studies; and permission of the instructor.
Enrolment Limits: 30
Breadth Requirement: Social & Behavioural Sciences

Rationale:
The proposed special topics course will accomplish three goals: (1) it will enable faculty to develop and experiment with a course at the D level before proposing that the course be formally added to the calendar, (2) it will enable us to expand our existing array of D level courses through offering rotating topic courses, some of which may be offered by sessional instructors, in order to enrich the D level electives available to students, and (3) it will enable newly hired faculty to offer D level courses in their area of expertise. All proposed topics will be assessed to ensure that they build on knowledge and skills acquired in C level courses.

The process for approving topics courses includes the following steps: (1) the topics chosen will be decided by the Curriculum Committee, or may be proposed by a regular faculty member interested in developing a new course; (2) all course syllabi must be reviewed and approved by the DCC.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTD49H3 Global Health Governance: Thinking Alongside the World's Leaders
This advanced seminar course explores contemporary topics in global health governance as they are being discussed and debated by world leaders at key international summits, such as the World Health Summit. After developing an understanding of the historical and political economy context of the main actors and instruments involved in global health governance, contemporary global health challenges are explored. Topics and cases change based on global priorities and student interests, but can include: the impact of international trade regimes on global health inequities; the role transnational corporations and non-governmental organizations play in shaping the global health agenda; the impact globalization has had on universal health care and health human resources in low-income countries; and health care during complex humanitarian crises.
Prerequisites: Completion of at least 6.0 credits including 2.0 credits at the C-level in HLT courses from the requirements of the Major/Major Co-op programs in Health Studies; a minimum CGPA of 2.5; and permission of the instructor.
Enrolment Limits: 30
Breadth Requirement: Social & Behavioural Sciences

Rationale:
The proposed course was successfully piloted as a special topics course (HLTD23H3) in the Fall 2015 session, and is being offered again in the Winter 2017 session, with full enrolment (n=30).

It fits well into the existing health studies curriculum building on knowledge and skills acquired in a variety of existing B- and C-level courses including HLTB16 (introduction to public health); HLTB40 (health policy and health systems); HTLB41 (social determinants of health); HLTC05 (Society, Health & Illness); and our three C-level health policy courses (HLTC42, HLTC43 and HLTC44). Our students are also permitted to take cross-listed courses in CCDS that feed into the proposed course nicely, namely IDSB04 (International health policy analysis) and IDSC11 (Issues in International health).

The proposed course is distinct in that it affords students the opportunity explore issues in global health governance in real time, as world leaders grapple with them in leading health summits like the World Health Summit jointly held in Berlin and Tokyo annually.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HLTD52H3 Special Topics in Health: Health Histories
An examination of a health topic in historical perspective. The specific topics will vary from year to year, and may include: histories of race, racialization, and health policy; history of a specific medical tradition; or histories of specific health conditions, their medical and popular representations, and their treatment (e.g. historical changes in the understanding and representation of leprosy or depression).
Prerequisite: Completion of at least 6.0 credits including 2.0 credits at the C-level in HLT courses from the requirements of the Major/Major Co-op programs in Health Studies; and permission of the instructor.
Enrolment Limits: 30
Breadth Requirement: History, Philosophy & Cultural Studies

Rationale:
The proposed special topics course will accomplish three goals: (1) it will enable faculty to develop and experiment with a course at the D level before proposing that the course be formally added to the calendar, (2) it will enable us to expand our existing array of D level courses through offering rotating topic courses, some of which may be offered by sessional instructors, in order to enrich the D level electives available to students, and (3) it will enable newly hired faculty to offer D level courses in their area of expertise. All proposed topics will be assessed to ensure that they build on knowledge and skills acquired in C level courses.

The process for approving topics courses includes the following steps: (1) the topics chosen will be decided by the Curriculum Committee, or may be proposed by a regular faculty member interested in developing a new course; (2) all course syllabi must be reviewed and approved by the DCC.

Consultation:
Within the Health Studies faculty. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Department of Historical and Cultural Studies

New Courses

AFSC70H3 The Caribbean Diaspora
The migration of Caribbean peoples to the United States, Canada, and Europe from the late 19th century to the present. The course considers how shifting economic circumstances and labour demands, the World Wars, evolving imperial relationships, pan-Africanism and international unionism, decolonization, natural disasters, and globalization shaped this migration.
Same as HISC70H3
Prerequisite: Any 4.0 credits
Exclusion: HISC70H3
Breadth Requirement: History, Philosophy & Cultural Studies

Rationale:
This course will add to optional African Studies course offerings and make it easier for AFS program students to find upper level AFS courses in order to complete the Minor.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

AFSD52H3 East African Societies in Transition
A seminar study of East African peoples from late pre-colonial times to the 1990's, emphasizing their rapid although uneven adaptation to integration of the region into the wider world. Transitions associated with migrations, commercialization, religious change, colonial conquest, nationalism, economic development and conflict, will be investigated. Student presentations are required.
Same as HISD52H3
Prerequisite: 8.0 credits including AFSB50H3/HISB50H3 or AFSB51H3/HISB51H3 or HISC55H3
Exclusion: HISD52H3
Enrolment Limits: 15
Breadth Requirement: History, Philosophy & Cultural Studies

Rationale:
This course will add to optional African Studies course offerings and make it easier for AFS program students to find upper level AFS courses in order to complete the Minor.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

CLAC68H3 Constructing the Other: Orientalism through Time and Place
This course reflects on the concept of *Orientalism* and how it informs the fields of Classical Studies and Anthropology. Topics to be discussed include the Orientalization of the past and the origin, role, and significance of ancient representations of the "Other" in contemporary discourses.
Same as: ANTC58H3 and HISC68H3
Prerequisite: 1.0 credit from the following: [CLAA04H3/HISA07H3, CLAB05H3/HISB10H3, CLAB06H3/HISB11H3, ANTA02H3, ANTB19H3, ANTB20H3, HISB02H3, AFSB50H3/HISB50H3, AFSB51H3/HISB51H3, HISB53H3, HISB57H3, HISB58H3, HISB60H3, HISB61H3, HISB62H3,

HISB93H3, HISB94H3]
Exclusion: ANTC58H3, HISC68H3
Enrolment Limits: 40
Breadth Requirement: History, Philosophy & Cultural Studies

Rationale:
By bringing together historical and anthropological perspectives on Orientalism, the course aims to highlight the centrality of this concept and the necessity of diachronic perspectives for our understanding of past and present societies. It has been designed for students enrolled in Anthropology, Classics, and History.

Consultation:
Within the academic unit. There has also been consultation with the Department of Anthropology. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

FSTA01H3 Foods That Changed the World
This course introduces students to university-level skills through an exploration of the connections between food, environment, culture, religion, and society. Using a food biography perspective, it critically examines ecological, material, and political foundations of the global food system and how food practices affect raced, classed, gendered, and national identities.
Breadth Requirement: Social & Behavioural Sciences

Rationale:
The new Minor in Food Studies has attracted tremendous interest among students in its first year. This first year course can be taught by interested food studies faculty from any department to introduce students to a variety of social science, humanities, and natural science perspectives. Themes might range from contemporary attempts to preserve rice biodiversity to religious strictures on meat-eating to connections between water infrastructure and historical state-building to the nutritional controversies around milk-drinking. This course is intended to provide an exciting new option in terms of this breadth requirement for students across the university. In these ways, it is very different from FSTB01H3, which provides intensive skills training for students taking the Minor in Food Studies. Its connection to the social and behavioural science breath requirement as well as its interdisciplinary approach distinguishes it from other A level courses that the Historical and Cultural Studies Department and other cognate departments offers.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

FSTD10H3 Food Writing and Photography
This course introduces students to a range of writing about food and culture, exposing them to different genres and disciplines, and assisting them to experiment with and develop their own prose. It also prompts students to think about photography and visual culture as both tools for documenting culinary practices and experiences, and as increasingly important adjuncts to contemporary food writing. The course is designed as a capstone offering in Food Studies, and as such asks students to draw on their own expertise and awareness of food as a cultural vehicle to write in a compelling way about social dynamics, historical meaning, and – drawing specifically on the Scarborough experience – the diasporic imaginary.
Prerequisite: FSTB01H3

Breadth Requirement: Arts, Literature & Language
Note: Priority will be given to students enrolled in the Minor program in Food Studies. Additional students will be admitted as space permits.

Rationale:
Faculty involved in Food Studies have identified the need and desirability of mounting a course like this for some time. It is a natural companion to HISD71H3, Culinary Ethnography, and complements offerings in the UTSC Department of English creative writing program. There are no similar courses of this kind in the university.

Consultation:
Within the academic unit. There has also been consultation with the Department of English. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

GASB74H3 Asian Foods and Global Cities
This course explores the social circulation of Asian-identified foods and beverages using research from geographers, anthropologists, sociologists, and historians to understand their changing roles in ethnic entrepreneur-dominated cityscapes of London, Toronto, Singapore, Hong Kong, and New York. Foods under study include biryani, curry, coffee, dumplings, hoppers, roti, and tea.
Same as HISB74H3
Exclusion: HISB74H3
Breadth Requirement: Social & Behavioural Sciences

Rationale:
This course will supplement, complement, and enhance a variety of course offerings in food studies, city histories, sociologies, and geographies, Asian cultures, and global societies. It will bridge offerings across the early modern and modern eras, as well as geographic spaces such as Europe, Asia, and the Indian Ocean through the food connections that it studies, using readings that span different disciplines. As a lower level course, it will serve as a suitable introduction for several upper level courses in food studies, city studies, Asian societies, migration and global histories, and international studies. We anticipate that it will also appeal to the large number of UTSC students across departments who have global and multicultural roots and wish to connect to them in the classroom. Its breadth allotment to Social and Behavioural Sciences is due to its interdisciplinary character whereby it is taught primarily by a social and cultural historian (Jayeeta Sharma) but its main theoretical moorings come from sociology (Krishnendu Ray, Jean Duruz etc) and anthropology (Sidney Mintz etc), whose common bond is in food studies.

Consultation:
Within the academic unit. There has also been consultation with Global Asia and History faculty at the wider U of T. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HISB74H3 Asian Foods and Global Cities
This course explores the social circulation of Asian-identified foods and beverages using research from geographers, anthropologists, sociologists, and historians to understand their changing roles in ethnic entrepreneur-dominated cityscapes of London, Toronto, Singapore, Hong Kong, and New York. Foods under study include biryani, curry, coffee, dumplings, hoppers, roti, and tea.
Same as GASB74H3
Exclusion: GASB74H3
Breadth Requirement: Social & Behavioural Sciences

This course will supplement, complement, and enhance a variety of course offerings in food studies, city histories, sociologies, and geographies, Asian cultures, and global societies. It will bridge offerings across the early modern and modern eras, as well as geographic spaces such as Europe, Asia, and the Indian Ocean through the food connections that it studies, using readings that span different disciplines. As a lower level course, it will serve as a suitable introduction for several upper level courses in food studies, city studies, Asian societies, migration and global histories, and international studies. We anticipate that it will also appeal to the large number of UTSC students across departments who have global and multicultural roots and wish to connect to them in the classroom. Its breadth allotment to Social and Behavioural Sciences is due to its interdisciplinary character whereby it is taught primarily by a social and cultural historian (Jayeeta Sharma) but its main theoretical moorings come from sociology (Krishnendu Ray, Jean Duruz etc) and anthropology (Sidney Mintz etc), whose common bond is in food studies.

Consultation:
Within the academic unit. There has also been consultation with Global Asia and History faculty at the wider U of T. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HISC34H3 Race, Segregation, Protest: South Africa and the United States
This transnational history course explores the origins, consolidation, and unmaking of segregationist social orders in the American South and South Africa. It examines the origins of racial inequality, the structural and socio-political roots of segregation, the workings of racial practices and ideologies, and the various strategies of both accommodation and resistance employed by black South Africans and African Americans from the colonial era up to the late twentieth century.
Prerequisite: AFSB51H3 or HISB31H3
Breadth Requirement: History, Philosophy & Cultural Studies

Rationale:
Designed for both the History and African Studies programs, this course introduces students to the comparative method of historical analysis, and utilizes it to underscore key dynamics having to do with race and class in both South Africa and the United States. The course builds upon knowledge and skills the students have acquired in prerequisite courses, sharpening their abilities to think critically and frame historical questions.

At UTSC, AFSD51H3, explores the history of southern Africa, but is not comparative and has a significant focus on colonialism. With the St. George Faculty of Arts and Science, POL301Y1Y touches on apartheid as part of a larger African survey, and NEW296Y1, an offering in the African Studies Program at New College, looks at black freedom struggles, but South Africa is but a part of a global focus. This C level class will not overlap with these classes.

This course distinctly focuses on developing comparative methods and will provide an appropriate ground for students to learn research and writing towards the D levels currently offered in AFS and History.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HISC68H3 Constructing the Other: Orientalism through Time and Place
This course reflects on the concept of *Orientalism* and how it informs the fields of Classical Studies and Anthropology. Topics to be discussed include the Orientalization of the past and the origin, role, and significance of ancient representations of the "Other" in contemporary discourses.
Same as: ANTC58H3 and CLAC68H3
Prerequisite: 1.0 credit from the following: [CLAA04H3/HISA07H3, CLAB05H3/HISB10H3, CLAB06H3/HISB11H3, ANTA02H3, ANTB19H3, ANTB20H3, HISB02H3, AFSB50H3/HISB50H3, AFSB51H3/HISB51H3, HISB53H3, HISB57H3, HISB58H3, HISB60H3, HISB61H3, HISB62H3, HISB93H3, HISB94H3]
Exclusion: CLAC58H3, HISC68H3
Exclusion: ANTC58H3, CLAC68H3
Enrolment Limits: 40
Breadth Requirement: History, Philosophy & Cultural Studies

Rationale:
By bringing together historical and anthropological perspectives on Orientalism, the course aims to highlight the centrality of this concept and the necessity of diachronic perspectives for our understanding of past and present societies. It has been designed for students enrolled in Anthropology, Classics, and History.

Consultation:
Within the academic unit. There has also been consultation with the Department of Anthropology. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

HISD73H3 Engendering Canadian Food History
This course explores Canada's diverse food cultures and the varied relationships that Canadians have had historically with food practices in the context of family, community, region, and nation and with reference to transnational connections and identities. It examines Canada's foodways – the practices and traditions associated with food and food preparation – through the gendered lens of Indigenous-colonial relations, migration and diaspora, family, politics, nutrition, and popular culture. The course is organized around two central principles. One is that just as Canada's rich past resists any singular narrative, there is no such thing as a singular Canadian food tradition. The other is that a focus on questions related to women and gender further illuminate the complex relationship between food and cultural politics, variously defined. The course covers a broad time-span, from early contact between European settlers and First Nations through the end of the twentieth century.
Prerequisite: 4.0 credits in HIS, WST or FST courses
Enrolment Limits: 15
Breadth Requirement: History, Philosophy & Cultural Studies

Rationale:
This course contributes to the history program and addresses the demonstrated interest of students – in History, Women's and Gender Studies, and Food Studies programs – in food. Interest in the topic has been demonstrated through the years by the popularity of WSTD46H3, Topics in Canadian Women's History. Whenever the course content has included food – whether within the context of immigrant and diasporic women or oral history or transnationalizing Canadian women's history - a significant number of students – both history and WST students – have chosen to devote their major research essay to a topic involving women and food. History students minoring in food studies have also expressed an interest in having a Canadian foodways course. In regards to the Culinaria initiative, the course adds a Canadian dimension to the Minor Food Studies. This Canadian course will be cast within

a gendered and transnational/migrant context that fits well with the conceptual basis and approach of other HCS courses. There is no overlap of content between this course and other food studies courses.

This D-level seminar will be taught in the Culinaria Kitchen Laboratory. It will provide an innovative approach that unites critical thinking and experiential learning.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Department of Physical and Environmental Sciences

New Courses

EESD33H3 Field Techniques
This course consists of a series of modules designed for students to gain practical skills necessary to investigate and characterize complex environmental systems. Field projects will allow students to collect scientific data that they will use to interpret the geology, hydrogeology, and chemistry of natural and anthropogenic environments.
Prerequisite: EESB02H3 and EESB04H3 and EESC07H3
Exclusion: EES330H, GGR390H, GGR379H
Enrolment Limits: 30
Breadth Requirement: Natural Sciences
Note: Priority will be given to students enrolled in the Specialist programs in Environmental Science.

Rationale:
The proposed course is designed to teach a number of fundamental field concepts and methodologies. The course will allow students to explore and experiment with a variety of quantitative and qualitative methods for collecting environmental data. To this end, the course will enhance the *experiential learning* component of the Environmental Science (EES) curriculum. Field and laboratory work are coordinated to reinforce both basic concepts in geology, hydrogeology, chemistry and biology - and the process and excitement of real world data collection and analysis. This course will also be of great interest to graduate students who require field experience as part of their graduate education. Additionally, the course is a requirement of the Association of Professional Geoscientists of Ontario (APGO) for obtaining Professional Geoscientist (P.Geo) Certification.

The field course will be an addition to the existing field camps that are held annually in various locales in western Canada, Iceland, the US and Central America. An on-going challenge associated with the existing field camps is that many students cannot afford the travel costs and there are also logistical issues that constrain student numbers. The proposed course will provide students with hands-on skills in the practice of environmental science with the added benefit of reduced costs to students. Additionally, the course will provide students with advanced fieldwork and hands-on experience that cannot be provided in the Field Camp courses (e.g., well drilling and installation, aquifer pumping, groundwater monitoring and sampling).

Course enrolment has been limited to 30 students because course instruction primarily will take place in the field by a single instructor and will entail close supervision.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

ESTD19H3 Risk
A practical introduction to the concept of 'risk' as utilized in environmental decision-making. Students are introduced to risk analysis and assessment procedures as applied in business, government, and civil society. Three modules take students from relatively simple determinations of risk (e.g., infrastructure flooding) towards more complex, real-world, inclusive considerations (e.g., ecosystem impacts of climate change).
Prerequisite: 14.5 credits and STAB22H3 (or equivalent)
Breadth Requirement: Natural Sciences

Rationale:
As it has evolved over the previous three years, the pedagogical foundations of the Major in Environmental Studies have become anchored in the complementary fields of environmental governance, and environmental decision-making. The conceptual language that binds these fields is 'risk' (Beck, 1992). It should not come as a surprise therefore, that recent scientometric analysis suggests that risk and\or vulnerability assessment methodologies have come to dominant the environmental field, as famously evident in the Intergovernmental Panel on Climate Change (IPCC) assessment process.

This wide scale adoption of *assessment* procedures across business sectors, government institutions, and civil society, is having a profound impact upon how modern society perceives its relationship to the environment. The huge uncertainties associated with ecosystems and socio-economic processes, the variability of access to knowledge and expertise, and the need to systematically assess a range of options in light of locally oriented social, cultural and economic values, has spurred this development. Generally speaking, this trend has been received positively within the field, but the increasing proliferation of risk and vulnerability assessment procedures\protocols is also increasing the confusion regarding what constitutes the field's essential theoretical and methodological elements.

Recently we identified 23 core knowledge domains within this literature, each with a slightly different interpretation of risk, and risk assessment procedures, as inclusive of scientific standards and protocols. Against this heterogeneous, methodological background we offer this course, minimally so that our students are better able to interpret the results of such assessment procedures (e.g. IPCC assessment reports). More ambitiously though, we want our students to contribute to, and advance the development of such procedures as environmental professionals.

In this vein we have organized and participated in, four major assessment procedures over the previous year to ensure that this course represents the leading-edge of risk\vulnerability \resilience assessment procedures within Canada:

1) With our partners within the Canadian Forestry Service, the USDA Forest Service, the Professional Foresters of New Brunswick (ARPFNB), and the New Brunswick Climate Change Research Collaborative we have developed climate\forest vulnerability training modules for the Atlantic region of Canada that not only includes hands-on impact modeling, but two complementary forms of vulnerability assessment procedures.
2) With our partners within the Canadian Rivers Institute, INRS, the Department of Fisheries, and UQAM, we have developed a protocol for assessing the vulnerability of Atlantic salmon

populations under a changing climate, as based upon the most up to date climate and hydrological modeling.
3) With the World Wildlife Fund, we have developed an agent-oriented, environmental impact critique for watershed health.
4) And finally, we have participated in one of the largest climate vulnerability infrastructure assessments undertaken in Canada. The Metrolinx climate change resilience assessment is based upon Engineers Canada's PIEVC vulnerability assessment tool, and has expanded beyond this framework to include system-wide considerations for transportation infrastructure.

At the core of all these methods are scientifically based modeling exercises as structured around a scenarios methodological framework. Drawing upon these real-world experiences, we will create a course that will be of value not only to Environmental Studies students, but will become a nexus for students across the campus potentially drawing students from Business, Biology, CCDS, Political Science, Geography, and Community Health to name a few.

A quick review of course offerings at UTSC suggests that this course does not directly conflict with other course offerings, but rather compliments a broad range of courses due to its unique focus on the environmental decision making aspects of 'risk.'

Consultation:
Within the academic unit. There has also been consultation with the Graduate DPES and the Department of Political Science. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

PHYC83H3 Introduction to General Relativity
An introduction to the basic principles and mathematics of General Relativity. Tensors will be presented after a review of Special Relativity. The metric, spacetime, curvature, and Einstein's field equations will be studied and applied to the Schwarzschild solution. Further topics include the Newtonian limit, classical tests, and black holes.
Prerequisite: MATB42H3 and MATB44H3 and PHYB54H3
Corequisite: MATC46H3
Exclusion: none
Breadth Requirement: Natural Sciences

Rationale:
The natural world is currently described at the fundamental level by two physical theories: Quantum Mechanics (QM) and General Relativity (GR). These two highly successful theories form the basis of all modern descriptions of natural phenomena ranging from the world of subatomic particles to the large-scale structure of the Universe.

Currently, at the undergraduate level, students in specialist programs in Physics and Astrophysics (P&A) are required to take a minimum of two courses in QM (and have further elective options in this area), without any required courses in GR. Student's only exposure to the ideas of relativity come in the form of a section in their first-year course dealing with Special Relativity (SR) and a further cursory presentation of SR in their third-year course in Electromagnetic Theory. The only options available for an interested undergraduate student in GR are to take fourth-year graduate cross-listed courses at the St. George campus.

This proposal intends to fill the gap in preparation of undergraduate students in P&A by providing an introductory third-year course that allows students the opportunity to start their studies in GR earlier and be better prepared for the graduate cross-listed courses should their interest align with that field of study.

Although the common rhetoric for the absence of GR courses at the undergraduate level highlights the mathematical challenges as the main obstacle, the proposed course will overcome this difficulty by presenting an introduction to the mathematical techniques necessary in the formulation of GR at a level suitable for the third-year preparation implied in the pre- and corequisite structure.

The pre-requisites of MATB42H3 and MATB44H3 ensure that basic knowledge of multivariable calculus and differential equations is present and can be used to build the tools of tensor calculus. The pre-requisite of PHYB54H3 provides background on the Newtonian theory that GR extends and will be used for comparison in the weak-field regime.

The corequisite of MATC46H3 will provide mathematical support in the areas of partial differential equations that are necessary for the formulation of GR through Einstein's Field Equations.

The course will provide a C-level elective alternative to students in all P&A programs intended to broaden the scope of content taught in the program allowing a student to include GR as part of his undergraduate basic formation. This preparation will also benefit and be an asset students going onto graduate programs as exposure to GR is quite rare at the undergraduate level.

The course in itself is an innovation as very few universities (as a matter of fact, no major university that the proponent could find) offer a GR course at this level. There is no course similar to this taught at any of the units of UofT.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

PHYD57H3 Advanced Computational Methods in Physics
Intermediate and advanced topics in numerical analysis with applications to physical sciences. Ordinary and partial differential equations with applications to potential theory, particle and fluid dynamics, multidimensional optimization and machine intelligence, are explained. The course includes programming in Python, and C or Fortran, allowing multi-threading and vectorization on multiple platforms.
Prerequisite: PSCB57H3
Breadth Requirement: Natural Sciences
Note: Priority will be given to students enrolled in the Specialist in Physical and Mathematical Sciences and Major in Physical Sciences.

Rationale:
The proposed course is a much needed higher-level extension of the Introduction to Scientific Computing (PSCB57). PSCB57, which discusses basics of computer organization, binary representation, basic computer linear algebra, interpolation, root finding, basic optimization, and ordinary differential equations, and is much more broadly targeted. In contrast, the present D-level extension is intended for the all the Physical Sciences major and specialist programs.

The applications discussed in the course are all from this area. The goal is to provide students with the amount of background in modern numerical analysis enabling him/her to participate in both the D-level numerical research projects (PHYD01, etc.), and later to apply the skills in academia or industry, where computational skills are at a premium.

The proposed course introduces more advanced concepts in numerical analysis (for instance, partial physical differential equations in addition to ordinary differential equations), and computer languages (C/Fortran, in addition to Python). There is no equivalent course presently offered at U of T.

The intermediate numerical analysis elements in the present course that go beyond the introductory course include: discussion of high-level, high-performance computer languages C and Fortran; fast nonlinear root finding; iterative eigenproblem solutions; splines; wavelets, applications of Digital Fourier Transform. Specific, physical uses of ODEs (particle dynamics and modal analysis of continua) will be explored in lectures and tutorials.

The advanced optimization and machine learning elements of the present course include: Monte Carlo and simulated annealing methods, continuum mechanics via Navier-Stokes and other Partial Differential equations, solving advection-diffusion equations, historical development of High Performance Computing (HPC), parallelization through multi-threading and vectorization, shared memory and cluster computation, novel processor platforms (graphical units and many-core coprocessors), data mining and machine intelligence. Examples of key architectures and methods of Neural Nets, and other multidimensional optimization of large sets of parameters in learning systems, will also be discussed.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Department of Sociology

New Courses

SOCA03Y3 Introduction to Sociology
The yearlong foundational skills course provides a comprehensive introduction to the discipline of sociology beginning with how sociologists use theory and research methods to understand the social world. Topics covered will include culture, inequality, gender, sexualities, race and ethnicity, families, education, religion, crime, law, health, political economy, mass media, social change, and globalization.
Exclusion: SOC101Y, (SOCA01H3), (SOCA02H3)
Breadth Requirement: Social & Behavioural Sciences

Rationale:
This course will replace two H courses by merging their content into a single Y course. The two courses being replaced (and deleted) are SOCA01H (Introduction to Sociology I) and SOCA02H (Introduction to Sociology II). Both courses are required of all Sociology Specialists, Majors, and Minors. They are also optional choices for the Minor in Critical Migration Studies and the Minor in Culture, Creativity, and Cities, both housed in the department of sociology.

The rationale for the proposed course is to achieve pedagogical goals that cannot be accomplished in the current format of two single-semester courses sociology. A primary goal is to give students hands-on experience in conducting a small-scale research project. The current format of a 12-week course precludes this learning opportunity because it is too short a period of time for students to acquire the knowledge that is needed to undertake such a project. With a year-long course, we will be able to offer scaffolded assignments spread out through the year, culminating with the submission of their final research report. Allowing students hands-on research opportunities is a priority of this department and the UTSC campus. Being able to have this experience in the first year of study will deepen students' knowledge by allowing them to apply directly what they are learning. This year-long model with hands-on research experience is currently being used successfully in the St. George Sociology Department.

A secondary rationale for the year-long course relates to our efforts to incorporate foundational academic skills, as well as core sociological skills and knowledge, into the first-year sociology curriculum. Guest speakers from various campus offices are presenting 15-20 minute sessions on topics such as academic time management, study skills, textbook reading techniques, and health & wellness. Online modules instruct students in academic honesty policies and information literacy. Foundational skills and modular training facilitated by various UTSC academic and nonacademic units shadow the pedagogical goals. Research in higher education suggests that foundational skills are best learned in relation to hands on practice; again the two-term format is required to allow for the back and forth between pedagogical and skill building.

A third reason for the two-term long course is to ensure pedagogical and skills-building continuity. Currently we cannot ensure that students take SOCA01 and SOCA02 in consecutive sections. Although the Calendar strongly recommends that students take the two courses consecutively in a single academic year, there is no requirement for them to do so. Students may – and do - take SOCA01 in one academic year, and SOCA02 in a subsequent academic year. Until the two courses are merged into one, students will be not be able to have the hands-on experience of conducting sociological research that will enable them to apply and deepen their knowledge of the field.

Consultation:
Within the academic unit. There has also been consultation with the Department of Human Geography. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

SOCC61H3 The Sociology of the Truth and Reconciliation Commission
The Truth and Reconciliation Commission of Canada is an historic process that now directs a core area of Canadian politics and governance. This course examines the institutional and legal history, precedents, contradictions and consequences of the commission from a sociological perspective.
Prerequisite: [SOCB05H3 or STAB23H3] and [0.5 credit from the following: SOCB30H3, SOCB42H3, SOCB43H3, SOCB47H3]
Enrolment Limits: 60
Breadth Requirement: Social & Behavioural Sciences

Rationale:
The proposed course will complement and add breadth to the core areas of our curriculum and course offerings. This is particularly true in the areas of the sociology of law, policing and security, urban governance, immigration and citizenship, and cultural studies. The course will add depth and range to the options that our Major and Specialist students may take to fulfill their program requirements. It will include the innovation and advantage of students being able to interact with the National Centre for

Truth and Reconciliation based at the University of Winnipeg (http://nctr.ca/map.php). The NCTR website includes extensive and updating resources and archives that are custom designed for research purposes.

A scan of this year's calendar found no related courses at UTSC, one calendar course at St. George Campus, and one special topics course at UTM (SOC345F) called Sociology of Indigenous People in Canada. The new course does not cause any redundancy.

The proposed course is clearly distinct, in that it is not a course on indigenous people, nor is it a course on the politics of reconciliation de/colonization. Rather the proposed course is a broad based sociological analysis of the form and character of the Commission itself.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

SOCD52H3 Sociology of Books
A sociological examination of the creation, production, dissemination, and reception of books.
Prerequisite: 10.0 credits including SOCB05H3 and [1.0 credit from the following: SOCB30H3, SOCB42H3, SOCB43H3, SOCB47H3, SOCB44H3, SOCB58H3] or [10.0 credits including SOCB58H3 and enrolment in the Minor in Culture, Creativity and Cities]
Exclusion: [SOCD44H3 if taken in 2014-2015 or 2015-2016 or 2016-2017]
Enrolment Limits: 20
Breadth Requirement: Social Sciences
Note: Priority will be given to students enrolled in the Minor in Culture, Creativity, and Cities followed by Specialist and Major programs in Sociology. Additional students will be admitted as space permits.

Rationale:
This course has been taught with full enrolment for two academic years under the "issues/general D-level seminar" course code. This was done to test student demand. We would now like to offer it as a permanent course.

There are no other courses on the Sociology of Books taught at either UTSC or at the wider U of T. There is a program in Book & Media Studies at St. Michael's College, but their courses are not taught from an explicitly sociological perspective.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

SOCD55H3 Field School in Critical Migration Studies
This intensive international field school course examines themes at the intersection of migration, labour and politics and offers students an opportunity to develop their qualitative research skills through immersion in a natural setting. The course will provide students hands-on experience linking theories and knowledge learned in the classroom to direct observations about the social world.
Prerequisite: 10.0 credits, including SOCB05H3 and 1.0 credit from the following: [SOCB30H3, SOCB42H3, SOCB43H3, SOCB47H3].
Enrolment Limits: 20

Breadth Requirement: Social Sciences
Note: Priority will be given to students enrolled in the Major or Specialist programs in Sociology and the Minor program in Critical Migration Studies. Additional students will be admitted as space permits.

Rationale:
This course allows advanced program students to get hands on experience with ethnographic field research methods in an international setting. In this way it provides an essential extension of valuable experiential research-focused opportunities for Sociology program students.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Program Changes

Specialist in Sociology (BA)
Major in Sociology (BA)
Minor in Sociology (Arts)
Minor in Culture, Creativity and Cities (Arts)

Overview of Changes:
1. SOCA01H3 and SOCA02H3 replaced by SOCA03Y3 in all programs
2. Clarification of existing enrolment requirements for the Specialist and Major in Sociology

Calendar Copy Showing Changes:

SPECIALIST PROGRAM IN SOCIOLOGY (ARTS)

~~Program Admission~~
Enrolment Requirements

~~Enrolment in the Specialist Program is limited. Students must normally apply to enter the Program after completing 4 or 5 full credits including SOCA01H3 and SOCA02H3. Decisions are made on Program admissions only twice a year, in May and in August, and are based on student requests submitted to the Registrar through ROSI. Admission is determined on the basis of a student's overall GPA and grades in SOCA01H3 and SOCA02H3. For students applying after 8-10 credits, admission will be on the basis of overall GPA and grades in SOC courses taken. Specialist students will be entitled to priority access to SOCB42H3, SOCB43H3, SOCC23H3 & SOCC31H3, for fall-winter sessions, during the summer early registration period.~~

Enrolment in the Specialist program is limited. Students will normally apply to enter the program after completing 4.0 or 5.0 credits including SOCA03Y3. Decisions are made on program admissions only twice a year, in May and in August, and are based on student requests submitted to the Registrar through ROSI. Admission will require a final grade of 70% or higher in SOCA03Y3 (or a CGPA of 70% or higher in SOCA01H3 and SOCA02H3). For students applying after completing 8.0 to 10.0 credits, admission will be on the basis of SOC courses completed, or on overall CGPA for those students who have not completed any SOC courses. Specialist students will be entitled to priority access to SOCB42H3, SOCB43H3, SOCC23H3 & SOCC31H3, for fall-winter sessions, during the summer early registration period.

Program Requirements
The Program requires completion of 12.0 full credits as described below. No more than 14.0 full credits in Sociology may be included in a four-year degree.

1. [(SOCA01H3) Introduction to Sociology I and (SOCA02H3) Introduction to Sociology II)] or SOCA03Y3 Introduction to Sociology
2. SOCB05H3 Logic of Social Inquiry
3. STAB23H3 Introduction to Statistics for the Social Sciences
4. SOCB42H3 Classical Sociological Theory I
5. SOCB43H3 Classical Sociological Theory II
6. 3.0 full credits at the B-level in Sociology
7. SOCC40H3 Contemporary Sociological Theory
8. SOCC23H3 Practicum in Qualitative Research Methods
   or
   SOCC31H3 Practicum in Quantitative Research Methods
9. One C-level SOC course (0.5 credit) that has been designated as an Applied Writing Skills course
10. 4.5 additional credits at the C- or D- level in SOC courses*, of which at least 1.0 credit must be at the D-level.
    *Students may substitute courses from cognate disciplines with the prior approval of the program supervisor.

MAJOR PROGRAM IN SOCIOLOGY (ARTS)

~~Program Admission~~
Enrolment Requirements

~~Enrolment in the Major Program is limited. Students must normally apply to enter the Program after completing 4 or 5 full credits including (SOCA01H3 and SOCA02H3) or SOCA03Y3. Decisions are made on Program admissions only twice a year, in May and in August, and are based on student requests submitted to the Registrar through ROSI. Admission is determined on the basis of a student's overall GPA and grades in (SOCA01H3 and SOCA02H3) or SOCA03Y. For students applying after 8-10 credits, admission will be on the basis of overall GPA and grades in SOC courses taken. Major students will be entitled to priority access to SOCB42H3 and SOCB43H3 for fall-winter sessions, in the summer early registration period.~~

Enrolment in the Major program is limited. Students will normally apply to enter the program after completing 4.0 or 5.0 credits including SOCA03Y3. Decisions are made on program admissions only twice a year, in May and in August, and are based on student requests submitted to the Registrar through ROSI. Admission will require a final grade of 65% or higher in SOCA03Y3 (or a CGPA of 65% or higher in SOCA01H3 and SOCA02H3). For students applying after completing 8.0 to 10.0 credits, admission will be on the basis of SOC courses completed, or on overall CGPA for those students who have not completed any SOC courses. Specialist students will be entitled to priority access to SOCB42H3 and SOCB43H3 for fall-winter sessions, during the summer early registration period.

Program Requirements
The Program requires completion of 7.0 full credits in Sociology including:

1. [(SOCA01H3) Introduction to Sociology I and (SOCA02H3) Introduction to Sociology II)] or SOCA03Y3 Introduction to Sociology
2. SOCB05H3 Logic of Social Inquiry
3. STAB23H3 Introduction to Statistics for the Social Sciences
4. SOCB42H3 Classical Sociological Theory I
5. SOCB43H3 Classical Sociological Theory II
6. One C-level SOC course (0.5 credit) that has been designated as an Applied Writing Skills course
7. 3.5 additional credits in SOC courses, of which at least 1.5 credits must be at the C- or D-level

MINOR PROGRAM IN SOCIOLOGY (ARTS)

~~Program Admission~~
Admission to the Minor Program in Sociology is unlimited ~~not limited~~. ~~All students who apply for this Program will be admitted.~~ However, students are warned that they are not guaranteed admission to B-level and C-level courses during fall and winter session, and thus will be accommodated only after other Program students have been admitted to these courses. Thus some courses may be unavailable, or available only in the summer.

Program Requirements
The Program requires completion of 4.0 full credits in Sociology as follows:

1. [(SOCA01H3) Introduction to Sociology I and (SOCA02H3) Introduction to Sociology II)] or SOCA03Y3 Introduction to Sociology
2. SOCB05H3 Logic of Social Inquiry
3. 1.0 credit from the following:
   SOCB30H3 Political Sociology
   SOCB42H3 Classical Sociological Theory I
   SOCB43H3 Classical Sociological Theory II
   SOCB47H3 Social Inequality
4. 0.5 additional credit at the B-level in Sociology
5. 1.0 additional credit at the C-level in Sociology

MINOR PROGRAM IN CULTURE, CREATIVITY, AND CITIES (ARTS)

The Minor program in Culture, Creativity and Cities offers students an in-depth understanding of the relationship between culture and cities. The Minor is interdisciplinary in content and method. Through experiential learning, students will develop a suite of transferable skills in written, oral, and digital communication. Paired with a discipline-specific Major, graduates of the program will have a comparative advantage in the labour market and graduate school market due to concrete training and experience in research and data analysis.

Program Advisor: Janet Roopnarinesingh janetr@utsc.utoronto.ca

Program Requirements
This program requires the completion of 4.0 credits as follows:

1. 0.5 credit from the following:

ANTA02H3 Introduction to Anthropology: Society, Culture and Language
GGRA02H3 The Geography of Global Processes
MDSA01H3 Introduction to Media Studies
MGTA01H3 Introduction to Business
MGTA02H3 Managing the Business Organization
[(SOCA01H3) Introduction to Sociology I or (SOCA02H3) Introduction to Sociology II) or SOCA03Y3 Introduction to Sociology]
VPAA10H3 Introduction to Arts Management

2. 0.5 credit in B-level Sociology courses:
SOCB58H3 Sociology of Culture

3. 1.0 credit from the following:
CITB02H3 Foundations of City Studies
ENGB37H3 Popular Literature and Mass Culture
GGRB05H3 Urban Geography
GGRB55H3 Cultural Geography
MDSB03H3 Advertising and Consumer Culture
SOCB44H3 Sociology of Cities and Urban Life
VPAB05H3 Introduction to Contemporary Cultural Theory

4. 0.5 credit in C-level Sociology courses:
SOCC26H3 Sociology of Urban Cultural Policies

5. 1.0 credit from the following:
ENGC59H3 Geography and Regionalism in Literature
ENGC83H3 Studies in World Cinema
GGRC13H3 Urban Political Geography
SOCC27H3 Sociology of Suburbs and Suburbanization
SOCC44H3 Media and Society
VPAC15H3 Cultural Policy

6. 0.5 credit in D-level Sociology courses:
SOCD51H3 Capstone Seminar in Culture, Creativity, and Cities

Rationale:
1. SOCA01H3 and SOCA02H3 have been deleted and replaced by a year-long course, SOCA03Y3.
2. The Enrolment Requirements for the Specialist and Major programs in Sociology are long-standing, but have not been well articulated in the Calendar. The described revisions will make these requirements clear to students.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Minor in Migration and Ethnic Diversity (Arts)

Overview of Changes:

1. Change the name of the offering from Minor in Migration and Ethic Diversity (Arts) to Minor in Critical Migration Studies (Arts).
2. Delete SOCA01H3 and SOCA02H3 from component 1 of the program requirements; add SOCA03Y3 to component 1

Calendar Copy Showing Changes:

MINOR PROGRAM IN ~~MIGRATION AND ETHNIC DIVERSITY~~ CRITICAL MIGRATION STUDIES (ARTS)

The Minor program in ~~Migration and Ethnic Diversity~~ Critical Migration Studies offers students an understanding of the causes and consequences of international migration in sending, transit and receiving societies. Issues of ethnic diversity, pluralism, and social equity are highlighted. The Minor is interdisciplinary in content and method; through data-driven coursework and experiential learning, students will develop a suite of transferable skills in research design, quantitative and qualitative data analysis, and written, oral, and digital communication. Paired with a discipline-specific Major, graduates of the program will have a comparative advantage in the labour market and graduate school market due to concrete training and experience in research and data analysis, and knowledge of migration and ethnic diversity grounded in material conditions.

Program Advisor: Janet Roopnarinesingh janetr@utsc.utoronto.ca

Program Restrictions

Students in the Minor in ~~Migration and Ethnic Diversity~~ Critical Migration Studies may count only 1.0 credit in Sociology courses, from the following list, towards completion of the program: [[(SOCA01H3)~~,~~ ~~and~~ (SOCA02H3)] or SOCA03Y3], SOCB05H3.

Program Requirements

The program in ~~Migration and Ethnic Diversity~~ Critical Migration Studies requires completion of 4.0 full credits as follows:

1. 1.0 credit from the following:

ANTA02H3 Introduction to Anthropology: Society, Culture and Language
GASA01H3/HISA06H3 Introducing Global Asia and its Histories
GASA02H3 Introduction to Global Asia Studies
GGRA02H3 The Geography of Global Processes
HISA04H3 Themes in World History I
HISA05H3 Themes in World History II
HLTA02H3 Foundations in Health Studies I
HLTA03H3 Foundations in Health Studies II
POLA01H3 Critical Issues in Politics I
POLA02H3 Critical Issues in Politics II
[(SOCA01H3) Introduction to Sociology I and (SOCA02H3) Introduction to Sociology II)] or SOCA03Y3 Introduction to Sociology

2. 0.5 credit as follows:
SOCB60H3 Issues in ~~Migration & Ethnic Diversity~~ Critical Migration Studies

3. 0.5 credit from the following:
ANTB19H3 Ethnography and the Comparative Study of Human Societies
ANTB20H3 Culture, Politics and Globalization
GGRB02H3 The Logic of Geographical Thought
HISB03H3 Critical Writing and Research for Historians
HLTB15H3 Introduction to Health Research Methodology
SOCB05H3 Logic of Social Inquiry

4. 0.5 credit from the following:
SOCB53H3 Race and Ethnicity
GGRA35H3 The Great Scarborough Mashup: People, Place, Community, Experience
ANTB16H3 Canadian Cultural Identities
GASB53H3 Mughals and the World, 1500-1858 AD

5. 1.0 credit from the following:
ANTC34H3 The Anthropology of Transnationalism
CITC01H3 Urban Communities and Neighbourhoods Case Study: East Scarborough
GASC59H3 The Making of Tamil Worlds
GASD01H3 Senior Seminar: Topics in Global Asian Migrations
GASD56H3 'Coolies' and Others: Asian Labouring Diasporas in the British Empire
GGRC56H3 Spaces of Travel: Unsettling Migration, Tourism, and Everyday Mobilities
GGRD19H3 Spaces of Multiraciality: Critical Mixed Race Theory
HISB14H3 Edible History: History of Global Foodways
HISC11H3 Multiculturalism and Cultural Identities in the Greek and Roman Worlds
HISC36H3 People in Motion: Immigrants and Migrants in U.S History
HISD31H3 Thinking of Diversity: Perspectives on American Pluralisms
HISD35H3 The Politics of American Immigration, 1865-present
HLTD06H3 Special Topics in Migration and Public Health
POLD52H3 Immigration and Canadian Political Development
SOCC25H3 Ethnicity, Race and Migration
SOCC34H3 Migrations & Transnationalisms
SOCC52H3 International Migration & Immigrant Incorporation
SOCC55H3 Special Topics in Race and Ethnicity

6. 0.5 credit from the following:
SOCD15H3 Advanced Seminar in ~~Migration and Ethnicity~~ Critical Migration Studies
SOCD21H3 Immigrant Scarborough

Rationale:
1. The revised title more accurately reflects both the current focus of the program, which is on critical migration scholarship, and also its future direction in terms of current and futuring hiring.
2. SOCA01H3 and SOCA02H3 are being replaced with a 1.0 credit course – SOCA03H3.

Consultation:
Within the academic unit. Approved by the Departmental Curriculum Committee. Reviewed by the Dean's Office.

Combined Degree Programs

Program Changes

Combined Degree Programs, Honours Bachelor of Science or Honours Bachelor of Arts/Master of Teaching

Overview of Changes:
In component 4 of the **Program Requirements**, the 1.0 credit (FCEs) in graduate courses that Combined Degree Program students are eligible to take in Year 4 of their undergraduate program are being changed as follows:

- 1.0 credit (FCE) in Professional Education Courses accredited by the Ontario College of Teachers (OCT) are being removed. These courses are:
    - CTL7001H (Educational Professionalism, Ethics and the Law)
    - CTL7009H (Anti-Discriminatory Education)
- Instead, students will take 1.0 credit (FCE) in unspecified elective graduate courses that are recommend for Combined Degree Program students by the OISE MT.

Calendar Copy Showing Changes:

COMBINED DEGREE PROGRAMS, HONOURS BACHELOR OF SCIENCE OR HONOURS BACHELOR OF ARTS/ MASTER OF TEACHING

The Combined Degree Programs for Honours Bachelor of Science/Honours Bachelor of Arts programs at UTSC (various) and the Master of Teaching (MT) offered by the Ontario Institute for Studies in Education are designed for students interested in studying the intersections of the Physical Sciences, Mathematical Sciences, or French, and Education coupled with professional teacher preparation. They allow exceptional students who are registered in one of 22 specified Specialist and Major programs to apply during their third year of studies, and be considered, for admission to the MT.

The Combined Degree Programs options are:

- Biological Chemistry (Specialist), Honours Bachelor of Science/ Master of Teaching
- Biological Chemistry (Specialist Co-op), Honours Bachelor of Science/ Master of Teaching
- Biochemistry (Major), Honours Bachelor of Science/ Master of Teaching
- Biochemistry (Major Co-op), Honours Bachelor of Science/ Master of Teaching
- Chemistry (Specialist), Honours Bachelor of Science/ Master of Teaching
- Chemistry (Specialist Co-op), Honours Bachelor of Science/ Master of Teaching
- Chemistry (Major), Honours Bachelor of Science/ Master of Teaching
- Chemistry (Major Co-op), Honours Bachelor of Science/ Master of Teaching
- Environmental Chemistry (Specialist), Honours Bachelor of Science/ Master of Teaching
- Environmental Chemistry (Specialist Co-op), Honours Bachelor of Science/ Master of Teaching
- Environmental Physics (Specialist), Honours Bachelor of Science/ Master of Teaching
- Environmental Physics (Specialist Co-op), Honours Bachelor of Science/ Master of Teaching
- Physics and Astrophysics (Specialist), Honours Bachelor of Science/ Master of Teaching
- Physical and Mathematical Sciences (Specialist), Honours Bachelor of Science/ Master of Teaching

- Mathematics (Specialist), Honours Bachelor of Science/ Master of Teaching
- Mathematics (Specialist Co-op), Honours Bachelor of Science/ Master of Teaching
- Mathematics (Major), Honours Bachelor of Science/ Master of Teaching
- Mathematics (Major Co-op), Honours Bachelor of Science/ Master of Teaching
- French (Specialist), Honours Bachelor of Arts/ Master of Teaching
- French (Specialist Co-op), Honours Bachelor of Arts/ Master of Teaching
- French (Major), Honours Bachelor of Arts/ Master of Teaching
- French (Major Co-op), Honours Bachelor of Arts/ Master of Teaching

UTSC Programs Fit With OISE MT Teaching Subjects:

UTSC Program	MT Teaching Subjects - Required Number of Courses/Credits Completed
Specialist/Speciaist Co-op in Biological Chemistry	Science - Chemistry Science - Biology Science - General
Major/Major Co-op in Biochemistry	Science - Biology
Specialist/Specialist Co-op in Chemistry	Science - Chemistry
Major/Major Co-op in Chemistry	Science - Chemistry
Specialist/Specialist Co-op in Environmental Chemistry	Science - Chemistry
Specialist/Specialist Co-op in Environmental Physics	Science - Physics
Specialist in Physics and Astrophysics	Science - Physics
Specialist in Physical and Mathematical Sciences	Science - Physics
Specialist/Specialist Co-op in Mathematics	Mathematics
Major/Major Co-op in Mathematics	Mathematics
Specialist/Specialist Co-op in French	French (Second Language)
Major/Major Co-op in French	French (Second Language)

Minimum Admission Requirements:

- Applicants must apply to, and be accepted by, at least one of the above listed undergraduate programs at UTSC and also the OISE Master of Teaching program. Applicants must satisfy the admission requirements of each program.
- Students must be enrolled full-time and be in Good Standing in their chosen undergraduate program with a B+ average (3.3) in Year 2 of their program to be eligible for admission into the MT and the Combined Degree Program; students must normally complete a minimum of 5.0 credits over the three terms (Fall, Winter and Summer) during each year of study (where necessary, exceptions will be made for students in Co-op programs).
- Qualified undergraduate students in Year 3 of their chosen undergraduate program(s) may apply to the Combined Degree Program; those accepted to the CDP will receive a conditional offer to of admission to the graduate program.
- Admission into the MT program will have the following conditions:

- Students must maintain a B+ average (3.3) or higher in their final year of study, or over upper level (C- and D-level) courses;
- Students must complete the requirements of their chosen undergraduate program;
- Students must demonstrate conferral of the BSc/BA degree
- Students must provide at least two letters of reference (see: http://www.oise.utoronto.ca/mt/Home.html);
- Students must complete the prerequisites for two teaching subjects irrespective of the grade level they ultimately intend to teach.
    - Students are required to complete a minimum of 6.0 credits in their primary teaching subject, and a minimum of 3.0 credits in their secondary teaching subject (some secondary teaching subjects require more than 3.0 credits; students should consult the OISE website for more information);
    - Students must have completed 3.0 credits in their primary teaching subject, and 1.5 credits (or more where applicable) for their secondary teaching subject by the time they are conditionally admitted to the MT program (i.e., by the second term of Year 3 of the undergraduate program);
    - The table below identifies the primary teaching subject each UTSC program fits into; students may need to complete additional courses to fulfill the minimum 3.0 credits required for the secondary teaching subject. Students are advised to consult often with the academic supervisor of their chosen undergraduate program to ensure they fulfill all the necessary requirements of the Combined Degree Program;
- Meet other qualifications as specified by the MT program:
    - Applicants are admitted under the General Regulations of the School of Graduate Studies.
    - Applicants must also satisfy the Department of Curriculum, Teaching and Learning's additional admission requirements stated below.
    - Applicants must have an appropriate bachelor's degree with the equivalent of a University of Toronto B+ or better in the final year. Note: all students admitted to the MT via the Combined Degree Program must have a higher average grade requirement than that required for admission to the MT alone.
    - In their Statement of Intent, applicants should indicate their preferred concentration (i.e., Primary/ Junior, Junior/Intermediate, or Intermediate/Senior) and describe three significant teaching and/or teaching-related experiences that they have had, especially with groups of children. With reference to these experiences, applicants should identify insights gained about teaching and learning, and explain how, based on these insights, they might contribute to the education of students in today's schools. Included in their resumé, applicants are requested to list, in chart form, the extent of their teaching experiences. The chart should include dates, location of experience, role, and number of hours working with students.
    - A police record check is required in a practicum setting in both Year 1 and 2 of the program.

Program Requirements:

- Students must complete the full academic program requirements of their undergraduate program(s) and degree, as well as those of the Master of Teaching;
- Students must be registered full-time, and carry a full course load in each year of study, throughout their chosen undergraduate program;

- Students who are admitted to the CDP receive conditional offers of admission to the MT during Year 3 of their chosen undergraduate program, and will commence the MT during Year 4 when they are enrolled in the 1.0 FCE graduate courses;
- In Year 4 of undergraduate studies, combined degree program students must take 1.0 credit (FCEs) in elective graduate courses recommended for Combined Degree Program students ~~as designated~~ by the OISE MT program. The 1.0 graduate FCE will count both towards the undergraduate degree and the MT. A Combined Degree Program student is graded as a graduate student and required to meet graduate expectations in the graduate courses.

The path to completion is:
- Year 1: BSc requirements
- Year 2: BSc requirements
- Year 3: BSc requirements
- Year 4: BSc requirements PLUS 1.0 credit (FCE) in graduate courses
- Year 5: MT first year requirements
- Year 6: MT second year requirements

Program Length: 6 years full-time Time Limit: BSc/BA + 3 years MT

Contact Information:
University of Toronto Scarborough:
- For programs in Biological Chemistry, Biochemistry, Chemistry, Environmental Chemistry, Environmental Physics, Physics and Astrophysics, and Physical and Mathematical Sciences, contact the Department of Physical and Environmental Sciences
- For programs in Mathematics contact the Department of Computer and Mathematical Sciences
- For programs in French, contact the Centre for French and Linguistics

Ontario Institute for Studies in Education:
Department of Curriculum Teaching and Learning

Rationale:
The Master of Teaching (MT) program was recently reviewed by the Ontario College of Teachers (OCT) as part of the process of accreditation renewal for the program.

As the agency that regulates the teaching profession in Ontario, and accredits programs of professional education, the OCT has requested that the two professional education courses currently identified as graduate courses the CDP students can take during their Year 4 of undergraduate study be replaced with two graduate elective courses offered in the MT program above and beyond professional education components accredited by OCT.
CTL7001H and CTL7009 are the required professional education program components accredited by the OCT, and going forward Combined Degree Program students will take these courses along with other MT students once they are unconditionally admitted to the MT program.
All other provisions of the above listed combined degree programs involving the MT degree remain unchanged including the following: the 1.0 graduate FCE will be graded at the graduate level, as per the UAGPP. The graduate courses will be counted both towards the undergraduate degree (satisfying degree requirements) and the Master of Teaching degree.
The proposed changes will not increase the overall FCE count for the Combined Degree Programs and will not change the program length or increase the time to completion.

This change is aligned with the Regulation 347/02 – Accreditation of Teacher Education Programs, and allows for a steady transition of undergraduate students into not only graduate-level work but also a program of professional education that leads to teaching certification in Ontario.

Consultation:
UTSC:
The Dean's Office has consulted with:

- Department of Computer and Mathematical Sciences: no questions or concerns were raised
- Centre for French and Linguistics: there were concerns that the changes will lead to a less robust set of programs
- Department of Physical and Environmental Sciences: there were concerns that the changes will make the programs less appealing to students, since the elective courses may not fit with, or advance, their academic and career goals
- The Registrar's Office: no questions or concerns were raised
- The Office of the Vice-Provost, Academic Programs: no questions or concerns were raised
- The Ontario Institute for Studies in Education (OISE): no questions or concerns were raised

OISE:
Has consulted with the Combined Degree Programs Working Group, which includes colleagues involved in the Combined Degree Programs from OISE and its undergraduate partners including: faculty (program coordinators and advisors), staff (program assistants and liaison officers), registrarial staff (Registrars and Associate Registrars), and representatives from the University of Toronto School of Graduate Studies. This group met on Friday, November 11 to discuss this change among other items on their agenda.

Has consulted with the Chair, Department of Curriculum, Teaching and Learning, Associate Chair, Teacher Education, the MT program leadership group, and with the undergraduate partner faculties' Dean's Offices and the Office of the Vice-Provost, Academic Programs.

Approved by all Departmental Curriculum Committees. Reviewed by the Dean's Office.

- Department of Computer and Mathematical Sciences: January 24, 2017
- Centre for French and Linguistics: January 24, 2017
- Department of Physical and Environmental Sciences: January 19, 2017