



## **University of Toronto Mississauga**

SCI Curriculum Proposals Reports  
May 11, 2023

## Table of Contents

COMMUNICATION, CULTURE, INFORMATION, & TECHNOLOGY (UTM), INSTITUTE OF .....	4
<b>1 New Course.....</b>	<b>4</b>
CCT399H5: Research Opportunity Program (ROP).....	4
<b>MATHEMATICAL AND COMPUTATIONAL SCIENCES (UTM), DEPARTMENT OF.....</b>	<b>5</b>
<b>19 Course Modifications.....</b>	<b>5</b>
CSC263H5: Data Structures and Analysis .....	5
CSC311H5: Introduction to Machine Learning.....	5
CSC384H5: Introduction to Artificial Intelligence.....	5
CSC413H5: Neural Networks and Deep Learning.....	5
CSC477H5: Introduction to Mobile Robotics .....	5
MAT240H5: Algebra I .....	6
MAT387H5: Topics in Mathematics .....	6
MAT397H5: Further Studies in Mathematics.....	6
MAT398H5: Further Studies in Mathematics.....	6
MAT497H5: Further Studies in Mathematics.....	7
MAT498H5: Further Studies in Mathematics.....	7
STA312H5: Topics in Statistics.....	8
STA313H5: Topics in Statistics.....	8
STA378H5: Statistics Research Project.....	8
STA388H5: Topics in Statistics.....	9
STA398H5: Statistics Research Project.....	9
STA478H5: Statistics Research Project.....	10
STA488H5: Topics in Statistics.....	10
STA498H5: Statistics Research Project.....	10
<b>5 Minor Program Modifications.....</b>	<b>11</b>
ERMAJ1540: Applied Statistics - Major (Science).....	11
ERMIN1540: Applied Statistics - Minor (Science).....	11
ERSPE1540: Applied Statistics - Specialist (Science) .....	12
ERMIN1688: Computer Science - Minor (Science).....	13
ERMAJ2511: Mathematical Sciences - Major (Science) .....	14
<b>FORENSIC SCIENCE (UTM), PROGRAMS IN.....</b>	<b>16</b>
<b>5 Course Modifications .....</b>	<b>16</b>
FSC239Y5: Introduction to Forensic Science .....	16
FSC341H5: Applied Forensic Statistics .....	16
FSC370H5: Forensic Psychopharmacology.....	16
FSC371H5: The Science of Cannabis.....	16
FSC416H5: Population Genetics .....	16
<b>3 Minor Program Modifications.....</b>	<b>18</b>
ERSPE1338: Forensic Anthropology - Specialist (Science) .....	18
ERSPE1505: Forensic Psychology - Specialist (Science).....	18
ERMAJ0205: Forensic Science - Major (Science).....	19
<b>CHEMICAL AND PHYSICAL SCIENCES (UTM), DEPARTMENT OF.....</b>	<b>21</b>
<b>4 Course Modifications .....</b>	<b>21</b>
CHM414H5: Advanced Topics in Analytical Chemistry .....	21
ERS101H5: Planet Earth .....	21

ERS111H5: Earth, Climate & Life .....	22
ERS203H5: Magmatic Systems and Igneous Petrology .....	22
<b>2 Minor Program Modifications.....</b>	<b>24</b>
ERSPE1995: Biological Chemistry - Specialist (Science) .....	24
ERSPE1376: Chemistry - Specialist (Science).....	24
 <b>BIOLOGY (UTM), DEPARTMENT OF .....</b>	 <b>25</b>
<b>5 Course Modifications .....</b>	<b>25</b>
BIO320H5: Sensory and Cognitive Ecology .....	25
BIO331H5: Ecology of Communities .....	25
BIO405H5: Evolutionary Perspectives on Behaviour .....	25
BIO414H5: Advanced Integrative Physiology .....	25
BIO481Y5: Biology Research Project .....	26

## 1 New Course

CCT399H5: Research Opportunity Program (ROP)

**Description:**

This course provides an opportunity for third or higher year students to assist with the research project of a professor in return for 399H course credit. Students have an opportunity to become involved in original research and enhance their research skills. Based on the nature of the project, projects may satisfy the Humanities, Sciences or Social Sciences distribution requirement. Participating faculty members post their project description for the following summer and fall/winter session on the ROP website in mid-February and students are invited to apply at that time. See [Experiential and International Opportunities](#) for more details.

**Prerequisites:** A minimum of 10.0 credits or permission of instructor.

**Corequisites:**

**Exclusions:** [CCT299Y5](#) or [VCC399Y5](#)

**Recommended Preparation:**

**Notes:**

**Distribution Requirements:** Humanities, Social Science, Science

**Rationale:**

Some faculty do not have projects that require students to be working with them for the entire academic year. Having the option to offer these courses for a single semester will add flexibility which will make the ROP a more attractive and viable option for faculty. Also, this will likely increase faculty involvement in the ROP.

## Mathematical and Computational Sciences (UTM), Department of

### 19 Course Modifications

CSC263H5: Data Structures and Analysis

**Prerequisites:** CSC207H5 and CSC236H5 and (STA107H5 or STA246H5 or STA256H5 or STA237H1 or STA238H1 or ECO227Y5 or ECE286H1)

**Rationale:**

We accepted these courses to replace STA107H5 or STA246 or STA256H5 to meet these course pre-requisite requirements.

CSC311H5: Introduction to Machine Learning

**Recommended Preparation:** CSC338H5

**Rationale:**

We have noticed some students with less numerical computing experience struggling near the start of the course. For those students, we recommend CSC338H5. However, we are not of the opinion that we need this as a formal prerequisite.

CSC384H5: Introduction to Artificial Intelligence

**Prerequisites:** CSC236H5 and (STA246H5 or STA256H5 or STA237H1 or STA238H1 or ECO227Y5 or ECE286H1)

**Rationale:**

We accepted these courses to replace STA107H5 or STA246 or STA256H5 to meet these course pre-requisite requirements.

CSC413H5: Neural Networks and Deep Learning

**Contact Hours:**

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

**Rationale:**

We would like to run the tutorial in the lab now because this course has a computational component of machine learning that we have found works well with students exploring in the labs.

CSC477H5: Introduction to Mobile Robotics

**Prerequisites:** CSC209H5 and (MAT223H5 or MAT240H5) and MAT232H5 and (STA246H5 or STA256H5 or STA237H1 or STA238H1 or ECO227Y5 or ECE286H1 ) and CSC376H5

**Rationale:**

We accepted these courses to replace STA107H5 or STA246 or STA256H5 to meet these course pre-requisite requirements.

MAT240H5: Algebra I

**Prerequisites:** 65% in MAT102H5 or MAT157H5 ~~or Corequisite of MAT157Y1~~

**Corequisites:** MAT157Y1

**Rationale:**

Adding two alternative prerequisites. Students at St George campus do not typically take MAT102H5, but if they take MAT157Y1 they are typically well prepared for MAT240H5. Also, MAT240H1 is not usually offered in the same semester as MAT240H5, so there is often interest from St George students. We are also adding the new MAT157H5 course (an advanced course) as a possible prerequisite.

MAT387H5: Topics in Mathematics

**Enrolment Limits:** Priority is given to students enrolled in the Mathematics ~~or al~~ Statistics Specialist or Major programs.

**Rationale:**

Adjusting enrolment limits so course is consistent with other MAT topics courses (388, 478, 488). Better clarity for students.

MAT397H5: Further Studies in Mathematics

**Description:**

Students explore a topic in mathematics under the supervision of a faculty member. ~~Interested students must consult with mathematics faculty at least two months/ prior to registration, to determine the topic and scope.~~

**Prerequisites:** ~~Departmental~~ Permission of instructor and department, a minimum CGPA of ~~2~~3.5 and completion of at least 4.0 credits of MAT courses.

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

**Rationale:**

Changing 'Enrolment Limits' and 'Prerequisites' to place more limitation on students permitted to these take courses, to ensure that students are well prepared and suited for such Reading/Independent Study courses. Also correcting program names to reflect what is in Academic Calendar (ie: Mathematical Sciences vs. Mathematics). This reflects what is done in practice on Timetable enrolment controls. Removed enrolment details from the course description, because this does not belong in the description.

MAT398H5: Further Studies in Mathematics

**Description:**

**Previous:**

Students explore a topic in mathematics under the supervision of a faculty member. Interested students must consult with mathematics faculty at least two months prior to registration, to determine the topic and scope.

**New:**

Students explore a topic in mathematics under the supervision of a faculty member.

### Track Changes:

Students explore a topic in mathematics under the supervision of a faculty member . ~~Interested students must consult with mathematics faculty at least two months prior to registration , to determine the topic and scope .~~< / p>

**Prerequisites:** ~~Deartmental~~pPermission of instructor and department , a minimum CGPA of ~~2~~3.5 and completion of at least 4.0 credits of MAT courses.

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

### Rationale:

Changing 'Enrolment Limits' and 'Prerequisites' to place more limitation on students permitted to these take courses, to ensure that students are well prepared and suited for such Reading/Independent Study courses. Also correcting program names to reflect what is in Academic Calendar (ie: Mathematical Sciences vs. Mathematics). This reflects what is done in practice on Timetable enrolment controls. Removed enrolment details from the course description, because this does not belong in the description.

MAT497H5: Further Studies in Mathematics

### Description:

Students explore a topic in mathematics under the supervision of a faculty member-. ~~Interested students must consult with mathematics faculty at least two< months/ prior to registration , to determine the topic and scope.>~~

**Prerequisites:** ~~Deartmental~~pPermission of instructor and department, a minimum CGPA of ~~2~~3.5 and completion of at least 6.0 credits of MAT courses.

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

### Rationale:

Changing 'Enrolment Limits' and 'Prerequisites' to place more limitation on students permitted to these take courses, to ensure that students are well prepared and suited for such Reading/Independent Study courses. Also correcting program names to reflect what is in Academic Calendar (ie: Mathematical Sciences vs. Mathematics). This reflects what is done in practice on Timetable enrolment controls. Removed enrolment details from the course description, because this does not belong in the description.

MAT498H5: Further Studies in Mathematics

### Description:

Students explore a topic in mathematics under the supervision of a faculty member-. ~~Interested students must consult with mathematics faculty at least two months/ prior to registration , to determine the topic and scope.~~

**Prerequisites:** ~~Deartmental~~pPermission of instructor and department , a minimum CGPA of ~~2~~3.5 and completion of at least 6.0 credits of MAT courses.

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

### Rationale:

Changing 'Enrolment Limits' and 'Prerequisites' to place more limitation on students permitted to these take courses, to ensure that students are well prepared and suited for such Reading/Independent Study courses. Also correcting program names to reflect what is in Academic Calendar (ie: Mathematical Sciences vs. Mathematics). This reflects what is done in practice on Timetable enrolment controls. Removed enrolment details from the course description, because this does not belong in the description.

#### STA312H5: Topics in Statistics

**Title:** Topics in Statistics: ~~Applied Statistical Modelling~~

**Description:**

**Previous:**

Introduction to a topic of current interest in statistics. Content will vary from year to year. Computer packages are used. 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.

**New:**

Introduction to a topic of current interest in statistics. Content will vary from year to year. Computer packages are used. 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.

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

**Rationale:**

Specific topics title was still appearing on 312, 313, even though this may change year to year. Removing this so that title is generic and consistent with all other MCS Topics courses. Adjusting name of discipline to 'Applied Statistics' to align with correct program name

#### STA313H5: Topics in Statistics

**Title:** Topics in Statistics: ~~Applications of Statistical Models~~

**Description:**

**Previous:**

Introduction to a topic of current interest in statistics. Content will vary from year to year. Computer packages are used. 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.

**New:**

Introduction to a topic of current interest in statistics. Content will vary from year to year. Computer packages are used. 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.

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

**Rationale:**

Specific topics title was still appearing on 312, 313, even though this may change year to year. Removing this so that title is generic and consistent with all other MCS Topics courses. Adjusting name of discipline to 'Applied Statistics' to align with correct program name.

#### STA378H5: Statistics Research Project

**Description:**

**Previous:**

Students explore a topic in statistics under the supervision of a faculty member. Interested students must consult with statistics faculty at least two months prior to registration, to determine the topic and scope.

**New:**



Students explore a topic in statistics under the supervision of a faculty member. Interested students must consult with statistics faculty at least two months prior to registration, to determine the topic and scope.

**Prerequisites:** ~~Departmental~~(STA260H5 or STA261H1 or STAB57H3) and permission of department and a minimum CGPA of ~~23.50~~.

**Enrolment Limits:** ~~Priority~~ is ~~restricted~~ to students ~~enrolled in~~ Applied Statistics Specialist or Major programs.

#### Rationale:

STA260H5 is foundational 200-level course, necessary course to understand technical aspects of research topics/projects. Also changing 'Enrolment Limits' to reflect more limitation on students permitted to take courses, as those in specialists and majors would be better prepared/suited for such research projects. Increasing the CGPA requirement for participation in Statistics Research Project Courses to allow access to stronger students who are better prepared to be successful in such courses. Also, would make for better engagement/commitment in course. Note that this proposal was withdrawn from Mar 2023 round so that the change to CGPA could be added.

#### STA388H5: Topics in Statistics

##### Description:

###### Previous:

Introduction to a topic of current interest in statistics. Content will vary from year to year. Enrolment by permission of instructor only.

###### New:

Introduction to a topic of current interest in statistics. 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.

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

#### Rationale:

Adjusting course description and prerequisites to align with other MCS Topics courses. Adjusting name of discipline to 'Applied Statistics' to align with correct program name.

#### STA398H5: Statistics Research Project

**Prerequisites:** ~~Departmental~~(STA260H5 or STA261H1 or STAB57H3) and permission of department and a minimum CGPA of ~~23.50~~.

**Enrolment Limits:** ~~Priority~~ is ~~restricted~~ to students ~~enrolled in~~ Applied Statistics Specialist or Major programs.

#### Rationale:

STA260H5 is foundational 200-level course, necessary course to understand technical aspects of research topics/projects. Also changing 'Enrolment Limits' to reflect more limitation on students permitted to take courses, as those in specialists and majors would be better prepared/suited for such research projects. Increasing the CGPA requirement for participation in Statistics Research Project Courses to allow access to stronger students who are better prepared to be successful in such courses. Also, would make for better engagement/commitment in course. Note that this proposal was withdrawn from Mar 2023 round so that the change to CGPA could be added.

#### STA478H5: Statistics Research Project

**Prerequisites:** ~~Departmental~~(STA302H5 or STA302H1 or STAC67H3) and permission of department and a minimum CGPA of ~~23.50~~.

**Enrolment Limits:** ~~Priority~~ is ~~restricted~~ to students ~~enrolled in~~ Applied Statistics Specialist or Major programs.

#### Rationale:

STA302H5 is foundational course of any 400-level research topic/project, and needed in most data analysis. This will give the student a solid background to be successful in a STA Research Project course. Also changing 'Enrolment Limits' to reflect more limitation on students permitted to take courses, as those in specialists and majors would be better prepared/suited for such research projects. Increasing the CGPA requirement for participation in Statistics Research Project Courses to allow access for stronger students who are better prepared to be successful in such courses. Also, would make for better engagement/commitment in course. Note that this proposal was withdrawn from Mar 2023 round so that the change to CGPA could be added.

#### STA488H5: Topics in Statistics

##### Description:

Introduction to a topic of current interest in statistics . Content will vary from year to year. ~~The Enrolment by hours performed 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 .~~ < / p>

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

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

#### Rationale:

Adjusting course description and prerequisites to align with other MCS Topics courses. Adjusting name of discipline to 'Applied Statistics' to align with correct program name.

#### STA498H5: Statistics Research Project

**Prerequisites:** ~~Departmental~~(STA302H5 or STA302H1 or STAC67H3) and permission of department and a minimum CGPA of ~~23.50~~.

**Enrolment Limits:** ~~Priority~~ is ~~restricted~~ to students ~~enrolled in~~ Applied Statistics Specialist or Major programs.

#### Rationale:

STA302H5 is foundational course of any 400-level research topic/project, and needed in most data analysis. This will give the student a solid background to be successful in a STA Research Project course. Also changing 'Enrolment Limits' to reflect more limitation on students permitted to take courses, as those in specialists and majors would be better prepared/suited for such research projects. Increasing the CGPA requirement for participation in Statistics Research Project Courses to allow access for stronger students who are better prepared to be successful in such courses. Also, would make for better engagement/commitment in course. Note that this proposal was withdrawn from Mar 2023 round so that the change to CGPA could be added.

## 5 Minor Program Modifications

ERMAJ1540: Applied Statistics - Major (Science)

### Completion Requirements:

7.0-7.5 credits are required.

#### First Year:

1. CSC108H5
2. MAT102H5
3. [(MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5) and (MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5 ) ] or MAT134Y5 or MAT135Y5 or MAT137Y5 or MAT157Y5
4. MAT223H5 or MAT240H5

#### Second Year:

1. MAT232H5 or MAT233H5 or MAT257Y5
2. STA256H5 and STA258H5 and STA260H5

#### Higher Years:

1. STA302H5 and STA304H5 and STA305H5
2. 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:

1. MAT133Y5 is included in the credit count only if the student also completes MAT233H5 ( in which case MAT232H5 is not required ) . < / li>
2. Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses . < / li>
3. ECO220Y5 cannot be substituted for STA256H5 or STA258H5 and / or STA260H5 . < / li>
4. ECO227Y5 can be substituted for STA256H5 and STA258H5 , but not for STA260H5 . < / li>
5. STA107H5 is highly recommended in first year , but it is not required . < / li>
6. MAT337H5 or MAT378H5 is highly recommended for students intending to pursue graduate level studies in statistics . < / li>
7. 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 .
8. 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:

Adding note to introduce limitation on number of 300 and 400-level Statistics Research Project courses major students can take. Note that this proposal was withdrawn from Mar 2023 round to adjust language around 'Research Project Courses' (formerly used language "Reading and Independent Study Courses") to align with Academic Calendar titles as per direction from Curriculum Office.

### Rationale:

In 2022, there was an uptick in applications for Statistics Research Project courses; with some students wanting to complete 2 in one term or greater than 2 throughout their degree. We wish to ensure that these courses remain meaningful, and rigorous, and thus wish to add limitations on the amount that students can take in our specialist/major programs.

ERMIN1540: Applied Statistics - Minor (Science)

### Completion Requirements:

4.5 - 5.0 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 :

1. 0.5 credit ~~made up~~ of any ~~combination of ( PSY201H5 and PSY202H5 ) or ( BIO360H5 and BIO361H5 ) or SOC350H5 or ECO220Y5 or any~~ STA courses other than STA256H5 and STA258H5 and STA260H5 ( see Note #1 )
2. MAT232H5 or MAT233H5 or MAT257Y5
3. STA256H5 and STA258H5 and STA260H5
4. 1.0 additional credit of STA at the 300 / 400 level

#### NOTES :

1. 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.
2. Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses .
3. ECO220Y5 cannot be substituted for STA256H5 and / or STA258H5 and / or STA260H5 .
4. ECO227Y5 can be substituted for STA256H5 and STA258H5 , but not for STA260H5 .
5. ~~Students who include any of PSY201H5 or PSY202H5 or BIO360H5 or BIO361H5 or SOC350H5 or ECO220Y5 in this program are responsible for ensuring that these courses are completed prior to enrolling in STA256H5 and that all STA course prerequisites and exclusions are met .~~
6. 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 .
7. Note that Statistics Research Project courses ( STA378H5 , STA398H5 , STA478H5 or STA498H5 ) may not count towards the Applied Statistics minor .

#### Description of Proposed Changes:

Brief description: Adding STA260H5 to the list of mandatory 200-level STA courses in Applied Statistics minor; also rewording the program requirement needing non-STA courses to remove specificity/promotion of statistics courses like PSY201H5, 202H5 etc., seeing as the related category now only needs 0.5 credits. One NOTE reworded, and new NOTE added regarding Research Project Courses. Note that this proposal was withdrawn from Mar 2023 round to adjust language around 'Research Project Courses' (formerly used language "Reading and Independent Study Courses") to align with Academic Calendar titles as per direction from Curriculum Office.

#### Rationale:

STA260H5 is an important statistics course. It is a prerequisite of most of 300+ level STA courses. Currently, STA304H5 and STA360H5 are the only 300/400 level courses that do not require STA260H5 as a prerequisite. Thus, this adjustment makes it possible for STA minor students to take most 300+ level courses. Other changes promote clarity for course planning and exclusion purposes, remove specificity/promotion of non-STA courses (like PSY201H5, 202H5) since not many STA minor students take them. The former NOTE was no longer accurate for courses like BIO360H5, BIO361H5 because they no longer list STA256H5 as an exclusion as of 2019. Adding new NOTE to align with STA Research Project course change proposals (restriction of such courses to only majors and specialists).

ERSPE1540: Applied Statistics - Specialist (Science)

#### Completion Requirements:

12.0-12.5 credits are required .

First Year :

1. CSC108H5
2. MAT102H5
3. [ ( MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5 ) and ( MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5 ) ] or MAT134Y5 or MAT135Y5 or MAT137Y5 or MAT157Y5
4. MAT223H5 or MAT240H5

Second Year :

1. MAT232H5 or MAT233H5 or MAT257Y5
2. MAT244H5
3. STA256H5 and STA258H5 and STA260H5

Higher Years :

1. STA302H5 and STA304H5 and STA305H5 and STA348H5
2. 2.0 credits of STA at the 300 / 400 level STA course
3. 2.0 credits from CSC322H5 or ( CSC311H5 or CSC411H5 ) or MAT302H5 or MAT311H5 or MAT332H5 or MAT334H5 or MAT344H5 or ( MAT337H5 or MAT378H5 )
4. 1.0 credit of STA

NOTES :

1. MAT133Y5 is included in the credit count only if the student also completes MAT233H5 ( in which case MAT232H5 is not required ) .
2. Students are strongly encouraged to familiarize themselves with the 100-level calculus pre-requisites to select the correct courses .
3. ECO220Y5 cannot be substituted for STA256H5 or STA258H5 or STA260H5 .
4. ECO227Y5 can be substituted for STA256H5 and STA258H5 , but not for STA260H5 .
5. STA107H5 is highly recommended in first year , but it is not required .
6. MAT337H5 or MAT378H5 is highly recommended for students intending to pursue graduate level studies in statistics .
7. **Students in the Applied Statistics Specialist may take at most 1.0 credit of Statistics Research Project Courses from STA378H5 , STA398H5 , STA478H5 and STA498H5 .**
8. 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:**

Adding note to introduce limitation on number of 300 and 400-level Statistics Research Project courses specialist students can take. Note that this proposal was withdrawn from Mar 2023 round to adjust language around 'Research Project Courses' (formerly used language "Reading and Independent Study Courses") to align with Academic Calendar titles as per direction from Curriculum Office.

**Rationale:**

In 2022, there has been an uptick in application to Statistics Research Project courses; with some students wanting to complete 2 in one term or greater than 2 throughout their degree. We wish to ensure that these courses remain meaningful, and rigorous, and thus wish to add limitations on the amount that students can take in our specialist/major programs.

ERMIN1688: Computer Science - Minor (Science)

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) or GGR335H5 or GGR337H5 or GGR437H5 . No more than 0.5 credit of GGR courses may count to this requirement.

## NOTES :

1. 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 .
2. 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 .

### Rationale:

CS minors are not allowed to use reading courses to meet program requirements. At the same time, they are limited to 1.5 credits of computer science courses at the 300/ 400-level. CSC minors would have room to take 1.0 CSC required credits at the 300/400L when they only take a reading course.

CSC ROP courses are also not allowed to meet this requirement.

## ERMAJ2511: Mathematical Sciences - Major (Science)

### Enrolment Requirements:

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

1. MAT102H5 ( minimum 60% ) ;
2. [ ( MAT134H5 or MAT136H5 or MAT139H5 or MAT134Y5 or MAT135Y5 or MAT137Y5 or MAT233H5 ) (minimum 60% ) ] or MAT159H5 or MAT137Y5 or MAT157Y5; and
3. A minimum cumulative grade point average ( CGPA ) , to be determined annually .
4. 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:

1. MAT102H5
2. [ ( MAT132H5 or MAT135H5 or MAT137H5 or MAT157H5 ) and ( MAT134H5 or MAT136H5 or MAT139H5 or MAT159H5 ) ] or MAT134Y5 or MAT135Y5 or MAT137Y5 or MAT157Y5
3. MAT223H5 or MAT240H5

#### Second Year :

1. MAT202H5 and MAT244H5
2. [ ( MAT232H5 or MAT233H5 ) and MAT236H5 ] or MAT257Y5
3. MAT224H5 or MAT247H5

#### Higher Years :

1. MAT301H5 and ( MAT334H5 or MAT354H5 )
2. MAT337H5 or MAT378H5 or MAT392H5 or MAT405H5
3. MAT305H5 or MAT311H5 or MAT332H5
4. MAT302H5 or MAT315H5 or MAT344H5
5. STA256H5 or CSC363H5 or 0.5 credit of MAT at the 300 / 400 level , except MAT322H5
6. 0.5 additional credits in MAT at the 400 level

## NOTES :

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

**Description of Proposed Changes:**

Adding CSC363H5 to possible 300+ level courses that MAT majors can take. Also, adjusting entry requirement language regarding min 60% needed in specific 1st year calculus courses, including rearrangement of where MAT137Y5 is located in list. Note that the Mar 2023 proposal was withdrawn in CM to add this change for entry requirements. Please refer to Mar 2023 Curriculum report for full description & rationale of initial proposal.

**Rationale:**

CSC363H5 covers sufficiently high-level theoretical mathematics that it should count for credit in all math programs. This change will typically benefit students already enrolled in CSC major or specialist, who also want to complete a MAT major. Also, this brings some consistency with what is allowed at the 300+ level in MAT specialist (can take 300+ level courses in CSC or STA, in addition to MAT). & Improve clarity around calculus entry requirement(s).



## Forensic Science (UTM), Programs in

### 5 Course Modifications

FSC239Y5: Introduction to Forensic Science

**Exclusions:** FSC239Y5

**Rationale:**

The exclusion effectively prevents retaking this course, which is being proposed 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.

FSC341H5: Applied Forensic Statistics

**Exclusions:** STA246H5 or STA258H5 or STA260H5 or STA238H1 or STA255H1

**Rationale:**

Exclusions are being introduced to reduce the potential for students who have an advanced and experienced knowledge in statistics from enrolling in this introductory course. This course is not appropriate for advanced students.

FSC370H5: Forensic Psychopharmacology

**Description:**

This course introduces students to the area of psychopharmacology ( drug induced changes in mood , thinking and behaviour ) . The mechanisms of action of drugs in the nervous system and their effects on the brain and on behaviour will be explored and the significance of psychopharmacology in criminal investigations and trials will be discussed.

This course is recommended as preparation for FSC371H5 . < / p>

**Rationale:**

FSC370 is no longer a prerequisite course for FSC371, but is still recommended.

FSC371H5: The Science of Cannabis

**Prerequisites:** FSC370H5

**Recommended Preparation:** FSC370H5

**Rationale:**

FSC370 is no longer required as a prerequisite course, due to the breadth of students interested in taking the course; instead it will be only recommended

FSC416H5: Population Genetics

**Prerequisites:** (ANT202H5 or BIO207H5) and BIO259H5 and FSC315H5



**Rationale:**

As a result of a mid-course survey, many comments suggest that students feel unprepared to take this course. Students are concurrently FSC315, but it contains much pre-requisite information for FSC416. As such, students are having a hard time placing this course into the big picture of their training.

Students who have not taken FSC315 prior to entering FSC416 seem to be at a severe disadvantage for the assignments that make up 75% of their grade. FSC315 introduces DNA databases in Week 8, while students are anticipated to know this information for Week 1 of FSC416.

### 3 Minor Program Modifications

#### ERSPE1338: Forensic Anthropology - Specialist (Science)

##### Enrolment Requirements:

Limited Enrolment — Admission into the Forensic Anthropology 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 FSC Application , upon completing the minimum program entry requirements. Meeting the minimum requirements does not guarantee admission into the program.

##### Minimum Requirements:

1. Completion of 4.0 credits; including 3.0 science credits .
2. Completion of ANT101H5 with 75% or better and ANT102H5 with 75% or better and FSC239Y5 with a 70% or better. (Students applying to enroll after second year must have completed 8.0 credits and achieved at least 75% in each of ANT200H5 , ANT202H5 , ANT203H5 and ANT205H5) and FSC239Y5 with a 70% or better.
3. Completion of BIO152H5 with 65% or better and BIO153H5 with 65% or better
4. A minimum Cumulative Grade Point Average of at least 3.0. The actual minimum CGPA varies from year to year but is never lower than 3.0.

\* 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 .

Application for admission into the program for ALL students can be found at : [www.utm.utoronto.ca / forensic](http://www.utm.utoronto.ca/forensic)

Forensic Science Applications Open: March 1 of each year

Forensic Science Application Deadline: May 1 of each year

##### Rationale:

"Completion of BIO152H5 with 65% or better and BIO153H5 with 65% or better" added to improve consistency of minimum POST requirements across all Forensic Specialist POST. These two courses are already required for the specialist degree, and we would like to prevent students from moving forward without taking it due to currently not being a POST requirement.

#### ERSPE1505: Forensic Psychology - Specialist (Science)

##### Enrolment Requirements:

Limited Enrolment — Admission into the Forensic Psychology Specialist Program is limited and admission 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 FSC application, upon completing the minimum program entry requirements . Meeting the minimum requirements does not guarantee admission into the program.

##### Minimum Requirements:

1. Completion of any Gr.12 ( 4U ) Biology and Advanced Functions or equivalent\*
2. Completion of 4.0 credits , including 3.0 science credits
3. Completion of PSY100Y5 with a minimum average of startBold 75% endBold or better < / li>
4. Completion of FSC239Y5 with a minimum average of startBold 70% endBold or better < / li>
5. Completion of BIO152H5 with 65% or better and BIO153H5 with 65% or better
6. A minimum cumulative Grade Point Average of at least 3.0. The actual minimum CGPA requirement varies from year to year but is never lower than 3.0.

Students applying to enroll after second year must also have:

1. Completed 8.0 credits.
2. 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

3. A minimum cumulative Grade Point Average of at least 3.0. The actual minimum CGPA requirement varies from year to year but is never lower than 3.0.

Application for admission into the program for ALL students can be found at : [www.utm.utoronto.ca / forensic](http://www.utm.utoronto.ca/forensic)

Forensic Science Applications Open: March 1 of each year

Forensic Science Application Deadline: May 1 of each year

#### Description of Proposed Changes:

"Completion of BIO152H5 with 65% or better and BIO153H5 with 65% or better" added to improve consistency of minimum POST requirements across all Forensic Specialist POST.

#### Rationale:

These two courses are already required for the specialist degree, and we would like to prevent students from moving forward without taking it due to currently not being a POST requirement.

ERMAJ0205: Forensic Science - Major (Science)

#### Completion Requirements:

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

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

First Year: BIO152H5, BIO153H5; CHM110H5 , CHM120H5 ; FSC239Y5 ; ( MAT132H5 , MAT134H5 ) / ( MAT135H5 , MAT136H5 ) / MAT134Y5 / MAT135Y5 / MAT137Y5 ; PHY136H5 , PHY137H5

Second Year: CHM242H5 , CHM243H5 ; FSC271H5 ; ANT407H5 / BIO259H5 / ~~FST23415H5~~ / STA220H5 / PSY201H5 \*

Third Year: FSC303H5 / FSC300H5 ; FSC330H5 ; FSC360H5 ;

Fourth Year: 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 continue to be accepted as an option to satisfy the Statistics requirement until Fall 2027.

#### NOTES:

1. The Forensic Science Major MUST be completed in conjunction with one of the following approved second major programs : Anthropology ( Science ) , Biology , Chemistry , Computer Science or Psychology (Other 2nd Majors may be possible with permission of the Forensic Science program director . < / li>
2. Students intending to complete the Forensic Science Major with an Anthropology Major MUST select the ERMAJ0105 Anthropology ( Science ) Major. As part of the ANT ( SCI ) Major requirement of 3.0 additional ANT credits , students are recommended to choose from the following : ANT205H5 ; ANT306H5 , ANT334H5 , ANT340H5 , ANT415H5 , ANT436H5 , ANT439H5.
3. For information on program requirements and enrolment procedures for each of the second major programs , students should consult the individual departmental faculty advisor or the departmental program descriptions listed within this calendar .
4. In each of the 2nd majors, certain courses are compulsory and where a choice of courses is available , students should consult the Forensic Science Student Advisor for the most appropriate selection .
5. 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.
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, including the second science major.

7. Prospective students already holding a degree in Biology , Chemistry , Psychology or Anthropology may not complete a Forensic Science program in their first specialty due to the overlap of course content for courses already completed .

**Description of Proposed Changes:**

STA215H5 has been removed as an alternative program requirement. FSC341H5 and BIO259H5 have been added as replacements.

**Rationale:**

STA215H5 is no longer an offered course, and will not be accepted as an alternative to satisfy the Statistics requirement as of Fall 2027. As a response to the removal of this course, we have introduced more options.

FSC341H5 is the new, already approved, Applied Forensic Statistics course that 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.

#### 4 Course Modifications

##### CHM414H5: Advanced Topics in Analytical Chemistry

###### Description:

An overview of both recent and fundamental developments of instrumentation that are revolutionizing the field of analytical chemistry, with an emphasis on applications in biological chemistry and biotechnology. Topics will include a survey of ~~analytical~~ ~~mass spectrometry~~ ~~analytical~~ techniques, including ~~secondary ion~~, ~~fast atom bombardment~~ ~~and ion cyclotron resonance~~ ~~mass spectrometry~~ ~~methods~~; ~~GC/MS and LC/MS interfaces~~; a survey of ~~surface-oriented~~ techniques including, x-ray photoelectron spectroscopy, Auger electron spectroscopy, ~~Electron Microscopy~~, ~~Surface Enhanced Raman spectroscopy~~, ~~Localized surface plasmon resonance~~ ~~reflectance~~ ~~methods~~, total internal reflection fluorescence methods; ~~Chemometrics~~ ~~form~~, ~~theory~~ and ~~methods~~; ~~microcomputer~~ ~~in state-of-the-art~~ ~~analytical chemistry~~ ~~methods~~. Course work will include independent review of peer-reviewed literature, scientific writing, and student oral presentations.

###### Rationale:

The rationale for making minor revisions to the course description of CHM414 is to update the topics included in the course to fit more modern and cutting edge analytical techniques. Currently the description includes specific topics such "secondary ion" are removed as new techniques such as electrospray ionization and MALDI will be covered instead. The main topics remain the same, with the addition of electron microscopy and localized surface plasmon resonance. The wording "other state-of-the-art analytical methods" was also added to provide flexibility to the course to cover new and emerging analytical methods in the future.

##### ERS101H5: Planet Earth

###### Contact Hours:

Lecture: / Tutorial: / Practical: 24/10 / Seminar:

###### Rationale:

The reduction of number of labs will not change the learning outcomes of the course; we propose such change primarily based on two reasons:

(1) The proposed change will allow the course to be better aligned with the new structure of the other 100-level Earth Science course, ERS111, which will introduce 5 new lab sessions in 2024-25. The two courses will complement each other in that the two sets of labs offered will focus on totally different topics, so students who opt to take both courses will enjoy two different experiences. The better alignment will hopefully minimize the impact on enrolments in either course.

(2) In the past few years, there are increasing student feedbacks expressing concerns on the workload of this course. Most students enrolled in the course are first-year students adjusting to college life and learning new skill sets such as time and stress managements. Many of them are also non-science majors with no prior experience in a laboratory setting. The new labs will focus on topics which students will benefit the most from hands-on experiences, consolidating materials they learn from lectures, so that a reduction on lab sessions (from weekly to bi-weekly) will still equip the students with important geology skills and concepts, but hopefully alleviate some of their stresses especially toward end of term.

Assessments before:

- Exam assessments: 55% (midterm and final exams)
- Lab assessments: 40% (each lab worth 4%)
- Lecture participation: 5%

Assessments after:

- Exam assessments: 50% (split evenly between two exams)
- Lab assessments (completed at the end of each 2hr lab): 40% (each lab worth 8%)
- Lecture participation: 10%

**Resources:**

The reduction of lab sessions will lead to a decrease in lab demonstration/prep for LAB TA hours (please see Research Implications Form). An updated TA rationale form will be submitted to the office of the Dean.

ERS111H5: Earth, Climate & Life

**Contact Hours:**

**Lecture: / Tutorial: / Practical: 10 / Seminar:**

**Rationale:**

The concepts of Earth Science are best described through hands-on teaching. ERS111 introduces concepts such as stable isotopes, complex Earth System interactions and stratigraphic principles which students often struggle with when only taught via lectures. The introduction of 5 labs (2 hours every other week) into ERS111 in Fall 2024 would lead to improvements of student understanding of concepts such as these, as well as help build community within the Earth Science students and hopefully lead to higher enrollments in the course. Currently ERS111 includes 2 writing assignments which were originally introduced into the course prior to UTM's creation of ISP100 and the focus on writing skills in first year for all students. These writing assignments, in their current form, are also vulnerable to AI writing cheating or abuse, and the course assessment needs to be updated to reflect these new tools and challenges. The assessment component of the labs in the course would replace the writing assignments and reduce the weighting of the two examination components currently in the course. The learning outcomes of the course would still include writing and research skills, but these would now become part of the lab introduced into the course. The labs would be taught every other week, and could potentially incorporate a significant increase in student numbers in the course without having a large impact on resources required to teach the labs. Student feedback from ERS111 shows that students do not see how the writing and research assignments that are currently taught fit into the content of the course, and students often state that they feel lost when writing these assignments. This is the case even with in lecture assistance from the UTM Library and RGASC. By including writing and research into a lab topic, students would gain the opportunity to get Earth Science specific experience in finding, reading and summarizing articles with the help of a TA or lab coordinator. The students would also be able to work with their peers to complete work in a lab setting, thereby reducing the feeling of confusion when attempting similar assessments in isolation. Student feedback in the other 100 level Earth Science course, ERS101, shows that the lab based component is very popular, and the introduction of labs into ERS111 would hopefully emulate this same popularity. Assessments Before:

?Exam assessments: 50% (split evenly between 2 exams)

Proposed Curriculum Changes for submission to the Curriculum Subcommittee

?Writing Assignment 1 (500 word summary of an academic article): 15%

?Writing Assignment 2 (750 word researched scientific argument): 20%

?Lecture Quizzes: 15%

Assessments After:

?Lab assessments (completed at the end of each 2 hour lab): Total 50% (Each lab worth 10%)

?Exam assessments: 40% (split evenly between 2 exams)

?Lecture Quizzes: 10%

**Resources:**

The introduction of the lab components will require additional TA hours for the course (please see Resource Implications Form). An updated TA rationale form will be submitted to the office of the Dean. These additional hours are partially negated by the removal of the Writing Assignments (which were graded by a TA) as separate graded assignments. The introduction of labs will require the support of the Earth Science Lab Coordinator to assist with the setup and removal and each lab, and to support the TAs with the teaching of each lab. Jess Slomka has been consulted regarding the potential change, and is in full support of the addition of labs. No extra resources would be required over what is already used in the course.

ERS203H5: Magmatic Systems and Igneous Petrology

**Description:**

**Previous:**

To truly understand the Earth, and the rocks that form it, we must study their basic building blocks – minerals. Minerals are all around us; in rocks and sediments, in soils, in our bones and teeth, and in building materials. This course will examine the complex nature of minerals and crystals from a geological, physical and chemical perspective and will introduce the petrology of volcanic rocks, intrusive plutonic rocks, metamorphic rocks formed in the depths of mountain ranges and sedimentary rocks deposited through time. The course will train students in observations and interpretations of minerals in hand samples and in the use of optical mineralogy (rock slices under a microscope). These are key analytical methods in petrology and by doing so aims to provide students with detailed knowledge and skills inherent to all geologists, and to give a unique perspective of the Earth from the study of the small scale minerals and rocks.

**New:**

Deep beneath volcanoes lie magmatic systems where magma is formed and evolves. These systems are directly related to plate tectonics and the structure and chemistry of the Earth. This course will study these systems – how they are formed, and why they evolve, as well as what they lead to; volcanic eruptions. This course will use rock specimens, thin sections and geochemistry to study igneous rocks and processes, and will link these processes to the wider tectonic controls on magmatic systems, as well as to metamorphic rocks that are often seen in conjunction with magmatic systems.

**Rationale:**

A change in the description of ERS203 was requested in 2018 / 2019, but there was a mistake in the process of updating the description, and the description for ERS201 was used instead for ERS203 (so that both courses currently have the same description). This mistake was only noticed this year.

## 2 Minor Program Modifications

ERSPE1995: Biological Chemistry - Specialist (Science)

### Note

1. Enrolment in certain BCH courses at the St. George campus is limited.
2. (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 courses. For MAT157Y5, permission is required from the CHM Program Advisor.
3. Students cannot count more than 1.0 credits total in ROP, Internship or Research Project/ Thesis courses at the 300/400 level for credit toward their Chemistry program.
4. BIO207H5 has a pre-requisite of BIO152H5 and ~~a co-requisite of~~ BIO153H5.
5. PHY146H5 and PHY147H5 are recommended preparation for all Joint Chemistry-Physics (JCP) courses.

### Description of Proposed Changes:

A note has been added recommending students to take PHY146H5 & PHY147 as a prep for JCP courses. Note no 4 is corrected that both BIO152 & BIO153 are prerequisites.

### Rationale:

We are recommending students consider taking the calculus-based first year physics courses (PHY146H5 and PHY147H5), as opposed to the algebra-based physics courses (PHY136H5 and PHY137H5), so that they are better prepared for our Joint Chemistry-Physics (JCP) courses associated with this program of study.

ERSPE1376: Chemistry - Specialist (Science)

### Note

1. For MAT157H5, permission is required from the CHM Program Advisor
2. MAT212H5 has the following requirements: Prerequisite - MAT233H5 or (MAT232H5 or MAT257Y5 as a corequisite); and Corequisite - MAT223H5 or MAT240H5
3. (MAT132H5 and MAT134H5) or (MAT135H5 and MAT136H5) or (MAT137H5 and MAT139H5) or (MAT157H5 and MAT159H5) or MAT134Y5 or MAT135Y5 or MAT137Y5 is required for all 200-level CHM courses.
4. Students cannot take more than 2.0 credits total in ROP, Internship or Research Project/ Thesis courses at the 300/ 400 level for credit toward this Chemistry program.
5. PHY146H5 and PHY147H5 are recommended preparation for all Joint Chemistry-Physics (JCP) courses

### Description of Proposed Changes:

A note has been added - see No. 5. Students are recommended to take PHY146 & 147 as preparation for JCP courses

### Rationale:

We are recommending students consider taking the calculus-based first year physics courses (PHY146H5 and PHY147H5), as opposed to the algebra-based physics courses (PHY136H5 and PHY137H5), so that they are better prepared for our Joint Chemistry-Physics (JCP) courses associated with this program of study.



## Biology (UTM), Department of

### 5 Course Modifications

BIO320H5: Sensory and Cognitive Ecology

**Prerequisites:** BIO202H5 ~~or~~ **and** / **b** > **BIO2045H5** < / **p** >

**Rationale:**

Over the past year or so the instructor has introduced more ecology content into the course and has changed the title and content of the course to reflect this (title/content was changed last spring). Going forward the instructor has decided it would be a good idea to have students complete Ecology (BIO205) and Physiology (BIO202) as prereqs to be better prepared for the course content. BIO204H5 is being deleted as a prereq because our department has not offered that course in a very long time.

BIO331H5: Ecology of Communities

**Contact Hours:**

**Lecture:** / **Tutorial:** / **Practical:** ~~1~~24 / **Seminar:**

**Rationale:**

For several years now the instructor has been teaching the labs as two hour labs rather than one hour, so this is house keeping to reflect the hours that are being taught in the lab, to match the calendar. The lab sessions use a variety of approaches to teach concepts and skills in community ecology and a two hour lab session is needed to effectively achieve the pedagogical aims of the exercises. Labs sessions include computer based exercises, group discussions and questions based on readings and six minute oral presentations towards the end of the course.

BIO405H5: Evolutionary Perspectives on Behaviour

**Prerequisites:** BIO304H5 ~~and ( BIO320H5 < or / BIO318Y5 or BIO328H5 )~~ p >

**Rationale:**

Over the past few years due to low enrolment, we have been allowing students to enrol into this course without having all of the current listed prereqs. In order for enrolment to remain close to the 24 cap, the instructor would like to remove BIO318H5, BIO318Y5Y & BIO320H5 as prereqs, but keep BIO304 prereq. The instructor has also redesigned the course content a bit with this in mind.

BIO414H5: Advanced Integrative Physiology

**Contact Hours:**

**Lecture:** / **Tutorial:** ~~1~~5 / **Practical:** / **Seminar:**

**Rationale:**

Instructor would like to drop the TUT section portion of the course as the students are not utilizing it to the full advantage. He also feel that the course will not suffer from dropping the TUT sections, as the students are getting more out of the lab portion of the course. This will also mean that he can make due with one TA rather than two TA's for the course.

**Resources:**

None - will actually drop in TA resources going from two TA's to one TA

BIO481Y5: Biology Research Project

**Exclusions:** ~~B1~~Students may not have concurrent enrolment in this course and in any other internship , research , or RO400Y5P course.< JCB487Y5

**Rationale:**

We are adding similar language to this course as we did for our internship course, in order that students will dedicate the time and energy needed for this research course.

