

SCIENCES CURRICULUM SUBMISSION
to the **ACADEMIC AFFAIRS COMMITTEE OF COUNCIL,**
University of Toronto at Mississauga

- DIVISION:** Humanities
 Sciences
 Social Sciences

BIOLOGY CURRICULUM SUBMISSION

SUMMARY OF COURSE CHANGES:

Department (list in alphabetical order)	No. of Full Courses Deleted	No. of Full Courses Added	No. of Half Courses Deleted	No. of Half Courses Added	Net FCEs
Biology (JBC)				1	
Biology (JBG)				1	

SUMMARY OF PROGRAM CHANGES:

Program Name:

New Programs	None
Deleted Programs	None
Other Changes	Change on Page 50, top of second column: remove from Notes, point #2: Remove (CHM240Y/(241H, 261H) in the Specialist program). Renumber item #3 to #2, #4 to #3, #5 to #4.
	Change on page 50, bottom of first column (add JBG312H as an option): Ecology and Field Biology: BIO301H, 316H, 330H, 332Y*, 337H*, 405H*, 418H*, 464H; ENV317H*; JBG312H; PHY335H
	Change on page 51, top of second column (add JBG312H as an option): Third and Fourth Years: Point #4: 1.0 credit from: BIO301H/316H, 330H, 332Y*, 353H, 361H; ENV317H*; GGR305H; JBC372H; JBG312H or from courses listed in #2 and #3
	Change on page 53, middle of first column (add JBG312H as an option): Third and Fourth Years: Point #7: 1.5 credit from: BIO330H, 332Y*/337H*, 405H*, 418H*, 464H; ENV 317H*; JBG312H
	Changes on page 106: Note: The prerequisites for BIO 152H5 are: OAC BIO/BIO Gr. 12 (4U); OAC CHM/CHM Gr. 12 (4U); OAC Calculus/Advanced Functions & Introductory Calculus Gr. 12 (4U); (OAC

	A&G/OAC FM/OAC Physics) or (Geometry & Discrete Mathematics Gr. 12 (4U)/Mathematics of Data Management Gr. 12 (4U)/Physics Gr. 12 (4U).
	<p>Molecular Biology Specialist (Science) Remove entry on page 53 under Specialist Program ERSPE1237 [Leave in section on Limited Enrolment].</p> <p>Replace with: Within an Honours degree, 14 credits are required.</p> <p><i>First Year:</i> BIO152H, 153H; CHM140Y; MAT132Y/138Y; plus 1.0 of CLA201H; ENV100Y; ERS120H; PHY 135Y/137Y/140Y; PSY100Y; WRI203H, 307H <i>Second Year:</i> BIO204H, 205H, 206H, 207H, 215H; CHM(242H, 243H)/(241H, 261H) <i>Third Year:</i> BIO315H, 360H, 370Y; CHM361H, 362H, 371H; JBC372H; plus 1.0 of BIO304H, 310H, 341H, 380H; CHM347H; PHY335H</p> <p><i>Fourth Year:</i> BIO475H, 477H/478H** plus 0.5 of: BIO452H, 481Y; BCM421H(G), 430H(G), 440H(G); CHM489Y; MBY 428H(G), 445H(G), 480H(G); MGB451H(G), 452H(G), 460H(G), 470H(G)</p> <p>** In the event that BIO478H is not offered during the 4th year of student=s studies, students must take BIO475H plus 1.0 credits from the Fourth Year list above. In such a year, BIO472H(G)/BCH441H(G)/MGB420H(G) may be taken as 0.5 of the optional credit.</p> <p>Rationale for Above-noted Changes: 1) Number of students graduating in the Molecular Biology Specialist has dropped dramatically in the past three years because of the inflexibility of the schedule.. 2) BIO207H (Genetics) now requires BIO152 and 153 as pre- /co-requisites thus we should add the first year biology courses to the prerequisites. 3) We propose to make the Molecular Biology Specialist more flexible by making it essentially identical to a Biology Specialist (first and second years) with BIO360H (rather than the optional STA220H) as a third year requirement. There would also be many more optional courses in the third and fourth years allowing for a more flexible schedule.</p>

COURSE CHANGES:

- **New Courses:**

Course #1	Course No. and Name (please fill in):
Description	JBC201H: Introduction to Pharmacology: Pharmacokinetic Principles Topics include absorption, distribution, biotransformation, elimination, calculation of dosages, variability in drug response and adverse drug reactions.
Exclusion	PCL201H(G)
Prerequisite	None

Recommended Corequisite	BIO215H
Recommended preparation	BIO206H, CHM211H, CHM221H, CHM242H
Distribution	Sciences
Rationale for creation of course	As a requirement for Specialist in Biotechnology. Specialist program was arranged to have a common first two years with downtown specialists in Pharmacology and Toxicology. These programs have PCL201H as a requirement in second year.
Offered at St George	Yes, PCL201H
Revived Course	
Course #2	Course No. and Name (please fill in):
Description	JBG312H5 Landscape Ecology of Animal Populations A companion course to GGR311H5, further investigating the principles governing the distribution and success of animal populations in landscapes. Topics include microhabitat selection, home range use, scale-dependent foraging theory, dispersal, genetic structure of populations, cyclic populations, metapopulation dynamics, colonization and extinction, and implications for conservation biology.
Exclusion	
Prerequisite	BIO205H5
Recommended preparation	GGR311H5
Distribution	Sciences
Rationale for creation of course	Landscape ecology is emerging as a dynamic and important discipline at the confluence of ecology, geography and environmental science. This course would be an opportunity to create a link between these departments, and provide a course covering principles in population biology (not currently offered).
Offered at St George	No
Revived Course	

• **Other Changes:**

Course No. and Name	Brief comment on the rationale for change
JBC372H5 Molecular Biology <i>Prerequisite:</i> BIO206H, CHM241H/242H <i>Corequisite:</i> BIO207H, 215H	Second year organic chemistry course used to be a Y course (CHM240Y) then became an H (CHM241H) course plus a half course in Biochemistry (CHM261H). Chemistry has now decided to change the second year biochemistry to a part II of organic chemistry (CHM243H). A single semester of organic chemistry should be sufficient preparation for JBC372H and would allow a greater number of students who are interested in Molecular Biology to take it.
BIO478H5 Functional Genomics and Bioinformatics	Previously, JBC372H was the prerequisite for this course. BIO370Y is being added as an optional prerequisite - this

<p><i>Prerequisite:</i> BIO370Y/JBC372H, P.I. <i>Recommended Preparation:</i> CHM361H</p>	<p>should be adequate preparation and would allow more students to take the course.</p>
<p>BIO481 wording Students in this course will conduct a research project under the supervision of a staff member in the Department of Biology. The course is open to third and fourth year students. Students learn how to design, carry out and evaluate the results of a research project. Students are required to write and present a research proposal, write a term paper, and present a seminar on the results of their research project. All students interested in a research project are strongly urged to must approach potential faculty supervisors several months in advance of the beginning of term. Students must obtain written permission from the faculty member whom they would like to serve as their project supervisor. Students must meet with the course coordinator three to six times per year.</p>	<p>Add the words "in the Department of Biology"</p> <p>Remove "are strongly urged"; replace with "must"</p> <p>Remove "written"</p>

CHEMICAL & PHYSICAL SCIENCES CURRICULUM SUBMISSION

SUMMARY OF COURSE CHANGES:

Discipline (list in alphabetical order)	No. of Full Courses Deleted	No. of Half Courses Added	No. of Half Courses Deleted	No. of Half Courses Added	Net FCEs
Astronomy	0	0	0	0	0
Chemistry	0	0	0	0	0
Earth Sciences	0	0	0	0	0
Physics	0	0	1	0	-0.5
Science Education	0	0	0	0	0

SUMMARY OF PROGRAM CHANGES:

	Program Name:
New Programs	None
Deleted Programs	None
Other Changes	None

COURSE CHANGES:

- **New Courses: None**

- Deleted Courses:

Course No. and Name	Rationale for deletion
PHY345H5 Problem solving on a computer	Faculty member no longer on campus. No other resources available.

- Other Changes:

Course No. and Name	Brief comment on the rationale for change
CHM462H5 Advances in Biological Chemistry	Change name to: "Advances in Chemical Biology" More appropriate description of course content.
<p>Chemistry <i>Changes to exclusions</i> CHM140Y delete CHM 138H CHM 221H delete CHM248Y(G), 229H(G). Add CHM220H(G), 221H(G) CHM242H delete CHM248H(G). Add CHM248Y(G), CHM449(G) CHM333H delete CHM452H CHM361H delete BCH310H(G), 320Y(G), 321Y(G) CHM362H delete BCH310H(G), 320Y(G), 321Y(G) JCP322H add CHM328H(G)</p> <p><i>Changes to prerequisites</i> CHM 140Y change prerequisites from (OAC Chemistry/Grade 12 Chemistry (SCH4U), OAC Calculus & OAC A&G/Grade 12 Advanced Functions & Introductory Calculus (MCB4U) and Grade 12 Geometry & Discrete Mathematics (MGA4U), To: (OAC Chemistry/Grade 12 Chemistry (SCH4U); OAC Calculus & OAC A&G/Grade 12 Advanced Functions & Introductory Calculus (MCB4U), Grade 12 Geometry & Discrete Mathematics (MGA4U)/Grade 12 (4U) Physics)</p> <p>JCP321H add /MAT248Y/</p>	
<p>Earth Sciences <i>Changes to prerequisites</i> ERS 201H5 change prerequisites from: ENV100Y/(ERS103H, 120H) to, ENV100Y/ERS103H/ERS120H ERS315H5 change prerequisites from: ERS202H/203H/222H, to ERS202H/203H ERS317H5 change prerequisites from: ERS202H/203H/222H, to ERS202H/203H</p>	

<p>ERS319H5 change prerequisites from: ERS202H/203H/222H, to ERS202H/203H ERS325H5 change prerequisites from: ERS202H/203H/(220H, 22H), or equivalent from St. George or Scarborough campuses, to ERS202H, 203H. ERS470Y5 change prerequisite from: any 2.0 credits from the ERS300 level, plus... to: any 2.0 credits from the ERS300 or GLG300(G) level, plus... ERS471H5/472H5 change prerequisite from: any 2.0 credits from the ERS300 level, plus..., to: any 2.0 credits from the ERS300 or GLG300(G) level, plus...</p> <p><i>Other calendar changes</i> For courses ERS336H5 and ERS337H5 change “not offered 2003-2004” to “not offered 2004-2005”.</p>	
<p>Physics <i>Changes to prerequisites</i> PHY135Y5 change prerequisites from (OAC Physics/Grade 12(4U) Physics/P.I.; OAC Calc/Grade 12(4U) Advanced Functions & Introductory Calculus; OAC A&G/OAC FM/Grade 12(4U) Geometry & Discrete Mathematics/P.I.) To: (OAC Physics/Grade 12(4U) Physics/P.I.; OAC Calc/Grade 12(4U) Advanced Functions & Introductory Calculus; OAC A&G/OAC FM/Grade 12(4U) Chemistry/Grade 12(4U) Geometry & Discrete Mathematics/P.I.)</p> <p>PHY245H5 change prerequisite from PHY241H to PHY135Y/137Y/241H; MAT132Y</p> <p><i>Changes to course distributions</i> PHY324H5 change distribution from (78P) to (13L, 65P)</p>	

ENVIRONMENT CURRICULUM SUBMISSION

SUMMARY OF COURSE CHANGES:

Department (list in alphabetical order)	No. of Full Courses Deleted	No. of Half Courses Added	No. of Half Courses Deleted	No. of Half Courses Added	Net FCEs
Environment and Human Society (BA)	0	0	0	0	0
Environmental Management (BA)	0	0	0	0	0

Environmental Science (BSc)	0	0	0	0	0
Environmental Analysis & Monitoring (BSc)	0	0	0	0	0

SUMMARY OF PROGRAM CHANGES:

	Program Name:
New Programs	None
Deleted Programs	None
Other Program Changes	Minor adjustments in Social Science courses and requirements following changing offerings
	Updated list of Program Advisors and Undergraduate Assistant
	Updated listings for CHM, ERS, PHY, GGR, SOC course requirements
	Added thematic designations for all program requirements to advise students about options in <i>field courses, biological and physical geographical perspectives.</i>

COURSE CHANGES:

- **Renumbered Courses:**

ENV377H5 changed to GGR377H5 Global Climate Change

- **Description Changes:**

Course # 1	GGR377H5
Description	(formerly: ENV377H) The main focus of this course is upon the climatic aspects of environmental change which affect Great Lakes water levels, disappearing glaciers, sea level rise, desertification and dwindling water resources in an ever more populous world. These changes to the earth surface environment are explored in the context of themes and issues which were introduced in first year, with a view to answering an important question: whether policy action on climate change must wait for more science, or whether action is merely delayed by failure to appreciate science. [26] science <i>Prerequisite:</i> GGR117Y or ENV100Y or 8 FCE
Exclusion	ENV377H
Prerequisite	1.0 credit from GGR214H, 217H, 227H or GGR217Y)
Corequisite	nil
Recommended preparation	nil
Distribution	science
Rationale for description change	The renumbering better reflects the course content. (Only those courses should have ENV designation that require multi departmental instruction)
Offered at St George	no

Revived Course	no
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FORENSIC SCIENCE CURRICULUM SUBMISSIONS

SUMMARY OF COURSE CHANGES:

Department (list in alphabetical order)	No. of Full Courses Deleted	No. of Full Courses Added	No. of Half Courses Deleted	No. of Half Courses Added	Net FCEs
Forensic Science	0	0	0	1	0.5

SUMMARY OF PROGRAM CHANGES:

	Program Name: Forensic Science
New Programs	None
Deleted Programs	None
Other Changes	Program Name: Forensic Science-Biology Specialist
	Requirement #3 (Second Year): add: CHM242H, 243H, <i>Rationale: to meet professional requirements</i>
	Requirement #5 (Third and Fourth Years): delete: 2.5 additional Biology credits..... replace with: 1.5 additional Biology credits..... <i>Rationale: due to above addition of 1.0 credits (CHM242H, 243H)</i>
	Program Name: Forensic Science
	Second Year Requirement: delete: BIO206H, BIO207H, BIO215H, /PHY206H add: CHM242H, CHM243H <i>Rationale: in order to satisfy professional requirements</i>
	Third Year Requirement: delete: ANT334Y <i>Rationale: in order to make room for courses need to satisfy professional requirements</i>
	Fourth Year Requirement: delete: 1.0 from the following list..... as a prerequisite for 334Y. add: an additional 2.0 credits in FSC from the 300/400 level. <i>Rationale: in order to satisfy professional requirements</i>
	Notes: 1. Admission to Forensic Science Major ii)3359 Mississauga Rd., Rm. 227 delete: Rm. 227 NB add: ...Rm.3030 SB <i>Rationale: cosmetic change</i>

	<p>Notes: 2. Second Major b) (If the second major does not require ANT334Y.....the FSC Major course requirements.) delete: entire entry replace with: 2 c) (For each of the second majors.....for the most appropriate selection.) <i>Rationale: no longer pertains ---due to deletion of ANT334Y from major.</i></p>
	<p>Forensic Science Programs (Introduction paragraphs to Specialist Programs)</p> <p>Note: (under -Application to these Specialist Programs can be submitted by:) 2.3359 Mississauga Rd., Rm. 227: delete: Rm. 227 NB add: Rm.3030 SB <i>Rationale: cosmetic change</i></p> <p>In the Introduction paragraphs to Specialist Programs, the following is to be an added Note to the very end as a complete new entry. (afterMississauga, ON L5L 1C6) Note: RE - Transfer Students In addition to applying directly to the Forensic Science Program (see above). Students who have attended another post-secondary institution, or another Faculty within the University of Toronto (including U. of T. at Scarborough) and who wish to enter Forensic Science, must also apply through the Office of Admissions and Awards.</p>
<p>Other Program Minor Changes</p>	<p>The following changes are the result of changes made in course offerings of other departments. The FSC Program is an interdisciplinary program and as such, requires students to take courses in other departments. These changes are necessary to accurately direct students to appropriate courses</p> <p><u>FSC-ANT Specialist:</u> Requirement #4 (Third Year): replace ANT334Y with ANT334H, add ANT340H</p> <p><u>FSC-BIO Specialist</u> Requirement #2 (First Year): replace ANT100Y with (ANT101H, 102H)</p> <p><u>FSC-CHM Specialist</u> Requirement #1 (Higher Years): replace: CHM241, CHM261H with: CHM242H, CHM243 CHM243H <i>(Rationale: CHM421, 261H no longer offered)</i></p> <p>Requirement #2 (Higher Years): add: CHM361H <i>(Rationale: assure accreditation by American Academy of Forensic Sciences AND accreditation by Canadian Society of Chemists)</i></p> <p>Requirement #5 (Higher Years): replace: 1.0 credit at the 300/400 level with: 0.5 credit at the 300/400 level <i>(Rationale: due to addition of CHM361H)</i></p>

**Other Program
Minor Changes
Cont'd.**

Notes: #3: add FSC310H (Students are strongly encouraged to include as many FSC courses as possible from the following list: ...)
(Rationale: oversight -was not included as an option in the list of courses)

The following changes are wording changes within the FSC-Specialist programs in the "Limited Enrolment" sections ONLY, for the purpose of consistency in wording among the Specialist programs. They will all now list the requirements as #1 through #4 in all the programs. This also includes adding the same 'Limited Enrolment' introductory sentence to the FSC-CHM Specialist (already included in others) as well as adding a sentence to requirement #4 within the ANT-FSC, CHM-FSC and PSY-FSC Specialist programs (sentence taken from #4 in the FSC-BIO Specialist).

FSC-ANT Specialist:

Requirement #3: now becomes requirement #4 include the following **added** the sentence: *The actual CGPA requirement in any particular year may exceed this value, in order to achieve a proper balance between enrolments and teaching resources.*

Requirement #3 (**add**): Completion of CHM140Y (for the purpose of emphasis -- already listed in 1st year requirements)

FSC-BIO Specialist

Requirement #2: replace completion of 1.0 credit in Biology with 65% or better with: Completion of BIO152H and 153H with 65% or better

Requirement #3: replace completion of 1.0 credit in Chemistry with 65% or better with: Completion of CHM140Y with 65% or better

FSC-CHM Specialist

Limited Enrolment: add introductory sentence: Enrolment in this program is limited and by application only. To qualify, students must meet the following minimum requirements (Meeting the following minimum requirements does not guarantee admission):

Change Requirements to be listed as follows:

1. Completion of 4.0 courses; including 3.0 science credits
2. Completion of CHM140Y with a grade of at least 65%
3. Completion of MAT132Y/138Y
4. A minimum Cumulative Grade Point Average of at least 3.0

add the sentence: *The actual CGPA requirement in any particular year may exceed this value, in order to achieve a proper balance between enrolments and teaching resources.*

FSC-PSY Specialist

Requirement #4:

add the sentence: *The actual CGPA requirement in any particular year may exceed this value, in order to achieve a proper balance between enrolments and teaching resources.*

RESOURCE IMPLICATIONS (to be filled out only if *additional* resources will be required to support course/program changes):

The two changes (FSC301H course description change and introduction of the new course FSC302H must proceed together and have significant program costs in equipment and supplies. *Approval is subject to availability of resources.*

The following changes are necessary to satisfy professional requirements for our Forensic Science Programs -- changes are being made to the FSC-BIO Specialist and Forensic Science Major Programs.

▪ **New Courses:**

Course #1	Course No. and Name (please fill in):
	FSC302H Advanced Forensic Identification
Description	Continuing from FSC301H which critically examines identification processes, which are compared and contrasted to systematics; impression evidence and physical match theory and practice; biometrics; presentation of evidence; the expert witness; requirements of society and the court. [26L] [13P]
Exclusion	
Prerequisite	FSC301H
Corequisite	
Recommended preparation	N/A
Distribution	Science
Rationale for creation of course	Since offering the course last year we need more time to include sufficient practical material to satisfy profession requirements and to provide sufficient academic rigor in terms of theory and critical analysis.
Offered at St George	NO
Revived Course	NO

▪ **Description Changes:**

Course No. and Name	Brief comment on the rationale for change
FSC301H Forensic Identification	
<i>delete current description</i> (This course offers educationin a practical in a practical crime scene exercise. <i>replace with:</i> Focusing on the scene of the crime and evidence found there, this course is an	<i>Allows the mounting of a second half course (see FSC302H above). Since offering the course last year we need more time to include sufficient practical material to satisfy profession requirements and to provide sufficient academic rigor in terms of theory and</i>

introduction to the field of forensic identification. Topics include: crime scene protocols, management and reconstruction; image collection, storage and enhancement; recognition, collection; and chain of custody and preservation of evidence. [26] [13T]	<i>critical analysis.</i>
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MATHEMATICAL and COMPUTATIONAL SCIENCES CURRICULUM SUBMISSION

SUMMARY OF COURSE CHANGES:

Departments (list in alphabetical order)	No. of Full Courses Deleted	No. of Half Courses Added	No. of Half Courses Deleted	No. of Half Courses Added	Net FCEs
Computer Science				1	0.5
Mathematics	1		1	4	0.5
Statistics			1	1	0.0

SUMMARY OF PROGRAM CHANGES:

	Program Name:
New Programs	None
Deleted Programs	None
Other Changes	<p>CSC Specialist Programs and CSC Major Program Computer Science Major, Information Systems Option and Software Engineering Option Replace MAT222H/248Y by MAT223H/248Y</p> <p>Computer Science: Comprehensive Option Replace MAT248Y by MAT248Y/(223H, 224H)</p> <p>Specialist Program in Mathematical Sciences 13.0 credits</p> <p>First Year – CSC108H, 148H; MAT102H, 138Y (Deleted STA107H.)</p> <p>Second Year - CSC207H/209H/236H/260H/263H/270H; MAT223H, 224H; 242H, 252H; STA248H, 257H (Replaced MAT248Y with MAT223H, 224H. Replaced MAT258Y with MAT242H, 252H.)</p> <p>Third Year - MAT301H/315H, 378H (incorporated new 300-level courses)</p> <p>Third and Fourth Years: a) MAT334H, 368H</p>

	b) Four of MAT301H/315H (<i>i.e.</i> , the alternative not used previously), 309H, 311H, 332H, 344H, 365H) c) 1.0 credit at the 400 level in CSC/MAT/STA d) 2.0 additional credits at the 300+ level in APM/ACT/CSC/MAT/ STA.
	Major Program in Mathematical Sciences 7.5 credits First Year – MAT102H, 138Y Second Year - MAT223H, 224H, MAT242H, 252H (<i>Replace MAT248Y by MAT223H, 224H; Replace MAT258Y by MAT242H, 252H.</i>) Higher Years: MAT301H/315H, 334 H (<i>incorporated new 300-level courses</i>) Five of MAT301H/315H (<i>i.e.</i> , the alternative not used previously), 309H, 311H, 332H, 344H, 365H, 368H, 378H PHL245H/STA257H/0.5 MAT credit at the 200+ level.
	Specialist Program in Statistics (Applied) 10.0 credits Change MAT248Y, 212H/258Y to MAT248Y/(223H, 224H), 212H/242H/258Y
	Major Program in Statistics (Applied) 7.0 credits Change MAT222H/248Y to MAT222H/223H/248Y

COURSE CHANGES:

- **New Courses:**

Course #1	<i>CSC411H5 Machine Learning and Data Mining</i>
Description	An introduction to methods for automated learning of relationships on the basis of empirical data. Classification and regression using nearest neighbour methods, decision trees, linear models, and neural networks. Clustering algorithms. Problems of overfitting and of assessing accuracy. Problems with handling large databases.
Exclusion	
Prerequisite	CSC263H/270H/ STA257H, 248H/261H
Corequisite	
Recommended preparation	CSC350H
Distribution	
Rationale for creation of course	Of interest to the instructor (Bonner), first 400-level CSC course offered at Erindale and will, eventually, be needed for the Bioinformatics program.
Offered at St George	Yes

Revived Course	
Course #2	<i>MAT223H5 Linear Algebra I</i>
Description	Systems of linear equations. Matrix algebra. Determinants. Geometry in R^n . Linear transformations in R^2 , R^3 , R^n . Abstract vector spaces over R and C . Function spaces, including polynomials and trigonometric polynomials. Subspaces, basis and dimension, rank. Eigenvalues and eigenvectors, diagonalization, and their applications.
Exclusion	MAT222H, MAT248Y
Prerequisite	MAT102H
Corequisite	
Recommended preparation	
Distribution	
Rationale for creation of course	MAT223H and 224H will replace MAT248Y
Offered at St George	No
Revived Course	

Course #3	<i>MAT224H5 Linear Algebra II</i>
Description	Linear transformations, linear isomorphisms. Change of basis formulae. Jordan canonical form. Bilinear forms, quadratic forms, positive definite matrices. Real inner product spaces, orthogonality, Gram-Schmidt process. Least square approximation. Orthogonal diagonalization. Complex inner product spaces. Hermitian, unitary, and normal operators. Fourier series. Linear programming.
Exclusion	MAT248Y
Prerequisite	MAT102H, 223H
Corequisite	
Recommended preparation	
Distribution	
Rationale for creation of course	MAT223H and 224H will replace MAT248Y
Offered at St George	
Revived Course	
Course #4	<i>MAT242H5 Differential Equations I</i>

Description	Solution of first order differential equations. Applications. Linear equations, especially of second order. Systems of linear equations. Nonlinear phenomena, linearization of nonlinear systems.
Exclusion	MAT212H, 258Y
Prerequisite	MAT138Y OR Corequisite MAT232H
Corequisite	MAT232H OR Prerequisite MAT138Y
Recommended preparation	
Distribution	
Rationale for creation of course	MAT242H and 252H replace MAT258Y.
Offered at St George	No
Revived Course	

Course #5	<i>MAT252H Differential Equations II</i>
Description	Power series solutions, boundary value problems, Fourier series solutions, Laplace transform, numerical methods.
Exclusion	MAT258Y
Prerequisite	MAT102H, MAT138Y/232H, MAT223H, MAT242H
Corequisite	
Recommended preparation	
Distribution	
Rationale for creation of course	MAT242H and 252H replace MAT258Y
Offered at St George	No
Revived Course	
Course #6	<i>MAT301H5 Groups and Symmetries</i>
Description	Permutations and permutation groups. Linear groups. Abstract groups, homomorphisms, subgroups. Symmetry groups of regular polygons and platonic solids, wallpaper groups. Group actions, class formula. Cosets, Lagrange's theorem. Normal subgroups, quotient groups. Classification of finitely generated Abelian Groups. Emphasis on examples and calculations.
Exclusion	
Prerequisite	MAT102H, 224H/248H

Corequisite	
Recommended preparation	
Distribution	
Rationale for creation of course	MAT301H replaces MAT448H
Offered at St George	Yes
Revived Course	

Course #7	<i>MAT365H5 Classical Geometries</i>
Description	Euclidean and non-Euclidean plane and space geometries. Real and complex projective space. Models of the hyperbolic plane. Connections with the geometry of surfaces.
Exclusion	
Prerequisite	MAT102H, 138Y/232H, 224H/248Y
Corequisite	MAT301H5
Recommended preparation	
Distribution	
Rationale for creation of course	
Offered at St George	Yes
Revived Course	
Course #8	<i>STA348H5 Introduction to Stochastic Processes</i>
Description	Discrete Markov chains with a finite number of states. Classification of states. Ergodic theorem, return times, and computation of stationary probabilities. Hitting probabilities. Countable discrete Markov chains. Examples: random walk, single-server queuing system. Recurrence and transience. Null and positive recurrence. Stationary distribution. Continuous-time Markov chains. Poisson process. Branching process. Birth and death process. M-M-n queuing system. Stationary distribution and the ergodic theorem.
Exclusion	STA347H
Prerequisite	MAT132Y/138Y, MAT222H/223H/248Y, STA257H
Corequisite	
Recommended preparation	
Distribution	

Rationale for creation of course	Replaces STA347H at UTM, which had evolved in this direction. Will, eventually, be an option in the Bioinformatics program.
Offered at St George	No
Revived Course	

- Deleted Courses:

Course No. and Name	Rationale for deletion
MAT448H5	Replaced by MAT301H5 Groups and Symmetries

- Description Changes:

Course No. and Name	Revised Description	Brief comment on the rationale for change
MAT102H Introduction to Mathematical Proofs	[26L, 13T] Understanding, using and developing precise expressions of mathematical ideas, including definitions and theorems. Set theory, logical statements and proofs, induction, topics chosen from Combinatorics, elementary number theory, Euclidean geometry. Prerequisite: OAC A&G OR Grade 12 Advanced Functions and Introductory Calculus (MCB4U) and Grade 12 Geometry and Discrete Mathematics (MGA4U)	Reduced emphasis on formal logic.

- Other Changes:

Course No. and Name	Brief comment on the rationale for change
CSC320H, 321H, 350H	Prerequisites updated due to splitting MAT248Y into MAT223H, 224H
MAT311H5	Prerequisites updated due to splitting MAT258Y into MAT242H, 252H
MAT309H5, 315H5, 332H5, 344H5, 378H5	Prerequisites updated due to splitting MAT248Y into MAT223H, 224H

STA302H5	Prerequisites updated due to splitting MAT248Y into MAT223H, 224H
MAT132Y	Prerequisites updated to make admission easier for life sciences students (two maths no longer required). Grade 12(U) prerequisites are now Grade 12(U) Advanced Functions and Introductory Calculus, AND one of Grade 12(U) Geometry and Discrete Mathematics, Mathematics of Data Management, Physics.

PSYCHOLOGY CURRICULUM SUBMISSION

SUMMARY OF COURSE CHANGES:

Department (list in alphabetical order)	No. of Full Courses Deleted	No. of Half Courses Added	No. of Half Courses Deleted	No. of Half Courses Added	Net FCEs
Psychology	0	0	0	0	0

SUMMARY OF PROGRAM CHANGES:

	Program Name:
New Programs	None
Deleted Programs	None
Other Program Changes	<p>Exceptionality in Human Learning Specialist and Major Programs The following changes are the result of changes made in course offerings of other departments. The EHL Program is an interdisciplinary program and as such requires students to take courses in other departments. Each of the requirements below consists of a long list of courses from which students must choose either 1.0 FCE (Requirement 3 – EHL Major), 2.0 FCE (Requirement 5 – EHL Specialist), or 2.5 FCE (Requirement 6 – EHL Specialist). These changes are necessary to accurately direct students to appropriate courses.</p> <p><u>EHL Specialist:</u> Requirement 5a: change ANT331Y to ANT331H; add ANT335H, ANT460H Requirement 5b: add SOC252H, SOC302H, SOC310H, SOC347H Requirement 5c: change ANT331Y to ANT331H Requirement 6: remove PHL241H, PHL382H; add PHL282H,</p> <p><u>EHL Major:</u> Requirement 3: change ANT331Y to ANT331H</p>

COURSE CHANGES:

- **New Courses:** None

- **Description Changes:**

Course #1	<i>PSY345H Exceptionality</i>
Description	A survey of contemporary theory and research related to exceptionality with a special emphasis on disability and educational issues. Topics include controversial psychosocial issues, legal, family, and multicultural issues, disability across the lifespan, communication disorders, hearing and visual impairment, autism, and acquired brain injury.
Exclusion	PSY442Y
Prerequisite	PSY210H/213H
Corequisite	None
Recommended preparation	None
Distribution	Science
Rationale for description change	New title and description better reflect course content. Course provides a stronger focus on topics not covered in other psychology courses (i.e., controversial psychosocial issues; legal issues related to disability) while eliminating topics such as learning disabilities that are covered in other psychology courses at this level.
Offered at St George	No
Revived Course	No