University of Toronto Mississauga

SCIENCES
Curriculum Proposals Report
May 12, 2020

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3 New Courses:

SUS200H5: Sustainability Lens I

Contact Hours:
Lecture: 24 / *Tutorial:* 12

Description:

The course develops the basic-foundation of sustainability lens. The lens includes systems, integrative, and critical thinking. The lens draws upon but also moves across traditional academic streams i.e., natural sciences, social sciences, and humanities. The course provides comparative perspectives of different lenses such as economic development, environmental conservation, social justice, and Indigenous lens. The sustainability lens is used to analyze sustainable development goals focused on environmental issues such as climate change, water, renewable energy, life below water, and life below land. Students acquire knowledge in the creative application of sustainability lens to the sustainability projects of local communities, city governments, and other organizations.

Prerequisites:

Corequisites:

Exclusions:

Recommended Preparation:

Rationale:
As outlined in the Sustainability Pathway Working Group Report, this course is a required course for the proposed new Certificate in Sustainability. The course offers the basic-foundation of sustainability, sustainability lens, and application of sustainability lens to different sustainable development goals. It includes equal proportion of contents from natural science, social science, and humanities, and places equal importance on all three streams. Students are adequately exposed to the on-going research in each of these streams. Hence, the course can be counted as a breadth course in any of the three distributions. In addition to sustainability knowledge, the course develops skills in holistic, integrative, and critical thinking which are essential in the modern world.

Resources:
The Resource form is attached.
Prof. Damian Maddalena, Assistant Professor, Teaching Stream, CLTA, will work as the Coordinator of SUS200 and SUS201. His background is Natural Science. Prof. Shashi Kant will coordinate SUS401H, and his background is Social Science.
 During the last two years, Prof. Shashi Kant has discussed the possibilities of professors from three streams (Natural Science, Social Science, and Humanities) contributing to these courses. He discussed these possibilities with many Chairs, Associate Chairs, and Professors. There is enough expertise and interest among professors from all three streams. These courses will be offered first time in 2021-22. Hence, the teaching arrangements will be finalized with the respective professors and departments with the support of Dean's office in year 20-21.

SUS201H5: Sustainability Lens II

Contact Hours:
Lecture: 24 / *Tutorial:* 12

Description:

The course develops the advanced concepts of sustainability lens, and compares the sustainability lens with advanced-versions of other lenses used to analyze sustainability issues. The lens draws upon but also moves across traditional academic streams i.e., natural sciences, social sciences, and humanities. The lens is used to analyze sustainable development goals focused on social and cultural aspects such as poverty, hunger, health, economic growth, gender equity, and peace and justice. Students acquire knowledge in the creative application of sustainability lens to sustainability projects of local communities, city governments, and other organizations.

Prerequisites:
SUS200H5

Corequisites:

Exclusions:

Recommended Preparation:

Rationale:
As outlined in the Sustainability Pathway Working Group Report, this course is a required course for the proposed new Certificate in Sustainability. The course builds on the foundational skills and knowledge laid out in SUS200H5 for a more in-depth exploration of sustainability, sustainability lens, and application of sustainability lens to different sustainable development goals. It includes equal contents from natural science, social science, and humanities, and places equal importance on all three streams. Students are adequately exposed to the on-going research in each of these distributions. Hence, the course can be counted as a breadth course in any of the three distributions. In addition to sustainability knowledge, the course develops skills in holistic, integrative, and critical thinking which are essential in the modern world.

Resources:

SUS401H: Certificate in Sustainability Capstone Project

Contact Hours:
Lecture: 16 / *Practical:* 4 / *Seminar:* 16

Description:

The course provides senior students who are completing the Certificate in Sustainability the opportunity to develop and demonstrate skills in integrating and applying knowledge gained from their previous sustainability-oriented courses to real-life decision-making situations related to sustainability issues/problems/projects, and to develop and demonstrate skills to work effectively in a group-setting. In the course, students work in teams of 3 or 4 students, preferably each from a different disciplinary background, on a sustainability project either offered by an external organization (public or private) or within the university's operational units. Each group develops an operational plan to enhance sustainability initiatives within the organization. Each plan includes components from all three streams – natural science, social science, and humanities.

Prerequisites:
SUS200H5 and SUS201H5 and 1.0 credit of 300-level courses with sustainability content (approved by the Certificate in Sustainability home unit and advisor)

Corequisites:

Exclusions:

Recommended Preparation:

Rationale:
As outlined in the Sustainability Pathway Working Group Report, this course is an elective course for the proposed new Certificate in Sustainability. The course offers an experiential learning option to students and contributes to all four educational attributes (sustainability thinking, knowledge, integration, experiential learning) of the certificate. In addition, the course develops skills in holistic, integrative, and critical thinking which are essential in the modern world. The course also develops professional development skills. It includes components from natural science, social science, and humanities and therefore can be counted as a breadth course for students from all three streams.,

Resources:

Institute of Communication, Culture, Information and Technology

1 Course Modification:

CCT399Y5: Research Opportunity Program (ROP)

Prerequisites: A minimum of 10.0 university credits or permission of instructor	
Rationale: We have updated the prerequisites to include permission of instructor is acceptable to take the course.	
Resources:	

Geography (UTM), Department of

2 Minor Program Modifications:

MAJOR - ENVIRONMENTAL MANAGEMENT

Completion Requirements:

First Year: 2.0 credits:

1. **Environment Foundation:** ENV100Y5
2. **Foundation in Related Disciplines** : 1.0 credit chosen from this list: ANT102H5; ECO100Y5 (ECO101H5 + ECO102H5); GGR111H5; POL111H5, POL114H5; SOC100H5

   Be sure to look ahead and plan to complete the prerequisites for any upper-level courses that are of interest to you.

Second Year: 3.0 credits:

1. **Environmental Management Core** : ENV201H5
2. **Environmental Policy Core** : JPE251H5 + JPE252H5 (formerly JPE250Y5)
3. **Social Science/Humanities Core** : 0.5 credit chosen from this list: ANT241H5; ENG259H5; ENV205H5; GGR202H5, GGR207H5, GGR208H5, GGR209H5, GGR210H5, GGR252H5, GGR265H5, GGR288H5; PHL274H5, PHL284H5
4. **Science Core** : 0.5 credit chosen from this list: ANT214H5; BIO201H5, BIO205H5, BIO211H5; ERS201H5; GGR201H5, GGR214H5, GGR217H5, GGR227H5;
5. **Quantitative, Digital, and Analytical Methods Core:** 0.5 credit chosen from this list: GGR276H5, GGR277H5, GGR278H5; STA215H5, STA220H5; or another program-relevant 200/300-level Research Methods course, with permission of the Program Advisor

Upper Years: 3.0 credits:

1. **Environmental Management Perspectives** : 1.0 credit chosen from this list: ENV310H5, ENV311H5, ENV320H5, ENV393H5, ENV425H5, ENV430H5, ENV435H5;JEP452H5
2. **Social, Economic & Policy Perspectives** : 1.0 credit chosen from this list: ANT357H5, ANT368H5, ANT370H5, ANT463H5, ANT464H5; ECO373Y5; ENV310H5, ENV311H5, ENV320H5, ENV425H5, ENV430H5, ENV435H5; GGR318H5, GGR322H5, GGR325H5, GGR329H5, GGR333H5, GGR348H5, GGR349H5, GGR353H5, GGR361H5, GGR362H5, GGR365H5, GGR370H5, GGR415H5, GGR418H5, GGR419H5, GGR420H5, GGR426H5, GGR461H5; JEP351H5, JEP356H5, JEP452H5; JGE378H5; POL343Y5, POL346Y5, POL475H5; SOC349H5, SOC356H5, SOC465H5;WRI375H5
3. **Scientific Perspectives** : 0.5 credit chosen from this list: ANT327H5; BIO311H5, BIO331H5, BIO333H5, BIO464H5; ENV495H5, ENV496H5; ERS312H5, ERS313H5, ERS315H5, ERS321H5; GGR304H5, GGR305H5, GGR307H5, GGR309H5, GGR311H5, GGR315H5, GGR316H5, GGR317H5, GGR322H5, GGR337H5, GGR338H5, GGR374H5, GGR375H5, GGR376H5, GGR377H5, GGR383H5, GGR384H5, GGR404H5, GGR406H5, GGR407H5, GGR440H5, GGR484H5;JGE378H5
4. **Field, Project-based, Experiential, and Research Perspectives** : 0.5 credit chosen from this list: ENV299Y5, ENV330H5, ENV332H5, ENV399Y5, ENV496H5, ENV497H5; GGR335H5, GGR379H5, GGR389H5; JEG401Y5, JEG417Y5; or another program-relevant Field, Experiential, or Research course, with permission of the Program Advisor

Note: ENV490H5, ENV491H5 can substitute for #1, #2, #3, or #4 as course requirements, where appropriate, and with permission of the Program Advisor or Academic Counsellor.

Note: This is intended to be an interdisciplinary program. At least four different disciplines must be represented among the courses that are counted as program requirements. For example, a course list selected from ENV +

GGR + ANT + POL is acceptable, but a course list selected only from ENV + GGR + ANT is not. Please contact the Program Advisors or Academic Counsellor if you have any questions about the validity of your course selections.

Rationale:

updating change to ECO100Y5 being split to ECO101H5 + ECO102H5

Resource Implications:

SPECIALIST - ENVIRONMENTAL MANAGEMENT

Completion Requirements:

First Year: 3.0 Credits
1. **Environment Foundation:** ENV100Y5
2. **Economics Foundations:** ECO100Y5 or (ECO101H5 + ECO102H5)
3. **Foundations in Related Disciplines:** 1.0 credit chosen from this list: ANT102H5; GGR111H5; POL111H5, POL114H5; SOC100H5

Be sure to look ahead and plan to complete the prerequisites for any upper-level courses that are of interest to you.

Second Year: 4.5 credits:

1. **Environmental Management Core** : ENV201H5
2. **Environmental Policy Core** : JPE251H5 + JPE252H5 (formerly JPE250Y5)
3. **Social Science/Humanities Core** : 1.0 credits chosen from this list: ANT241H5; ENG259H5; ENV205H5; GGR202H5, GGR207H5, GGR208H5, GGR209H5, GGR210H5, GGR252H5, GGR265H5, GGR288H5; PHL274H5, PHL284H5
4. **Science Core** : 1.0 credit chosen from this list: ANT214H5; BIO201H5, BIO205H5, BIO211H5; ERS201H5, ERS202H5, ERS203H5; GGR201H5, GGR214H5, GGR217H5, GGR227H5;
5. **Quantitative, Digital, and Analytical Methods Core:** 1.0 credit chosen from this list: GGR276H5, GGR277H5, GGR278H5; STA215H5, STA220H5, STA221H5

Upper Years: 4.5 credits:
1. **Environmental Management Perspectives** : 2.0 credit chosen from this list: ENV310H5, ENV311H5, ENV320H5, ENV393H5, ENV425H5, ENV430H5, ENV435H5; JEP452H5
2. **Social, Economic & Policy Perspectives** : 1.0 credits chosen from this list: ANT357H5, ANT368H5, ANT370H5, ANT463H5, ANT464H5; ECO373Y5; ENV310H5, ENV311H5, ENV320H5, ENV425H5, ENV430H5, ENV435H5; GGR313H5, GGR318H5, GGR322H5, GGR325H5, GGR329H5, GGR333H5, GGR348H5, GGR349H5, GGR353H5, GGR361H5, GGR362H5, GGR363H5, GGR365H5, GGR370H5, GGR385H5, GGR415H5, GGR418H5, GGR419H5, GGR420H5, GGR426H5, GGR461H5; JEP351H5, JEP356H5, JEP452H5; JGE378H5; POL343Y5, POL346Y5, POL475H5; SOC349H5, SOC356H5,
3. **Scientific Perspectives** : 0.5 credit chosen from this list: ANT327H5; BIO311H5, BIO331H5, BIO333H5, BIO464H5; ENV495H5, ENV496H5; ERS312H5, ERS313H5, ERS315H5, ERS321H5; GGR304H5, GGR305H5, GGR307H5, GGR309H5, GGR311H5, GGR315H5, GGR316H5, GGR317H5, GGR322H5, GGR337H5, GGR338H5, GGR374H5, GGR375H5, GGR376H5, GGR377H5, GGR383H5, GGR384H5, GGR404H5, GGR406H5, GGR407H5, GGR440H5, GGR484H5; JGE378H5;
4. **Field, Project-based, Experiential, and Research Perspectives** : 1.0 credit chosen from this list: ENV299Y5, ENV330H5, ENV332H5, ENV399Y5, ENV496H5, ENV497H5; GGR335H5, GGR379H5, GGR389H5; JEG401Y5, JEG417Y5 or another program-relevant Field, Experiential, or Research course, with permission of the Program Advisor.

Rationale:
updating change to ECO100Y5 being split to ECO101H5 + ECO102H5

Resource Implications: none

ENV: 1 Course Modification:

ENV495H5: Restoration Ecology I

Description:

Restoration ecology is an emerging cross-disciplinary field of study that concerns human activities undertaken to promote the recovery, health, integrity and sustainability of degraded ecosystems. This course introduces the fundamental concepts of ecological restoration, addressing topics such as assessing ecosystem health, resilience, resistance and stability; community structure and biodiversity; invasive species; ecosystem processes and functions; societal aspects of ecological restoration (e.g., the relationship between social, economic and environmental sustainability). ~~Many types of ecosystems (marine, freshwater, terrestrial, tropical and temperate) will be studied, largely through case-study investigations. Occasional field exercises on campus will be scheduled during regular class meeting times. [36L]~~

Rationale:

The focus of the course has shifted to conducting individual research projects, so field experiences are obtained through individual data collection. There is not enough time to properly cover all of those ecosystems in case studies, so it's misleading to mention a wide list if not all are covered.

Resources:

GGR: 2 Course Modifications:

GGR278H5: Geographical Information Systems

Prerequisites

4.0 credits ~~including GGR272H5~~

Rationale:

GGR272H5 no longer exists. The course was removed last year.

Resources:

GGR316H5: Landforms

Prerequisites:
 9.0 credits including GGR201H5 ~~GGR214H5 or GGR217H5~~ or PI ~~GGR227H5~~

Rationale:
GGR201H5 has been added as a regular offering each year and is better suited as a pre requisite for this course

Resources:

3 Minor Program Modifications:

MAJOR - COMPUTER SCIENCE

Enrolment Requirements:

Limited Enrolment:— Enrolment in this program is limited to students who meet the following criteria:

1. **Prerequisite courses**
   A minimum of 4.0 credits to include CSC148H5 and ISP100H5 and MAT102H5 ~~CSC148H5; MAT102H5;~~ and calculus - one of(MAT134H5 or/MAT136H5 or/MAT134Y5 or/MAT135Y5 or/MAT137Y5 or/MAT157Y5 or/MAT233H5).
2. **Prerequisite courses**
   The minimum course mark in CSC148H5 and MAT102H5 is determined annually. It is never lower than 60.
3. **Cumulative Grade Point Average (CGPA)**
   The minimum CGPA is determined annually. It is never lower than 2.0.

The Computer Science Major is a deregulated fees program and as such, tuition fees for students enrolled in this program are higher than for other regulated fee programs. Fees are charged on a program and not a per course basis. See www.fees.utoronto.ca for more information on the fee structures.

Completion Requirements:

First Year: CSC108H5 and~~,~~ CSC148H5 and ISP100H5 and ~~;~~ MAT102H5 and (~~,~~ (MAT132H5 and~~,~~ MAT134H5) or/(MAT135H5 and~~,~~ MAT136H5) or/MAT134Y5 or/MAT135Y5 or/MAT137Y5 or/MAT157Y5 or MAT233H5)

Second Year: CSC207H5 and~~,~~ CSC236H5 and~~,~~ two of (CSC209H5 or~~,~~ CSC258H5 or~~,~~ CSC263H5) and (~~, CSC290H5 ;~~ MAT223H5 or/MAT240H5) and ~~;~~ STA256H5

Third and Fourth Years: Four half courses from any 300/400 level U of T Mississauga CSC courses (including at ~~or from GGR335H5, GGR337H5 or GGR437H5. At~~ least 0.5 credit ~~must come~~ from a 400-level course). ~~courses, and no more than 0.5 credit of GGR courses may count to this requirement~~

Notes:

1. In addition to the course requirements above, students must complete an integrative learning experience. This requirement may be met by participating in the PEY (Professional Experience Year) program. It can also be met by taking at least one of the following half-courses: CSC318H5 or~~,~~ CSC367H5 or~~,~~ CSC375H5 or~~,~~ CSC409H5 or~~,~~ CSC420H5, CSC427H5 or~~,~~ CSC477H5 or~~,~~ CSC490H5
2. Third and Fourth Years Four half courses from any 300/400 level U of T Mississauga CSC courses or from GGR335H5 or~~,~~ GGR337H5 or GGR437H5. At least 0.5 credit must come from 400-level courses, and no more than 0.5 credit of GGR courses may count to this requirement

Rationale:
CSC290H5 is being removed from all programs (except the minor) due to participation in the first year writing program. ISP100H5 is being added as a program requirement and admissions requirement.

Impact:
This could lead to enrollments of up to 800 students per year. While we admit about 250 students per year, more may be interested in computer science.

Resource Implications:

SPECIALIST - COMPUTER SCIENCE

Enrolment Requirements:

Limited Enrolment:— Enrolment in this program is limited to students who meet the following criteria:

1. **Prerequisite Courses** A minimum of 4.0 credits to include CSC148H5 and ISP100H5 and MAT102H5 ~~CSC148H5; MAT102H5;~~ and calculus - one of(MAT134H5 ~~or~~/MAT136H5 ~~or~~/MAT134Y5 ~~or~~/MAT135Y5 ~~or~~/MAT137Y5 ~~or~~/MAT157Y5 ~~or~~/MAT233H5).
2. **Required Course Marks in CSC148H5 and MAT102H5** The minimum course mark in CSC148H5 and MAT102H5 is determined annually. It is never lower than 65.
3. **Cumulative Grade Point Average (CGPA)** The minimum CGPA is determined annually. It is never lower than 2.0.

The Computer Science Specialist is a deregulated fees program and as such, tuition fees for students enrolled in this program are higher than for other regulated fee programs. Fees are charged on a program and not a per-course basis. See www.fees.utoronto.ca for more information on the fee structures.

Completion Requirements:

First Year: CSC108H5 ~~and~~, CSC148H5 and ISP100H5 ~~and~~ ; MAT102H5 ~~and (~~, (MAT132H5 ~~and~~, ~~-~~MAT134H5) or/(MAT135H5 ~~and,~~MAT136H5) ~~or~~/MAT134Y5 ~~or~~/MAT135Y5 ~~or~~/MAT137Y5 or/MAT157Y5 or MAT233H5)

Second Year: CSC207H5 ~~and~~, CSC209H5 ~~and~~, CSC236H5 ~~and~~, CSC258H5 ~~and~~, CSC263H5 and (~~, CSC290H5 ;~~MAT223H5 or/MAT240H5) and (~~,~~ MAT232H5 or/MAT257Y5) and ; STA256H5

Third and Fourth Years ~~Year~~: CSC343H5 ~~and (~~, CSC358H5 ~~or~~/CSC458H5) ~~and~~, CSC363H5 ~~and~~, CSC369H5 ~~and~~, CSC373H5 and five ~~; Five~~ half courses from any 300/400 level U of T Mississauga CSC courses or ~~coursesor~~ from GGR335H5 ~~or~~, GGR337H5 or GGR437H5. At least 1.0 credit must come from 400-level courses, and no more than 1.0 credit of GGR courses may count to this requirement.

1. In addition to the course requirements above, students must complete an integrative learning experience. This requirement may be met by participating in the PEY (Professional Experience Year) program. It can also be met by taking at least one of the following half-courses: CSC318H5 or, CSC367H5 or, CSC375H5 or, CSC409H5 or, CSC420H5 or, CSC427H5 or, CSC477H5 or, CSC490H5
2. Students in the Computer Science Specialist program are advised to arrange their program so as to complete the requirement for the Major in Computer Science by the end of the third year ~~year.Third and Fourth Year CSC343H5, CSC358H5/CSC458H5, CSC363H5, CSC369H5, CSC373H5 ; Five half courses from any 300/400 level U of T Mississauga CSC coursesor from GGR335H5, GGR337H5 or GGR437H5. At least 1.0 credit must come from 400-level courses, and no more than 1.0 credit of GGR courses may count to this requirement~~.

Description of Proposed Changes:
CSC290H5 is being removed from all programs (except the minor) and be replaced by ISP100H5.

Rationale:
CSC290H5 is being removed from all programs (except the minor) due to participation in the first year writing program. ISP100H5 is being added as a program requirement and admissions requirement.

Impact:
This could lead to enrollments of up to 800 students per year. While we admit about 250 students per year, more may be interested in computer science.

Resource Implications:

SPECIALIST - INFORMATION SECURITY

Enrolment Requirements:

Limited Enrolment:— Enrolment in this program is limited to students who meet the following criteria:

1. **Prerequisite Courses** A minimum of 4.0 credits to include CSC148H5 and ISP100H5 and MAT102H5 CSC148H5; MAT102H5; and calculus - one of(MAT134H5 or/MAT136H5 or/MAT134Y5 or/MAT135Y5 or/MAT137Y5 or/MAT157Y5 or/MAT233H5).
2. **Required Course Marks in CSC148H5 and MAT102H5** The minimum course mark in CSC148H5 and MAT102H5 is determined annually. It is never lower than 65.
3. **Cumulative Grade Point Average (CGPA)** The minimum CGPA is determined annually. It is never lower than 2.0.

The Information Security Specialist is a deregulated fees program and as such, tuition fees for students enrolled in this program are higher than for other regulated fee programs. Fees are charged on a program and not a per course basis. See www.fees.utoronto.ca for more information on the fee structures.

Completion Requirements:

First Year: CSC108H5 and, CSC148H5 and ISP100H5 and ; MAT102H5 and (, (MAT132H5 and, MAT134H5) or/(MAT135H5 and, MAT136H5) or/MAT134Y5 or/MAT135Y5 or/MAT137Y5 or/MAT157Y5 or MAT233H5) and (,MAT223H5 or/MAT240H5)

Second Year: CSC207H5 and, CSC209H5 and, CSC236H5 and, CSC258H5 and, CSC263H5 and (, CSC290H5 ; MAT224H5 or/MAT240H5) and (, MAT232H5 or/MAT257Y5) and ; STA256H5

Third Year: CSC343H5 and, CSC347H5 and, CSC363H5 and, CSC369H5 and, CSC373H5 and ; MAT301H5 and, MAT302H5

Third and Fourth Years: (CSC358H5 or/CSC458H5) and ; two of (CSC422H5 or, CSC423H5 or, CSC427H5 or, CSC490H5)

Notes: In addition to the course requirements above, students must complete an integrative learning experience. This requirement may be met by participating in the PEY (Professional Experience Year) program. It can also be met by taking at least one of the following half-courses: CSC318H5 or, CSC367H5 or, CSC375H5 or, CSC409H5 or, CSC420H5 or, CSC427H5 or, CSC477H5 or, CSC490H5

Description of Proposed Changes:
CSC290H5 is being removed from all programs (except the minor) and be replaced by ISP100H5.

Rationale:
CSC290H5 is being removed from all programs (except the minor) due to participation in the first year writing program. ISP100H5 is being added as a program requirement and admissions requirement.

Impact:
This could lead to enrollments of up to 800 students per year. While we admit about 250 students per year, more may be interested in computer science.

Resource Implications:

CSC: 28 Course Modifications:

CSC301H5: Introduction to Software Engineering

Prerequisites:
CSC209H5 ~~and CSC290H5~~

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC309H5: Programming on the Web

Prerequisites:
CSC209H5 ~~and CSC290H5~~

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC310H5: Information Theory

Prerequisites:
CSC148H5 and STA256H5 and~~, CSC290H5; STA256H5;~~ MAT223H5

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC320H5: Introduction to Visual Computing

Prerequisites:
CSC207H5 and~~, CSC290H5;~~ MAT223H5

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC324H5: Principles of Programming Languages

Prerequisites:
  CSC207H5 and CSC236H5 ~~and CSC290H5~~

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC333H5: Forensic Computing

Prerequisites:
  CSC209H5 ~~and CSC290H5~~

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC338H5: Numerical Methods

Prerequisites:
  CSC148H5 ~~and (CSC290H5 or MAT202H5)~~ and(MAT134H5 or MAT136H5 or MAT134Y5 or MAT135Y5 or MAT137Y5 or MAT157Y5 or MAT233H5)and (MAT223H5 or MAT240H5) and (CSC263H5 or 1.0 MAT credit at the 200+ level).

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC343H5: Introduction to Databases

Prerequisites:
  CSC263H5 ~~and CSC290H5~~

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC347H5: Introduction to Information Security

Prerequisites:
CSC209H5 and CSC236H5 ~~and CSC290H5~~

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC358H5: Principles of Computer Networks

Prerequisites:
CSC209H5 and CSC258H5 and CSC263H5 ~~and CSC290H5~~

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC363H5: Computational Complexity and Computability

Prerequisites:
~~(CSC290H5 and~~(CSC236H5 or CSC238H5~~)~~)or MAT202H5

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC367H5: Parallel Programming

Prerequisites:
CSC209H5 and CSC258H5 ~~and CSC290H5~~

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC369H5: Operating Systems

Prerequisites:
CSC258H5 and CSC209H5 ~~and CSC290H5~~

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC373H5: Algorithm Design and Analysis

Prerequisites:
CSC263H5 ~~and CSC290H5~~

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC476H5: Introduction to Continuum Robotics

Calendar Title
Introduction to Continuum Robotics

Rationale:
This course is being cross-listed as a graduate course, and a follow-on course is being developed. To differentiate the initial and follow-on courses. "Introduction to" is being appended to the title of this course.

Resources:

CSC384H5: Introduction to Artificial Intelligence

Prerequisites:
~~CSC290H5 and~~ CSC324H5 and STA256H5

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC398H5: Topics in Computer Science

Contact Hours:
Previous: *Lecture:* 24

Rationale:
Adding practical/tutorial hours for topic courses.

Resources:

CSC404H5: Video Game Design

Prerequisites:
~~CSC290H5,~~ Two of(CSC301H5 or, CSC318H5 or, CSC384H5 or, CSC418H1)

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC422H5: Cryptography and Computational Complexity

Prerequisites:
~~CSC290H5,~~ CSC363H5

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC427H5: Computer Security

Prerequisites
~~CSC290H5 and~~ CSC347H5 and CSC369H5

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC448H5: Formal Languages and Automata

Prerequisites

CSC236H5, ~~CSC290H5~~,and CSC363H5

Rationale:

With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC458H5: Computer Networks

Prerequisites:

CSC209H5 and, CSC258H5 and, CSC263H5~~, CSC290H5~~

Exclusions:

CSC458H1 and, CSCD58H3

Rationale:

With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC469H5: Operating Systems Design and Implementation

Prerequisites:

~~CSC290H5 and~~ CSC369H5

Rationale:

With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC488H5: Compilers and Interpreters

Contact Hours:
Previous: *Lecture:* 24 / *Tutorial:* 12

New: *Lecture:* 24 / *Practical:* 12

Prerequisites:

CSC258H5 and CSC263H5 ~~and CSC290H5~~ and CSC324H5

Rationale:
Adding practical/tutorial hours for topic courses.
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC490H5: Capstone Design Course

Prerequisites:
Permission of the instructor and CGPA 3.0/enrolment in a CSC Subject POSt. ~~POSt, CSC290H5.~~

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC492H5: Computer Science Implementation Project

Prerequisites:
At ~~CSC290H5 and at~~ least three 300-level CSC half-courses and permission of the department.

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC493H5: Computer Science Expository Work

Prerequisites:
At ~~CSC290H5 and at~~ least three 300-level CSC half-courses and permission of the department.

Rationale:
With ISP100H5 required for program admission, the prerequisite no longer needs to be checked. Minors will not necessarily have this requirement for the first few years, which instructors will need to be aware of, but that issue will resolve itself.

Resources:

CSC498H5: Topics in Computer Science

Contact Hours:
Previous: *Lecture:*
24
New: *Lecture:* 24 /
Practical: 12

Distribution Requirements: Previous: **New**: Science
Rationale: Adding practical/tutorial hours for topic courses.
Resources:

MAT387H5: Topics in Mathematics

Enrolment Limits:
Priority is given to students enrolled in the Mathematics or Statistics Specialist or Major programs.
Rationale:
Adding priority enrollment control for this course.
Resources:

MAT392H5: Ideas of Mathematics

Enrolment Limits
Limited enrolment. The course is open only to students in the MAT major/specialist programs, with priority to students in the specialist program ~~and to CTEP students~~.
Rationale:
CTEP program was discontinued years ago.
Resources:

MAT397H5: Further Studies in Mathematics

Enrolment Limits:
Priority is given to students enrolled in the Mathematics or Statistics Specialist or Major programs.
Rationale:
Adding priority enrollment control for this course.
Resources

MAT398H5: Further Studies in Mathematics

Enrolment Limits
Priority is given to students enrolled in the Mathematics or Statistics Specialist or Major programs.
Rationale:
Adding priority enrollment control for this course.
Resources

MAT497H5: Further Studies in Mathematics

Enrolment Limits:

Priority is given to students enrolled in the Mathematics or Statistics Specialist or Major programs.

Rationale:

Adding priority enrollment control for this course.

Resources

STA258H5: Statistics with Applied Probability

Contact Hours:
Previous: *Lecture:* 36 / *Tutorial:* 12

New: *Lecture:* 39 / *Tutorial:* 12

Rationale:
This is a large, multi-section course, and with the extra 3 hours we will be able to schedule identical term tests outside of regular lecture time.

Resources:

STA260H5: Probability and Statistics II

Contact Hours:
Previous: *Lecture:* 36 / *Tutorial:* 12

New: *Lecture:* 39 / *Tutorial:* 12

Rationale:
This is a large, multi-section course, and with the extra 3 hours we will be able to schedule identical term tests outside of regular lecture time.

Resources:

Chemical and Physical Sciences (UTM), Department of

1 New Course:

CHM436H5: Metal-based Chemistry for Synthesis of Small Molecules and Functional Materials

Contact Hours:
Lecture: 24 / *Tutorial:* 12

Description:

Modern metal-mediated (inorganic) reactions useful in organic synthesis. Applications of advanced organometallic chemistry. Selected solid-state compounds: metal-organic frameworks, nanoparticles and related materials for separation, catalysis, diagnostics.

Prerequisites:
CHM231H5 and CHM243H5

Corequisites:

Exclusions:

Recommended Preparation:

Rationale:
UTM has major deficiencies when it comes to offering students a reasonably broad education in chemistry, in particular in upper years. Chemistry is typically seen as composed of five subdisciplines: I) physical (including bio-physical), II) analytical, III) organic chemistry, IV) biochemistry, and V) inorganic chemistry. Most pressing are the deficiencies in the field of inorganic chemistry. Considering the five subdisciplines of chemistry, UTM offers three 4th year courses in physical chemistry (jcp410H5, jcp421H5, jcp422h5), three 4th year courses in analytical chemistry (chm412h5, chm414h5, chm416h5), two 4th year courses in organic chemistry (chm442, chm444), three 4th year courses in biochemistry (chm462h5, chm463h5, jcb472) but *not a single* 4th year course in inorganic chemistry. This severe imbalance prevents UTM students from having an adequate upper-year education in an important subfield of chemistry: advanced inorganic and applied organometallic chemistry. Many universities that UTM/U of T does not consider their peers do better: the University of Guelph offers a 4th year course in advanced inorganic chemistry. York University offers three 4th year courses in advanced inorganic chemistry plus one 4th year course in materials chemistry. Also, U of T St. George offers three 4th year inorganic chemistry courses (which includes one course in materials chemistry). A 4th year inorganic chemistry course at UTM is overdue. Such a course should include metal-mediated reactions in organic chemistry, an "inorganic" topic that has, over the last 20 years, become essential to organic synthesis and medicinal chemistry, a growing area of research at UTM. Many students studying medicinal chemistry are expected to take the new course chm436. For added breadth, selected inorganic solid-state materials will also be included in the new course: recently developed porous materials are showing major impact on fields related to sustainability, such as energy storage, CO_2 capture and water purification. Quantum dots and up-conversion nanoparticles are changing the field of diagnostics.

Resources:
TA hours for Tutorial demonstration and marking support;
As Professor Ulrich Fekl will be teaching the course, one of his other courses that he normally teaches will require an Instructor (sessional?).
A Resource Implications Form has been submitted.

Anthropology (UTM), Department of

4 New Courses:

ANT397Y5: Independent Study

Contact Hours:	

Description:
This independent study course is designed to offer students advanced supervised reading and initial research planning on an anthropological topic not covered in other courses, or covered only briefly. Students who wish to pursue this option with a specific faculty member should approach the faculty member early - before the start of the academic term - to negotiate the reading and study program.

Prerequisites:
Permission of Instructor and Permission of Department

Corequisites:

Exclusions:

Recommended Preparation:

Rationale:
This Independent Study course is currently offered as an "H" course (0.5 credit). We are proposing to create a "Y" version (full 1.0 credit) of the Independent Study course to allow students the opportunity to complete projects which will require a full academic year and not only one session.

Resources:
Resource Implications Form has been submitted.

ANT398Y5: Independent Reading

Contact Hours:

Description:

This independent reading course is designed to offer students advanced supervised reading on an anthropological topic not covered in other courses, or covered only briefly. Students who wish to pursue this option with a specific faculty member should approach the faculty member early - before the start of the academic term - to negotiate the reading program.

Prerequisites:

Permission of Instructor and Permission of Department

Corequisites:

Exclusions:

Recommended Preparation:

Rationale:

This Independent Study course is currently offered as an "H" course (0.5 credit). We are proposing to create a "Y" version (full 1.0 credit) of the Independent Study course to allow students the opportunity to complete projects which will require a full academic year and not only one session.

Resources:

Resource Implications Form has been submitted.

ANT498Y5: Advanced Independent Study

Contact Hours:	

Description:

This independent study course is designed to offer students advanced supervised reading, research and planning for a publishable report on an anthropological topic not covered in other courses, or covered only briefly. Students who wish to pursue this option with a specific faculty member should approach the faculty member early - before the start of the academic term - to negotiate the research and study program.

Prerequisites:
Permission of Instructor and Permission of Department

Corequisites:

Exclusions:

Recommended Preparation:

Rationale:
This Independent Study course is currently offered as an "H" course (0.5 credit). We are proposing to create a "Y" version (full 1.0 credit) of the Independent Study course to allow students the opportunity to complete projects which will require a full academic year and not only one session.

Resources:
Resource Implications Form has been submitted.

ANT499Y5: Advanced Independent Research

Contact Hours:	

Description:

This independent research course is designed to offer students advanced supervised research and writing of a publishable report on an anthropological topic not covered in other courses, or covered only briefly. Students who wish to pursue this option with a specific faculty member should approach the faculty member early - before the start of the academic term - to negotiate the research and writing program.

Prerequisites:
Permission of Instructor and Permission of Department

Corequisites:

Exclusions:

Recommended Preparation:

Rationale:
This Independent Study course is currently offered as an "H" course (0.5 credit). We are proposing to create a "Y" version (full 1.0 credit) of the Independent Study course to allow students the opportunity to complete projects which will require a full academic year and not only one session.

Resources:
Resource Implications Form has been submitted.

5 Course Modifications:

ANT397H5: Independent Study

Description:
This independent study course is designed to offer students advanced supervised reading and initial research planning on an anthropological topic not covered in other courses, or covered only briefly. Students who wish to pursue this option with a specific faculty member should approach the faculty member early - before the start of the academic term - to negotiate the reading and study program. ~~The faculty member should then discuss the proposal with the Chair or designate, prior to further planning. A syllabus must be submitted to the Chair or designate through the online CISS system for approval of the course. Registration by the student online is required.~~

Prerequisites:
 Previous:
    New: Permission of Instructor and Permission of Department

Rationale:
Removed the last 3 sentences because it describes logistical administrative processes and is not relevant to have in the course description.

Resources:

ANT398H5: Independent Reading

Description:
This independent reading course is designed to offer students advanced supervised reading on an anthropological topic not covered in other courses, or covered only briefly. Students who wish to pursue this option with a specific faculty member should approach the faculty member early - before the start of the academic term - to negotiate the reading program. ~~The faculty member should then discuss the proposal with the Chair or designate, prior to further planning. A syllabus must be submitted to the Chair or designate through the online CISS system for approval of the course. Registration by the student online is required.~~

Prerequisites:
 Previous:
    New: Permission of Instructor and Permission of Department

Rationale:
Removed the last 3 sentences because it describes logistical administrative processes and is not relevant to have in the course description.

Resources:

ANT441H5: Advanced Bioarchaeology

Contact Hours:
Previous:
New: *Lecture:* 24 / *Practical:* 24

Prerequisites:
 Previous:
     New: ANT340H5

Exclusions:
 Previous:
     New: ANTD35H3

Rationale:
ANT441 used to be offered in the winter session (same term as ANT340H5) but for pedagogical and better student experience, ANT441 was moved to the fall term (2017). Having a course be listed as a co-req and it not being offered in the same term does not make sense. We would like to change it back to how it used to be before 2017, when it used to be a pre-req and not a co-req. This would be less confusing to students. ANT334 is a pre-req to ANT340 so no need to list ANT334 as a pre-req as well as ANT340. So, removed ANT334 as a pre-req. The Recommended Preparation is removed as well because we have not taught ANT434H5 for over 6 years.

Resources:

ANT498H5: Advanced Independent Study

Description:

This independent study course is designed to offer students advanced supervised reading, research and planning for a publishable report on an anthropological topic not covered in other courses, or covered only briefly. Students who wish to pursue this option with a specific faculty member should approach the faculty member early - before the start of the academic term - to negotiate the research and study program . ~~The faculty member should then discuss the proposal with the Chair or designate, prior to further planning. A syllabus must be submitted to the Chair or designate through the online CISS system for approval of the course. Registration by the student online is required.~~

Prerequisites:
 Previous:
     New: Permission of Instructor and Permission of Department

Rationale:
Removed the last 3 sentences because it describes logistical administrative processes and is not relevant to have in the course description.

Resources:

ANT499H5: Advanced Independent Research

Description:
This independent research course is designed to offer students advanced supervised research and writing of a publishable report on an anthropological topic not covered in other courses, or covered only briefly. Students who wish to pursue this option with a specific faculty member should approach the faculty member early - before the start of the academic term - to negotiate the research and writing program. ~~The faculty member should then discuss the proposal with the Chair or designate, prior to further planning. A syllabus must be submitted to the Chair or designate through the online CISS system for approval of the course. Registration by the student online is required.~~

Prerequisites:
 Previous:
    New: Permission of Instructor and Permission of Department

Rationale:
Removed the last 3 sentences because it describes logistical administrative processes and is not relevant to have in the course description.

Resources: