



UNIVERSITY OF
TORONTO

University of Toronto Mississauga

Sciences Curriculum Proposals Report
October 31, 2023

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1 New Course

AST325H5: Observational Astronomy

Contact Hours:

Lecture: 36 / Tutorial: / Practical: / Seminar:

Description:

This course will guide students to develop the core skills to collect, reduce, and interpret astronomical data. Through a series of projects and observing labs, students will develop their skillset for the usage of telescopes, instruments, and detectors; reduction and statistical analysis methods; simulations and model fitting; and data and error analysis.

Prerequisites: AST221H5 and AST222H5

Corequisites:

Exclusions: AST325H1 or AST326Y1

Recommended Preparation:

Enrolment Limits:

Notes:

Rationale:

This course is essential to meet the learning objectives for the astronomical sciences specialist and astronomy major programs. These learning objectives include planning and carrying out astronomical observations, analyzing astronomical data with statistical methods, and performing rigorous uncertainty and error analysis. We are currently unable to meet mastery level for these learning outcomes with the current course offerings. We are therefore committed to offering this new course to our specialists and majors in order to prepare them for future careers as professional astronomers or in industry.

Resources:

Resource Implication form submitted

Proposal Status:

Under Review

AST110H5: Night Sky Observing

Title:

Previous: Introduction to Astronomical Observations

New: Night Sky Observing

Description:

This course gives a ~~quantitative, scientific introduction to observing~~ practical introduction to astronomical observations of the night sky, concentrating on objects that can be seen with the naked eye or with ~~binoculars~~. ~~The measurements will be combined with calculations to yield quantitative conclusions and predictions. This is the first course for students following the major in astronomy or the specialist in astronomical sciences, but it is also suitable for students with the appropriate background who want to understand more fully the celestial phenomena visible to them~~ small telescopes. Students will learn to identify objects in the night sky, the properties and designs of small and large telescopes, and to plan and implement astrophotography and observing projects from their backyard.

Rationale:

Rationale for Course title Change: The new course title is more pithy and hopefully will be more engaging to students interested in night sky observing. It clearly identifies the course goals of helping students build the skills they will need to independently observe the night sky with their own eyes and small telescopes.

Rationale for Course Description change: This course will be re-oriented towards a general interest audience and will no longer comprise the first course required for students in the major and specialist programs in astronomy. It is therefore necessary to re-align the course description with the new goals for the course.

Consultation:

Resources: None

AST221H5: Astrophysics I – Planets, Sun and Stars

Prerequisites: [MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or ~~MAT135Y5 or MAT137Y5 or MAT157Y5] and ([PHY146H5 and PHY147H5]

 (Exceptions for PHY136H5 and PHY137H5 may be made with consultation of the course instructor)].~~

Rationale:

Rationale for prerequisite change - Students are permitted to enroll in PHY136H5 and PHY137H5 as part of the major and specialist program requirements, but are strongly encouraged to enroll in PHY146/147. For consistency, we want to ensure they know exceptions can be made for PHY136/137 to enroll in AST221H5.

Consultation:

Resources: No change.

ERS303H5: Geophysics

Prerequisites:

Previous:

[(MAT132H5 and MAT134H5) or (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or MAT137Y5] and [(PHY136H5 and PHY137H5) or (PHY146H5 and PHY147H5)] and ERS202H5 and 1.0 credits from (ERS201H5 or ERS203H5 or ERS211H5 or ERS225H5).

New:

ERS202H5 and (MAT132H5 or MAT135H5 or MAT137H5 or MAT137Y5 or PHY136H5 or PHY146H5)

Track Changes:

~~[(MAT132H5 and MAT134H5) or ERS202H5 and (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or MAT137Y5] and [(PHY136H5 and PHY137H5) or (PHY146H5 and PHY147H5)] and ERS202H5 and 1.0 credits from (ERS201H5 or ERS203H5 or ERS211H5 or ERS225H5).~~ or MAT137H5 or MAT137Y5 or PHY136H5 or PHY146H5)

Rationale:

Course now includes reviews of relevant math/physics concepts in the first few weeks and level of quantitative components has been adjusted making this course more accessible to students who have only partially completed the MAT/PHY prerequisite requirements. Hence, PHY/MAT prerequisites can be lowered to make this course more accessible to a larger group of students. This course does not build on knowledge acquired in some other ERS courses, hence, these can be eliminated from the prerequisites (applies to ERS201H5 or ERS203H5 or ERS211H5 or ERS225H5).

Resources: None

ERS304H5: Geological Remote Sensing

Prerequisites: 1.5 credits from any ENV, ERS, GGR at 200 level ERS-courses

Rationale:

Prerequisites changed to make this course more accessible to students from other related disciplines

Resources: None

ERS312H5: Oceanography

Description:

The world's oceans cover approximately 70% of the Earth Surface and Canada has extensive coastlines along three major ocean basins. This course will provide a broad understanding of chemical, biological, physical and geologic aspects of the oceans. ~~Emphasis will be placed on the geological and geophysical processes that form and shape the ocean basins and continental margins.~~ In addition, this course will offer an insight into the paleoceanographic evolution of our planet and present-day environmental threats such as pollution, habitat destruction, acidification and ocean warming. Even though this course does not include specific lab or tutorial sessions, ~~three~~ relevant exercises will be included.

Prerequisites: ~~ERS201H5 or ERS202H5 or ERS203H5 or ERS211H5 or GGR214H5 or GGR217H5 or GGR227H5~~ None

Delivery Method:

Previous: In Class

New: Online

Rationale:

See approved course delivery mode change proposal. In short - This course has been taught three times in-person and twice online during the pandemic. The online delivery mode worked significantly better as evidenced by increased student engagement during class. Students were less shy to ask or answer questions in the Zoom chat or via

microphone. Enrollment was significantly higher, including students from outside UTM, when the course was delivered online. In most other Universities this course is taught as a breadth course accessible to the entire community. Hence, I would like to open up this course to a larger audience by removing prerequisites and offering it online, while still maintaining the level of a 3rd year course and also maintaining its attractiveness for ERS students.

Consultation:

Governance approval received to offer ERS312H5 online 2024-25

Resources: No classroom will be required, level of TA support per student will remain the same, no other resource implications are envisioned.

ERS315H5: Environmental Geology

Prerequisites:

Previous: Two of: ERS201H5 or ERS202H5 or ERS203H5 or ERS211H5

New: 1.0 credit from ENV, ERS, GGR at 200-level courses

Rationale:

Prerequisites changed to make this course more accessible to students from other related disciplines.

Resources: None

ERS325H5: Field Camp I

Description:

This course, held on the north shore of Lake Huron in the summer, covers geological mapping skills, stratigraphic section measurements, and the recognition of rock types, fossils and geological structures in an authentic field-based learning environment in order to interpret ancient geological environments (approx. 12 days of field instruction). Students in this course receive an instructor lead introduction to the regional geology at whitefish falls, Ontario, before engaging in individual or small group projects in which geologic maps of a defined region will be assembled over 5-6 days of student-led field work. Students will complete an oral field examinations at the end of the field days. Students must pay a course fee, which includes transportation and accommodation at the camp, but does not include the cost of food nor does it cover any course fees charged by the Office of the Registrar. Note: ~~This course is identical to ESS330H1 (formerly GLG340H1).~~ U of T Mississauga students must register in the Summer Session, and provide consent waivers and the course fee to the Undergraduate Assistant for Earth Sciences in the Department of Chemical and Physical Sciences. This field camp is usually held in early May. Registration and fee payment deadline: mid-March. For specific yearly course information, please see the UTM CPS Earth Science Fieldtrip page for more information on dates, required field gear and other information.

Prerequisites: ERS20~~2~~1H5 and ERS20~~3~~2H5

Exclusions:

Previous: ESS330H1 (formerly GLG340H1) or ESSC16H3, D07H3

New: ESS234H1 or ESS330H1 or GLG340H1 or ESSC16H3 or ESSD07H3

Rationale:

- 1) Prerequisite change: This is in line with the Whitefish Falls course offering on the St George campus; UTSG has moved their petrology course (equivalent to ERS203) until after students normally take the field course. In addition, the content of the field course does not necessarily require ERS203 to complete, but rather ERS201 (Earth Materials) would be a better overall course.
- 2) Exclusion change: updated course number change at the equivalent version of ERS325 at UTSG.

3) The note under course description i.e. This course is identical to ESS330H1 (formerly GLG340H1) is removed. Not required as the exclusion is listed.

Resources: None

ERS402H5: Advanced Structural Geology

Contact Hours:

Lecture: 36/24 / **Tutorial:** / **Practical:** / **Seminar:**

Rationale:

Drop in lecture hours from 36L to 24L would be more consistent with other courses (most are 24L/36P or 36L/24P) and it also reflects the flipped classroom approach in ERS402H5, for which students need more out of class time to do work.

Resources: With the drop-in Lecture hours, fewer hours of classroom occupancy

ERS403H5: Earthquake Seismology

Prerequisites:

Previous: [(MAT132H5 and MAT134H5) or (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT134Y5 or MAT135Y5 or MAT137Y5)] and [(PHY136H5 and PHY137H5) or (PHY146H5 and PHY147H5)] and 1.0 credit from ERS201H5 or ERS202H5 or ERS203H5

New: [ERS202H5](#) and ([MAT132H5](#) or [MAT135H5](#) or [MAT137H5](#) or [MAT137Y5](#) or [PHY136H5](#) or [PHY146H5](#))

Rationale:

Course now includes reviews of relevant math/physics concepts in the first few weeks and level of quantitative components has been adjusted making this course more accessible to students who have only partially completed the MAT/PHY prerequisite requirements. Hence, PHY/MAT prerequisites can be lowered to make this course more accessible to a larger group of students. This course does not build on knowledge acquired in some other ERS courses, hence, these can be eliminated from the prerequisites (applies to ERS201H5 or ERS203H5 or ERS211H5 or ERS225H5).

Resources: None

ERS404H5: Volcanology and Geothermal Systems

Prerequisites:

Previous: ERS203H5 and 1.0 credits from any other ERS200/300 level courses.

New: ERS201H5 and ERS203H5 and 0.5 credits from any other ERS 200 or 300 level courses

Rationale:

UTSG has changed the order that they teach courses, such that the equivalent course for ERS203H5 (ESS322H1) is taught before the equivalent course for ERS201 (ESS321H1). At UTM, ERS201H5 is a pre-req for ERS203H5, but for UTSG students who wish to take ERS404H5, they may not have taken the required course covering optical mineralogy. This change tightens the entry requirements for UTSG students, but will make no functional change for UTM students.

Resources: None

ERS412H5: Climate Through Time

Prerequisites: 1.0 credit from ~~ERS201H5 or ERS202H5 or ERS203H5~~NV, ERS, GGR at 200-level courses

Rationale:

Prerequisite changed to make this course more accessible to students from other related disciplines.

Resources: None

JCP321H5: Quantum Mechanics I: Foundations

Description:

A first course covering basic concepts of quantum ~~chemistry and physics~~mechanics. Topics include: de Broglie waves and wave-particle duality, the postulates of quantum mechanics, the Schrödinger equation, Dirac notation, the square potential well and potential barriers, the harmonic oscillator, the rigid rotor, atoms, molecules and solids.

Rationale:

Rationale for change in course descriptions: we have updated the course description to more accurately describe the course content.

Resources: None

JCP322H5: Statistical Mechanics

Description:

Statistical methods for bridging the quantum behaviour of atoms and molecules to their macroscopic properties in mechanics provides a framework for understanding macroscopic properties of many-body systems (such as solids, liquid and gaseous states. The course introduces partition functions, canonical ensembles, and their application to thermodynamic properties such as entropy, heat capacity, equilibrium constants, reaction rates, or gases) from the underlying dynamics of the constituent particles. Topics to be introduced include microstates, entropy, partition functions, free energy and various ensemble formalisms. These tools will be used to calculate thermodynamic and equilibrium properties of both classical and quantum mechanical systems from the ideal gas, to ferromagnetism, and to Bose-Einstein / Fermi-Dirac distribution functions. [36L] condensation.

Exclusions: CHM328H1 or PHY452H1 or CHMC20H3 ~~or PHY452H1~~

Rationale:

Rationale for course description change: we have updated the course description to more accurately describe the course content.

Resources: None

PHY136H5: Physics for Life and Environmental Sciences I

Title:

Previous: Introductory Physics I

New: Physics for Life and Environmental Sciences I

Description:

A first-year ~~introductory~~ Physics course for students who do not intend to pursue a Physics or an Astronomy program. This course is focused on providing students with conceptual understanding and problem solving skills through the study of physical phenomenon that include: Forces and Newton's Laws of Motion; Rotational Dynamics; Simple Harmonic Motion and Waves. **Examples relevant for life and environmental sciences are emphasized.**

Rationale:

Changes to course name and description are to reflect the future emphasis of the course more accurately.

Resources: None

PHY137H5: Physics for Life and Environmental Sciences II

Title:

Previous: Introductory Physics II

New: Physics for Life and Environmental Sciences II

Description:

A second ~~introductory~~ Physics course for students who do not intend to pursue a Physics or an Astronomy program. This course is focused on providing students with conceptual understanding and problem solving skills through the study of physical phenomenon that include: Electric Forces and Fields; Electric Circuits; Magnetic Forces and Field; Optics. **Examples relevant for life and environmental sciences are emphasized.**

Rationale:

Changes to course name and description are to reflect the future emphasis of the course more accurately.

Resources: None

PHY147H5: Principles of Physics II

Prerequisites: PHY146H5 ~~or PHY136H5 (minimum grade of 80%)~~ and ~~{~~ (MAT135H5 or MAT137H5 or MAT157H5 ~~}~~)

Rationale:

Changes to prerequisites: removed PHY136H5 as a permitted pre-requisite for PHY147H5 because it does not cover the necessary material.

Resources: None

PHY241H5: Electromagnetism

Description:

~~Topics in~~ this course covers the static properties of electricity and magnetism, ~~beginning with vector analysis and culminating in Maxwell's equations.~~ Ec fields using the tools of vector calculus. Topics include electric fields and, Gauss' law, ~~conductors, capacitors and dielectrics.~~ Magnetic fields, ~~magnetic materials and devices, induction and~~ electric potential, electric dipole, magnetic fields, Biot-Savart Law, Ampère's Law, Faraday's ~~L~~ Law., culminating on Maxwell's equations and electromagnetic waves ~~are introduced~~. Solving Laplace's equation with simple boundary conditions will accompany the discussion of electric potentials.

Prerequisites: [~~(PHY146H5 or PHY136H5) and (PHY147H5 or PHY137H5)~~] and [(MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or ~~MAT135Y5 or~~ MAT137Y5 or MAT157Y5] and MAT232H5 and PHY147H5

Exclusions: PHY250H1 or PHY350H1 or PHYB21H3 or PHYC50H3

Rationale:

Course description updated to more accurately describe the course content.

Change in prerequisites, corequisites and exclusions: the material covered in the multivariable calculus course MAT232H5 does not sufficiently cover the math pre/co-requisites for this course which relies on vector calculus. We have thus added MAT236H5 (Vector Calculus) as a co-requisite. Future time-table changes are necessary to enable our students to take MAT232H5 before PHY245H5 such that they can take MAT236H5 as a co-req. We have also removed PHY136H5 and PHY137H5 as a permitted pre-requisites and have simplified the pre-requisites since some courses were already implicitly included in others.

We have also updated the exclusions to take into account courses at other campus locations.

Removed PHY146H5 as a since it is a pre-requisite for PHY147H5, we do not need to include it explicitly in the PHY241H5 list.

UTSG & UTSC exclusions were missing, now included.

Resources:

There is a timetabling issue that will need to be resolved. In the future the courses MAT232H5 and MAT236H5 should be taken subsequently by students in their second year. This will also align the programs with downtown. Currently this seems to be impossible because MAT232H5 is offered only in the winter term.

PHY245H5: Vibrations and Waves

Prerequisites: ~~[(PHY146H5 or PHY136H5) and (PHY147H5 or PHY137H5)] and [PHY147H5 and (MAT135H5 or MAT137H5 or MAT157H5) and (MAT136H5 or MAT139H5 or MAT159H5)] or ~~MAT135Y5 or~~ MAT137Y5 or MAT157Y5~~

Rationale:

Change in prerequisites: we have removed PHY136H5 and PHY137H5 as a permitted pre-requisite and have re-arranged the permitted calculus requirement to allow for maximal flexibility for students in their first year. Removed PHY146H5 as a pre-requisite since it is a pre-requisite for PHY147H5.

Resources: None

PHY325H5: Mathematical and Computational Physics

Prerequisites: PHY241H5 and PHY245H5 and MAT232H5 and MAT236H5 and MAT244H5

Rationale:

Prerequisite changes: we have added MAT236H5 as an explicit prerequisite. This is to ensure that the MAT236H5 corequisite of PHY241H5 will be completed before taking this course (and subsequently PHY451H5 which has PHY325H5 as a prerequisite).

Resources: None

PHY332H5: Molecular Biophysics

Prerequisites: PHY24JCP221H5 and PHY255MAT244H5 and JCP22PHY241H5

Rationale:

Change in prerequisites: we have added MAT244H5 (Differential Equations) as an explicit prerequisite. This is to better reflect the assumed mathematical preparation of our students in third-year courses. We no longer require PHY255H5 as a pre-requisite.

Resources: None

10 Minor Program Modifications

ERSPE1025: Astronomical Sciences - Specialist (Science)

Enrolment Requirements:

Limited Enrolment — Enrolment in this program limited .

For students applying in 2021-2022 for program entry in the 2022-2023 Academic Year , 4.0 credits are required , including the following :

- AST110H5
- MAT102H5
- (MAT135H5 and MAT136H5) or MAT135Y5 or MAT137Y5 or MAT157Y5
- (PHY136H5 and PHY137H5) or (PHY146H5 and PHY147H5)

For students applying in 2022-2023 (and beyond) for program entry in the 2023-2024 Academic Year (and beyond) , 4.0 credits are required , including the following :

- ~~AST110H5~~ → MAT102H5
- (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or ~~MAT135Y5 or~~ MAT137Y5 or MAT157Y5
- (PHY1~~3~~46H5 and PHY1~~3~~47H5) **strongly recommended** or (PHY1~~4~~36H5 and PHY1~~4~~37H5)
- ISP100H5

Completion Requirements:

14.0-14.5 credits are required.

First Year:

- ~~AST110H5~~
- ~~→~~MAT102H5
- (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or MAT13~~5Y5 or~~ ~~MAT13~~7Y5 or MAT157Y5
- MAT223H5 or MAT240H5
- (PHY1~~3~~46H5 and PHY1~~3~~47H5) **strongly recommended** or (PHY1~~4~~36H5 and PHY1~~4~~37H5)
- For students entering the program in 2023-2024 (and beyond): ISP100H5

Second Year:

- AST221H5 and AST222H5
- MAT232H5 or MAT233H5
- MAT236H5 and MAT244H5
- PHY241H5 and PHY245H5
- PHY242H5 or JCP221H5

Third Year:

- AST320H5
- **AST325H5**
- JCP265H5 or CSC108H5 ~~or AST325H1~~
- ~~JCP321H5 and JCP322H5~~
- ~~MAT311H5~~
- ~~and~~ • ~~MAT3~~PHY343H5
- 0.5 credit from PHY3~~2~~47H5 or PHY351H5 ~~and~~ or PHY451H5 or JCP421H5 or MAT334H5 or MAT224H5 or MAT332H5 or MAT307H5 or STA220H5 or STA256H5 or JPE395H1 or PHY392H1 or PHY483H1 or other upper year course by approval of the faculty advisor

Fourth Year:

- AST399Y5 or CPS489Y5 or AST425Y1
- 1.5 credits from PHY347H5 or PHY351H5 or PHY451H5 or JCP421H5 ~~or/→~~ •MAT334H5 ~~P~~or MAT224~~H~~Y451 or MAT332~~H~~5 ~~or/→~~ MAT307H5 ~~→~~ or STA220H5 or STA256H5 or JPE395H1 or PHY392H1 or PHY483H1 or other upper year

course by approval of the faculty advisor

Description of Proposed Changes:

AST110H5 removed from Entry requirements/under first year courses and a sentence is added to strongly recommend PHY146H5 and PHY147H5 Under third year - removed MAT334H5, PHY325H5 and PHY347H5 and replaced with other courses Under 4h year - provided a list of elective requirements to fulfill the credits required for Year 4.

Rationale:

Rationale for change in Entry Requirements and first year course changes: The PHY146H5 and PHY147H5 series is designed for physics and astronomy students, and will better prepare AST specialists for the requirements of the specialist program. We therefore wish to make clear that the PHY146H5 and PHY147H5 track is highly encouraged and that the PHY136H5 and PHY137H5 track should only be substituted in exceptional circumstances. Additionally, we are adding a new third-year course to address the observational astronomy at a more appropriate level for specialist and major students, which will replace AST110 in the programs.

Rationale for Change in third year courses: We have removed the requirement for students to take MAT334H5 and PHY347H5 from the third year course requirements. Both courses are elective, and not absolutely required to complete an astronomical sciences specialist degree. Both will be added to a list of optional courses in the fourth year, so that student may elect to take these courses if they are applicable. However, we have also added a requirement to enroll in PHY343H5 (Classical Mechanics). This is a newer physics course that is a fills a missing learning outcome for a complete astronomical sciences specialist degree. Likewise, students must enroll in the new practical astronomy course (AST325H5) to fill several critical missing learning outcomes in the specialist program. Finally, students have flexibility to choose an appropriate upper-division math, physics, or astronomy-related course in the third year

Rationale for Change in fourth year courses: The new list of elective requirements gives students options to specialize in their preferred area of astronomy. Math-inclined students desiring to pursue theory can enroll in upper-year math courses not required by a basic astronomy specialist program, while those more interested in observational astronomy can pursue optics and statistics course more aligned with their interests and goals. This flexibility will give each student more control over their academic trajectory while still ensuring that all astronomical sciences specialists meet the learning objectives for the program

Consultations:

Resource Implications:

None

Enrolment Requirements:

Limited Enrolment — Enrolment in this program limited .

For students applying in 2021-2022 for program entry in the 2022-2023 Academic Year , 4.0 credits are required , including the following :

- AST110H5
- MAT102H5
- (MAT135H5 and MAT136H5) or ~~MAT135Y5 or~~ MAT137Y5 or MAT157Y5
- (PHY136H5 and PHY137H5) or (PHY146H5 and PHY147H5)

For students applying in 2022-2023 (and beyond) for program entry in the 2023-2024 Academic Year (and beyond) , 4.0 credits are required , including the following :

- ~~AST110H5~~ MAT102H5
- (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or ~~MAT135Y5 or~~ MAT137Y5 or MAT157Y5
- (PHY1346H5 and PHY1347H5) **strongly recommended** or (PHY1436H5 and PHY1437H5)
- ISP100H5

Completion Requirements:

9.0-9.5 credits are required.

First Year:

- ~~AST110H5~~
- ~~MAT102H5~~
- (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or MAT13~~5Y5 or~~ ~~MAT13~~7Y5 or MAT157Y5
- MAT223H5 or MAT240H5
- (PHY1346H5 and PHY1347H5) **strongly recommended** or (PHY1436H5 and PHY1437H5)
- For students entering the program in 2023-2024 (and beyond): ISP100H5

Second Year:

- AST221H5 and AST222H5
- MAT244H5 and MAT236H5
- MAT232H5 or MAT233H5
- PHY241H5 and PHY245H5
- PHY242H5 or JCP221H5

Higher Years:

- AST320H5
- JCP321H5
- JCP322H5 or JCP421H5 or MAT224H5 or MAT30.7H5 ~~or~~ MAT332H5 or ~~credit at~~ MAT334H5 ~~theor~~ PHY300/407H5 or PHY351H5 or PHY451H5 or STA220 ~~level~~ H5 ~~appor~~ STA256H5 ~~ovedr by~~ JPE395H1 ~~theor~~ faculty PHY392H1 ~~advisor-~~ PHY483H1

Description of Proposed Changes:

AST110H5 removed from Entry requirements/under first year courses and a sentence is added to strongly recommend PHY146H5 and PHY147H5. New course AST325H5 added under higher years. The 0.5 credit removal from first year is shifted to higher years. A change in the listing for higher year courses - the courses are now listed instead of "0.5 credit at the 300/400 level approved by Faculty Advisor".

Rationale:

Rationale for change in Entry Requirements and first year course changes: The PHY146H5 and PHY147H5 series is designed for physics and astronomy students, and will better prepare AST majors for the requirements of the major program. We therefore wish to make clear that the PHY146H5 and PHY147H5 track is highly encouraged and that the

PHY136H5 and PHY137H5 track should only be substituted in exceptional circumstances. Additionally, we are adding a new third-year course to address the observational astronomy at a more appropriate level for specialist and major students, which will replace the removal of AST110H5 in the programs.

Rationale for change in Higher courses: AST325H5, the new proposed observational astronomy course, fills several essential missing learning outcomes for the astronomy major program, so it is essential for major students to enroll in this course. Additionally, the list of elective third-fourth year courses allows students to enroll in approved courses according to their interests without having to request approval from the faculty advisor.

Resource Implications:

None

Proposal Status:

Under Review

Enrolment Requirements:

Limited Enrolment — Enrolment in this program is limited .

For students applying in 2021-2022 for program entry in the 2022-2023 Academic Year , 4.0 credits are required , including the following :

- CHM110H5 and CHM120H5 (minimum grade of 65% in CHM120H5)
- (MAT132H5 and MAT134H5 , minimum grade of 65% in MAT134H5) or (MAT135H5 and MAT136H5 , minimum grade of 65% in MAT136H5) ~~or MAT134Y5 (minimum grade of 65%) or MAT135Y5 (minimum grade of 65%)~~ or MAT137Y5 (minimum grade of 65%) or MAT157Y5 (minimum grade of 65%)
- A minimum CGPA of 2.5

For students applying in 2022-2023 (and beyond) for program entry in the 2023-2024 Academic Year (and beyond) , 4.0 credits are required , including the following :

- CHM110H5 and CHM120H5 (minimum grade of 65% in CHM120H5)
- (MAT132H5 and MAT134H5 , minimum grade of 65% in MAT134H5) or (MAT135H5 and MAT136H5 , minimum grade of 65% in MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) ~~or MAT134Y5 (minimum grade of 65%) or MAT135Y5 (minimum grade of 65%)~~ or MAT137Y5 (minimum grade of 65%) or MAT157Y5 (minimum grade of 65%)
- ISP100H5
- A minimum CGPA of 2.5

NOTE : Completion of BIO152H5 prior to enrolment is recommended .

Completion Requirements:

14.0-14.5 credits are required.

First Year:

- BIO152H5
- CHM110H5 and CHM120H5
- (MAT132H5 and MAT134H5) or (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or MAT134Y5 ~~or MAT135Y5 or MAT137Y5~~ or MAT157Y5
- (PHY136H5 and PHY137H5) or (PHY146H5 and PHY147H5)
- For students entering the program in 2023-2024 (and beyond): ISP100H5

Second Year:

- CHM211H5 and CHM231H5 and CHM242H5 and CHM243H5
- JCP221H5
- BIO206H5 and BIO207H5
- 0.5 credit of MAT or CSC or STA (at any level)

Third Year:

- CHM333H5 and (CHM341H5 or CHM345H5) and CHM347H5 and CHM361H5 and CHM362H5 and CHM372H5 and CHM373H5
- BIO372H5

Fourth Year:

- CHM399Y5 or CHM489Y5 or CPS489Y5 or CPS400Y5 or JCB487Y5 or (BCH472Y1 or BCH473Y1, with permission of the CHM Program Advisor)
- 1.5 credits from the following courses: BIO324H5 or CHM412H5 or CHM444H5 or CHM462H5 or CHM485H5 or JCP410H5 or JCP422H5 or JCP463H5 or JBC472H5 or CHM447H1 or CHM479H1 or any 400 level BCH lecture course.

Description of Proposed Changes:

Removed MAT134Y5, MAT135Y5
Notes updated

Rationale:

Removed MAT134Y5, MAT135Y5 as per notification received from MCS about retirement of the two courses.

Consultation:**Resource Implications:**

None

Enrolment Requirements:

Limited Enrolment – Enrolment in this program is based on completion of 4.0 credits , including :

- PHY146H5 (~~with a minimum grade of 65%~~) or PHY136H5 (~~with a minimum grade of 80%~~); • PHY147H5 (~~with a minimum grade of 65%~~) or PHY137H5 (~~with a minimum grade of 80%~~);
- PHY147H5 and
- [(~~MAT132H5~~ or MAT135H5 or MAT137H5 or MAT157H5) and (~~MAT134H5~~ or MAT136H5 or MAT139H5 or MAT159H5)] or ~~MAT135Y5~~ or MAT137Y5 or MAT157Y5
- A minimum CGPA of 2.5

Completion Requirements:

14.05 credits are required.

First Year:

1. ~~(PHY146H5 and PHY147H5)~~ or ~~(PHY136H5 and PHY137H5)~~
2. ~~BIO152H5~~
3. ~~CHM110H5 and CHM120H5~~
4. [(~~MAT132H5~~ or ~~MAT135H5~~ or MAT137H5 or MAT157H5) and (MAT13~~4H5~~ or ~~MAT136H5~~ or MAT139H5 or MAT159H5)] or MAT13~~5Y5~~ or MAT1~~35Y5~~ or ~~MAT157Y5~~ or ~~MAT157Y223H5~~
- 5.
6. ~~ISP100H5~~

Second Year:

1. PHY241H5 and PHY245H5 ~~and PHY255H5~~
2. ~~JCP221H5 and JCP265H5~~
3. ~~MAT223H5 and MAT232H5 and MAT236H5 and MAT244H5~~
4. BIO206H5

Third Year:

1. PHY32~~4H5~~ and PHY332H5 and PHY333H5 and PHY347H5
2. JCP321H5 and JCP322H5
3. BIO314H5 or PHY32~~5H5~~

Fourth Year:

1. (PHY426H5 or ~~PHY433H5~~ or JCP463H5) and JCP421H5
2. 1.0 credit from PHY473H5 or JCP410H5 or JCP422H5 or CPS4~~8900Y5~~ or CPS4~~0089Y5~~ or MAT322H5 or JCB487Y5 or PHY399Y5

NOTES:

- At least 65% mark in ~~PHY146H5 and PHY147H5~~
- A Recommended 1st ~~year~~ ~~80%~~ MAT in courses: P(MAT137H~~Y5~~ or MAT1~~3657H5~~) and P(MAT139H~~Y5~~ or MAT1~~3759H5~~)

Description of Proposed Changes:

Changes in entry requirements. Changes in required/optional courses in 1st year, 2nd year, 3rd year and 4th year.

Rationale:

Rationale for changes in Entry requirements: we have removed the algebra based first-year physics course PHY136H5 and PHY137H5 as a possible entry into the program. This makes the calculus based first-year physics course PHY146H5 and PHY147H5 the only way to enter the physics program. The algebra-based course did not adequately prepare students for higher year physics courses.

Additionally, we are removing MAT132H5 and MAT134H5 as acceptable program requirements because these math courses are geared towards the life sciences and do not provide a thorough preparation for our upper year physics courses. MAT134Y5, MAT135Y5 are no longer in the calendar and have been split up into two half courses to give

students more flexibility. Our students will have to choose one of these three advanced level calculus courses. We have removed the noted minimum grade requirement in PHY146H5. It is enough to have the minimum grade requirements for PHY147H5. A student with a low score in PHY146H5 will thus be given an opportunity to improve their grade in the second semester and show their proficiency of the material.

Rationale for Changes in required/optional courses in first year, 2nd year, 3rd year and 4th year: We have removed the algebra based first-year physics course PHY136H5 and PHY137H5 as possibility to complete the program. This makes the calculus based first-year physics course PHY146H5 and PHY147H5 the only way to complete the physics program. The algebra-based course did not adequately prepare students for higher year physics courses and is thus no longer part of the program. Special consideration will be given to students currently in the program who have taken PHY136H5 and PHY137H5.

Additionally, we are removing MAT132H5 and MAT134H5 as acceptable program completion options because these math courses are geared towards the life sciences and do not provide a thorough preparation for our upper year physics courses.

Furthermore, we have added MAT236H5 (Vector Calculus) as an explicit math requirement because it is a required preparation for our students to succeed in PHY241H5 and PHY451H5. Additionally, we have added a new option to satisfy upper year credits with MAT322H5 (Mathematical Modelling in Biology). PHY433H5 will be retired and has been removed as a possible upper year credit. Previously we thought that MAT232 (Multivariable Calculus) was the relevant math preparation for PHY241H5, PHY325H5, and PHY451H5. However, we found out that the relevant vector calculus theorems are only covered in MAT236 (Vector Calculus). Downtown has a year-long course called "Multivariable Calculus" which covers both. That's why we missed this before.

MAT322H5 is a new option because it is a relevant and interesting course for our biophysics specialists. We have discussed this with MCS who are happy for us to do so. We're trying to foster a bit more cross-talk between physics and math.

MCS and physics are both on board with this. To offset this extra math requirement we have removed PHY255H5 from the second-year physics requirements as the course will be phased out. In order to take all mathematics pre-requisites in the necessary order we have also added the first linear algebra course MAT223H5 to our first-year requirements. Although this is a 200-level course it is typically taken by first year students in the math program and does not have any pre-requisites beyond High School. It should thus be taken in the first year. This takes the number of credits up to 14.5. To offset this extra math requirement we have removed PHY255H5 from the second-year physics requirements as the course will be phased out. PHY325H5 is a pre-requisites for JCP421H5 which is a program requirement. We thus have explicitly included PHY325H5 to remove this hidden pre-req. For the learning objective, advanced lab experience is required, but the students can achieve that either in the bio labs (BIO314H5) or in physics (PHY324H5).

Resource Implications:

None

Completion Requirements:

8.0-8.5 credits are required.

First Year:

- CHM110H5 and CHM120H5
- (MAT132H5 and MAT134H5) or (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or MAT134Y5 or MAT135Y5 or MAT137Y5 or MAT157Y5
- For students entering the program in 2023-2024 (and beyond): ISP100H5

Second Year:

- CHM211H5 and CHM231H5 and CHM242H5 and CHM243H5
- JCP221H5

Higher Years:

- (CHM372H5 and CHM373H5) or (CHM394H5 and CHM395H5) or (CHM396H5 and CHM397H5)
- 1.5 credits from lecture courses: CHM311H5 or CHM331H5 or CHM333H5 or CHM341H5 or CHM345H5 or CHM347H5 or CHM361H5 or CHM362H5 or CHM436H5 or CHM412H5 or CHM414H5 or CHM416H5 or CHM442H5 or CHM444H5 or CHM462H5 or JCP321H5 or JCP322H5 or JCP410H5 or JCP421H5 or JCP422H5 or JCP463H5
- 1.0 credit from: CHM311H5 or CHM323H5 or CHM331H5 or CHM333H5 or CHM341H5 or CHM345H5 or CHM347H5 or CHM361H5 or CHM362H5 or CHM372H5 or CHM373H5 or CHM394H5 or CHM395H5 or CHM396H5 or CHM397H5 or CHM399Y5 or CHM412H5 or CHM414H5 or CHM416H5 or CHM436H5 or CHM442H5 or CHM444H5 or CHM462H5 or CHM485H5 or CHM489Y5 or CPS489Y5 or CPS398H5 or CPS400Y5 or FSC311H5 or JCP321H5 or JCP322H5 or JCP410H5 or JCP421H5 or JCP422H5 or JCP463H5 or JBC472H5 or JBC487Y5

Enrolment Requirements:

Limited Enrolment — Enrolment in this program is limited .

For students applying in 2021-2022 for program entry in the 2022-2023 Academic Year , 4.0 credits are required , including the following :

- CHM110H5 and CHM120H5 (minimum grade of 60% in CHM120H5)
- (MAT132H5 and MAT134H5) or (MAT135H5 and MAT136H5) or ~~MAT134Y5 or MAT135Y5 or~~ MAT137Y5 or MAT157Y5

For students applying in 2022-2023 (and beyond) for program entry in the 2023-2024 Academic Year (and beyond) , 4.0 credits are required , including the following :

- CHM110H5 and CHM120H5 (minimum grade of 60% in CHM120H5)
- (MAT132H5 and MAT134H5) or (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or ~~MAT134Y5 or MAT135Y5 or~~ MAT137Y5 or MAT157Y5
- ISP100H5

Description of Proposed Changes:

Removed MAT134Y5, MAT135Y5. CHM323H5 added as one of the options under 4th year.

Rationale:

Removed MAT134Y5 and MAT135Y5 as per notification received from MCS about retirement of these two courses.

CHM323H5 is a new course offered as of 2023-24 and is added to the Major program as an optional course under 4th year.

Consultations:

Resource Implications:

None

Enrolment Requirements:

Limited Enrolment — Enrolment in the Chemistry Minor Program is based on completion of 4.0 credits including

- CHM110H5 and CHM120H5 (minimum grade of 60% in CHM120H5)
- (MAT132H5 and MAT134H5) or (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or ~~MAT134Y5 or MAT135Y5 or~~ MAT137Y5 or MAT157Y5

Completion Requirements:

4.0 credits in CHM/ JCP are required.

First Year:

1. CHM110H5 and CHM120H5

Higher Years:

1. 2.0 credits from: CHM211H5 or CHM231H5 or CHM242H5 or CHM243H5 or CHM311H5 or CHM331H5 or CHM333H5 or CHM341H5 or CHM345H5 or CHM347H5 or CHM361H5 or CHM362H5 or CHM372H5 or CHM373H5 or CHM394H5 or CHM395H5 or CHM396H5 or CHM397H5 or CHM412H5 or CHM414H5 or CHM416H5 or CHM436H5 or CHM442H5 or CHM444H5 or CHM462H5 or JCP221H5 or JCP321H5 or JCP322H5 or JCP410H5 or JCP421H5 or JCP422H5 or JCP463H5 or FSC311H5

2. 1.0 credits at 300/400 level from: CHM311H5 or CHM323H5 or CHM331H5 or CHM333H5 or CHM341H5 or CHM345H5 or CHM347H5 or CHM361H5 or CHM362H5 or CHM372H5 or CHM373H5 or CHM394H5 or CHM395H5 or CHM396H5 or CHM397H5 or CHM412H5 or CHM414H5 or CHM416H5 or CHM436H5 or CHM442H5 or CHM444H5 or CHM462H5 or JCP321H5 or FSC311H5 or JCP322H5 or JCP410H5 or JCP421H5 or JCP422H5 or JCP463H5

Notes:

- (MAT132H5 and MAT134H5) or (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) ~~or MAT134Y5 or MAT135Y5~~ or MAT137Y5 or MAT157Y5 is required for all 200-level CHM/ JCP courses.

Description of Proposed Changes:

CHM323H5 added as one of the options under 4th year. Removed MAT134Y5 and MAT135Y5.

Rationale:

CHM323H5: a new course offered as of 2023-24 is added to the minor program as an optional course under 4th year.

Removed MAT134Y5 and MAT135Y5 as per notification received from MCS about retirement of these two courses.

Consultations:

Resource Implications:

None

Enrolment Requirements:

Limited Enrolment — Enrolment in this program is limited .

For students applying in 2021-2022 for program entry in the 2022-2023 Academic Year , 4.0 credits are required , including the following :

- CHM110H5 and CHM120H5 (minimum grade of 65% in CHM120H5)
- (MAT132H5 and MAT134H5 , with a minimum grade of 65% in MAT134H5) or (MAT135H5 and MAT136H5 , with a minimum grade of 65% in MAT136H5) ~~or MAT134Y5 (minimum grade of 65%) or MAT135Y5 (minimum grade of 65%)~~ or MAT137Y5 (minimum grade of 65%) or MAT157Y5 (minimum grade of 65%)
- A minimum CGPA of 2.5

For students applying in 2022-2023 (and beyond) for program entry in the 2023-2024 Academic Year (and beyond) , 4.0 credits are required , including the following :

- CHM110H5 and CHM120H5 (minimum grade of 65% in CHM120H5)
- (MAT132H5 and MAT134H5 , with a minimum grade of 65% in MAT134H5) or (MAT135H5 and MAT136H5 , with a minimum grade of 65% in MAT136H5) or (MAT137 and MAT139) or (MAT157 and MAT159) ~~or MAT134Y5 (minimum grade of 65%) or MAT135Y5 (minimum grade of 65%)~~ or MAT137Y5 (minimum grade of 65%) or MAT157Y5 (minimum grade of 65%)
- ISP100H5
- A minimum CGPA of 2.5

Completion Requirements:

13.5 credits are required.

First Year:

- CHM110H5 and CHM120H5
- (MAT132H5 and MAT134H5) or (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or MAT134Y5 ~~or MAT135Y5 or MAT137Y5~~ or MAT157Y5
- (PHY136H5 and PHY137H5) or (PHY146H5 and PHY147H5)
- ISP100H5

Second Year:

- CHM211H5 and CHM231H5 and CHM242H5 and CHM243H5
- JCP221H5
- MAT232H5

Third Year:

- CHM311H5 and CHM331H5 and CHM361H5 and CHM394H5 and CHM396H5
- CHM341H5 or CHM345H5
- JCP321H5

Fourth Year:

- (CHM395H5 and CHM397H5) or CHM399Y5 or CHM489Y5 or CPS489Y5 or CPS400Y5 or CPS401Y5 or JCB487Y5
- 1.5 credits lecture courses from: CHM412H5 or CHM414H5 or CHM416H5 or CHM436H5 or CHM442H5 or CHM444H5 or CHM462H5 or JCP421H5 or JCP422H5 or JCP410H5 or JCP463H5
- 1.0 credit from: **CHM323H5** or CHM333H5 or CHM341H5 or CHM345H5 or CHM347H5 or CHM362H5 or CHM372H or CHM373H5 or CHM395H or CHM397H5 or CHM412H5 or CHM414H5 or CHM416H5 or CHM436H5 or CHM442H5 or CHM444H5 or CHM462H5 or CHM485H5 or CPS398H5 or FSC311H5 or JCP321H5 or JCP322H5 or JCP410H5 or JCP421H5 or JCP422H5 or JCP463H5

Description of Proposed Changes:

CHM323H5 added as one of the options under 4th year

Removed MAT134Y5, MAT135Y5

Rationale:

CHM323H5 - A new course offered as of 2023-24 is added to the specialist program as an optional course under 4th year.

Removed MAT134Y5, MAT135Y5 as per notification received from MCS about retirement of these two courses.

Consultation:**Resource Implications:**

None

ERMAJ1465: Earth Science - Major (Science)

Completion Requirements:

8.0-8.5 credits are required, including at least 3.0 at the 300/400 level.

First Year:

1. ERS101H5 or ERS111H5 or ENV100Y5
2. ISP100H5
3. (MAT132H5 and MAT134H5) or (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) ~~or MAT134Y5 or MAT135Y5~~ or MAT137Y5
4. (CHM110H5 and CHM120H5) or (PHY136H5 and PHY137H5) or (PHY146H5 and PHY147H5)

Second Year:

1. ERS201H5 and ERS202H5 and ERS203H5
2. 0.5 credit from ERS211H5 or ERS225H5 or GGR214H5 or GGR217H5 or GGR227H5 or GGR272H5 or GGR276H5 or GGR278H5

Higher Years: 3.0 additional credits at the 300/400 level from ERS301H5 or ERS302H5 or ERS303H5 or ERS304H5 or ERS311H5 or ERS312H5 or ERS315H5 or ERS325H5 or ERS381H5 or ERS401H5 or ERS402H5 or ERS403H5 or ERS404H5 or ERS411H5 or ERS412H5 or ERS425H5 or PHY351H5 or JGE378H5 or CPS400Y5.

~~**NOTE:** GGR272H5 is a prerequisite for GGR278H5.~~

Description of Proposed Changes:

Removed MAT134Y5 and MAT135Y5 Note removed - GGR272H5 is a prerequisite for GGR278H5 since the GGR272H5 course has been deleted.

Rationale:

1. Removed MAT134Y5 and MAT135Y5 as per notification received from MCS about retirement of these two courses.
2. GGR272H5 has been deleted from the Academic Calendar.

Consultations:

Resource Implications:

None

Enrolment Requirements:

Limited Enrolment – Enrolment in this program is based on completion of 4.0 credits , including: • ONE of the following :

- PHY146H5 and PHY147H5 (with a minimum grade of 60%) ~~• PHY136H5 and in PHY137H5 (with a minimum grade of 80%)~~ • [(MAT132H5 or)
- [(MAT135H5 or MAT137H5 or MAT157H5) and (~~MAT134H5 or~~ MAT136H5 or MAT139H5 or MAT159H5)] or ~~MAT135Y5 or~~ MAT137Y5 or MAT157Y5

Completion Requirements:

8.5 credits are required.

First Year:

1. (PHY146H5 and PHY147H5) ~~or (PHY136H5 or PHY137H5)~~
2. [(MAT132H5 ~~or~~ MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 ~~or~~ MAT136H5 or MAT139H5 or MAT159H5)] or MAT135Y5 or MAT137Y5 ~~or~~ >3. MAT157Y223H5
- 3
4. ISP100H5

Second Year:

1. 1.5 credits from PHY241H5 ~~and~~ or PHY245H5 ~~or~~ >2. JCP221H5 ~~or~~ > JCP265H5
2. MAT232H5 and MAT244H5

Third & Fourth Years:

1. 1.5 credits from the following list of courses JCPHY3241H5, PHY325H5, and PHY3432H5;
2. PHY333H5, 2.0 PHY343H5, credits PHY347H5, from PHY351H5, UTM PHY399Y5, PHY451H5, or JCP265 courses at the JCP321H5, 00 JCP322H5, or JCP421H5 00-level

Description of Proposed Changes:

Changes to entry requirements Changes to required/optional courses in 1st, 2nd, 3rd and 4th year

Rationale:

Rationale for changes in entry requirements: We have removed the algebra based first-year physics course PHY136H5/PHY137H5 as a possible entry into the program. This makes the calculus based first-year physics course PHY146H5/PHY147H5 the only way to enter the physics program. The algebra-based course did not adequately prepare students for higher year physics courses. Additionally, we are removing MAT132H5 and MAT134H5 as acceptable program requirements because these math courses are geared towards the life sciences and do not provide a thorough preparation for our upper year physics courses. MAT134Y5, MAT135Y5 are no longer in the calendar and have been split up into two half courses to give students more flexibility. Our students will have to choose one of these three advanced level calculus courses. We have removed the noted minimum grade requirement in PHY146H5. It is enough to have the minimum grade requirements for PHY147H5. A student with a low score in PHY146H5 will thus be given an opportunity to improve their grade in the second semester and show their proficiency of the material.

Rationale for changes in Required/optional courses in 1st, 2nd, 3rd and 4th year: We have removed the algebra based first-year physics course PHY136H5/PHY137H5 as possibility to complete the program. This makes the calculus based first-year physics course PHY146H5/PHY147H5 the only way to complete the physics program. The algebra-based course did not adequately prepare students for higher year physics courses and is thus no longer part of the program. Special consideration will be given to students currently in the program who have taken PHY136H5/PHY137H5. Additionally, we are removing MAT132H5 and MAT134H5 as acceptable program completion options because these math courses are geared towards the life sciences and do not provide a thorough preparation for our upper year physics courses. MAT134Y5, MAT135Y5 are no longer in the calendar and have been split up into two half courses to give students more flexibility. We have added MAT223H5 and the rationale for that is the MAT223H5 is a pre-req for MAT232H5. This was previously a "hidden" pre-req that is now explicit. We indeed suggest students take this course in

the first-year. MCS has confirmed that's ok and what many MCS students do so (no pre-requisites for MAT223H5 apart from high-school). Previously JCP265H5 was listed together with the 3rd year credits, which didn't make much sense. We have now explicitly listed it as a second year option where it belongs.

We had a long list of 3rd/4th-year options as if all courses were equally good. We wanted to break that up into core courses and optional ones. We decided that JCP321H5 and PHY343H5 are the core courses necessary to achieve the learning objectives in the program. At the same time **any** combination of 2.0 credits from the upper year courses are equally good to achieve the learning objectives. There is no need to distinguish.

Consultations:

Regarding MAT courses, MCS was consulted on all proposed changes to add MAT pre-requisites and make previously hidden pre-requisites explicit. The overall effect on enrollment in those courses is expected to be small given the size of our program vs typical enrollments in MCS.

Resource Implications:

Enrolment Requirements:

Limited Enrolment — Enrolment in this program is based on completion of 4.0 credits including :

- (PHY146H5 and PHY147H5) ; ~~or (PHY136H5 and PHY137H5)~~
- [(~~MAT132H5 or~~ MAT135H5 or MAT137H5 or MAT157H5) and (~~MAT134H5 or~~ MAT136H5 or MAT139H5 or MAT159H5)] or ~~MAT135Y5 or~~ MAT137Y5 or MAT157Y5

Completion Requirements:

5.0 credits are required including at least 1.5 credits at the 300/400 level. Please note that a number of these courses have MAT pre-requisites and/ or co-requisites.

First Year: ~~{(PHY146H5 and PHY147H5) or (PHY136H5 and PHY137H5)}~~ and ~~{[(MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5)] or MAT135Y5 or MAT137Y5 or MAT157Y5}~~

Second Year:

1.5 credits from: PHY241H5, PHY242H5, PHY245H5, ~~PHY255H5~~, PHY299Y5, JCP221H5, JCP265H5.

Higher Years:

1.5 credits from: JCP321H5, JCP322H5, JCP410H5, JCP421H5, JCP422H5, JCP463H5, PHY324H5, PHY325H5, PHY332H5, PHY333H5, PHY343H5, PHY347H5, PHY351H5, PHY399Y5, PHY426H5, ~~PHY433H5~~, PHY451H5, PHY473H5

NOTES:

- Not all 300 and 400 level courses are offered every year. Please check the course timetable carefully each academic year.
- Check all prerequisites and corequisites when registering for 200+ level courses.

Description of Proposed Changes:

Entry requirement changes. Removal of courses in 1st year, 2nd year and higher years.

Rationale:

Rationale for entry requirement changes: we have removed the algebra based first-year physics course PHY136H5 and PHY137H5 as a possible entry into the program. This makes the calculus based first-year physics course PHY146H5 and PHY147H5 the only way to enter the physics program. The algebra-based course did not adequately prepare students for higher year physics courses.

Additionally, we are removing MAT132H5 and MAT134H5 as acceptable program requirements because these math courses are geared towards the life sciences and do not provide a thorough preparation for our upper year physics courses. MAT134Y5, MAT135Y5 are no longer in the calendar and have been split up into two half courses to give students more flexibility. Our students will have to choose one of these three advanced level calculus courses.

Rationale for removal of courses in first year, 2nd year and higher years: We have removed the algebra based first-year physics course PHY136H5 and PHY137H5 as possibility to complete the program. This makes the calculus based first-year physics course PHY146H5 and PHY147H5 the only way to complete the physics program. The algebra-based course did not adequately prepare students for higher year physics courses and is thus no longer part of the program. Special consideration will be given to students currently in the program who have taken PHY136H5 and PHY137H5.

Additionally, we are removing MAT132H5 and MAT134H5 as acceptable program completion options because these math courses are geared towards the life sciences and do not provide a thorough preparation for our upper year physics courses. MAT134Y5, MAT135Y5 are no longer in the calendar and have been split up into two half courses to give students more flexibility.

PHY255H5 should also be removed from the minor. The course is being phased out due to small enrollment, but this will not affect the learning objectives in the minor.

PHY433H5 will be retired and has been removed as a possible upper year credit.

Consultations:

Resource Implications:

None

Psychology (UTM), Department of

3 Course Modifications

PSY330H5: The Basics of Measurement in Social and Personality Psychology

Exclusions: PSY330H1 or PSYC37H3

Rationale:

Adding relevant exclusions

Consultation:

Psychology curriculum committee and consultation with respective UTSG and UTSC Psychology departments.

Resources: None.

PSY368H5: Neuroimaging Laboratory

Exclusions: PSY359H1 or PSYD55H3

Rationale:

Adding relevant exclusions

Consultation:

Psychology curriculum committee and consultation with respective UTSG and UTSC Psychology departments.

Resources: None.

PSY389H5: Perception Laboratory

Exclusions:

Previous:

New: PSY389H1

Rationale:

Updating exclusion to include equivalent course at UTSG.

Consultation:

Psychology curriculum committee.

Resources: None.

1 Minor Program Modification

ERSPE1883: Exceptionality in Human Learning - Specialist (Science)

Completion Requirements:

13.0-14.5 credits are required, including at least 5.0 300/400-level credits of which 1.5 must be at the 400-level.

First Year: PSY100Y5; (ANT101H5, ANT102H5)/ (BIO152H5, BIO153H5)/ 1.0 credit from BIO202H5, BIO205H5, BIO206H5, BIO207H5/ SOC100H5

Second Year:

- PSY201H5/ ECO220Y5/ ECO227Y5/ SOC350H5/ STA218H5/ STA220H5/
- PSY210H5, PSY240H5
- 0.5 credit from the following: PSY202H5 (or equivalent), PSY270H5, PSY280H5, PSY290H5, JLP285H5

Higher Years:

- 3.0 credits from the following: PSY310H5, PSY311H5, PSY312H5, PSY313H5, PSY314H5, PSY316H5, PSY317H5, PSY318H5, PSY319H5, PSY321H5, PSY325H5, PSY330H5, PSY331H5, PSY333H5, PSY340H5, PSY341H5, PSY343H5, PSY344H5, PSY346H5, PSY353H5, PSY385H5, PSY391H5, PSY392H5, PSY393H5, JLP381H5, JLP388H5, ~~JLP315H5~~, ~~JLP383H5~~, LP384H5, JLP388H5,
- PSY442Y5 and at least 0.5 credit from the following: PSY400Y5, PSY401H5, PSY403H5, PSY404H5, PSY405H5, PSY406H5, PSY410H5, PSY415H5, PSY440H5, PSY474H5, PSY495H5, PSY499H5, PSY499Y5, JLP481H5, JLP483H5
- One of the following:
 - 2.0 credits from: ANT202H5, ANT203H5, ANT204H5, ANT205H5, ANT206H5, ANT207H5, ANT211H5, ANT212H5, ANT214H5, ANT215H5, ANT220H5, ANT241H5, ANT306H5, ANT322H5, ANT331H5, ANT332H5, ANT333H5, ANT334H5, ANT335H5, ANT337H5, ANT338H5, ANT341H5, ANT350H5, ANT352H5, ANT362H5, ANT364H5, ANT365H5, ANT401H5, ANT403H5, ANT434H5, ANT437H5, ANT460H5, ANT461H5, ANT462H5
 - 2.5 credits from: SOC205H5, SOC209H5, SOC211H5, SOC216H5, SOC219H5, SOC224H5, SOC227H5, SOC240H5, SOC244H5, SOC263H5, SOC275H5, SOC304H5, SOC307H5, SOC310H5, SOC316H5, SOC323H5, SOC332H5, SOC333H5, SOC341H5, SOC352H5, SOC356H5, SOC359H5, SOC371H5, SOC375H5, SOC380H5, SOC456H5, SOC457H5
 - 2.0 credits from: BIO202H5, BIO205H5, BIO206H5, BIO207H5, BIO210Y5, BIO315H5, BIO341H5, BIO370Y5, BIO371H5, BIO372H5, BIO375H5, BIO380H5, BIO403H5, BIO407H5, BIO434H5, BIO443H5, BIO476H5, BIO477H5; ANT202H5, ANT203H5, ANT331H5, ANT332H5, ANT333H5, ANT334H5
- 2.5 additional credits to be selected from the following (no more than 1.0 credit from any one discipline):
 - ANT** - Any course in 3(a) not counted previously
 - SOC** - Any course in 3(b) not counted previously
 - BIO** - Any course in 3(c) not counted previously
 - CHM** - CHM242H5, CHM243H5, CHM341H5, CHM345H5, CHM347H5, CHM361H5, CHM362H5
 - ENG** - ENG234H5, ENG384H5
 - FRE** - FRE225Y5, FRE355H5
 - HIS** - HIS310H5, HIS326Y5, HIS338H5
 - LIN** - LIN101H5, LIN102H5, ~~LIN200H5~~, ~~LIN256H5~~, ~~LIN258H5~~, ~~LIN358H5~~, LIN380H5, JLP285
 - JAL** - JAL253H5, JAL355H5
 - PHL** - PHL243H5, PHL244H5, PHL255H5, PHL267H5, PHL271H5, PHL272H5, PHL274H5, PHL277Y5, PHL282H5, PHL283H5, PHL290H5, PHL350H5, PHL355H5, PHL357H5, PHL358H5, PHL367H5, PHL370H5, PHL374H5, PHL376H5
 - RLG** - RLG314H5
 - WGS** - Any course

Description of Proposed Changes:

Edits to the list of courses provided by Department of Language Studies: JLP385H5 – we do NOT offer this course. It should be removed. JLP388H5 – listed twice JLP384H5 - typo LIN200H5 is being retired FRE225Y5 is now FRE227H5 LIN258H5 is now JLP285H5

Rationale:

Edits provided by Department of Language Studies for clarity and consistency among units.

Consultations:

Psychology Curriculum Committee

Resource Implications:

6 Course Modifications

ENV299Y5: Research Opportunity Program

Description:

This course provides a richly rewarding opportunity for students in their second year to work on a research project with a professor in return for ~~299Y~~ course credit. Students enrolled have an opportunity to become involved in original research, learn research methods and share in the excitement and discovery of acquiring new knowledge. Based on the nature of the project, projects may satisfy the Sciences or Social Sciences distribution requirement. Participating faculty members post their project descriptions for the following summer and fall / winter sessions in early February and students are invited to apply in early March. See <https://utm.calendar.utoronto.ca/experiential-and-international-opportunities> for more details.

Rationale:

Small edit to course description (removed 299Y from first sentence; not needed).

Resources: None

ENV399Y5: Research Opportunity Program

Description:

This course provides a richly rewarding opportunity for students in their second year to work on a research project with a professor in return for ~~299Y~~ course credit. Students enrolled have an opportunity to become involved in original research, learn research methods and share in the excitement and discovery of acquiring new knowledge. Based on the nature of the project, projects may satisfy the Sciences or Social Sciences distribution requirement. Participating faculty members post their project descriptions for the following summer and fall / winter sessions in early February and students are invited to apply in early March. See <https://utm.calendar.utoronto.ca/experiential-and-international-opportunities> for more details.

Rationale:

Small edit to course description; removed "299Y" typo from first sentence.

Resources: None

ENV490H5: Special Topics in Environmental Studies

Description:

These courses highlight various topics of special interest in environmental studies. The specific focus and format of the course will vary, depending on the chosen topic. The course will not be offered every year. ~~Please check with the Academic Counsellor, Sabrina Ferrari (905-828-5465), for further information.~~ The contact hours for this course may vary in terms of contact type (L, S, T, P) from year to year, but will be between 24-36 contact hours in total. See the UTM Timetable [for details](#).

Rationale:

Updated course description to reflect staff member that is no longer with the department. Removed the line "Please check with the Academic Counsellor, Sabrina Ferrari (905-828-5465), for further information."

Resources: None

GGR377H5: Global Climate Change

Exclusions: ~~ENV377H5~~

Rationale:

Removed exclusion ENV377H5; course no longer exists.

Resources: None

GGR383H5: Contaminants in the Environment

Description:

This course discusses various types of contaminants (metals, persistent organic pollutants, emerging contaminants, pesticides, pharmaceuticals, flame-retardants, micro-plastics, nano-materials, etc.) and their impacts on the environment. Lectures ~~will~~ cover sources, transport and fate of these contaminants in various environmental media (air, water, and soil / sediment), degradation mechanisms, uptake into biological systems, and toxicity. ~~A number of case studies such as pollutants in Arctic ecosystems and the potential risks they pose to the health of Indigenous people will be examined. Tutorial~~ People and the role of science in informing policy addressing pollutants will be examined. Class and group activities during tutorials, including discussions of current scientific articles, will complement lectures.

Rationale:

These changes to the course description more accurately reflect the course content, and will hopefully help make the course more attractive to students.

Resources: None

GGR442H5: GIS Capstone Project

Description:

Students apply prerequisite knowledge and techniques to real-world GIS projects requested by external ~~client~~ partners. Through background research, proposal, data management, and implementation, students develop GIS professional competencies, which will be demonstrated through collaboration, presentations and reports.

Prerequisites: 12.0 credits including (GGR276H5 or STA256H5) and GGR278H5 and (1.0 credit from GGR321H5 or GGR335H5 or GGR337H5 or GGR376H5 or GGR381H5 or GGR382H5 or GGR463H5) or permission of instructor.

Rationale:

Updated language in course description to better reflect projects. Added course to list of prerequisite options (GGR381H5) to align with program courses and provide more options.

Resources: None

2 Minor Program Modifications

ERMAJ0305: Geographical Information Systems - Major (Science)

Completion Requirements:

7.5 credits are required.

First Year (1.0 credit):

- 1.0 credit at the 100-level

Second Year (2.0 credits):

- (GGR276H5 or STA256H5) and GGR278H5
- 1.0 credit from any other 200-level GGR or ENV courses

Third/Fourth Year (4.5 credits):

- GGR321H5 and GGR337H5 and GGR382H5
- 2.5 credits from the following (limited to 1.0 credit from ERS and CSC courses): CSC311H5 or CSC343H5 or CSC413H5 or CSC477H5 or ERS304H5 or GGR311H5 or GGR322H5 or GGR335H5 or GGR338H5 or GGR370H5 or GGR372H5 or GGR376H5 or GGR381H5 or GGR437H5 or GGR440H5 or GGR442H5 or GGR444H5 or GGR463H5 or GGR494H5
- 0.5 credit from any other 300/400-level GGR or ENV courses

Description of Proposed Changes:

Updated program requirements; addition of two courses (GGR338H5 and GGR381H5) to the "Third/Fourth Year" course group from which 2.5 credits is required. Also removed an outdated course code from the Notes section.

Rationale:

Updates to program requirements aligns with course offerings and gives more options for students to complete this grouping.

Consultations:

Resource Implications:

ERMIN0305: Geographical Information Systems - Minor (Science)

Completion Requirements:

4.0 credits are required.

Second Year: 1.0 credit:

- (GGR276H5 or STA256H5) and GGR278H5

Third/Fourth Year: 3.0 credits

- GGR382H5
- 2.5 credits from the following (limited to 0.5 credits from ERS or CSC courses): CSC311H5 or CSC343H5 or CSC413H5 or CSC477H5 or ERS304H5 or GGR311H5 or GGR321H5 or GGR322H5 or GGR335H5 or GGR337H5 or GGR338H5 or GGR370H5 or GGR372H5 or GGR376H5 or GGR381H5 or GGR437H5 or GGR440H5 or GGR442H5 or GGR444H5 or GGR463H5 or GGR494H5

Description of Proposed Changes:

Updated program requirements; added STA256H5 as alternative to GGR276H5; addition of two courses (GGR338H5 and GGR381H5) to the "Third/Fourth Year" course group from which 2.5 credits is required. Also removed an outdated course code from the Notes section, and added an additional course.

Rationale:

Updates to program requirements aligns with course offerings and gives more options for students to complete this grouping.

Consultations:

Resource Implications:

Biology (UTM), Department of

2 New Courses

BIO424H5: Movement Ecology

Contact Hours:

Lecture: 12 / Tutorial: / Practical: / Seminar: 24

Description:

Individuals move throughout their lifecycle. They find a home, escape predation, and search for food and mates. We will explore the patterns and causes of different movement types and their eco-evolutionary consequences, from the individual level, up to the whole ecosystem. Examples will come from both terrestrial and aquatic realms.

Prerequisites: BIO205H5 and (BIO259H5 or STA215H5)

Corequisites:

Exclusions:

Recommended Preparation: BIO342H5

Enrolment Limits:

Notes:

Rationale:

Movement Ecology at UTM would adopt an organismal perspective to explore how organisms move, why they move, and what the eco-evolutionary consequences of movement are. We will cover the major movement types (migration, dispersal, foraging/home range, and nomadism). The course draws on case studies from diverse taxa across ecological realms (ranging from terrestrial spider to large whales). Some subtopics will also build on learning in existing third-year Biology courses such as BIO205H5, BIO311H5, and BIO331H5. The course will also allow students to apply skills learned in statistics courses, as Movement Ecology is a very quantitative field, and we work through research articles that apply advanced statistical techniques.

Consultation:

Prof. Cassidy D'Aloia, Biology Curriculum Committee

Resources:

None - this is a small seminar style course with a cap of 24. No TA required.

HSC308H5: Visual Methods: From Atoms to Cells

Contact Hours:

Lecture: 12 / Tutorial: / Practical: 24 / Seminar:

Description:

This course examines the visualization process in molecular and cellular structural biology, how it has evolved, and its relationship to advances in technology and science. You will learn how to create molecular models suitable for visual exploration, analysis, and/or communication of spatial scales ranging from the atomic to cellular.

Prerequisites: BIO206H5 and HSC200H5

Corequisites:

Exclusions:

Recommended Preparation: BIO342H5

Enrolment Limits:

Notes:

Rationale:

My main reason for proposing this course is to more tightly integrate our offerings in the Biomedical Communications department with the Biology curriculum, in particular for the course offerings in the Biomedical Communications Minor. This course provides learners with how to recognize the role of visualization in molecular and cellular structural biology and its relationship to advances in technology and science.

Consultation:

Prof. Derek Ng, Director of Biomedical Communications Department, Associate Chair, Biology Curriculum Committee

Resources:

Will need one TA to help with the MAC Computer lab (trouble shooting student problems, helping run activities and discussions, marking assignments and exercises). Will send in resource implications form shortly to Curriculum Office.

7 Course Modifications

BIO304H5: Molecular Physiology of Excitable Cells

Title:

Previous: Physiology of Neurons and Muscle

New: Molecular Physiology of Excitable Cells

Contact Hours:

Lecture: ~~36~~24 / **Tutorial:** 12 / **Practical:** 12 / **Seminar:**

Rationale:

Rationale for change in title: as this course has evolved, we have started to dive more and more into the molecular properties of various ion channels and neurotransmitter receptors, but spend little time focusing on the physiology of muscle. Hence, I think the previous title of "Physiology of Neurons and Muscle" is no longer appropriate.

Rationale for change in teaching hours: Students in my course often struggle with concepts involving membrane and ion channel biophysics, which is an integral part of BIO304 and critical for understanding the physiology of neurons and excitable cells. Adding labs to the course will provide hands-on learning opportunities for students, using the electrophysiological simulation software Neurons in Action 2. The software's moving graphs provide insight into nerve function that is simply not possible with conventional, static text and figure presentations. The software comprises a series of hands-on tutorials that cover (and complement) all core topics in biophysics of excitable cells taught in BIO304. In addition to providing hands-on learning opportunities for students, implementing alternating tutorials/labs will provide students with diversified opportunities for receiving grades, beyond just term tests and the exam. Students have expressed concern having all of their grades determined strictly by tests and a final exam.

Consultation:

Prof. Adriano Senator, Assoc. Chair, Biology Curriculum Committee

Resources:

New resources will be required in terms of TA's for computer labs (we will need two TA's per lab as well as one Admin TA to help coordinate the labs and marking). We will need to have seven computer labs each with a cap of 48, and one computer lab with a cap of 30 or 35 (currently the cap of the course is 365). The students would need to purchase their own copies of the software Neurons in Action 2 (\$35.99 USD from Oxford University Press), along with the textbook from Neuron to Brain V6 (also from Oxford Press). We will fill out a resource implications form shortly for Curriculum Office.

BIO325H5: Biomechanics

Contact Hours:

Lecture: 24 / **Tutorial:** / **Practical:** ~~48~~36 / **Seminar:**

Rationale:

Previously up until 2019 this course was scheduled as 24L, 36P teaching hours. The instructor found some students were not attending the lecture hour so he decided to imbed the lecture hour into the PRA hours and increase the PRA hours to 48 in order to make sure students attended both sections. Over the past few years, he has found it too difficult to deliver 20 chapters of material in the lab hour along with teaching the lab experiments. Also due to enrolment demand on this course, the instructor had to offer three separate lectures/labs per week for three different sections. Therefore he would like to go back to how the course was taught previously and re-introduce the lecture hours as a separate teaching section from the lab hours.

Consultation:

Prof. Glenn Morris, BIO Lab Techs, Biology Curriculum Committee

Resources: There will be no extra resources needed as the hours in the lab will be decreasing by one hour.

BIO333H5: Freshwater Ecology

Description:

A functional analysis of freshwater ecosystems, with emphasis on lakes. Lectures cover water chemistry; the physical structure of lakes; the different ways that algae, zooplankton, benthic invertebrates, and fish have evolved to succeed in these habitats and interact with one another; and the impact of humans on freshwater systems. Students must be available to participate in a ~~mandatory weekend field trip to a lake on one of two~~ 1-day field trip to visit aquatic habitats further from campus on a weekend~~s~~ in either late September or early October. Students not available for ~~one of these~~ 1-day weekend~~s~~ trip should not register for this course. Ancillary fees for this course apply. Please check the Departmental website for full details.

Rationale:

The instructor is no longer able to participate in a full weekend field trip for this course, and would like to change this to a one-day field trip instead.

Consultation:

Prof. Shannon McCauley, Biology Curriculum Committee

Resources:

No changes in resources. Ancillary fees for the field trip portion of the course will likely remain the same despite the reduction in days. The department has found that the \$66.00 ancillary fee that was charged per student, was not really covering all costs of the field trip and the department was having to cover the remaining costs of bus transportation, food and lodging.

BIO370Y5: Microbiology

Description:

Previous:

In-depth discussion of bacterial structure and ultrastructure; physiology and nutrition; growth and cultivation; nature of viruses (bacteriophage and a limited survey of animal viruses and their properties); microbial genetics; immunology; the role of micro-organisms in medicine, industry, agriculture and ecology.

New:

This course will include an in-depth exploration of microbial structure and ultrastructure; growth and cultivation; metabolism; microbial diversity and genetics; virology; pathogenicity and immunology; and the role of microorganisms in medicine and the environment. This lecture material will be accompanied by a weekly laboratory component where students learn about the latest experimental approaches in microbiology.

Rationale:

The current instructor inherited this course a few years ago from an instructor that retired. In those two years he has changed the course content from what was previously being taught, and the updated description is a reflection of what is currently being covered in the course.

Consultation:

Prof. Marcus Dillon, Biology Curriculum Committee

Resources: No additional resources are required

BIO475H5: Virology

Prerequisites: BIO206H5 ~~or permission of instructor~~

Recommended Preparation: BIO370Y5

Rationale:

Department put through changes for this course at the March 2023 Science Curriculum meeting, but instructor wanted to revise those changes slightly.

Consultation:

Prof. Steven Short, Biology Curriculum Committee

Resources: No new resources required.

HSC404H5: Visualizing the Past

Title:

Previous: Advanced Visual Media for Anthropological Data

New: Visualizing the Past

Description:

This course examines the visual representation of physical evidence in ~~archaeo~~paleontology, and ~~physical/ biological~~ ~~aleo~~anthropology. Photography, traditional illustration, and digital rendering are used to produce scientific graphics in support of published research. Through practical and analytical exercises students will gain an understanding of the media and techniques used to visually represent data.

Rationale:

When this course was first developed in 2004, the Biomedical dept was not part of Biology. The course at the time had a clear focus on Anthropology data. Over time, particularly in the past few years with a change of instructors, more material from paleontology has been included. The hope is to align the subject more closely with topics within the broader discipline of Biology, while still maintaining some elements from physical anthropology. Having "Anthropological Data" in the title does not truly reflect all elements of the course and is proving to be a limitation in its development. The new title Visualizing the Past was chosen to reflect the spirit of the course, and to allow for inclusion of topics beyond Anthropology while not excluding them. Prerequisites do not need to change.

Consultation:

Prof. Marc Dryer, Prof. Dave Mazierski, Biology Curriculum Committee

HSC405H5: Digital Forensic Facial Approximation

Title: Digital Forensic Facial ~~Reconstruc~~Approximation

Description:

This course examines the technical, anatomical, and sociological considerations involved in the three-dimensional digital forensic facial ~~reconstruc~~approximation. Human facial anatomy, traditional reconstruction techniques, and the use of 3D animation software are the core areas of study. Using this knowledge, students reconstruct the facial identity of an individual known only from cranial skeletal remains.

Rationale:

Reason for word change in title and course description: Approximation is the term used in the literature (as opposed to "reconstruction" which was more common in the past). "Approximation" implies some uncertainty and helps diminish the idea of exact replication of the face (also distancing from the topic of facial plastic surgery "reconstruction"). Nothing else is changing.

Consultation:

Prof. Marc Dryer

Instructor:

Prof. Marc Dryer

9 Minor Program Modifications

ERSPE0482: Comparative Physiology - Specialist (Science)

Completion Requirements:

14.5 credits are required, including at least 5.0 credits at the 300/400 level, of which 1.0 credit must be at the 400 level.

First Year:

- BIO152H5 and BIO153H5
- CHM110H5 and CHM120H5
- (MAT132H5 and MAT134H5) ~~or MAT134Y5~~ or (MAT135H5 and MAT136H5) or ~~MAT135Y5 or~~ (MAT137H5 and MAT139H5) or MAT137Y5
- 1.0 credit from CLA201H5 or ENV100Y5 or ERS101H5 or PHY136H5 or PHY137H5 or PSY100Y5 or WRI173H5 or WRI307H5

Note: (MAT132H5 and MAT134H5) - Calculus for Life Sciences is highly recommended.

Second Year:

- BIO202H5 and BIO203H5 and BIO205H5 and BIO206H5 and BIO207H5 and BIO208H5 and BIO209H5 and BIO259H5

Third and Fourth Years:

- BIO304H5 and BIO310H5 and BIO312H5 and BIO360H5 and BIO409H5;
- CHM242H5 and CHM243H5
- At least 2.0 credits from: BIO320H5 or BIO347H5 or BIO353H5 or BIO354H5 or BIO361H5 or BIO368H5 or BIO372H5 or BIO404H5 or BIO408H5 or BIO410H5 or BIO411H5 or BIO412H5 or BIO414H5 or BIO417H5 or BIO419H5 or BIO422H5 or BIO429H5 or BIO481Y5 or CHM361H5 or CHM362H5 or JCB487Y5 or PHY332H5 or PHY333H5 or PSY290H5 or PSY395H5
- 1.0 additional BIO credit taken at U of T Mississauga campus

No substitute statistics course will be allowed for BIO360H5. Students may take no more than 2.0 credits combined in ROP, Internship Program, or Individual Project / Thesis courses at the 300/400-level for credit toward their Biology program. Students must consult with the Undergraduate Advisor before enrolling in any St. George course that they wish to use for credit toward any Biology program.

Description of Proposed Changes:

Courses are retiring.

Rationale:

MAT134Y5 and MAT135Y5 are being removed as course options as the Mathematics Department is retiring these courses.

Consultation:

Biology Curriculum Committee

Resource Implications:

None

ERMAJ2364: Biology - Major (Science)

Completion Requirements:

8.0 credits are required including at least 2.0 **credits** at the 300/400 level.

- BIO152H5, BIO153H5; CHM110H5, CHM120H5; (MAT132H5 and MAT134H5*) or ~~MAT134Y5 or~~ (MAT135H5 and MAT136H5) or ~~MAT135Y5 or~~ (MAT137H5 and MAT139H5) or MAT137Y5

*-~~Note-~~: (MAT132H5 and MAT134H5-) for Life Sciences is highly recommended.

- BIO202H5, BIO203H5, BIO205H5, BIO206H5, BIO207H5, BIO259H5
- 2.0 **credits** in UTM Biology courses at the 300 or 400 level.

Description of Proposed Changes:

Retiring courses.

Rationale:

MAT134Y5Y and MAT135Y5Y are no longer course options for this program, as the Mathematics Department is retiring these courses.

Consultations:

Biology Curriculum Committee

Resource Implications:

None

Completion Requirements:

13.5 credits are required, including at least 6.0 credits at the 300/400 level, of which 1.0 credit must be at the 400 level.

First Year:

- BIO152H5 and BIO153H5
- CHM110H5 and CHM120H5
- (MAT132H5 and MAT134H5) or ~~MAT134Y5~~ or (MAT135H5 and MAT136H5) ~~or MAT135Y5~~ or (MAT137H5 and MAT139H5) or MAT137Y5
- 1.0 credit from: CLA201H5 or ENV100Y5 or (ERS101H5 or ERS120H5) or PHY136H5 or PHY137H5 or PSY100Y5 or WRI173H5 or WRI307H5

Note—: (MAT132H5 and MAT134H5) - Calculus for Life Sciences is highly recommended.

Second Year:

- BIO202H5 and BIO203H5 and BIO205H5 and BIO206H5 and BIO207H5 and BIO259H5

Third and Fourth Years:

- BIO313H5 or BIO314H5 or BIO409H5
- BIO360H5
- 5.5 additional UTM BIO credits. At least 5.0 of these credits must be at the 300 level or above, of which at least 1.0 must be at the 400 level

It is recommended that students in the specialist program include at least 0.5 credit from each of four of the following groups:

- **Ecology and Field Biology:** BIO311H5 or BIO312H5 or BIO313H5 or BIO329H5 or BIO330H5 or BIO331H5 or BIO333H5 or BIO373H5 or BIO376H5 or BIO378H5 or BIO412H5 or BIO416H5 or BIO424H5 or BIO444H5 or BIO464H5
- **Biology of Whole Organisms:** BIO325H5 or BIO326H5 or BIO329H5 or BIO353H5 or BIO354H5 or BIO356H5 or BIO376H5 or BIO378H5
- **Genetics and Evolution:** BIO329H5 or BIO341H5 or BIO342H5 or BIO347H5 or BIO407H5 or BIO422H5 or BIO427H5 or BIO443H5 or BIO445H5 or BIO464H5
- **Cell, Molecular and Developmental Biology:** BIO314H5 or BIO315H5 or BIO324H5 or BIO353H5 or BIO362H5 or (BIO370Y5 or BIO371H5) or BIO368H5 or BIO372H5 or BIO374H5 or BIO375H5 or BIO380H5 or BIO404H5 or BIO407H5 or BIO408H5 or BIO417H5 or BIO419H5 or BIO422H5 or BIO458H5 or BIO475H5 or BIO476H5 or BIO477H5
- **Physiology and Behaviour:** BIO208H5 or BIO304H5 or BIO310H5 or BIO312H5 or (BIO318Y5 or BIO328H5) or BIO320H5 or BIO324 or BIO368H5 or BIO405H5 or BIO408H5 or BIO409H5 or BIO410H5 or BIO411H5 or BIO414H5 or BIO429H5 or BIO434H5

Up to 1.0 credit may be taken from the following biology-related courses: GGR227H5 or GGR305H5 or GGR307H5 or GGR309H5 or GGR311H5 or GGR312H5 or CHM347H5 or CHM361H5 or CHM362H5 or CHM372H5 or CHM373H5 or PHY332H5 or PHY333H5 or PSY290H5 or PSY355H5 or PSY357H5 or PSY392H5 or PSY395H5 or PSY397H5 or ANT334H5 or ANT336H5 or ANT340H5.

Additional courses: BIO361H5 or BIO400Y5 or BIO481Y5 or JCB487Y5

Description of Proposed Changes:

Rationale:

Addition of new course BIO424H5 as a course option for program. Removal of MAT134Y5Y and MAT134Y5Y as Math is retiring these courses.

Consultation:

Resource Implications:

Completion Requirements:

8.5 credits are required including at least 2.0 at the 300/400 level.

- BIO152H5, BIO153H5; CHM110H5, CHM120H5; (MAT132H5 and MAT134H5*) or ~~MAT134Y5 or~~ (MAT135H5 and MAT136H5) or ~~MAT135Y5 or~~ (MAT137H5 and MAT139H5) or MAT137Y5

*-**Note:** (MAT132H5 and MAT134H5) - for Life Sciences is highly recommended.

- BIO202H5, BIO206H5, BIO207H5, BIO208H5, BIO209H5, BIO259H5, BIO304H5, BIO310H5, BIO380H5
- 1.0 credit from any of the courses listed below:

Cell, Molecular, and Biotechnology Stream: BIO200H5, BIO314H5, BIO315H5, BIO324H5, BIO360H5, BIO368H5, BIO370Y5/ BIO371H5, BIO372H5, BIO374H5, BIO375H5, BIO404H5, BIO417H5, BIO419H5, BIO422H5, BIO475H5, BIO476H5, BIO477H5; JBC472H5

Neuroscience Stream: BIO320H5, BIO360H5, BIO403H5, BIO408H5, BIO409H5, BIO411H5, BIO429H5

Genes and Behaviour Stream: BIO315H5, BIO318Y5/ BIO328H5, BIO329H5, BIO341H5, BIO342H5, BIO347H5, BIO360H5, BIO361H5, BIO405H5, BIO407H5, BIO414H5, BIO422H5, BIO427H5, BIO443H5

Description of Proposed Changes:

Retiring of courses.

Rationale:

MAT134Y5Y and MAT135Y5Y will no longer be course options for this program, as the Math department is retiring these courses.

Consultations:

Biology Curriculum Committee

Resource Implications:

None

ERMIN0840: Biomedical Communications - Minor (Science)

Completion Requirements:

- BIO152H5 and BIO153H5 and HSC200H5
- 2.5 credits from the following of which at least 1.0 credit must be at the 400 level: HSC300H5 or HSC301H5 or HSC302H5 or HSC307H5 or HSC308H5 or HSC401H5 or HSC402H5 or HSC404H5 or HSC405H5 or HSC406H5

Description of Proposed Changes:

Addition of new course HSC308H5 as an option for students in the Completion Requirements.

Rationale:

Adding HSC308H5 to the program as a course option for students to complete the program.

Consultations:

Prof. Derek Ng, Director of Biomedical Communications department, Biology Curriculum Committee.

Resource Implications:

None

Enrolment Requirements:

Enrolment in this program is limited . Students who wish to enrol at the end of first year (4.0 credits) must obtain a grade of at least ~~C-(63%)~~63% in both CHM110H5 and CHM120H5 , and a cumulative grade point average of at least 2.50 to qualify . Students who do not meet these criteria after first year can apply to enter the Specialist at the end of second year (8.0 credits) with the following new requirements : a grade of at least 70% in CHM242H5 and a cumulative grade point average of at least 2.50 . All students (including transfer students) must complete 4.0 UTM credits before requesting this program .

Note : CGPA for enrolment in this program is calculated based on a minimum of 4.0 credits completed at UTM with final percentage grades (i.e . CR / NCR courses are not applicable) .

Completion Requirements:

15.0 credits are required, including at least 7.0 credits at the 300/400 level, of which 1.5 must be at the 400 level.

First Year: BIO152H5, BIO153H5; CHM110H5, CHM120H5; (MAT132H5 and MAT134H5*) or ~~MAT134Y5~~ or (MAT135H5 and MAT136H5) or ~~MAT135Y5~~ or (MAT137H5 and MAT139H5) or MAT137Y5; MGM101H5, MGM102H5

*-Note: -(MAT132H5 and MAT134H5) or ~~MAT134Y5Y~~—Calculus for Life Sciences is highly recommended.

Second Year: BIO200H5, BIO202H5/ BIO203H5, BIO206H5, BIO207H5; ~~BIO259H5~~, BIO259H5, CHM211H5, CHM242H5, CHM243H5; ~~BIO259H5~~

Third and Fourth Years:

- BIO314H5, BIO315H5, BIO360H5, BIO370Y5, BIO372H5, BIO374H5; CHM311H5, CHM361H5; JBC472H5
- 1.0 credit from: BIO304H5, BIO310H5, BIO312H5, BIO324H5, BIO341H5, BIO342H5, BIO347H5, BIO362H5, BIO368H5, BIO375H5, BIO380H5, BIO409H5, BIO429H5; CHM333H5 (note: CHM231H5 is a prerequisite for this course), CHM341H5, CHM345H5, CHM347H5, CHM362H5, CHM372H5, CHM373H5
- 1.0 credit from UTM CHM/BIO courses at the 400 level.

NOTE: No substitute statistics course will be allowed for BIO360H5.

It is recommended that students in this program consider taking a research project or internship course in either Biology (BIO400Y5/BIO481Y5) or Chemistry (CPS489Y5) or JCB487Y5. Other 4th-year courses directly relevant to this program are BIO443H5, BIO476H5, BIO477H5, CHM414H5 and CHM462H5.

Students may take no more than 2.0 credits combined in ROP, Internship Program, or Individual Project / Thesis courses at the 300/400-level for credit toward their Biology program.

Students must consult with the Undergraduate Advisor before enrolling in any St. George course that they wish to use for credit toward any Biology program.

Description of Proposed Changes:

Courses retiring

Rationale:

MAT134Y5Y and MAT135Y5Y are no longer course options for the program, as the Math department is retiring these courses.

Consultations:

Biology Curriculum Committee

Resource Implications:

None

ERSPE1020: Ecology and Evolution - Specialist (Science)

Completion Requirements:

14.5 credits are required, including at least 6.0 credits at the 300/400 level, of which 1.0 credits must be at the 400 level.

First Year:

- BIO152H5 and BIO153H5
- CHM110H5 and CHM120H5
- (MAT132H5 and MAT134H5) or ~~MAT134Y5~~ or (MAT135H5 and MAT136H5) or ~~MAT135Y5~~ or (MAT137H5 and MAT139H5) or MAT137Y5
- 1.0 credit from: CLA201H5 or ENV100Y5 or ERS101H5 or PHY136H5 or PHY137H5 or PSY100Y5 or WRI173H5 or WRI307H5

Note: (MAT132H5 and MAT134H5) – Calculus for Life Sciences is highly recommended.

Second Year:

- BIO202H5 and BIO203H5 and BIO205H5 and BIO206H5 and BIO207H5 and BIO259H5

Third and Fourth Years:

- BIO313H5 and BIO342H5 and BIO360H5 and BIO443H5
- 1.0 credit from courses in organismal biology: BIO325H5 or BIO326H5 or BIO339H5 or BIO353H5 or BIO354H5 or BIO356H5 or (BIO370Y5 or BIO371H5)
- 0.5 credit from field courses: BIO332H5 or BIO416H5 or BIO444H5 other 2-week Ontario Universities Program in Field Biology (OUPFB) Courses
- 2.0 credits from core ecology/evolutionary biology courses: BIO311H5 or BIO329H5 or BIO330H5 or BIO331H5 or BIO333H5 or BIO341H5 or BIO361H5 or BIO373H5 or BIO376H5 or BIO378H5 or BIO406H5 or BIO424H5 or BIO427H5 or BIO445H5 or BIO464H5 or GGR312H5 or JBH471H5
- 1.0 credit from other UTM biology courses at the 300/ 400 level.
- 1.0 credit from related courses from other departments: MAT222H5 or MAT232H5 or STA302H5 or STA322H5 or GGR227H5 or GGR278H5 or GGR305H5 or GGR307H5 or GGR309H5 or GGR311H5 or from courses listed in #4, #5 and #6

Description of Proposed Changes:

Addition of new course and removal of retired courses.

Rationale:

Addition of new BIO424H5 course as course option for program. Removal of MAT134Y5 and MAT135Y5 as course options as the Mathematics Department is retiring these courses.

Consultation:

Biology Curriculum Committee

Resource Implications:

There will be no resource implications for BIO424H5 (small cap with no TA's).

ERSPE1237: Molecular Biology - Specialist (Science)

Enrolment Requirements:

Enrolment in this program is limited . Students wishing to enrol at the end of first year (4.0 credits) must obtain a grade of at least ~~'C' (63%)~~ 63% in both CHM110H5 and CHM120H5 and a cumulative grade point average of at least 2.50 to qualify . Students who do not meet these criteria can apply to enter the Specialist at the end of second year (8.0 credits) with the following new criteria : a grade of at least 70% in BIO206H5 and a cumulative grade point average of at least 2.50 . All students (including transfer students) must complete 4.0 UTM credits before requesting this program .

Note : CGPA for enrolment in this program is calculated based on a minimum of 4.0 credits completed at UTM with final percentage grades (i.e . CR / NCR courses are not applicable) .

Completion Requirements:

15.0 credits are required.

First Year:

- BIO152H5 and BIO153H5
- CHM110H5 and CHM120H5
- (MAT132H5 and MAT134H5) or ~~MAT134Y5~~ or (MAT135H5 and MAT136H5) ~~or MAT135Y5~~ or (MAT137H5 and MAT139H5) or MAT137Y5.
- 1.0 credit from: CLA201H5 or ENV100Y5 or (ERS101H5 or ERS120H5) or PHY136H5 or PHY137H5 or PSY100Y5 or WRI173H5 or WRI307H5

Note: (MAT132H5 and MAT134H5)– Calculus for Life Sciences is highly recommended.

Second Year:

- BIO206H5 and BIO207H5 and BIO259H5
- 1.0 credit from BIO202H5 or BIO203H5 or BIO205H5
- CHM242H5 and CHM243H5

Third Year:

- BIO314H5 and BIO315H5 and BIO342H5 and BIO360H5 and BIO370Y5 and BIO372H5
- CHM361H5 and CHM362H5 and CHM372H5 and CHM373H5
- 0.5 credit from BIO304H5 or BIO310H5 or BIO324H5 or BIO341H5 or BIO347H5 or BIO362H5 or BIO368H5 or BIO374H5 or BIO375H5 or BIO380H5 or CHM347H5 or PHY332H5 or PHY333H5 or BCH335H1 or BCH340H1

Fourth Year:

- BIO477H5 or BIO419H5**
- 1.0 credit from BIO403H5 or BIO407H5 or BIO408H5 or BIO411H5 or BIO417H5 or BIO419H5 or BIO422H5 or BIO429H5 or BIO443H5 or BIO458H5 or BIO476H5 or BIO477H5 or BIO481Y5 or BCH441H1 or CHM444H5 or CHM462H5 or CPS489Y5 or JCB472H5 or JCB487Y5 or JCP463H5 or CSB435H1 or CSB450H1 or CSB459H1 or CSB472H1 or CSB473H1 or CSB474H1 or CSB475H1 or MGY425H1 or MGY428H1 or MGY440H1 or MGY445H1 or MGY451H1 or MGY452H1 or MGY470H1 or MIJ485H1

** ~~Please n~~**Note:** that both BIO477H5 and BIO419H5 can be taken, but each will be counted only once in the total 1.5 credits required in this section.

Description of Proposed Changes:

Courses retiring.

Rationale:

MAT134Y5 and MAT135Y5 are no longer course options for this program, as the Mathematics Department is now retiring these courses.

Consultations:

Biology Curriculum Committee

Resource Implications:

None

ERMAJ1004: Paleontology - Major (Science)

Completion Requirements:

9.0-9.5 credits are required.

First Year:

- BIO152H5 and BIO153H5
- CHM110H5 and CHM120H5
- (MAT132H5 and MAT134H5)* or ~~MAT134Y5~~ or (MAT135H5 and MAT136H5) ~~or MAT135Y5~~ or (MAT137H5 and MAT139H5) or MAT137Y5
- ENV100Y5 or ERS101H5 or ERS120H5 or ERS111H5

***Note-**: MAT132H5 and MAT134H5 - *Calculus for Life Sciences* is highly recommended.

Second Year: BIO208H5 and BIO209H5 and BIO259H5 and ERS201H5 and ERS202H5 and ERS203H5 and ESS261H1

Third ~~Year~~ and Fourth Years: BIO354H5 and BIO356H5 and ERS325H5 and (~~ERS411H5~~ or ESS331H1)

Description of Proposed Changes:

Addition of course option to fulfill program requirements. Removed MAT134Y5 and MAT135Y5 as the courses were retired by MCS in Fall 2019, and by Fall 2024, the 5 year minimum to keep them in the Academic Calendar will have passed.

Rationale:

ERS411H5 (Paleobiology) is a course offered through the UTM Earth Science department that we think will be a good addition to the Paleo program as a course option. Currently students are required to complete ESS331H1 on the St. George campus and there are times when traveling to the St. George campus is not possible for students. The addition of this course will give students the option of remaining at the UTM campus or attending the course downtown if they wish.

Consultations:

Prof. Marc Laflamme (UTM Earth Science), Assoc. Chair BIO, Biology Curriculum Committee.

Resource Implications:

None.

2 New Courses

ISP499H5: Research Opportunity Program

Description:

This course provides a richly rewarding opportunity for students in their fourth year to undertake relatively advanced work in the research project of a faculty member in return for 499H course credit. Based on the nature of the project, projects may satisfy the Humanities, Sciences or Social Sciences distribution requirement. Students enrolled have an opportunity to become involved in original research, learn methods and share in the excitement and discovery of acquiring new knowledge. Participating faculty members post their project descriptions for the following summer and fall/winter sessions in early February and students are invited to apply in early March. See [Experiential and International Opportunities](#) for more details.

Prerequisites: 14.0 FCE or permission of instructor

Corequisites:

Exclusions: ISP499Y5

Recommended Preparation:

Notes:

Rationale:

ISUP currently has ROPs at the 200- and 300-level. Faculty are running longitudinal studies, and need mechanisms for giving students credit as they progress as participants in the same research project.

Consultation:

Consulted with ISUP curriculum committee on Sept. 15.

Resources: None.

ISP499Y5: Research Opportunity Program

Description:

This course provides a richly rewarding opportunity for students in their fourth year to undertake relatively advanced work in the research project of a faculty member in return for 499Y course credit. Based on the nature of the project, projects may satisfy the Humanities, Sciences or Social Sciences distribution requirement. Students enrolled have an opportunity to become involved in original research, learn methods and share in the excitement and discovery of acquiring new knowledge. Participating faculty members post their project descriptions for the following summer and fall/winter sessions in early February and students are invited to apply in early March. See [Experiential and International Opportunities](#) for more details.

Prerequisites: 14.0 FCE or permission of instructor

Exclusions: ISP499H5

Rationale:

ISUP currently has ROPs at the 200- and 300-level. Faculty are running longitudinal studies, and need mechanisms for giving students credit as they progress as participants in the same research project.

Consultation:

Consulted with ISUP curriculum committee on Sept. 15.

Resources: None.

Anthropology (UTM), Department of

4 Course Modifications

ANT201H5: World Archaeology

Prerequisites: ~~ANT101H5~~ ANT200H5

Rationale:

Along with the changes in 2023 to the course description and title, new learning outcomes for core course ANT201H5 include a focus on understanding how archaeologists create reasonable narratives about the past from their interpretations of archaeological evidence. This follows directly from ANT200H5's focus on how archaeologists learn about the past (sources of evidence, how to analyze and make interpretations from them - Archaeological theory, method and technique" as the ANT200H5 description says).

Given that we also have to cover many specific narratives of world archaeology as part of ANT201H5, there is not time to re-teach students the 'how to' side of archaeology covered in ANT200H5 while also taking them on the next step. We propose a return to making ANT200H5 a prerequisite for ANT201H5, as was done for many years. Given that ANT200H5 is always taught first term and ANT201H5 second term (every fall-winter and when offered in summer), we anticipate no barriers to students with this change.

Consultation:

This change has been discussed with all of the archaeology faculty at UTM. Proposal was reviewed and approved by the Anthropology curriculum committee on September 20, 2023.

Resources: None

ANT405H5: Behind Bars: Anthropology of Institutions and Confinement

Contact Hours:

Lecture: / Tutorial: / Practical: / Seminar: 2436

Rationale:

The reasons are twofold: (1) During the previous offering of this course it became clear that the two-hour periods were too short to encompass all of the discussion yielded by the students and incorporate the experiential learning activities Professor Mant had planned. The three-hour period will allow for flexibility and room to breathe when diving into the social justice topics covered in the course; (2) In some years this course will be offered offsite (i.e., as part of the Walls to Bridges program in carceral institutions with UTM students and 'inside' students) and having the three-hour period allotted will allow flexibility for screening to enter the institution and clean up in the shared learning space in addition to the reasons above.

Only Professor Mant will be teaching this course, thus this proposed change does not affect anyone else's workload.

Consultation:

Consulted with department faculty members. Proposal was reviewed and approved by the Anthropology curriculum committee on September 20, 2023.

Resources:

ANT438H5: Rethinking Anthropology from a Community Perspective

Title:

Previous: The Development of Thought in Biological Anthropology

New: Rethinking Anthropology from a Community Perspective

Description:

Previous:

This course will present a world-wide perspective of biological anthropological research and how it developed in different countries. To be discussed will be variation in approaches, subjects studied, philosophical attitudes, and the emergence of common themes in the study of physical anthropology.

New:

This senior seminar course engages students in a thoughtful dialogue and critique of traditional methodologies and theories in the subfields of biological anthropology and archaeology. The goal of this course is to give students a chance to reflect on the future of this discipline through a discourse with anthropologists and community members who have been involved and affected by anthropological studies. Topics will cover Cultural Resource Management and Rematriation in Canada, Gender Diversity and Ethnic Identification in Forensic Anthropology, Ethics of Museums, and the colonial foundations of Evolutionary Anthropology, and Primatology.

Rationale:

This course has not been offered for many years. This renewed version of the course has been changed to reflect the new course content which uses the reflexive methodology to discuss decolonizing the discipline.

Consultation:

Proposal was circulated to faculty for feedback. Reviewed and approved by the Anthropology curriculum committee on October 4, 2023.

Resources: None

ANT441H5: Advanced Bioarchaeology

Description:

Previous:

This course provides students with problem-based, experiential learning in bioarchaeology, including methods of analysis, theoretical issues, and the excavation, documentation and interpretation of a burial. Labs will address analyses and approaches used in CRM when consulting for Indigenous groups and contract archaeologists. Students will collaborate to excavate, analyze, and interpret data, generating a bioarchaeological report of the excavated cemetery.

New:

This course will combine theory learned in ANT340H5, Osteological Theory and Methods, with bioarchaeological methods to teach students how to conduct and interpret an osteobiography of human skeletal remains. Lectures and labs will cover techniques of sex determination, age estimation, stature calculation, evaluating health and nutrition, assessing markers of occupational stress, osteometrics, biological distance studies, and paleodemography.

Rationale:

Removing excavation component of course to allow for opportunity to re-evaluate how best to offer this component without limiting access to students and without significant cost to the Department. Student engagement in the course has been on the decline, so there is a need to review and renew. This course is a required course for the Forensic Anthropology Specialist, so will continue to be offered to support this program. Course objectives and assessment methods will not change with the removal of the excavation component and excavation skills will be developed in other required courses in the Forensic Anthropology Specialist.

Consultation:

Resources: None

2 Minor Program Modifications

ERMAJ0105: Anthropology - Major (Science)

Completion Requirements:

~~7~~8.50 credits are required.

First Year: ANT101H5 and ANT102H5 and ISP100H5

Second Year:

1. ~~2~~.0 credits from ANT200H5 ~~and/or~~ ANT201H5 ~~and/or~~ ANT202H5 ~~and/or~~ ANT203H5 ~~and/or~~ ANT220H5

and

2. ANT204H5

and

3. ANT206H5 or ANT207H5

Higher Years:

~~2~~3.5 additional ANT credits, of which at least 2.0 must be ANT science courses. At least 1.0 of the ~~2~~3.5 credits must be at the 300 level, ~~including 1.0~~ ~~credit in~~ ANT science at the 400 level.

Description of Proposed Changes:

Increase total number of credits from 7.5 to 8.0. Second Year: reduce number of credits by 0.5. Higher Years: increase credits from 2.5 to 3.5, at the 400 level increase from 0.5 to 1.0 credit specifically in ANT science.

Rationale:

These proposed changes aim to reduce the number of credits that students are required to take at the 200-level by 0.5 in order for them to manage their course load in second year, while they are also taking courses towards a second major or minors. The required anthropology courses at the 200-level are prerequisites for many 300- and 400-level courses, so the ability to take these in second year will allow students to progress through the program in a timely manner.

The changes also increase the total number of courses required for the program so that it is more similar to other BSc major programs; when ISP100 was added, the number of required courses for the major remained the same, so this restores the number of anthropology credits to its original.

The changes also increase the number of required 400-level courses. At this time, the number of required 300- and 400-level is low, and there is no requirement for the courses to be SCI courses. There are a number of distribution courses in anthropology at the 200-level. We want to ensure that our majors take rigorous upper year courses (rather than the distribution courses), and for the BSc these should be science courses.

Impact:

This will reduce the number of courses required at the 200-level and should allow students to progress more easily through the program. It is possible that students will lack one of the prerequisites for upper year classes, but we will address this through student advising. Further, it is likely that students will take the 200-level courses that best align with their interests so when they select upper year courses of interest to them, they will have the necessary prerequisite.

Consultations:

Proposal was circulated to faculty for feedback. Reviewed and approved by the Anthropology curriculum committee on October 4, 2023.

Resource Implications:

ERSPE0105: Anthropology - Specialist (Science)

Completion Requirements:

10.51 credits are required.

First Year: ANT101H5, and ANT102H5, and ISP100H5

Second Year:

1. ANT200H5, and ANT201H5, and ANT202H5, and ANT203H5, and ANT220H5

and

2. ANT204H5

and

3. ANT206H5 or ANT207H5

Higher Years:

56.50 additional ANT credits, of which at least 4.0 must be ANT science courses. At least 3.5 of the 56.50 credits must be at the 300/400 level, including 1.05 ANT credits in ANT science at the 400 level.

Description of Proposed Changes:

Increase total number of credits from 10.5 to 11. Higher Years: increase credits from 5.5 to 6.0, and increase from 1.0 to 1.5 credits specifically in ANT science at the 400 level. Add the word "and" for clarity.

Rationale:

This change increases the total number of courses required for the program so that it is more similar to other BSc specialist programs; when ISP100 was added, the number of required courses for the specialist remained the same, so this restores the number of anthropology credits to its original.

The changes also increase the number of required 400-level courses. At this time, the number of required 300- and 400-level is low, and there is no requirement for the courses to be SCI courses. There are a number of distribution courses in anthropology at the 200-level. We want to ensure that our specialists take rigorous upper year courses (rather the distribution courses), and for the BSc these should be science courses.

Impact:

This will ensure that students graduating with a BSc specialist in anthropology will have 1.0 upper year science courses, and that they will have at least 1.5 400-level courses. While some students may prefer to take SSC courses, if they do so it would be more appropriate for them to take a BA degree.

Consultations:

Proposal was circulated to faculty for feedback. Reviewed and approved by the Anthropology curriculum committee on October 4, 2023.

Resource Implications:

3 New Courses

MAT264H5: Introduction to Numerical Analysis

Contact Hours:

Lecture: 36 / Tutorial: 12 / Practical: / Seminar:

Description:

Most applications of Mathematics involve the use of a computer. Numerical analysis studies how formulas can be transformed into computations. The topics covered may include: numerical methods in Calculus, such as series expansions and rates of convergence, numerical integration and differentiation, finite interpolation methods, splines; and numerical methods for ordinary differential equations, such as root-finding methods, Fourier series and Fourier transform, least-squares approximation, regression, and principal component analysis.

Prerequisites: MAT244H5 or MAT244H1 or MAT267H1 or MATB44H3

Corequisites:

Exclusions:

Recommended Preparation:

Enrolment Limits: Priority is given to students enrolled in the Mathematical Sciences, Computer Science and Applied Statistics Specialist or Major programs.

Notes:

Rationale:

Most modern applications of Mathematics involve the use of a computer. These may include finding values of integrals, solving differential equations, estimating roots of nonlinear equations, fitting curves to data points, and so on. Sooner or later, every practicing mathematician, statistician, scientist, or engineer is faced with such a task. Numerical analysis studies how formulas can be transformed into computations. At its core is estimating the speed of convergence of finite interpolation methods such as, for example, Taylor and Fourier sums, splines, or approximate solutions of Ordinary Differential Equations. These skills are invaluable for students who are interested in applications of Mathematics. At present, they are not systematically covered in any other course we offer.

Consultation:

Chair, Vice Chairs, Associate Chairs, Math curriculum sub-committee, MCS curriculum committee, and others in the department including the director of the non-linear centre.

Resources:

TA support, classroom

MAT386H5: Topics in Applied Mathematics

Contact Hours:

Lecture: 36 / Tutorial: 12 / Practical: / Seminar:

Description:

Introduction to a topic of current interest in applied mathematics. Content will vary from year to year. The contact hours for this course may vary in terms of contact type (L, T) from year to year, but will be between 36-48 contact hours in total. See the UTM Timetable.

Prerequisites: Appropriate prerequisite requirement(s) will be available on the UTM timetable along with the topic title prior to course registration.

Corequisites:

Exclusions:

Recommended Preparation:

Enrolment Limits: Priority is given to students enrolled in the Mathematical Sciences or Applied Statistics Specialist or Major programs.

Notes:

Rationale:

We would like to offer courses on advanced topics in applied mathematics, for example various applications of Partial Differential Equations. The topic of the course would vary from year to year, depending on instructor availability and expertise.

Consultation:

Chair, Vice Chairs, Associate Chairs, Math curriculum sub-committee, MCS curriculum committee, and others in the department including the director of the non-linear centre.

Resources:

TA support, classroom

MAT486H5: Topics in Applied Mathematics

Contact Hours:

Lecture: 36 / Tutorial: 12 / Practical: / Seminar:

Description:

Introduction to a topic of current interest in applied mathematics. Content will vary from year to year. The contact hours for this course may vary in terms of contact type (L, T) from year to year, but will be between 36-48 contact hours in total. See the UTM Timetable.

Prerequisites: Appropriate prerequisite requirement(s) will be available on the UTM timetable along with the topic title prior to course registration.

Corequisites:

Exclusions:

Recommended Preparation:

Enrolment Limits: Priority is given to students enrolled in the Mathematical Sciences or Applied Statistics Specialist or Major programs.

Notes:

Rationale:

We would like to offer courses on advanced topics in applied mathematics, for example various applications of Partial Differential Equations. The topic of the course would vary from year to year, depending on instructor availability and expertise.

Consultation:

Chair, Vice Chairs, Associate Chairs, Math curriculum sub-committee, MCS curriculum committee, and others in the department including the director of the non-linear centre.

Resources:

TA support, classroom

32 Course Modifications

CSC108H5: Introduction to Computer Programming

Contact Hours:

Track Changes: Lecture: 3~~6~~8 / Tutorial: / Practical: / Seminar:

Delivery Method:

Previous: In Class

New: In Class; Online; Hybrid

Rationale:

--- Adding two hours of lecture time for this multi-lecture course. This change will allow us to have a fixed test time across all lecture sections.

--- Proposed Delivery Mode: Flexible Delivery (see separate Change in Delivery Mode proposal for full details)

Resources:

CSC338H5: Numerical Methods

Description:

Prerequisites: CSC148H5 and (MAT134H5 or MAT136H5 or MAT13~~9H~~7Y5 or MAT1~~53~~9H5 or MAT1~~34Y5~~ or ~~MAT135Y5~~ or ~~MAT1357Y5~~ or MAT15~~7Y~~9H5 or MAT233H5) and (MAT223H5 or MAT240H5) and (CSC263H5 or 1.0 MAT credit at the 200+ level).

Rationale:

MAT134Y5, 135Y5 should be removed as of 2024-25 since it was retired as of 2019-20.

Resources: None.

CSC379H5: Introduction to Medical Robotics

Exclusions:

Previous:

New: CSC496H5 in 2024 Winter

Rationale:

CSC379H5 will be taught as CSC496H5 in 2024 winter as a topic course.

Resources: None.

CSC393H5: Computer Science Expository Work

Prerequisites: A minimum of 8.0 credits and Permission of Instructor.

Rationale:

To be consistent with CSC392H5.

Resources: None.

CSC420H5: Introduction to Image Understanding

Delivery Method:

Previous: In Class

New: In Class; Online; Hybrid

Rationale:

--Proposed Delivery Mode to Flexible Delivery (see separate Change in Delivery Mode proposal for full details)

Resources:

CSC493H5: Computer Science Expository Work

Exclusions:

Previous:

New: CSC494H1 or CSC495H1 or CSCD94H3 or CSCD95H3

Rationale:

To be consistent with CSC492H5.

Resources: None.

MAT132H5: Differential Calculus for Life Sciences

Exclusions: MAT133Y5 or MAT134Y5 or ~~MAT135H5~~ or ~~MAT135Y5~~ or MAT137H5 or MAT137Y5 or MAT157H5 or MAT157Y5 or MAT133Y1 or ~~MAT135Y1~~ or MAT135H1 or MAT137Y1 or MAT157Y1 or MATA29H3 or MATA30H3 or MATA31H3 or MATA32H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT133Y5: Calculus and Linear Algebra for Commerce

Exclusions: MAT132H5 or MAT134H5 or MAT135H5 or MAT136H5 or MAT137H5 or MAT139H5 or ~~MAT157H7~~Y5 or MAT1539H5 or MAT134Y5 or ~~MAT135Y5~~7H5 or MAT1357Y5 or MAT157Y9H5 or MAT135H1 or MAT136H1 or MAT133Y1

or ~~MAT135Y1~~ or MAT137Y1 or MAY157Y1 or MATA30H3 or MATA31H3 or MATA32H3 or MATA33H3 or MATA35H3 or MATA36H3 or MATA37H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT134H5: Integral Calculus for Life Sciences

Exclusions: MAT133Y5 or MAT13~~4Y5~~ or ~~MAT135Y6H5~~ or MAT137Y5 or MAT139H5- or MAT1~~33Y1~~57Y5 or MAT1~~35Y1~~59H5 or MAT13~~6H3~~Y1 or MAT136H~~5-1~~ or MAT137Y1 or MAT157Y1 or ~~MAT157Y5~~ or ~~MAT159H5~~ or MATA33H3 or MATA35H3 or MATA36H3 or MATA37H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT135H5: Differential Calculus

Exclusions: MAT132H5 or MAT133Y5 or MAT13~~47Y5~~ or MAT13~~5Y7H5~~ or MAT1~~357Y5~~ or MAT1~~357H5~~ or MAT133Y1 or ~~MAT135Y1~~ or MAT135H1 or MAT137Y1 or MAT157Y1 or ~~MAT157Y5~~ or ~~MAT157H5~~ or MATA29H3 or MATA30H3 or MATA31H3 or MATA32H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT136H5: Integral Calculus

Exclusions: MAT133Y5 or MAT134~~Y5~~ or ~~MAT135Y~~H5 or MAT137Y5 or MAT139H5 or MAT1~~33Y1~~57Y5 or MAT1~~35Y1~~59H5 or MAT13~~6H3~~Y1 or MAT13~~4H5~~6H1 or MAT137Y1 or MAT157Y1 or ~~MAT157Y5~~ or ~~MAT159H5~~ or MATA33H3 or MATA35H3 or MATA36H3 or MATA37H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT137H5: Differential Calculus for Mathematical Sciences

Exclusions: MAT132H5 or MAT133Y5 or ~~MAT134Y5~~ or MAT135H5 or MAT137Y5 or ~~MAT135Y5~~ or MAT157H5 or MAT157Y5 or MAT133Y1 or ~~MAT135Y1~~ or MAT135H1 or MAT137Y1 or MAT157Y1 or MATA~~30H3~~ or ~~MATA31H3~~ or ~~MATA32H3~~ or ~~MATA33~~29H3 or MATA3~~5~~0H3 or MATA3~~6~~1H3 or MATA3~~7~~2H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT139H5: Integral Calculus for Mathematical Sciences

Exclusions: MAT133Y5 or MAT134H5 or MAT13~~4Y~~6H5 or MAT13~~5~~7Y5 or MAT1~~36H5~~ or ~~MAT137H~~57Y5 or MAT15~~7~~9H5 or ~~MAT157Y5~~ MAT133Y1 or MAT13~~5Y1~~ or ~~MAT135~~6H1 or MAT137Y1 or MAT157Y1 or ~~MATA30H3~~ or ~~MATA31H3~~ or ~~MATA32H3~~ or MATA33H3 or MATA35H3 or MATA36H3 or MATA37H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chairs, Assoc Chairs)

Resources: None.

MAT157H5: Analysis I

Exclusions: MAT157Y5 or MAT157Y1-~~or MATA37H3~~

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs).

Resources: None.

MAT159H5: Analysis II

Exclusions: MAT157Y5 or MAT157Y1-~~or MATA37H3~~

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT202H5: Introduction to Discrete Mathematics

Prerequisites: MAT102H5 and (MAT134H5 or ~~MAT134Y5 or MAT135Y5 or~~ MAT136H5 or- MAT137Y5 or MAT139H5 or MAT157Y5 or MAT159H5 or MAT233H5)

Enrolment Limits: Priority is given to students enrolled in the Mathematical Sciences, Computer Science and Applied Statistics Specialist or Major programs.

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5). Also updated program names in Enrolment Limits for accuracy.

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT223H5: Linear Algebra I

Exclusions: MAT~~23H1~~40H5 or MAT~~A22H3H1~~ or MAT~~A23H3~~240H1 or MAT~~240H1~~A22H3 or MAT~~240H5~~A23H3

Delivery Method:

Previous: In Class; Hybrid

New: In Class; Online; Hybrid

Rationale:

See course delivery mode change proposal, Spring 2023.

We are only requesting a change from the “Hybrid” designation we’ve already been approved for to the “Flexible” designation, which wasn’t available last year when we requested the “Hybrid” designation. This is mainly to clarify in the calendar (e.g. to students) that we intend that the course will be offered in multiple delivery modes, including both Hybrid and In-Person throughout each academic year.

Which formats are offered each semester will depend on instructor availability to teach the Hybrid options, but would also allow us flexibility in offering a number of sections in each format each semester/year that seems to best match student interest in the different formats.

Consultation:

Resources:

"Changing from the “Hybrid” to “Flexible” designation will not change our resource requirements. It will however, allow us flexibility to offer the right number of LEC sections of different formats to meet student demands, potentially heading-off issues where one format is offered in too few/too many LEC sections. That is, as each semester goes by, we will have a better and better sense of how many sections of each format makes sense to offer. A second set of data for this will be student surveys each semester about delivery modes and their preferences.

We would also like to request that (with appropriate support and guidance from the lead instructor, or “course coordinator” as our department calls them) all MAT instructors (including sessionals, CLTAs, LTAs, and postdocs) be allowed to teach the course in whichever of the delivery modes we are using and assign them to. (At the moment, only three instructors are explicitly ‘pre-approved’ to teach the course in any mode other than in-person).

Since the course is coordinated - the syllabus, course content, assignments, readings, in-class activities, slides, tutorial content, tests and exam are all the same across all sections each semester - we would like the flexibility to assign instructors to teach the course in any of the given modes, if they are willing, and we feel that they would be capable. (Indeed, many of our teaching staff now, because of the pandemic, have experience teaching online).

MAT232H5: Calculus of Several Variables

Prerequisites: MAT134H5 or ~~MAT134Y5 or MAT135Y5 or~~ MAT136H5 or MAT137Y5 or MAT139H5 or MAT157Y5 or MAT159H5

Exclusions: MAT233H5 or MAT257Y5 or MAT235Y1 or MAT237Y1 or ~~MAT257Y5 or~~ MAT257Y1 or MATB41H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT233H5: Calculus of Several Variables

Prerequisites: MAT134H5 or ~~MAT134Y5 or MAT135Y5 or~~ MAT136H5 or MAT137Y5 or MAT139H5 or MAT157Y5 or MAT159H5 or 65% in MAT133Y5

Exclusions: MAT232H5 or MAT257Y5 or MAT235Y1 or MAT237Y1 or MAT257Y1 or MAT~~257Y5 or MATB41H3~~B41H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs).

Resources: None.

MAT244H5: Differential Equations I

Prerequisites: (MAT134H5 or ~~MAT134Y5 or MAT135Y5 or~~ MAT136H5 or MAT137Y5 or MAT139H5 or MAT157Y5 or MAT159H5 or MAT233H5) and (MAT223H5 or MAT240H5).

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5). Corrected program names in Enrolment Limits.

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT315H5: Introduction to Number Theory

Prerequisites: MAT102H5 and [MAT134H5 or ~~MAT134Y5 or MAT135Y5 or~~ MAT136H5 or MAT137Y5 or MAT139H5 or MAT157Y5 or MAT159H5 or ~~(MAT133Y5 and MAT233H5)~~] and (MAT224H5 or MAT240H5) and MAT301H5

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5). Also corrected program names in Enrolment Limits.

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT322H5: Mathematical Modelling in Biology

Prerequisites: MAT102H5 and (MAT134H5 or MAT136H5 or MAT139H7Y5 or MAT1539H5 or MAT134Y5 or MAT135Y5 or MAT1357Y5 or MAT1579H5 or MAT233H5) and (MAT223H5 or MAT240H5)

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT337H5: Introduction to Real Analysis

Description: (~~Formerly MAT378H5~~) The real numbers; Sequences and series; Functional limits; Topology in \mathbb{R}^n ; Differentiation and Integration; Power Series; Metric Spaces; Integrability and sets of measure zero. The course emphasizes rigour and theory.

Exclusions: ~~MAT378H5~~ or MAT337H1 or MAT357H1 or MATB43H3 or MATC37H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

MAT382H5: Mathematics for Teachers

Prerequisites: (Minimum 60% in MAT134H5 or ~~MAT134Y5 or MAT135Y5~~ or MAT136H5 or MAT137Y5 or MAT139H5 or MAT157Y5 or MAT159H5 or MAT233H5) and [minimum 60% in MAT102H5 and (MAT223H5 or MAT240H5)] and 0.5 additional credit of MAT at the 200+ level.

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired or renumbered 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1, MAT378H5).

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resources: None.

STA220H5: The Practice of Statistics I

Exclusions: STA215H5 or STA218H5 or STA246H5 or STA256H5 or STA257H1 or ~~STAB52H3~~PSY201H5 or STA220H1 or ~~STAB22H3~~237H1 or STA246H57H1 or PSY201H1 or ~~STA237H1~~B22H3 or ~~STA247H1~~B52H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.).

Consultation:

17-May-23; MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)

Resources: None.

STA221H5: The Practice of Statistics II

Exclusions: STA221H1 or STA258H5 or STA248H1 or STAB27H3 or STA302H5 or STA302H1 or STAC67H3 or BIO360H5 or ECO220Y5 or ~~ECO227Y5 or PSY202H5 or PSYB08H3~~20Y1 or ECO227Y5 or ECO227Y1 or PSY202H5 or PSY202H1 or PSYB08H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.).

Consultation:

17-May-23; MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)

Resources: None.

STA256H5: Probability and Statistics I

Prerequisites: MAT134H5 or ~~MAT134Y5 or MAT135Y5 or~~MAT136H5 or MAT137Y5 or MAT139H5 or MAT157Y5 or MAT159H5 or a minimum 65% in MAT133Y5

Exclusions: ECO227Y5 or STA257H1 or ECO227Y51 or STAB52H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Also removing courses retired 5 or more years ago from impacted prerequisites/exclusions (MAT134Y5, MAT135Y5, MAT135Y1).

Consultation:

17-May-23; MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)

Resources: None

STA258H5: Statistics with Applied Probability

Description:

A survey of statistical methodology with emphasis on the relationship between data analysis and probability theory. Topics covered include descriptive statistics, limit theorems, sampling distribution, point and interval estimation, hypothesis testing, contingency tables and count data, **simple linear regression**. A statistical computer package will be used.

Exclusions: ECO227Y5 or **ECO227Y1** or STA248H1 or STA255H1

Rationale:

- 1) (Course description change) Updating language in course description to better align with the actual topics covered.
- 2) Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Keeps academic Calendar information accurate/current.

Consultation:

15-Sep-23 & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)

Resources: None.

STA348H5: Introduction to Stochastic Processes

Exclusions:

Previous: STA347H1 or STAC63H3

New: STA347H1 or STA447H1 or STAC63H3

Rationale:

Adding missing St. G and UTSC course codes in exclusions for clarity, transparency, consistency (aligns with other SCI depts like BIO, PSY etc.). Keeps Academic Calendar information accurate/current.

Consultation:

17-May-23; MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)

Resources: None.

STA360H5: Introduction to Bayesian Statistics

Prerequisites: ~~STA246H5 or~~ STA258H5 or STA260H5 or **ECO227Y5** or STA238H1 or STA255H1 or ~~ECO227Y5 or~~ ECO227Y1

Rationale:

Updating prerequisite(s) to reflect actual expectations/practice in MCS. Keeps Academic Calendar information accurate/current.

Consultation:

17-May-23 & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)

Resources: None.

STA441H5: Data Analysis

Prerequisites: ~~STA302~~STA221H5 or STA302H1 ~~or STAC67H3 or STA221H5~~ or BIO360H5 or ECO357H5 or GGR376H5 or PSY202H5 or SOC350H5 or ~~permission of the instructor~~STA302H1 or STAC67H3

Rationale:

Updating prerequisite(s) to reflect actual expectations/practice in MCS. Keeps Academic Calendar information accurate/current. Also added "Applied" to Enrolment Limits to reflect correct name of program(s).

Consultation:

17-May-23 & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)

Resources: None.

STA457H5: Applied Time Series Analysis

Prerequisites: STA302H5 or ECO~~227Y5~~375H5

Rationale:

Updating prerequisite(s) to reflect correct preparatory material needed for course. ECO227Y5 was deemed inappropriate prerequisite. Keeps Academic Calendar information accurate/current. Also adding "Applied" under Enrolment Limits to accurately reflect program name(s).

Consultation:

15-Sep-23 & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)

Resources: None.

1 Course Retirement

STA218H5: Statistics for Management

Rationale:

This course has not been offered since Fall 2021. It is no longer a requirement for management students due to the introduction of a new course (MGT218H5) within that department.

Consultation:

17-May-23 & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)

10 Minor Program Modifications

ERMAJ1540: Applied Statistics - Major (Science)

Enrolment Requirements:

Limited Enrolment — Enrolment in the Major program is limited to students with a minimum of 4.0 credits , including:

- STA107H5 (with a minimum grade of 60%) or STA256H5;
- MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5 or ~~MAT134Y5 or MAT135Y5 or~~ MAT137Y5 or MAT157Y5 or MAT233H5; and
- A minimum cumulative grade point average , to be determined annually .
- All students must complete 4.0 U of T credits before requesting this program . Courses with a grade of CR / NCR will not count as a part of the 4.0 credits required for program entry .

Completion Requirements:

7.0-7.5 credits are required.

First Year:

- CSC108H5
- MAT102H5
- [(MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5)] or MAT13~~4Y5 or MAT135Y5 or MAT13~~7Y5 or MAT157Y5
- MAT223H5 or MAT240H5

Second Year:

- MAT232H5 or MAT233H5 or MAT257Y5
- STA256H5 and STA258H5 and STA260H5

Higher Years:

- STA302H5 and STA304H5 and STA305H5
- 1.0 credit from any 300/400 level STA course or CSC322H5 or (CSC311H5 or CSC411H5) or MAT302H5 or MAT311H5 or MAT332H5 or MAT334H5 or MAT344H5 or ~~(MAT337H5 or MAT378H5)~~

NOTES:

- MAT133Y5 is included in the credit count only if the student also completes MAT233H5 (in which case MAT232H5 is not required).
- Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses.
- ECO220Y5 cannot be substituted for STA256H5 or STA258H5 and/or STA260H5.
- ECO227Y5 can be substituted for STA256H5 and STA258H5, but not for STA260H5.
- STA107H5 is highly recommended in first year, but it is not required.
- MAT337~~H5 or MAT378~~H5 is highly recommended for students intending to pursue graduate level studies in statistics.
- Students in the Applied Statistics Major may take at most 0.5 credit of Statistics Research Project Course(s) from STA378H5, STA398H5, STA478H5 and STA498H5.
- STA246H5 will not be permitted as a pre-requisite for any other 200+ level STA courses. In addition, STA246H5 cannot be used towards any program(s) in Applied Statistics or Mathematics. The course is intended only for students in Computer Science programs who will not need STA256H5 for other program requirements.

Description of Proposed Changes:

Removing courses retired/renumbered 5 or more years ago from impacted STA programs (MAT134Y5, MAT135Y5 – both retired; MAT378H5 renumbered to MAT337H5).

Rationale:

Removal of courses retired/renumbered 5 or more years ago from impacted STA programs keeps the Academic Calendar information accurate/current.

Consultation:

17-May-23; MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)

Resource Implications:

None.

ERMIN1540: Applied Statistics - Minor (Science)

Completion Requirements:

4.50 - 54.05 credits are required.

First Year: MAT133Y5 or [(MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5)] or MAT134Y5 or MAT135Y5 or MAT137Y5 or MAT157Y5

Higher Years:

- ~~0.5 credit of any STA course other than STA256H5 and STA258H5 and STA260H5 (see Note #1)~~
- MAT232H5 or MAT233H5 or MAT257Y5
- STA256H5 and STA258H5 and STA260H5
- ~~1.0 additional credit of STA at the 300/400 level~~

NOTES:

~~For Higher Years #1, students who include STA107H5, STA220H5 and/or STA221H5 in this program are responsible for ensuring that these courses are completed prior to enrolling in STA256H5 and/or STA258H5. Students should be familiar with all the course prerequisites and exclusions.~~

- Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses.
- ECO220Y5 cannot be substituted for STA256H5 and/or STA258H5 and/or STA260H5.
- ECO227Y5 can be substituted for STA256H5 and STA258H5, but not for STA260H5.
- STA246H5 will not be permitted as a pre-requisite for any other 200+ level STA courses. In addition, STA246H5 cannot be used towards any program(s) in Applied Statistics or Mathematics. The course is intended only for students in Computer Science programs who will not need STA256H5 for other program requirements.
- Note that Statistics Research Project courses (STA378H5, STA398H5, STA478H5 or STA498H5) may not count towards the Applied Statistics minor.

Description of Proposed Changes:

Removing courses retired/renumbered 5 or more years ago from impacted STA programs (MAT134Y5, MAT135Y5 – both retired).

Removal of 0.5 credit program requirement, which can include any STA course (except those listed). Will reduce total credits in STA minor from [4.5 to 5.0] to [4.0 to 4.5].

Rationale:

Keeps Academic Calendar information accurate/current. Fewer courses required to complete a STA Minor, and greater clarity for STA minor students with course selection.

Prior to 2024, this requirement was 1.0 credit and for many students who took STA256H5, STA258H5 first, this caused problems with exclusions (because any more 'junior' STA course or non-STA course, such as PSY201H5, PSY202H5 etc., listed those courses as exclusions). These students typically had limited options of STA courses at the 300+ level, so would be in a 'nonideal' situation to take a course that may not count for degree credit.

Program learning outcomes for the minor will not change and reduction of total FCE count does not impact student's ability to achieve the learning outcomes.

Consultation:

17-May-23; MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)
STA Assoc Chair & MCS Vice Chair and Assoc Chairs – late Oct 2023

Resource Implications:

None.

Enrolment Requirements:

Limited Enrolment — Enrolment in the Specialist program is limited to students with a minimum of 4.0 credits , including :

- STA107H5 (with a minimum grade of 60%) or STA256H5;
- MAT134H5 or MAT136H5 or ~~MAT134Y5 or MAT135Y5 or~~ MAT137Y5 or MAT139H5 or MAT233H5 (minimum 60%) or MAT157Y5 or MAT159H5;
- A minimum cumulative grade point average , to be determined annually .
- All students must complete 4.0 U of T credits before requesting this program . Courses with a grade of CR / NCR will not count as a part of the 4.0 credits required for program entry .

Completion Requirements:

12.0-12.5 credits are required.

First Year:

- CSC108H5
- MAT102H5
- [(MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5)] or MAT13~~4Y5 or MAT135Y5 or MAT13~~7Y5 or MAT157Y5
- MAT223H5 or MAT240H5

Second Year:

- MAT232H5 or MAT233H5 or MAT257Y5
- MAT244H5
- STA256H5 and STA258H5 and STA260H5

Higher Years:

- STA302H5 and STA304H5 and STA305H5 and STA348H5
- 2.0 credits of STA at the 300/400 level ~~STA course~~
- ~~2.0 credits from CSC322H5 or (CSC311H5 or CSC411H5) or MAT302H5 or MAT311H5 or MAT332H5 or MAT334H5 or MAT344H5 or (MAT337H5 or MAT378H5)~~
- ~~1.0 credit of STA~~

NOTES:

- MAT133Y5 is included in the credit count only if the student also completes MAT233H5 (in which case MAT232H5 is not required).
- Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses.
- ECO220Y5 cannot be substituted for STA256H5 or STA258H5 or STA260H5.
- ECO227Y5 can be substituted for STA256H5 and STA258H5, but not for STA260H5.
- STA107H5 is highly recommended in first year, but it is not required.
- MAT337~~H5 or MAT378~~H5 is highly recommended for students intending to pursue graduate level studies in statistics.
- Students in the Applied Statistics Specialist may take at most 1.0 credit of Statistics Research Project Courses from STA378H5, STA398H5, STA478H5 and STA498H5.
- STA246H5 will not be permitted as a pre-requisite for any other 200+ level STA courses. In addition, STA246H5 cannot be used towards any program(s) in Applied Statistics or Mathematics. The course is intended only for students in Computer Science programs who will not need STA256H5 for other program requirements.

Description of Proposed Changes:

- 1) Change to Higher Years #2: Housekeeping correction to program requirements wording.
- 2) Removing courses retired/renumbered 5 or more years ago from impacted STA programs (MAT134Y5, MAT135Y5 – both retired; MAT378H5 renumbered to MAT337H5).

Rationale:

- 1) Change to Higher Years #2: Remove redundancy and align with wording in other MCS programs, such as MAT Specialist/major.
- 2) Keeps Academic Calendar information accurate/current.

Consultation:

Spring 2023 with STA Assoc Chair & 27-Sep-23 (with dept admin, Assoc Chairs, Vice Chair)

Resource Implications:

Enrolment Requirements:

Limited Enrolment — Enrolment in this program is limited to students with a minimum of 4.0 credits , including the following :

- CSC148H5 (see minimum grade note below)
- MAT102H5 (see minimum grade note below)
- MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5 or ~~MAT134Y5 or MAT135Y5 or~~ MAT137Y5 or MAT157Y5 or MAT233H5
- ISP100H5
- A cumulative grade point average (CGPA) , determined annually . It is never lower than 2.5 .
- All students must complete 4.0 U of T credits before requesting this program . Courses with a grade of CR / NCR will not count as a part of the 4.0 credits required for program entry .

NOTES :

1. The minimum grade required in CSC148H5 and MAT102H5 is determined annually . It is never lower than 60% . Only CSC148H5 and MAT102H5 , taken at the UTM campus , will be accepted .
2. Transfer students who have completed any postsecondary studies outside of UTM (including studies at other divisions at the University of Toronto) are not eligible to pursue a Specialist and / or Major in Computer Science at U of T Mississauga .
3. Due to the limited enrolment nature of this program , students are strongly advised to develop alternate plans if they need to instead enroll in other programs .

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:

7.5-8.05 credits are required.

First Year:

- CSC108H5 and CSC148H5 and ISP100H5
- MAT102H5
- [(MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5)] or ~~MAT134Y5 or MAT135Y5 or MAT137Y5~~ or MAT157Y5 or MAT233H5

Second Year:

- CSC207H5 and CSC236H5
- 1.0 credit from the following CSC209H5 or CSC258H5 or CSC263H5
- MAT223H5 or MAT240H5
- STA246H5 or STA256H5 or ECO227Y5

Higher Years:

- 2.0 credits from any 300/400 level CSC course or GGR335H5 or GGR337H5 or GGR437H5. At least 0.5 credit must come from 400-level courses, and ~~at least 0.5 credit must come from~~ **CSC369H5 or CSC311H5 or CSC338H5 or CSC347H5 or CSC376H5.** No more than 0.5 credit of GGR courses may count to this requirement.

NOTE:

1. In addition to the course requirements above, students must complete an integrative learning experience. This requirement may be met by participating in the Professional Experience Year (PEY) Co-op program* or by completing one of the following half-courses: CSC318H5, CSC367H5, CSC375H5, CSC376H5, CSC409H5, CSC420H5, CSC427H5, CSC477H5, CSC490H5.

*-Please be advised that the PEY Co-op Program only applies to UTM Computer Science students in their second year of study. For more information about the PEY Co-op Program, including eligibility requirements, please visit the Experiential and International Opportunities page of the UTM Academic Calendar.

2. Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses.

Description of Proposed Changes:

Rationale:

- MAT134Y5, 135Y5 should be removed as of 2024-25 since it was retired as of 2019-20.
- House keeping (modify total credits required)
- Some CS major students have difficulty taking CSC400L courses since they couldn't meet the pre-requisite requirements. The courses added are most common pre-requests for our CSC400L courses.

Consultations:

Resource Implications:

None.

Enrolment Requirements:

Limited Enrolment — Enrolment in this program is limited to students with a minimum of 4.0 credits , including the following :

- CSC148H5 (see note below)
- MAT102H5 (see note below)
- All students must complete 4.0 U of T credits before requesting this program .

Courses with a grade of CR / NCR will not count as a part of the 4.0 credits required for program entry .

NOTES :

- The minimum grade required in CSC148H5 and MAT102H5 is determined annually . Only CSC148H5 and MAT102H5 , taken at the UTM campus , will be accepted .
- Due to the limited enrolment nature of this program , students are strongly advised to develop alternate plans if they need to instead enroll in other programs

Completion Requirements:

4.0 credits are required.

First Year: CSC108H5 and CSC148H5 and MAT102H5

Second Year:

1. CSC207H5 and CSC236H5
2. One of CSC209H5 or CSC258H5 or CSC263H5

Third and Fourth Years: 1.0 credit from any 300/400 level CSC course (except for CSC392H5 and CSC393H5 and CSC492H5 and CSC493H5 and any CSC ROP courses) or GGR335H5 or GGR337H5 or GGR437H5. No more than 0.5 credit of GGR courses may count to this requirement.

NOTES:

- Students in the CSC minor are limited to 1.5 credits of computer science courses at the 300/ 400-level. Enrolment in additional CSC courses is restricted to students in CSC specialist and major programs.
- Only CSC148H5 and MAT102H5, taken at the UTM campus, will be accepted.
- CSC Minor can take no more than one of CSC392H5 or CSC393H5 or CSC492H5 or CSC493H5 or any CSC ROP courses.

Description of Proposed Changes:

Rationale:

- CSC ROP courses are also not allowed to meet this requirement
- CSC148H5 and MAT102 taken at UTM requirement is mentioned under enrolment requirement now
- proposal for type 2 CS minor rationale:

Our continued enrollment increases over the past ten years have finally led to the point where our long course waitlists cannot be accommodated with our current faculty complement (including heavy hiring from Unit 1 and Unit 3). This most greatly affects our CS Minor students, who may no longer be able to enroll in their preferred courses. This situation will become even more acute given the elevated 2023 enrollment numbers.

To maintain the quality of experience for our CS Minors, we propose restricting the Minor to be a Type II program. This would enable us to maintain the current course numbers, even in light of increased enrollment pressure for our courses.

Our intent is not to use the Type II status to reduce the number of CS Minor students, but rather to keep it constant for now, and then increase it further once our faculty complement catches up to the demand. This change also brings us in line with UTSc and StG.

Note that the CS Minor at UTSc is already restricted:

<https://utsc.calendar.utoronto.ca/minor-program-computer-science-science>

"Admission will be based on academic performance in these A-level courses. The admission requirements change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enroll in backup programs."

and so is the CS Minor at StG:

<https://artsci.calendar.utoronto.ca/section/Computer-Science>

"A minimum grade is needed for entry, and this minimum changes each year depending on available spaces and the number of applicants. ... To ensure that students admitted to the program will be successful, applicants with a grade below 70% will not be considered for admission. Obtaining this minimum grade does not guarantee admission to the program."

Consultation:

Resource Implications:

Enrolment Requirements:

Limited Enrolment — Enrolment in this program is limited to students with a minimum of 4.0 credits , including the following :

- CSC148H5 (see minimum grade note below)
- MAT102H5 (see minimum grade note below)
- MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5 or MAT134Y5 or ~~MAT135Y5 or MAT137Y5 or~~ MAT157Y5 or MAT233H5
- ISP100H5
- A cumulative grade point average (CGPA) , determined annually . It is never lower than 2.5 .
- All students must complete 4.0 U of T credits before requesting this program . Courses with a grade of CR / NCR will not count as a part of the 4.0 credits required for program entry .

NOTES :

1. The minimum grade required in CSC148H5 and MAT102H5 is determined annually . It is never lower than 65% . Only CSC148H5 and MAT102H5 , taken at the UTM campus , will be accepted .
2. Transfer students who have completed any postsecondary studies outside of UTM (including studies at other divisions at the University of Toronto) are not eligible to pursue a Specialist and / or Major in Computer Science at U of T Mississauga .
3. Due to the limited enrolment nature of this program , students are strongly advised to develop alternate plans if they need to instead enroll in other programs .

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:

12.0-13.0 credits are required.

First Year:

- CSC108H5 and CSC148H5 and ISP100H5
- MAT102H5
- [(MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5)] or MAT13~~4Y5 or MAT135Y5 or MAT13~~7Y5 or MAT157Y5

Second Year:

- CSC207H5 and CSC209H5 and CSC236H5 and CSC258H5 and CSC263H5
- MAT223H5 or MAT240H5
- MAT232H5 or MAT233H5 or MAT257Y5
- STA246H5 or STA256H5 or ECO227Y5

Higher Years:

- CSC311H5 and CSC343H5 and CSC363H5 and CSC369H5 and CSC373H5
- CSC358H5 or CSC458H5
- 2.0 credits from any 300/400 level CSC course or 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.

NOTE:

1. In addition to the course requirements above, students must complete an integrative learning experience. This requirement may be met by participating in the Professional Experience Year (PEY) Co-op program* or by completing one of the following half-courses: CSC318H5, CSC367H5, CSC375H5, CSC376H5, CSC409H5, CSC420H5, CSC427H5, CSC477H5, CSC490H5.

*-Please be advised that the PEY Co-op Program only applies to UTM Computer Science students in their second year of study. For more information about the PEY Co-op Program, including eligibility requirements, please visit the

Experiential and International Opportunities page of the UTM Academic Calendar.

2. Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses.

Description of Proposed Changes:

Rationale:

MAT134Y5, 135Y5 should be removed as of 2024-25 since it was retired as of 2019-20.

Consultations:

Resource Implications:

None.

Enrolment Requirements:

Limited Enrolment — Enrolment in this program is limited to students with a minimum of 4.0 credits , including the following :

- CSC148H5 (see minimum grade note below) ;
- MAT102H5 (see minimum grade note below) ;
- MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5 or ~~MAT134Y5 or MAT135Y5 or~~ MAT137Y5 or MAT157Y5 or MAT233H5;
- ISP100H5; and
- A cumulative grade point average (CGPA) , determined annually . It is never lower than 2.5 .
- All students must complete 4.0 U of T credits before requesting this program . Courses with a grade of CR / NCR will not count as a part of the 4.0 credits required for program entry .

NOTES :

- The minimum grade required in CSC148H5 and MAT102H5 is determined annually . It is never lower than 65% . Only CSC148H5 and MAT102H5 , taken at the UTM campus , will be accepted .
- Transfer students who have completed any postsecondary studies outside of UTM (including studies at other divisions at the University of Toronto) are not eligible to pursue a Specialist and / or Major in Computer Science at U of T Mississauga .
- Due to the limited enrolment nature of this program , students are strongly advised to develop alternate plans if they need to instead enroll in other programs .

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:

12.50-13.05 credits are required.

First Year:

- CSC108H5 and CSC148H5 and ISP100H5
- MAT102H5
- [(MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5)] or ~~MAT134Y5 or MAT135Y5 or MAT137Y5~~ or MAT157Y5 or MAT233H5
- MAT223H5 or MAT240H5

Second Year:

- CSC207H5 and CSC209H5 and CSC236H5 and CSC258H5 and CSC263H5
- MAT224H5 or MAT240H5
- MAT232H5 or MAT257Y5
- ~~STA246H5 or STA256H5 or ECO227Y5~~

Third Year:

- CSC343H5 and CSC347H5 and CSC363H5 and CSC369H5 and CSC373H5
- MAT301H5 and MAT302H5

Fourth Year:

- CSC358H5 or CSC458H5
- 1.0 credit from the following: CSC409H5 or CSC422H5 or CSC423H5 or CSC427H5 or CSC490H5 or CSC495H5

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 Professional Experience Year (PEY) Co-op program* or by completing one of the following half-courses: CSC318H5, CSC367H5, CSC375H5, CSC376H5, CSC409H5, CSC420H5, CSC427H5, CSC477H5, CSC490H5.

*-Please be advised that the PEY Co-op Program only applies to UTM Computer Science students in their second year of study. For more information about the PEY Co-op Program, including eligibility requirements, please visit the Experiential and International Opportunities page of the UTM Academic Calendar.

2. Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses.

Description of Proposed Changes:

Modifying total credits required.

Rationale:

MAT134Y5 and MAT135Y5 should be removed as of 2024-25 since it was retired as of 2019-20.

Consultation:

Resource Implications:

None

Enrolment Requirements:

Limited Enrolment — Enrolment in the Major program is limited to students with a minimum of 4.0 credits , including:

- MAT102H5 (minimum 60%) ;
- [(MAT134H5 or MAT136H5 or MAT139H5 or ~~MAT134Y5 or MAT135Y5 or~~ MAT137Y5 or MAT233H5) (minimum 60%)] or MAT159H5 or MAT157Y5; and
- a minimum cumulative grade point average (CGPA) , to be determined annually .
- All students must complete 4.0 U of T credits before requesting this program . Courses with a grade of CR / NCR will not count as a part of the 4.0 credits required for program entry .

Completion Requirements:

8.0 credits are required.

First Year:

- MAT102H5
- [(MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5)] or MAT13~~4Y5 or MAT135Y5 or MAT13~~7Y5 or MAT157Y5
- MAT223H5 or MAT240H5

Second Year:

- MAT202H5 and MAT244H5
- [(MAT232H5 or MAT233H5) and MAT236H5] or MAT257Y5
- MAT224H5 or MAT247H5

Higher Years:

- MAT301H5 and (MAT334H5 or MAT354H5)
- MAT337~~H5 or MAT378~~H5 or MAT392H5 or MAT405H5
- MAT305H5 or MAT311H5 or MAT332H5
- MAT302H5 or MAT315H5 or MAT344H5
- STA256H5 or CSC363H5 or 0.5 credit of MAT at the 300/400 level, except MAT322H5
- 0.5 additional credits in MAT at the 400 level

NOTES:

- MAT137H5 and MAT139H5 are recommended.
- Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses.
- Mathematical **Sciences** Majors are strongly encouraged to enroll in MAT240H5 followed by MAT247H5.

Description of Proposed Changes:

1) MAT134Y5, MAT135Y5 retired as of 2019-20, therefore they have remained in the Academic Calendar for 5 years, and ought to be removed from the 24-25 Academic Calendar from relevant MAT entry/program requirements. Also updated Notes to reflect correct name of program area.

2) MAT378H5 renumbered to MAT337H5 in 2017-18, so has been present in MAT programs for required 5 years. Ought to be removed from the 2024-25 Academic Calendar from relevant MAT program requirements.

Rationale:

Keeps Academic Calendar information accurate/current.

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resource Implications:

None.

Completion Requirements:

4.0 credits are required.

First Year:

- MAT102H5
- [(MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5)] or MAT134Y5 or MAT135Y5 or MAT137Y5 or MAT157Y5

Second Year:

- MAT223H5 or MAT240H5
- [MAT232H5 and (MAT202H5 or MAT224H5 or MAT236H5 or MAT240H5 or MAT244H5 or MAT247H5 or CSC236H5)] or MAT257Y5

Higher Years:

- 1.0 credit from the following: MAT at the 300/400 level or CSC363H5

NOTES:

- MAT223H5 or MAT240H5 may be taken in the first year.
- Students may replace the combination [(MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5)] or MAT134Y5 or MAT135Y5 or MAT137Y5 or MAT157Y5 and MAT232H5 with the combination (MAT133Y5 and MAT233H5)
- Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses.

Description of Proposed Changes:

MAT134Y5, MAT135Y5 retired as of 2019-20, therefore they have remained in the Academic Calendar for 5 years, and ought to be removed from the 2024-25 Academic Calendar from relevant MAT program requirements.

Rationale:

Keeps Academic Calendar information accurate/current.

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resource Implications:

None.

Completion Requirements:

13.5 credits are required.

First Year:

- CSC108H5 and CSC148H5
- MAT102H5 and MAT240H5
- [(MAT137H5 or MAT157H5) and (MAT139H5 or MAT159H5)] or MAT137Y5 or MAT157Y5

Second Year:

- CSC236H5
- MAT202H5 and MAT244H5 and MAT247H5 and MAT257Y5
- STA256H5 and (STA258H5 or STA260H5)

Higher Years:

- MAT301H5 and (MAT334H5 or MAT354H5) and MAT392H5
- MAT302H5 or MAT315H5
- 2.0 additional credit from MAT302H5 or MAT309H5 or MAT311H5 or MAT315H5 or MAT332H5 or ~~MAT337H5 or MAT378H5~~ or MAT344H5
- 1.0 additional credits in MAT at the 400 level (MAT401H5 is recommended)
- 1.0 additional credits at the 300/400 level in CSC or STA or MAT, except MAT322H5
- 0.5 additional credits in MAT at the 300+level, except MAT322H5

NOTES:

- Mathematical Sciences Specialists are strongly encouraged to enroll in MAT157H5, MAT159H5, MAT257Y5, and MAT354H5.
- Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses.
- Students may replace MAT257Y5 with [(MAT232H5 or MAT233H5) and MAT236H5], but if they do then MAT337H5 AND MAT405H5 are required as part of "Higher Years".
- Students who do not feel ready for MAT257Y5 in their Second Year, may wish to take MAT232H5 that year, and then take MAT257Y5 in their Third Year.

Description of Proposed Changes:

MAT378H5 renumbered to MAT337H5 in 2017-18, so has been present in MAT programs for required 5 years. Ought to be removed from the 2024-25 Academic Calendar from relevant MAT program requirements. Also added 's' after "Science" in NOTES to align with program name.

Rationale:

Keeps Academic Calendar information accurate/current.

Consultation:

MAT curriculum meeting 21-Sep-23 & 27-Sep-23 (including dept admin, Vice Chair, Assoc Chairs)

Resource Implications:

None.

Forensic Science (UTM), Programs in

3 New Courses

FSC312H5: Bioinformatics in Forensic Biology

Contact Hours:

Lecture: 12 / Tutorial: / Practical: 24 / Seminar:

Description:

This course will introduce core concepts, practices and research topics including DNA sequence alignment, DNA sequence analysis, interacting with scientific databases, and genome sequencing technologies within a forensic biological context. This course includes computer-based practical exercises using freely available software (i.e., R Studio, the command line, etc.) wherein students will apply bioinformatics tools and be introduced to basic computer programming within a forensic and investigative genetic lens.

Prerequisites: BIO206H5 and BIO207H5

Corequisites:

Exclusions: BIO362H5

Recommended Preparation:

Enrolment Limits:

Notes: Students who lack the prerequisites for this course will be de-registered.

Rationale:

Having BIO362 as a required ERSPE1410 course has been problematic, as there is only one instructor in the BIO department that can teach it, these courses, and if he has teaching relief (which he has had the past few years) or is on sabbatical then they have no one else to fill in to teach these courses. Additionally, Biology had to reduce the cap due to space changes to be scheduled in a different computer lab, leaving forensic students without priority enrolment. The instructor that teaches BIO362 has also identified that Forensic Science students have had trouble with the course.

As discussed with the Biology department, the goal of this course is meant to fulfill a gap in the Forensic curriculum without hindering enrolment caps of the BIO362 course.

Consultation:

Biology Department (Steven Short, July 20, 2023)

Forensic Science Curriculum Committee (August 15, 2023)

Resources:

While ideally taught in a computer-based classroom, this course will use freely available software that can be accessed on the personal computers of enrolled students. For those students who do not have access to a computer, we will communicate with the RGASC to ensure that the software can be accessed on library or on-campus computers.

A Teaching Assistant will be required, with at minimum, 70 hours for marking.

Overlap with Existing Courses:

This course has minimal rudimentary overlap with BIO362, but diverges significantly into applications of forensic science for the majority of the course.

Contact Hours:

Description:

As a pre-professional training experience, this capstone course will prepare students in media literacy for communicating their forensic sub-discipline in a variety of avenues. Students will learn how to present forensic content through writing, digital media (podcasts, vlogs, etc.), interviews, and outreach engagement. The course will develop skills as they pertain to converting complex science to accessible testimony, both for public and academic/educational settings, as well as handling/engaging with journalism media.

Course completion elements may include Forensic Skills Development workshops, HMALC workshops, RGASC workshops, and Forensic Outreach programming, all in conjunction with lecture components.

Major assignments will include presentations through various media of the student's choice, as well as a cumulative interviews with police forensic science and professionals.

Prerequisites:

- Enrolment in a Forensic Science Specialist Program
- Completion of the Forensic Specialist's required statistics course
- Completion of FSC340H5 Research Design
- Permission of course instructor.

Corequisites:

Exclusions: FSC481H5 or FSC483H5 or FSC485H5

Recommended Preparation:

Enrolment Limits: Restricted to Forensic Science Specialists. Course Application required.

Notes: Students who lack the prerequisites for this course will be de-registered.

Rationale:

In 2016, the United States federal government released the President's Council of Advisors on Science and Technology (PCAST) report detailing the need for more clarity and accessibility between forensic scientists and the public. To ensure UTM stays current with professional guidelines, this course is being created as a way to better train students in media literacy and communicating their discipline.

This course is an alternative option for the fourth year required Forensic Capstone series - we have many students interested in pursuing careers in the public and media sectors, and it is important that they are trained in media literacy to both better prepare them for job competition, but also to accurately and transparently represent forensic science.

Media literacy training will help clarify misconceptions and promote accessibility of forensic science, as per the mandate of the PCAST report.

Grades will need to be released after their final evaluation during the Forensic Science Day event, and thus requires HY status, as workshops and presentations as part of the course may take place across both the Fall and Winter semesters.

Consultation:

Forensic Science Program Meeting - September 29, 2023

Forensic Curriculum Committee - October 3, 2023

Resources:

TA hours will be depended on enrolment.

FSC499Y5: Advanced Independent Study

Description:

For students wishing to complete an extended research project across the Fall and Winter terms. Students are responsible for identifying a supervisor, after which they must seek Program Director approval.

Prerequisites: Permission of Program Director.

Corequisites:

Exclusions:

Recommended Preparation:

Enrolment Limits: Restricted to Forensic Science Specialists and Majors.

Notes: Students who lack the prerequisites for this course will be de-registered.

Rationale:

A full credit independent study course is being created at the request of the Dean's office.

Consultation:

Forensic Science Program Meeting - Sept 29, 2023

Forensic Curriculum Committee - Oct 3, 2023

Resources: None

8 Course Modifications

FSC239Y5: Introduction to Forensic Science

Enrolment Limits:

Previous: Priority given first to Forensic Science Specialists and Majors; then Minors.

New: Priority enrolment is given to incoming students registered in the 'FSC1' category, who have not yet taken this course.

Notes: Students taking FSC239Y5 for their POST requirement will need 70% or higher in their first attempt.

Rationale:

Language has been updated in the 'Enrolment Limits' section to reflect priority for FSC1 students who have not taken the course before. Language has been updated in the 'notes' section, to emphasize that only the first attempt at FSC239Y5 will be considered for POST admissions. This will reduce students retaking this course, to prevent students from filling seats in a bid to get the minimum grade for POST entry after already failing to make the minimum requirements. As a gatekeeper course, we want to prioritize students in the FSC1 stream, and filter out students who are unable to sufficiently prioritize this course and fail to make the minimum grade. Individual circumstances leading to exclusion appeal may be subject to director approval.

Consultation:

Forensic Science Curriculum Meeting - May 1, 2023
Sciences Curriculum Meeting - May 16, 2023
Forensic Science Curriculum Meeting - July 17, 2023

Resources: None

FSC314H5: Hot Topics in Forensic Science

Title:

Previous: Current Trends in Forensic Biology

New: Hot Topics in Forensic Science

Description:

Track Changes:

A lecture-based course examining contemporary topics in forensic ~~biology~~science. The course will emphasize group discussion where students will examine, review, criticize, and present on current trends and fundamental topics within forensic ~~biology~~science, which could include evidence screening ~~and serology, DNA analysis~~, methodology, forensic technological developments / enhancements as well as current ethical and / or political changes in the field. The implications and applications of forensic ~~biology~~science research advances will also be explored. The theme of the course is expected to be topical and current, and to vary from year to year to accommodate the interests of both the students enrolled in the course and the faculty member (s) teaching the course. ~~+36L+~~

Prerequisites:

Previous: BIO152H5, FSC239Y5, FSC271H5

New: FSC239Y5 and FSC271H5

Rationale:

While this course was designed to be taken by any interested forensic student, enrolment was low due to the misconception that it was only for Forensic Biology specialists.

These changes, which include adjustment to title and description, and the removal of the BIO152 requirement, make the course suitable for all FSC students at the minor, major and specialist levels.

This also gives the Forensic Minor students another option to complete their degree requirements.

Consultation:

Forensic Curriculum Committee, August 15, 2023

Resources: None

FSC316H5: Forensic Anatomy

Enrolment Limits: ~~Preference given to FSC Specialists and Majors.~~ Priority enrolment will be given to 3rd year students or higher in a Forensic Specialist or Forensic Major Degree Program.

Recommended Preparation: This course is recommended for students who have completed at least 8.5 credits.

Rationale:

Co-requisite cannot be sustained as FSC360 and FSC316 may no longer be consistently offered in Fall to Winter order. It has created enrolment issues for our students entering third year. Enrolment controls will be maintained by enrolment restrictions (priority going to FSC Anthro and FSC Bio students, then students enrolled in a Forensic Science degree program).

The original corequisite was partially to ensure students were in at least 3rd year when taking the course - it is difficult and not recommended for students still approaching their studies from a 2nd year perspective. Updated language in the Preparation/Enrolment Limits sections addresses this clearly.

Consultation:

Forensic Science Curriculum Committee- July 17, 2023

Resources: None

FSC407H5: Forensic Identification Field School

Prerequisites:

Previous: [FSC239Y5 and (FSC300H5 and FSC302H5)] or Permission of Instructor

New: [FSC239Y5 and (FSC300H5 and FSC302H5)] or Permission of Instructor

Note: Students seeking to use FSC407H5 as their capstone placement must also have:

- Enrolment in a Forensic Science Specialist Program
- Completion of the Forensic Specialist's required statistics course
- Completion of FSC340H5 Research Design
- Permission of course instructor
- FSC302H5 completed prior to their capstone year

Rationale:

Additional conditions have been set for students looking to take this course as their fourth year capstone, to ensure they have the necessary prerequisites to take the FSC482 co-requisite.

Consultation:

Resources: None

FSC481Y5: Internship in Forensic Science

Prerequisites:

Previous: Enrolment in a Forensic Science Specialist Program and completion of the forensic program statistics course(s) requirement and any third-level IDENT course, and permission of instructor.

New:

- Enrolment in a Forensic Science Specialist Program
- Completion of the Forensic Specialist's required statistics course
- Completion of FSC340H5 Research Design
- Permission of course instructor.

Note: Students seeking an IDENT capstone placement must have FSC302H5 completed prior to their capstone year

Exclusions: FSC482H5 or FSC483H5 or FSC485H5 or FSC485H5 <div> < / div>

Rationale:

Added requirement of FSC340H5: Research Design to adequately prepare students for their internship research. FSC340H5 was intended to be taken prior to the start of their capstone, but we found students enrolling in the internship with plans to take research design concurrently in their final year, thus defeating the purpose of the research design course as preparation.

With this change, additional cleaning up of the calendar language was made for legibility.

Consultation:

Forensic Curriculum Committee - September, 2023
Forensic Science Program Meeting - September 29, 2023

Resources: None

FSC483H5: Collaborative Research Internship

Prerequisites:

Previous: Enrolment in a Forensic Science Specialist Program and completion of the forensic program statistics course(s) requirement and any third-level IDENT course and permission of instructor.

New:

- Enrolment in a Forensic Science Specialist Program
- Completion of the Forensic Specialist's required statistics course
- Completion of FSC340H5 Research Design
- Permission of course instructor.

Note: Students seeking 'crime scene' related research must have FSC302H5 or FSC303H5 completed prior to their capstone year

Exclusions: ~~FSC481Y5 or FSC489Y5 or FSC485H5~~

Rationale:

1. Course span is being extended to fall across fall and winter semesters (HY), so that collaboration teams and mentors can set groundwork in advance of the research starting in the winter semester. Faculty mentors have already found need to use time in the fall term to arrange paperwork, ethics proposals, etc., and this change will formalize these important steps within an approved timespan, rather than researchers working "outside" of formal course dates.

The additional time commitment doesn't increase the overall course hours, only adjusts them to a more manageable span, and thus the need for HY rather than full Y.

2. Prerequisite language cleaned up to be more accessible

3. FSC340H5 added to prerequisites, as students should already have completed research design training before designing FSC483 research.

Resources: None

FSC485H5: Professional Opportunity in Forensic Science

Prerequisites:

Previous: Completion of the forensic program statistics course(s) requirement and any third-level IDENT course and permission of instructor.

New:

- Enrolment in a Forensic Science Specialist Program
- Completion of the Forensic Specialist's required statistics course
- Completion of FSC340H5 Research Design
- Permission of course instructor.

Note: Students seeking 'crime scene' related experiences must have FSC302H5 or FSC303H5 completed prior to their capstone year

Exclusions: FSC481Y5 or FSC483H5 or FSC481Y54H5

Rationale:

1. Course span is being extended, as the required hours for the experiential opportunities may be completed at any time during the fall and winter semesters (HY), including workshops, events, conferences, etc. This will expand the window of opportunity for students.

Grades will need to be released after their final evaluation during the Forensic Science Day event, and thus also requires HY status.

The additional time commitment doesn't increase the overall course hours, only adjusts them to a more manageable span, and thus the need for HY rather than full Y.

2. Prerequisite language cleaned up to be more accessible

3. FSC340H5 added to prerequisites, as students should already have completed research design training before their FSC482 component.

Resources: None

FSC489H5: Advanced Independent Project

Enrolment Limits: Restricted to Forensic Science Specialists and Majors.

Recommended Preparation: ~~Restricted to Forensic Science Specialists and Majors.~~

Distribution Requirement: ~~Science, Social Science~~

Rationale:

Consultation:

Resources: None

5 Minor Program Modifications

ERSPE1338: Forensic Anthropology - Specialist (Science)

Enrolment Requirements:

Limited Enrolment — Admission into the Forensic Anthropology Specialist Program is by special application **only**. To be considered for admission into the program, ALL students, including students admitted into the 1st year Forensic Science category, **MUST** submit a direct online application in addition to their ACORN request, upon completing the minimum program entry requirements.

Note: Meeting the minimum requirements does not guarantee admission into the program.

Application for admission into the program for ALL students can be found at: [Program Application | Forensic Science \(utoronto.ca\)](https://utoronto.ca)

Forensic Anthropology is a Type 3 program, and applications are open for Round 1 **only**. There is no Round 2 admission period.

Forensic Science Applications Open: **March 1 of each year**

Forensic Science Application Deadline: **May 1 of each year**

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Minimum Requirements:

1. Completion of 4.0 credits; including 3.0 science credits.
2. Completion of FSC239Y5 with **70% or better** in their **first successful attempt**.
3. Completion of ANT101H5 with **75% or better** and ANT102H5 with **75% or better**
4. Completion of BIO152H5 with **65% or better** and BIO153H5 with **65% or better**
5. A minimum Cumulative Grade Point Average of at least **3.2**
The actual minimum CGPA varies from year to year but is never lower than 3.2

Students applying to enroll **after second year** must have:

1. Admission category designation as 'FSC1
2. Completed **8.0 credits**
3. Completed ANT200H5, ANT202H5, ANT203H5 and ANT205H5 with **75% or better in each**.
4. Completed FSC239Y5 with a **70% or better** in their **first** attempt.
5. A minimum cumulative Grade Point Average of at least **3.2**.

Students applying to this program in the 2024-2025 Academic Year (for program entry in the 2025-2026 Academic Year) will be required to have Grade 12(4U) Advanced Functions or equivalent.

Completion Requirements:

A minimum of 15.5 credits are required.

First Year:

1. ANT101H5, ANT102H5
2. BIO152H5, BIO153H5
3. FSC239Y5

(ISP100H5 is strongly encouraged).

Second Year:

1. **Statistics Requirement (recommended completion prior to fourth year):** ANT407H5 / FSC341H5
**STA215H5 will no longer be accepted as an option to satisfy the Statistics requirement past September 2027.*
2. ANT200H5, ANT202H5, ANT203H5, ANT205H5

3. FSC271H5

Third Year:

1. **IDENT Requirement:** (FSC300H5, FSC302H5) / (FSC210H5, FSC303H5)
2. ANT306H5, ANT312H5/ANT317H5, ANT334H5, ANT340H5
3. FSC316H5, FSC330H5, FSC335H5, FSC340H5, FSC360H5

Fourth Year:

1. **Capstone Requirement:** FSC481Y5 / (FSC482H5, FSC483HY5) / (FSC482H5, FSC484HY5) / (FSC482H5, FSC485HY5) / (FSC482H5, FSC407H5)
Note: Students seeking an IDENT capstone placement must have FSC302H5 completed prior to their capstone year.
2. ANT415H5, ANT436H5/FSC307H5/FSC314H5, ANT439H5, ANT441H5
3. FSC401H5, FSC439H5

Note:

1. The program requirements in effect at the time the student is admitted to the program must be met in order to fulfill the degree requirements.
2. Prospective students already holding a degree in Anthropology may not complete the Forensic Anthropology Specialist Program due to the overlap of course content for courses already completed in their first specialty.
3. **Students without pre- and co-requisites or written permission of the instructor can be de-registered from courses at any time.** Once a student has been admitted into a FSC program stream, written authorization from the Forensic Science program advisor **MUST** be obtained for any request of change in a student's area of study within the Forensic Science program.

Description of Proposed Changes:

1. FSC239H5 given "70% in first successful attempt" status for POST requirement
2. Minimum POST requirement grade added for BIO152H5 and BIO153H5: 65% or better
3. ISP100H5 added as a recommendation
4. FSC341H5 added as a Statistics requirement alternative; STA215 removed.
5. POST application description adjusted
6. Completion requirements language adjusted
7. 'Notes' moved to proper section.
8. GPA requirement for POST raised to 3.2
9. FSC314H5 added to course alternatives
10. FSC484HY5 added to capstone option

Rationale:

1. FSC239H5 given "70% in first successful attempt" status for POST requirement
Restrictions are being introduced in order to reduce Second Attempt Credit (SAC), and reduce the number of students retaking FSC239H5, in order to prevent students from filling seats in a bid to get the minimum grade for POST entry after already failing to make the minimum requirements. As a gatekeeper course for our program, we want to prioritize students in the FSC1 stream, and filter out students who are unable to sufficiently prioritize this course and fail to make the minimum grade.
Individual circumstances leading to exclusion by appeal may be subject to director approval.
2. Minimum POST requirement grade added for BIO152H5 and BIO153H5 (65% or better)
Minimum grade in Forensic Bio added to improve consistency of minimum POST requirements across all Forensic Specialist POSTs, to increase quality control for students entering POST.
3. ISP100H5 added as a recommendation
Ahead of the campus wide rollout, we are adding ISP100H5, as it is currently required for most of our student's second choice POSTs (ANT, CHM, PSY), and they are currently unable to enrol in any relevant backup POSTs should they be unsuccessful in FSC.
4. FSC341H5 added as a Statistics requirement alternative
With the removal of STA215H5, and the introduction of the FSC341H5 Forensic Statistics course, we are offering it as an alternative in the event of course conflict or other issue that prevents a Forensic Biology student from completing FSC407H5. FSC407H5 will still be *strongly recommended* as the priority choice to complete their statistics

requirement, and recommended to be taken in 3rd year. STA215H5 will no longer be accepted as an option to satisfy the Statistics requirement after September 2027.

5. POSt application description adjusted

General language in the POSt application instructions has been adjusted for clarity, including disclosure that there is no Round 2 for Forensic Science. There are currently not enough avenues that explicitly state this information. Adding to the calendar will contribute to reducing confusion about our annual deadline.

6. Completion requirements language adjusted

For additional clarity, and to reduce confusion regarding the Statistics, IDENT, and Capstone requirements, the language has been adjusted to emphasize the choices in these core courses. IDENT requirements for a capstone in IDENT positions have also been clarified.

7. Notes moved to proper section

8. Minimum GPA raised to 3.2 to increase quality control for students entering POSt and reduce unmanageable enrolment numbers.

9. FSC314H5 added to course alternatives to allow more flexibility in course schedules and to better tailor individual interests

10. FSC484HY5 added to capstone options to better tailor to alternative career interests

11. FSC314H5 added as an alternative option to increase enrolment and allow for more diverse topic/content potential

Consultations:

Forensic Science Curriculum Committee - July 11, 2023

Forensic Science Curriculum Committee - July 17, 2023

Enrolment Requirements:

Limited Enrolment — Admission into the Forensic Biology Specialist Program is by special application **only**. To be considered for admission into the program, ALL students, including students admitted into the 1st year Forensic Science category, **MUST** submit a direct online application in addition to their ACORN request, upon completing the minimum program entry requirements.

Note: Meeting the minimum requirements *does not* guarantee admission into the program.

Application for admission into the program for ALL students can be found at: [Program Application | Forensic Science \(utoronto.ca\)](#)

Forensic Biology is a Type 3 program, and applications are open for Round 1 **only**. There is no Round 2 admission period.

Forensic Science Applications Open: **March 1 of each year**

Forensic Science Application Deadline: **May 1 of each year**

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Minimum Requirements:

1. Completion of 4.0 credits; including 3.0 science credits
2. Completion of **FSC239Y5** with **70% or better** in their **first successful attempt**.
3. Completion of BIO152H5 with **75% or better** and BIO153H5 with **75% or better**
4. Completion of CHM110H5 with **65% or better** and CHM120H5 with **65% or better**
5. Completion of (MAT132H5, MAT134H5) / (MAT135H5, MAT136H5)
6. Completion of PHY136H5
7. A minimum Cumulative Grade Point Average of at least **3.2**.
The actual minimum CGPA requirement varies from year to year but is never lower than 3.2

Completion Requirements:

A minimum of 15.5 - 16 credits are required.

First Year:

1. BIO152H5, BIO153H5
2. CHM110H5, CHM120H5
3. FSC239Y5
4. (MAT132H5, MAT134H5) / (MAT135H5, MAT136H5)
5. PHY136H5

(ISP100H5 is strongly encouraged).

Second Year:

1. **Statistics Requirement:** BIO259H5 (strongly recommended) / FSC341H5
2. BIO206H5, BIO207H5
3. (BIO208H5, BIO209H5) / FSC316H5
4. CHM242H5, CHM243H5
5. FSC271H5

Third and Fourth Years:

1. **IDENT Requirement:** (FSC300H5, FSC302H5) / (FSC210H5, FSC303H5)
2. BIO362H5; CHM361H5; FSC315H5, FSC330H5, FSC335H5, FSC340H5, FSC360H5

3. **Capstone Requirement:** FSC481Y5 / (FSC482H5, FSC483H5) / (FSC482H5, FSC484H5) / (FSC482H5, FSC485H5) / (FSC482H5, FSC407H5)
Note: Students seeking an IDENT capstone placement must have FSC302H5 completed prior to their capstone year.
4. BIO458H5 / BIO372H5 / BIO341H5; FSC415H5, FSC416H5,
5. **0.5 additional credits from:** BIO341H5, BIO374H5, FSC307H5, FSC314H5, FSC350H5, FSC370H5, FSC371H5, FSC401H5, FSC402H5, FSC406H5, FSC407H5

Note:

1. The program requirements in effect at the time the student is admitted to the program must be met in order to fulfill the degree requirements.
2. Prospective students already holding a degree in Biology may not complete the Forensic Biology Specialist Program due to the overlap of course content already completed in their first specialty.
3. **Students without pre- and co-requisites or written permission of the instructor can be de-registered from courses at any time.**
4. Once a student has been admitted into a Forensic Program of Study, written authorization from the Forensic Science Program advisor **MUST** be obtained for any request of change in a student's area of study within the Forensic Science Program.

Description of Proposed Changes:

1. FSC239 given "70% in first successful attempt" status for POST requirement
2. Minimum POST requirement grade raised in BIO152H5 and BIO153H5 to 75%
3. MAT**Y5 removed for POST requirement
4. PH137H5 removed as a graduation requirement, PHY136H5 added as a POST requirement.
5. ISP100H5 added as a recommendation
6. FSC341H5 added as a Statistics requirement alternative
7. POST application description adjusted
8. Completion requirements language adjusted
9. 'Notes' moved to proper section
10. GPA requirement for POST raised to 3.2
11. FSC484H5 added to capstone option
12. FSC314H5 added as an alternative option

Rationale:

1. FSC239H5 given "70% in first successful attempt" status for POST requirement
Restrictions are being introduced in order to reduce Second Attempt Credit (SAC), and reduce the number of students retaking FSC239H5, in order to prevent students from filling seats in a bid to get the minimum grade for POST entry after already failing to make the minimum requirements. As a gatekeeper course for our program, we want to prioritize students in the FSC1 stream, and filter out students who are unable to sufficiently prioritize this course and fail to make the minimum grade.
Individual circumstances leading to exclusion by appeal may be subject to director approval.
2. Minimum POST requirement grade raised for BIO152H5 and BIO153H5 to 75% or better
Minimum grade in Forensic Bio added to improve consistency of minimum POST requirements across all Forensic Specialist POSTs (ie FSC Ant requires 75% in ANT100, etc). The raised grade is to increase quality control for students entering POST.
3. MAT**Y5 removed for POST requirement
Due to the Y courses being split by MCS, Forensic Science has reviewed the course content and need for the new pairings (MAT137H5 + MAT139H5), (MAT157H5 + MAT159H5) and has decided not to replace the Y courses with the new pairings. Our records indicate that less than 1% of our students took the Y courses.
Note: (137, 139 Differential Calc for Math) / (157,159 Analysis I, II) will still be accepted if there is a student with a course conflict issue, but otherwise cut entirely to better direct relevant focus and reduce calendar clutter.
4. PHY137H5 removed as a graduation requirement, PHY136H5 added as a POST requirement.
To make room for ISP100H5 consistently across our degree programs, PHY137H5, which is not a pre-requisite for upper year courses, is being removed.
Additionally, PHY136H5 is being explicitly stated as a POST requirement to prevent students from taking it in upper years which has previously resulted in course conflicts.

5. ISP100H5 added as a recommendation

Ahead of the campus wide rollout, we are adding ISP100H5, as it is currently required for most of our student's second choice POSTs (ANT, CHM, PSY), and they are currently unable to enrol in any relevant backup POSTs should they be unsuccessful in FSC. It is being added to BIO in anticipation of their eventual requirement addition.

6. FSC341H5 added as a Statistics requirement alternative

With the removal of STA215H5, and the introduction of the FSC341H5 Forensic Statistics course, we are offering it as an alternative in the event of course conflict or other issue that prevents a Forensic Biology student from completing BIO259H5. BIO259H5 will still be **strongly recommended** as the priority choice to complete their statistics requirement.

7. POST application description adjusted

General language in the POST application instructions has been adjusted for clarity, including disclosure that there is no Round 2 for Forensic Science. There are currently not enough avenues that explicitly state this information. Adding to the calendar will contribute to reducing confusion about our annual deadline.

8. Completion requirements language adjusted

For additional clarity, and to reduce confusion regarding the Statistics, IDENT, and Capstone requirements, the language has been adjusted to emphasize the choices in these core courses. IDENT requirements for a capstone in IDENT positions have also been clarified.

9. 'Notes' moved to proper section

10. Minimum GPA raised to 3.2 to increase quality control for students entering POST and reduce unmanageable enrolment numbers.

11. FSC484H5 added to capstone option to better tailor to alternative career interests

12. FSC314H5 added as an alternative option to increase enrolment and allow for more diverse topic/content potential

Consultations:

Forensic Science Curriculum Committee - July 11, 2023

Forensic Science Curriculum Committee - July 17, 2023

Description:

~~This program is accredited by the Canadian Society for Chemistry.~~

Enrolment Requirements:

Limited Enrolment — Admission into the Forensic Chemistry Specialist Program is by special application **only**. To be considered for admission into the program, ALL students, including students admitted into the 1st year Forensic Science category, **must** submit a direct online application in addition to their ACORN request, upon completing the minimum program entry requirements.

Note: Meeting the minimum requirements does not guarantee admission into the program.

Application for admission into the program for ALL students can be found at: [Program Application | Forensic Science \(utoronto.ca\)](#)

Forensic Chemistry is a Type 3 program, and applications are open for Round 1 **only**. There is no Round 2 admission period.

Forensic Science Applications Open: **March 1 of each year**

Forensic Science Application Deadline: **May 1 of each year**

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Minimum Requirements:

1. Completion of 4.0 credits; including 3.0 science credits.
2. Completion of CHM110H5 with **65% or better** and CHM120H5 with **65% or better**.
3. Completion of FSC239Y5 with **70% or better** in their **first successful attempt**.
4. Completion of (MAT132H5, MAT134H5) / (MAT135H5, MAT136H5)
5. Completion of PHY136H5
6. A minimum Cumulative Grade Point Average of at least **3.2**.
The actual minimum CGPA requirement varies from year to year but is never lower than 3.2

Completion Requirements:

A minimum of 16 credits are required.

First Year:

1. CHM110H5, CHM120H5
2. BIO152H5
3. FSC239Y5
4. (MAT132H5, MAT134H5) / (MAT135H5, MAT136H5)
5. PHY136H5

(ISP100H5 is strongly encouraged).

Second Year:

1. **Statistics Requirement:** BIO259H5/FSC341H5/STA220H5
2. JCP221H5; CHM211H5, CHM231H5, CHM242H5, CHM243H5
3. FSC271H5

Third and Fourth Year:

1. **IDENT Requirement:** (FSC300H5, FSC302H5) / ((FSC210H5 or FSC370H5), FSC303H5)
2. CHM311H5, CHM331H5/CHM333H5, CHM361H5, CHM396H5, CHM397H5
3. FSC311H5, FSC330H5, FSC340H5, FSC360H5, FSC402H5, FSC403H5
4. CHM414H5, CHM416H5

5. **Capstone Requirement:** FSC481Y5 / (FSC482H5, FSC483HY5) / (FSC482H5, FSC484HY5) / (FSC482H5, FSC485HY5) / (FSC482H5, FSC407H5)

Note: Students seeking an IDENT capstone placement must have FSC302H5 completed prior to their capstone year.

The following courses are highly recommended for students interested in *Forensic Toxicology*: BIO200H5, FSC370H5, FSC371H5

Note:

1. Students are strongly advised to consult the program advisor regarding their program of study.
2. Corequisite for CHM372H5 is CHM361H5.
3. The program requirements in effect at the time the student is admitted to the program must be met in order to fulfill the degree requirements.
4. Prospective students already holding a degree in Chemistry, cannot complete a Forensic Chemistry Specialist Program due to the overlap of course content for courses already completed in their first specialty.
5. **Students without pre- and co-requisites or written permission of the instructor can be de-registered from courses at any time.**
6. Once a student has been admitted into a FSC program stream, written authorization from the Forensic Science program advisor **MUST** be obtained for any request of change in a student's area of study within the Forensic Science program.

Description of Proposed Changes:

1. FSC239 given "70% in first successful attempt" status for POST requirement
2. MAT**Y5 removed for POST requirement
3. PHY137H5 removed as a requirement, PHY136H5 added as a POST requirement.
4. ISP100H5 added as a recommendation
5. POST application description adjusted
6. Completion requirements language adjusted
7. GPA requirement for POST raised to 3.2
8. FSC484HY5 added to capstone option

Rationale:

1. FSC239 given "70% in first successful attempt" status for POST requirement

Restrictions are being introduced in order to reduce Second Attempt Credit (SAC), and reduce the number of students retaking FSC239, in order to prevent students from filling seats in a bid to get the minimum grade for POST entry after already failing to make the minimum requirements. As a gatekeeper course for our program, we want to prioritize students in the FSC1 stream, and filter out students who are unable to sufficiently prioritize this course and fail to make the minimum grade.

Individual circumstances leading to exclusion by appeal may be subject to director approval.

2. MAT**Y5 removed for POST requirement

Due to the Y courses being split by MCS, Forensic Science has reviewed the course content and need for the new pairings (MAT137H5 + MAT139H5), (MAT157H5 + MAT159H5) and has decided not to replace the Y courses with the new pairings. Our records indicate that less than 1% of our students took the Y courses.

Note: (137, 139 Differential Calc for Math) / (157,159 Analysis I, II) will still be accepted if there is a student with a course conflict issue, but otherwise cut entirely to better direct relevant focus and reduce calendar clutter.

3. PHY137H5 removed as a requirement, PHY136H5 added as a POST requirement.

To make room for ISP100 consistently across our degree program, PHY137H5, which is a not a prerequisite for upper year courses, is being removed. Additionally, PHY136H5 is being explicitly stated as a POST requirement to prevent students from taking it in upper years which has previously resulted in course conflicts.

4. ISP100H5 added as a recommendation

Ahead of the campus wide rollout, we are adding ISP100H5, as it is currently required for most of our student's second choice POSTs (ANT, CHM, PSY), and they are currently unable to enrol in any relevant backup POSTs should they be unsuccessful in FSC.

5. POSt application description adjusted

General language in the POSt application instructions has been adjusted for clarity, including disclosure that there is no Round 2 for Forensic Science. There are currently not enough avenues that explicitly state this information. Adding to the calendar will contribute to reducing confusion about our annual deadline.

6. Completion requirements language adjusted

For additional clarity, and to reduce confusion regarding the Statistics, IDENT, and Capstone requirements, the language has been adjusted to emphasize the choices in these core courses. IDENT requirements for a capstone in IDENT positions have also been clarified.

7. Minimum GPA raised to 3.2 to increase quality control for students entering POSt and reduce unmanageable enrolment numbers.

8. FSC484HY5 added to capstone option to better tailor to alternative career interests

Consultations:

Forensic Science Curriculum Committee- July 11, 2023

Forensic Science Curriculum Committee- July 17, 2023

Resource Implications:

Enrolment Requirements:

Limited Enrolment — Admission into the Forensic Psychology Specialist Program is by special application **only**. To be considered for admission into the program, ALL students, including students admitted into the 1st year Forensic Science category, **MUST** submit a direct online application in addition to their ACORN request, upon completing the minimum program entry requirements.

Note: Meeting the minimum requirements *does not* guarantee admission into the program.

Application for admission into the program for ALL students can be found at: [Program Application | Forensic Science \(utoronto.ca\)](#)

Forensic Psychology is a Type 3 program, and applications are open for Round 1 **only**. There is no Round 2 admission period.

Forensic Science Applications Open: **March 1 of each year**

Forensic Science Application Deadline: **May 1 of each year**

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Minimum Requirements:

1. Completion of 4.0 credits, including 3.0 science credits
2. Completion of PSY100Y5 with a minimum average of **75%** or better
3. Completion of BIO152H5 with **65% or better** and BIO153H5 with **65% or better**
4. Completion of FSC239Y5 with **70% or better** in their **first attempt**.
5. A minimum cumulative Grade Point Average of at least **3.2**.
The actual minimum CGPA requirement varies from year to year but is never lower than 3.2

Students applying to enroll after second year must also have:

1. Admission category designation as 'FSC1'
2. Completed **8.0 credits**.
3. Completed PSY201H5, PSY202H5 (or equivalent), FSC220H5, and at least an additional 1.0 credit in 200 series PSY courses with a minimum average of **77%** for those five half courses
4. Completed FSC239Y5 with a **70% or better** in their **first attempt**.
5. A minimum cumulative Grade Point Average of at least **3.2**.

Completion Requirements:

At least 15 credits are required.

First Year:

1. BIO152H5, BIO153H5
2. FSC239Y5
3. PSY100Y5

(ISP100H5 is strongly encouraged).

Second Year:

1. **Statistics Requirement:** PSY201H5, PSY202H5
2. FSC271H5, FSC220H5
3. PSY210H5, PSY220H5, PSY230H5, PSY240H5, PSY270H5/PSY280H5/PSY290H5

Third and Fourth Year:

1. **IDENT Requirement:** (FSC300H5, FSC302H5) / (FSC303H5, FSC316H5)
2. FSC320H5, FSC330H5, FSC335H5, FSC360H5, FSC370H5; PSY309H5, PSY328H5/PSY340H5/PSY341H5/PSY393H5, PSY344H5/PSY346H5

3. **Capstone Requirement:** FSC481Y5 / (FSC482H5, FSC483H5) / (FSC482H5, FSC484H5) / (FSC482H5, FSC485H5) / (FSC482H5, FSC407H5)
Note: Students seeking an IDENT capstone placement must have FSC302H5 completed prior to their capstone year.
4. 0.5 credits from the following laboratory-based courses: PSY329H5, PSY369H5
5. 0.5 credits from the following: FSC314H5, FSC350H5, FSC351H5, FSC361H5, FSC371H5, FSC401H5, FSC402H5, FSC403H5, FSC406H5, FSC407H5
6. 0.5 credit from PSY 400 level series courses

Description of Proposed Changes:

1. FSC239H5 given "70% in first successful attempt" status for POST requirement
2. Minimum POST requirement grade added for BIO152H5 and BIO153H5: 65% or better
3. ISP100H5 added as a recommendation
4. POST application description adjusted
5. Completion requirements language adjusted
6. Notes moved to proper section
7. PSY274H5 removed
8. GPA requirement for POST raised to 3.2
9. FSC484H5 added to capstone option
10. FSC314H5 added as an alternative option

Rationale:

1. FSC239 given "70% in first successful attempt" status for POST requirement
Restrictions are being introduced in order to reduce Second Attempt Credit (SAC), and reduce the number of students retaking FSC239, in order to prevent students from filling seats in a bid to get the minimum grade for POST entry after already failing to make the minimum requirements. As a gatekeeper course for our program, we want to prioritize students in the FSC1 stream, and filter out students who are unable to sufficiently prioritize this course and fail to make the minimum grade.
Individual circumstances leading to exclusion by appeal may be subject to director approval.
2. Minimum POST requirement grade added for BIO152H5 and BIO153H5 as 65% or better
Minimum grade in Forensic Bio added to improve consistency of minimum POST requirements across all Forensic Specialist POSTs. The grade is to increase quality control for students entering POST.
3. ISP100H5 added as a recommendation
Ahead of the campus wide rollout, we are adding ISP100H5, as it is currently required for most of our student's second choice POSTs (ANT, CHM, PSY), and they are currently unable to enrol in any relevant backup POSTs should they be unsuccessful in FSC.
4. POST application description adjusted
General language in the POST application instructions has been adjusted for clarity, including disclosure that there is no Round 2 for Forensic Science. There are currently not enough avenues that explicitly state this information. Adding to the calendar will contribute to reducing confusion about our annual deadline.
5. Completion requirements language adjusted
For additional clarity, and to reduce confusion regarding the Statistics, IDENT, and Capstone requirements, the language has been adjusted to emphasize the choices in these core courses. IDENT requirements for a capstone in IDENT positions have also been clarified.
6. Notes moved to proper section
7. PSY274H5 has been removed as it no longer exists.
8. Minimum GPA raised to 3.2 to increase quality control for students entering POST and reduce unmanageable enrolment numbers.
9. FSC484H5 added to capstone option to better tailor to alternative career interests
10. FSC314H5 added as an alternative option to increase enrolment and allow for more diverse topic/content potential

Consultations:

Forensic Science Curriculum Committee- July 11, 2023

Forensic Science Curriculum Committee- July 17, 2023

Resource Implications:

Enrolment Requirements:

Limited Enrolment — Admission into the Forensic Science Major program is by special application ONLY and **MUST** be completed in conjunction with a second approved Science Major (see Notes 'Second Major' below). To be considered for admission into the program, ALL students, including students admitted into the 1st year Forensic Science category, **MUST** submit a direct online FSC Application, upon completing the Minimum Program Requirements listed below.

Note: Meeting the minimum requirements *does not* guarantee admission into the program.

Application for admission into the program for ALL students can be found at: [Program Application | Forensic Science \(utoronto.ca\)](#)

Forensic Science is a Type 3 program, and applications are open for Round 1 **only**. There is no Round 2 admission period.

Forensic Science Applications Open: **March 1 of each year**

Forensic Science Application Deadline: **May 1 of each year**

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Minimum Requirements:

1. Completion of 4.0 credits; including 3.0 science credits.
2. Completion of FSC239Y5 with **70%** or better in the **first successful attempt**.
3. Completion of CHM110H5, CHM120H5 with **65%** or better.
4. Completion of (MAT132H5, MAT134H5) or (MAT135H5, MAT136H5)
5. Completion of PHY136H5
6. A minimum Cumulative Grade Point Average of at least **2.7**
The actual minimum CGPA requirement varies from year to year but is never lower than 2.7
7. Enrolment in an Approved Second Major (See Second Major Notes: 1).

Completion Requirements:

Note: This program must be taken concurrently with a second Major program (see notes below).

8.5 credits are required including at least 2.0 at the 300/400 level.

First Year:

1. BIO152H5, BIO153H5
2. CHM110H5, CHM120H5
3. FSC239Y5
4. (MAT132H5, MAT134H5) / (MAT135H5, MAT136H5)
5. PHY136H5.

(ISP100H5 is strongly encouraged).

Second Year:

1. CHM242H5, CHM243H5
2. FSC271H5
3. **Statistics Requirement:** ANT407H5/BIO259H5/PSY201H5/FSC341H5*

Third Year:

1. **IDENT Requirement:** FSC303H5/FSC300H5
2. FSC330H5; FSC360H5

Fourth Year:

1. 0.5 credit from the following: FSC302H5, FSC307H5, FSC311H5, FSC314H5, FSC315H5, FSC316H5, FSC320H5, FSC335H5, FSC340H5, FSC350H5, FSC351H5, FSC361H5, FSC370H5, FSC401H5, FSC402H5, FSC403H5, FSC406H5, FSC407H5, FSC416H5, FSC430H5, FSC489H5

**STA215H5 will no longer be accepted as an option to satisfy the Statistics requirement past September 2027.*

Description of Proposed Changes:

1. FSC239 given "70% in first successful attempt" status for POST requirement
2. MAT**Y5 removed for POST requirement
3. PH137H5 removed as a requirement, PHY136H5 added specifically as POST requirement
4. ISP100H5 added as a recommendation
5. BIO259H5 and FSC341H5 added as a Statistics requirement alternative; STA215H5 and STA220H5 removed.
6. POST application description adjusted
7. 'Notes' moved to proper section

Rationale:

1. FSC239 given "70% in first successful attempt" status for POST requirement
Restrictions are being introduced in order to reduce Second Attempt Credit (SAC), and reduce the number of students retaking FSC239, in order to prevent students from filling seats in a bid to get the minimum grade for POST entry after already failing to make the minimum requirements. As a gatekeeper course for our program, we want to prioritize students in the FSC1 stream, and filter out students who are unable to sufficiently prioritize this course and fail to make the minimum grade.
Individual circumstances leading to exclusion by appeal may be subject to director approval.

2. MAT**Y5 removed for POST requirement
Due to the Y courses being split by MCS, Forensic Science has reviewed the course content and need for the new pairings (MAT137H5 + MAT139H5), (MAT157H5 + MAT159H5) and has decided not to replace the Y courses with the new pairings. Our records indicate that less than 1% of our students took the Y courses.
Note: (137, 139 Differential Calc for Math) / (157,159 Analysis I, II) will still be accepted if there is a student with a course conflict issue, but otherwise cut entirely to better direct relevant focus and reduce calendar clutter.

3. PHY137H5 removed as a requirement
To make room for ISP100H5 consistently across our degree programs, PHY137H5, which is not a pre-requisite for upper year courses, is being removed. Additionally, PHY136H5 is being explicitly stated as a POST requirement to prevent students from taking it in upper years which has previously resulted in course conflicts.

4. ISP100H5 added as a recommendation
Ahead of the campus wide rollout, we are recommending ISP100H5, as it is currently required for most of our student's second choice POSTs (ANT, CHM, PSY), and they are currently unable to enrol in any relevant backup POSTs should they be unsuccessful in FSC.

5. BIO259H5 and FSC341H5 added as a Statistics requirement alternative
STA215H5 is no longer an offered course, and will not be accepted as an alternative to satisfy the Statistics requirement past Fall 2027. As a response to the removal of this course, we have introduced more options. FSC341H5 Applied Forensic Statistics is available for any forensic student may enroll in to satisfy their requirement. BIO259H5 is the new statistics option for Forensic Biology students, and thus will be added as one of the alternatives that can be taken to satisfy the stats requirement.
Double Major students may take either FSC341H5 or the stats course relevant to their second major.

6. POST application description adjusted
General language in the POST application instructions has been adjusted for clarity, including disclosure that there is no Round 2 for Forensic Science. There are currently not enough avenues that explicitly state this information. Adding to the calendar will contribute to reducing confusion about our annual deadline.

Consultations:

- October 21, 2022 - Sciences Curriculum Committee (first notification of STA215 being removed as a course)
April 21, 2023 - Forensic Science Curriculum Committee

Forensic Science Curriculum Committee- July 11, 2023
Forensic Science Curriculum Committee- July 17, 2023

Resource Implications:

