Sciences Curriculum Committee
April 6, 2018

(Proposals for information)
Science Curriculum Committee
Abbreviated Review Proposals By Unit
5 Minor Program Modifications:

Environmental Geosciences Specialist (Science Program)

Completion Requirements:

(12 full courses or their equivalent which includes fulfillment of the Faculty’s Distribution requirement, including at least one FCE from 400-series courses)

1st year required courses (2 FCE): CHM151Y1/(CHM135H1, CHM136H1), MAT135H1, PHY131H1/PHY151H1

1st year elective courses: 1 FCE from MAT136H1, PHY132H1/PHY152H1, ENV237H1/ENV238H1, BIO120H1, CSC108H1/ESS345H1, JEG100H1

2nd year required courses (2 FCE): ESS241H1, ESS223H1/ENV233H, ESS262H1, GGR201H1

2nd year elective courses: 1 FCE from ESS221H1, ESS222H1, ESS261H1, STA220H1/GGR270H1, CHM210H1, MAT221H1/MAT223H1; up to 0.5 FCE of this requirement can be satisfied by taking one of the following ethics courses: IMC200H1/PHL273H1/PHL275H1/ABS201Y1

3rd and 4th year required courses (2 FCE): ESS311H1, ESS312H1, ESS410H1, ESS461H1

3rd and 4th year elective courses: 4 FCE from JGA305H1, ESS234H1/ESS330H1, ESS331H1, ESS361H1, ESS362H1, GGR337H1, GGR390H1, ENV333H1, ESS431H1, ESS441H1, ESS445H1, ESS450H1, ESS462H1, ESS463H1, ESS464H1, ESS490H1, ESS491H1/ESS492Y1

If you plan to become APGO certified, we suggest you consider the following courses to fulfill minimum qualifications. This list comprises courses which are required for the specialist as well as suggested courses; together they fulfill groups 1A, 1B, 2A and 2B of the APGO requirements and add up to 13.5 FCE:

Group 1A: CHM135H1, MAT135H1, PHY131H1

Group 1B: BIO120H1, MAT136H1, CHM136H1, PHY132H1, STA220H1, CSC108H1/ESS345H1

Group 2A: ESS221H1, ESS241H1, ESS234H1/ESS330H1, ESS331H1
Earth Sciences (FAS), Department of

Group 2B: ESS223H1/ENV233H, ESS312H1, GGR201H1, GGR337H1, JGA305H1

Group 2C: 4.5 FCE of 200/300/400 level ESS or other allowable courses

For more information All students, regardless of their career aspirations, please contact are encouraged to talk to the Department undergraduate chair about their selection of Earth Sciences,  undergradchair@es.utoronto.ca electives.

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

Geology Specialist

Completion Requirements:

Please consult the  undergraduate handbook for detailed information on this program.

(14 full courses or their equivalent)

5.0 FCE foundation courses:
CHM151Y1/(CHM135H1, CHM136H1)/(CHM138H, CHM139H); MAT135H1 & MAT136H1; (PHY131H1, PHY132H1)/(PHY151H1, PHY152H1); BIO120H1/MAT221H1/MAT223H1; STA220H1/GGR270H1; GGR201H1; CSC108H1/ESS345H1; recommended: ESS262H1/ESS102H/JEG100H1

6.0 FCE core courses:
ESS223H1/ENV233H, ESS221H1, ESS222H1, ESS241H1, ESS261H1, JGA305H1, ESS311H1, ESS312H1, ESS322H1, ESS331H1, ESS441H1, ESS431H1/ESS332H

1.0 FCE field courses:
ESS234H1/ESS330H, ESS324H1/ESS420H

2.0 FCE electives chosen from:
ENV234H1, ESS381H1, ESS410H1, ESS423H1, ESS425H1, ESS445H1, ESS461H1, ESS481H1, ESS324H1/ESS420H/ESS490H1, ESS491H1/ESS492Y1, ESS362H1

For more information, please contact the Department of Earth Sciences.  undergradchair@es.utoronto.ca .

Description of Proposed Changes:

Rationale:

Impact:
Geophysics Specialist

Completion Requirements:

Consult Departments of Earth Sciences and Physics
(13.5 to 14 full courses or their equivalent with at least one course at the 400-level)

9.0 FCEs core courses:

100-level: PHY131H1/PHY151H1, PHY132H1/PHY152H1; (MAT135H1, MAT136H1)/MAT137Y1

200-level: PHY250H1, PHY254H1; MAT235Y1/MAT237Y1; ESS221H1, ESS241H1

300-level: JPE395H1; JGA305H1

400-level: PHY408H1, JPE493H1, ESS452H1; ESS441H1, ESS445H1, ESS450H1

0.5 to 1.0 FCEs ethics course chosen from the following list: JPH441H1, ENV333H1, IMC200H1, PHL273H1, PHL275H1, INS201Y1

4.0 to 4.5 additional FCEs chosen from Groups A, B, and/or C:

Group A -- courses required and relevant for professional registration (APGO):
CHM135H1; ESS345H1/CSC108H1; STA220H1/GGR270H1; MAT223H1, MAT244H1; APM346H1; ESS331H1

Group B -- emphasis on physics (suitable for graduate school preparation in a physics program):
PHY252H1, PHY350H1, PHY354H1, PHY392H1, PHY454H1, PHY495H1

Group C -- other relevant courses:
PHY224H1, MAT224H1, MAT335H1, APM346H1, ESS211H1, ESS222H1, ESS311H1, ESS312H1, ESS431H1, ESS234H1/ESS330H1, ESS410H1, ESS490H1, ESS491H1/ESS492Y1

For more information, please contact the Department of Earth Sciences, undergradchair@es.utoronto.ca.

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:
# Earth Sciences (FAS), Department of

## Geoscience Major

**Completion Requirements:**

(8 full courses or their equivalent including at least 2.0 FCE at 300+ series with at least 0.5 FCE at 400-series.)

2.0 to 2.5 FCE chosen from BIO120H1; (CHM135H1, CHM136H1)/(CHM138H, CHM139H); MAT135H1, MAT136H1, MAT137Y1; PHY131H1, PHY132H1; JEG100H1/ESS102H; ENV234H1

2.5 FCE core courses: ESS221H1, ESS222H1, ESS241H1, ESS261H1, ESS331H1

0.5 FCE field course: ESS234H1/ESS330H/ESS410H1/ESS450H1

2.5 to 3.0 FCE chosen from 300/400 level ESS courses/JGA305H1; note course progressions and prerequisites.

We suggest students consider the following logical course clusters in their higher years:

- **(a) Earth/planetary materials and mineral resources:** ESS223H1/ENV233H, ESS322H1, ESS431H1/ESS332H, ESS423H1
- **(b) tectonics:** JGA305H1, ESS345H1, ESS441H1, ESS445H1
- **(c) environmental biogeochemistry:** ESS223H1/ENV233H, ESS311H1, ESS312H1, ESS410H1, ESS461H1
- **(d) geoarchaeology:** JGA305H1, ESS461H1

For more information, please contact the Department of Earth Sciences, undergradchair@es.utoronto.ca.

## Description of Proposed Changes:

<table>
<thead>
<tr>
<th>Rationale:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact:</td>
</tr>
<tr>
<td>Consultation:</td>
</tr>
<tr>
<td>Resource Implications:</td>
</tr>
</tbody>
</table>

## Geoscience Minor

**Completion Requirements:**

(4 full courses or their equivalent, with at least 1.0 FCE at 300+ series.)

1. 1.0 FCE of 100-series CHM, BIO, or PHY courses.
2. 1.0 FCE of 100-level ESS courses (JEG100H1/ESS102H recommended).
3. 1.0 FCE of 200-level ESS courses, including ENV234H1.
4. 1.0 FCE of 300/400 level ESS courses, including JGA305H1.

Be aware of course prerequisites, check clusters of courses listed for the geoscience major program, and consult the geology undergraduate handbook for logical course progressions.
Ear[ht Sciences (FAS), Department of

For more information, please contact the Department of Earth Sciences. undergradchair@es.utoronto.ca.

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

3 Course Modifications:

ESS223H1: Earth System Chemistry 1: Earth Materials

Description:

Previous:
This course introduces the basic principles of thermodynamics and kinetics and more specialized concepts used in the Earth Sciences, e.g., the forms and transfer of energy, the equation of states of gaseous, fluid and solid materials, thermodynamics of solutions, chemical equilibria of multicomponent systems, mineral solubility, phase diagrams, phase interface processes on mineral surfaces, and mass transport. The tutorials will include basic calculation exercises and some computational modeling used to understand fluid phase reactions and phase equilibria in the earth system. The course aims to provide a solid background for advanced courses in igneous and metamorphic petrology, aqueous geochemistry and geodynamics.

New:
This course introduces students to the basic principles of geochemistry beginning with some fundamental chemical concepts concerning atoms, bonding and the periodic table. It continues with an overview of the wide ranging geochemical fields and concepts such as elemental distributions, fractionation and differentiation, and trace element cycling. The latter half of the courses leads into an introduction to basic thermodynamics as it applies to more advanced geochemical concepts found in aqueous geochemistry, mineralogy and petrology.

Rationale:

Consultation:

Resources:

ESS450H1: Geophysical Field Techniques

Exclusions:

Previous: GLG330H1
New:

Rationale:
### ESS490H1: Geological Capstone Fieldtrip

**Prerequisites:**
- **Previous:** ESS241H1, ESS221H1, ESS234H1 / ESS330H1/ESS324H1/ESS420H1/ESS450H1
- **New:** At least 12 FCE of any Earth Science program of study requirements, or permission of the instructor

**Rationale:**

**Consultation:**

**Resources:**
4 Minor Program Modifications:

**Biology Major**

**Completion Requirements:**

The Biology Specialist, Major, and Minor programs are administered through the Department of Ecology & Evolutionary Biology. Contact: undergrad.eeb@utoronto.ca

(8 FCEs including at least 1.5 FCEs at the 300+ series and 0.5 FCE at the 400 series)

First Year (2.0 FCEs): BIO120H1; BIO130H1; CHM135H1, CHM136H1/CHM151Y1

Higher Years:

1. 2.5 FCEs: BIO220H1; BIO230H1/BIO255H1; BIO251H1; BIO270H1/PSL300H1; BIO260H1/HMB265H1

2. 1.5 FCE from: BCH; BIO; CJH332H1; CSB (excluding CSB200Y1, CSB201H1, CSB202H1); EEB (excluding EEB202H1; **EBB206H1**, EEB208H1, EEB214H1, EEB215H1); EHH352H1; ENV234H1, ENV334H1; IMM250H1; JHE353H1, JHE355H1; MGY200H1, MGY277H1; NFS284H1; PSY397H1, PSY497H1

3. 1.5 FCEs at 300+ series from: ANA; ANT333Y1, ANT338H1, ANT430H1, ANT436H1; BCH; CJH332H1; CSB; EEB; EHE352H1; ENV334H1; HMB; IMM; JHE353H1, JHE355H1; MGY; NUS; PCL; PSL; PSY397H1, PSY497H1

4. 0.5 FCE at 400-series from: CSB; EEB

**NOTE:** Students who wish to focus on either plant or microbial biology, or animal biology should take courses in 2., 3., and 4. that concentrate in these subject areas (as listed below).

CSB and EEB courses in **plant or microbial biology**: CSB340H1, CSB350H1, CSB351Y1, CSB353H1, CSB450H1, CSB452H1, CSB459H1, CSB460H1, CSB475H1, EEB268H1, EEB328H1, EEB330H1, EEB331H1, EEB340H1, EEB405H0, EEB405H1, EEB428H1, EEB440H1

CSB and EEB courses in **animal biology**: BIO271H1/PSL301H1; CJH332H1; CSB325H1, CSB327H1, CSB328H1, CSB330H1, CSB331H1, CSB343H1, CSB345H1, CSB346H1, CSB426H1, CSB428H1, CSB429H1, CSB430H1, CSB431H1, CSB432H1, CSB435H1, CSB445H1, CSB447H1, CSB483H1; EEB263H1, EEB266H1, EEB267H1, EEB322H1, EEB380H1, EEB382H1, EEB384H1, EEB386H1, EEB388H1, EEB390H1, EEB440H1; EHH352H1. (BIO271H1/PSL301H1 is highly recommended for students concentrating in animal biology and is a prerequisite for 300+ series CSB courses in physiology.)

**Description of Proposed Changes:**

**Rationale:**

**Impact:**

**Consultation:**

**Resource Implications:**
Ecology and Evolutionary Biology (FAS), Department of Biology Minor

Completion Requirements:

The Biology Specialist, Major, and Minor programs are administered through the Department of Ecology & Evolutionary Biology. Contact: undergrad.eeb@utoronto.ca

4 FCEs

First Year (1.0 FCE): BIO120H1; BIO130H1

Higher Years:

1. 1.0 FCE from: BIO220H1; BIO230H1/BIO255H1; BIO251H1; BIO270H1/PSL300H1; BIO271H1/PSL301H1; BIO260H1/HMB265H1

2. 2.0 FCEs (1.0 FCE must be at the 300+ series) from: BIO; CJH332H1; CSB (excluding CSB200Y1, CSB201H1, CSB202H1); EEB (excluding EEB202H1; EEB204H1, EEB208H1, EEB206H1, EEB214H1, EEB215H1); EHJ352H1; ENV234H1, ENV334H1, ENV432H1; HMB265H1; JHE353H1, JHE355H1; MGY200H1, MGY277H1; NUS; PSY397H1, PSY497H1

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

Biology Specialist

Completion Requirements:

The Biology Specialist, Major, and Minor programs are administered through the Department of Ecology & Evolutionary Biology. Contact: undergrad.eeb@utoronto.ca

(12 FCEs including at least 1.0 FCE at the 400 series)

First Year (3.0 FCEs): BIO120H1; BIO130H1; CHM135H1, CHM136H1/CHM151Y1; (MAT135H1, MAT136H1)/MAT137Y1/MAT157Y1

Higher Years:

1. 2.5 FCEs: BIO220H1; BIO230H1/BIO255H1; BIO251H1; BIO270H1/PSL300H1; BIO260H1/HMB265H1

2. 0.5 FCE statistics from: EEB225H1, PSY201H1, STA220H1, STA257H1, GGR270H1, STA288H1

3. 0.5 FCE from chemistry, physics or statistics: CHM220H1, CHM247H1/CHM249H1; PHY131H1, PHY151H1;
PSY202H1; STA221H1, STA255H1, STA261H1

4. 1.5 FCE at the 200+ series from: BCH; BIO; CJH332H1; CSB (excluding CSB200Y1, CSB201H1, CSB202H1); EEB (excluding EEB202H1; EEB206H1, EEB208H1, EEB214H1, EEB215H1); EHH352H1; ENV234H1, ENV334H1; ENV432H1, IMM250H1, JHE353H1, JHE355H1; MGY200H1, MGY277H1; NFS284H1; PSY397H1, PSY497H1

5. 0.5 FCE at 300+ series in **plant or microbial biology** from: CSB340H1, CSB350H1, CSB351Y1, CSB353H1, CSB450H1, CSB452H1, CSB459H1, CSB460H1, CSB475H1; EEB328H1, EEB330H1, EEB331H1, EEB340H1, EEB380H1, EEB403H0, EEB403H1, EEB405H0, EEB405H1, EEB428H1, EEB440H1

6. 0.5 FCE at 300+ series in **animal biology** from: CJH332H1; CSB325H1, CSB327H1, CSB328H1, CSB330H1, CSB331H1, CSB332H1, CSB343H1, CSB345H1, CSB346H1, CSB426H1, CSB428H1, CSB429H1, CSB430H1, CSB431H1, CSB432H1, CSB435H1, CSB445H1, CSB447H1, CSB483H1; EEB322H1, EEB332H1, EEB380H1, EEB382H1, EEB384H1, EEB386H1, EEB388H1, EEB390H1, EEB440H1; EHH352H1

NOTE: BIO270H1 and BIO271H1 are prerequisites for 300+ series CSB courses in physiology.

7. 2.0 FCEs at 300+ series (at least 1.0 FCE must be from Group 1) from:
   Group 1: CJH332H1; CSB; EEB; EHH352H1; ENV334H1, ENV432H1; JHE353H1, JHE355H1; NUS; PSY397H1, PSY497H1
   Group 2: ANA; ANT333Y1, ANT338H1, ANT430H1, ANT436H1; BCH; HMB; IMM; NFS; MGY; PCL; PSL

8. 1.0 FCE at 400-series from: CSB; EEB

NOTE: Students who wish to focus on either **plant or microbial biology**, or **animal biology** should take courses in 7. and 8. that concentrate in these subject areas as listed in 5. and 6., respectively. BIO271H1/PCL301H1 is highly recommended for students concentrating in animal biology and is a prerequisite for 300+ series CSB courses in physiology.

**Description of Proposed Changes:**

**Rationale:**

**Impact:**

**Consultation:**

**Resource Implications:**

**Ecology & Evolutionary Biology Major**

**Completion Requirements:**

(8 FCEs including at least 2.0 FCEs at 300+ series with at least 0.5 FCE at the 400 series level)

**First Year (2.0 FCEs):** BIO120H1; BIO130H1; (CHM135H1, CHM136H1)/CHM151Y1

Higher Years:

1. 2.0 FCEs: BIO220H1; BIO230H1; BIO260H1/HMB265H1; EEB225H1/STA220H1/STA257H1/STA288H1/GGR270H1/PSY201H1
2. 1.0 FCE from: BIO251H1, BIO270H1/PSL300H1, BIO271H1/PSL301H1, EEB263H1, EEB266H1, EEB267H1, EEB268H1, ENV234H1
3. 0.5 FCE in core ecology and evolution from: EEB318H1, EEB319H1, EEB321H1, EEB322H1, EEB328H1, EEB362H1

4. 1.5 FCEs from: EEB313H1, EEB318H1, EEB319H1, EEB321H1, EEB322H1, EEB323H1, EEB324H1, EEB325H1, EEB328H1, EEB330H1, EEB331H1, EEB362H1, EEB365H1, EEB375H1, EEB380H1, EEB382H1, EEB384H1, EEB386H1, EEB388H1, EEB390H1, EEB397Y1, EEB398H0, EEB398Y0, EEB399Y1, EEB428H1, EEB430H1, EEB433H1, EEB440H1, EEB455H1, EEB459H1, EEB460H1, EEB465H1, EEB466H1; EHJ352H1; ENV432H1; NUS201H0, NUS301H0, NUS302H0, NUS303H0, NUS304H0, NUS401H0*; PSY305H1

*More information about NUS courses and programs can be found on the Biology Calendar section

5. 0.5 FCE from: BIO251H1; BIO270H1/PSL300H1; BIO271H1/PSL301H1; EEB (excluding EEB202H1; EEB204H1, EEB208H1 EEB206H1, EEB214H1, EEB215H1); ENV234H1, ENV334H1, ENV432H1; EHJ352H1; JHE353H1, JHE355H1; MAT135H1/MAT136H1/MAT137Y1/MAT221H1/MAT223H1; MGY340H1; NUS201H0, NUS301H0, NUS302H0, NUS303H0, NUS304H0, NUS401H0*

*More information about NUS courses and programs can be found on the Biology Calendar section

6. 0.5 FCE at the 400-series from: field course, EEB403H0, EEB403H1, EEB405H0, EEB405H1, EEB406H0, EEB406H1, EEB407H0, EEB407H1, EEB410H0, EEB410H1; seminar EEB495H1, EEB496H1; independent research project course, EEB497H1, EEB498Y1/EEB499Y1 (concurrent with research issues course EEB488H1); advanced lecture/discussion course, EEB428H1, EEB430H1, EEB433H1, EEB440H1, EEB455H1, EEB459H1, EEB460H1, EEB465H1, EEB466H1; ENV432H1

8 Course Modifications:

EEB430H1: Modeling in Ecology and Evolution

Description:

Study of ecology and evolution uses models to explain biological phenomena including the maintenance of biodiversity, population growth, competition, eco-evolutionary dynamics, trait and molecular evolution, epidemiology, spatial ecology, phylogeny and extinction. Students will learn to develop, assess and apply analytical, simulation and statistical models for analysis and data interpretation.

Rationale:

Consultation:

Resources:
EEB495H1: Seminar in Ecology and Evolutionary Biology

Description:

Seminar course in ecology and evolutionary biology, emphasizing critical thinking and the synthesis of ideas crossing disciplinary boundaries. Group discussions among peers, facilitated by faculty, and student presentations. Discussions include critical analysis of research and review articles in the primary literature. Evaluation based on presentations, participation in class discussions, and written assignments. A half-course offered in both Fall and Winter sessions. (Note students may take this course only once.)

Rationale:

Consultation:

Resources:

NUS301H0: Life Science Course A

Title:

Life Science Course B

Abbreviated Title:

Life Science Course B

Description:

A 3000-level Life Sciences (LSM) course offered at the National University of Singapore. For course offerings see: www.lifesciences.nus.edu.sg/lsm.html
Prerequisites and Exclusions: see the EEB website (http://www.eeb.utoronto.ca/undergradlearning/programs.htm)

Rationale:

Consultation:

Resources:

NUS302H0: Life Science Course B

Title:

Life Science Course C

Abbreviated Title:

Life Science Course C

Description:
A 3000-level Life Sciences (LSM) course offered at the National University of Singapore. For course offerings see: www.lifesciences.nus.edu.sg/lsm.html
Prerequisites and Exclusions: see the EEB website
( http://www.eeb.utoronto.ca/undergrad_Learning/programs.htm )

Rationale:

Consultation:

Resources:

**NUS303H0: Life Science Course C**

**Title:** Life Science Course D

**Abbreviated Title:** Life Science Course D

**Description:**

A 3000-level Life Sciences (LSM) course offered at the National University of Singapore. For course offerings see: www.lifesciences.nus.edu.sg/lsm.html
Prerequisites and Exclusions: see the EEB website
( http://www.eeb.utoronto.ca/undergrad_Learning/programs.htm )

Rationale:

Consultation:

Resources:

**NUS304H0: Life Science Course D**

**Title:** Life Science Course E

**Abbreviated Title:** Life Science Course E

**Description:**

A 3000-level Life Sciences (LSM) course offered at the National University of Singapore. For course offerings see: www.lifesciences.nus.edu.sg/lsm.html
Prerequisites and Exclusions: see the EEB website
( http://www.eeb.utoronto.ca/undergrad_Learning/programs.htm )
### NUS401H0: Life Science Course E

**Title:**
- Life Science Course F E

**Abbreviated Title:**
- Life Science Course F E

**Description:**

A 4000-level Life Sciences (LSM) course offered at the National University of Singapore. For course offerings see: [www.lifesciences.nus.edu.sg/lsm.html](http://www.lifesciences.nus.edu.sg/lsm.html)

Prerequisites and Exclusions: see the EEB website ( [http://www.eeb.utoronto.ca/undergrad_LEarning/programs.htm](http://www.eeb.utoronto.ca/undergrad_LEarning/programs.htm) )

### NUS402H0: Life Science Course F

**Title:**
- Life Science Course G F

**Abbreviated Title:**
- Life Science Course G F

**Description:**

A 4000-level Life Sciences (LSM) course offered at the National University of Singapore. For course offerings see: [www.lifesciences.nus.edu.sg/lsm.html](http://www.lifesciences.nus.edu.sg/lsm.html)

Prerequisites and Exclusions: see the EEB website ([http://www.eeb.utoronto.ca/undergrad_LEarning/programs.htm](http://www.eeb.utoronto.ca/undergrad_LEarning/programs.htm))
3 Minor Program Modifications:

Environmental Ethics Major

Completion Requirements:

Jointly sponsored by the School of the Environment and the Department of Philosophy, this program explores how value judgments and worldviews affect environmental decision making. For more information, consult the School’s Undergraduate Student Advisor (see above).

(6.0 full courses or their equivalent)

1. ENV221H1, ENV222H1; PHL273H1; JGE321H1
2. One FCE from PHL373H1; ENV333H1; JGE331H1
3. 0.5 FCE from among ENV421H1/ENV492H1/ENV493H1, ENV440H1, ENV451H1
4. 2.5 FCE’s from Group A below.

Group A:

ANT450H1; ECO105Y1; ENV333H1; ENV335H1; ENV347H1; FOR302H1; GGR321H1/JAG321H1; HIS318Y1; HPS202H1, HPS307H1; INS402H1; JGE331H1; PHL373H1 PHL275H1, PHL295H1, PHL375H1, PHL394H1, PHL395H1, PHL413H1; PSY335H1/PSY435H1; RLG228H1, RLG345H1, RLG484H1 ; VIC271H1; WGS273H1/ WGS273Y1

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

Environmental Studies Major

Completion Requirements:

For more information, consult the School’s Undergraduate Student Advisor (see above).

(7 FCE or their equivalent, including at least 2.5 FCE at the 300+ level and 0.5 FCE at the 400 level)

First Year
Students must complete at least 4 FCE before applying to this type 1 major. ENV100H1 is recommended but not required.

Higher Years:
1. ENV221H1; ENV222H1; ENV223H1.
2. ENV200H1 \textbf{or another 0.5 FCE Life Science course approved by the Undergraduate Coordinator.}

3. 0.5 FCE from the following Environmental Policy, Law & Society courses: ENV320H1; ENV322H1; ENV323H1; ENV347H1; ENV350H1; ENV422H1; JGE331H1

4. 0.5 FCE from among the following Environmental Thought & Ethics courses: ENV333H1; JGE321H1; CLA373H1; PHL273H1; WGS273H1/WGS273Y1

5. One of ENV421H1/ENV440H1/ENV451H1/ENV461H1.

6. An additional 3.5 FCE of courses from any combination of courses listed in the three groups below *, with no more than 1 FCE from the Science group.

*Students may choose to take courses across the three groups or within a particular group, depending on their interest.

Note: Daniels Students enrolled in this program may be able to fulfil up to 1.5 FCE in requirement 3 from ARC courses. Consult the School of the Environment for more information.

**Description of Proposed Changes:**

**Rationale:**

**Impact:**

**Consultation:**

**Resource Implications:**

---

**Environmental Studies Minor**

**Completion Requirements:**

Consult David Powell, Undergraduate Student Advisor, School of the Environment, Room 1049A, Earth Sciences Centre, 416-946-8100 or david.powell@utoronto.ca

(4 FCE or their equivalent, including at least 1.5 FCE at the 300+ level)

First Year

Students must complete at least 4 FCE before applying to this type 1 minor. ENV100H1 is recommended but not required.

Higher Years:

1. ENV221H1; ENV222H1/GGR222H1.
2. ENV200H1 \textbf{or another 0.5 FCE Life Science course approved by the Undergraduate Coordinator.}
3. An additional 2.5 FCE, a maximum 1.0 of which may be environmental courses offered by academic units other than the CFE (from Group A below). The remainder must be selected from the following: ENV261H1; ENV281H1; ENV282H1; ENV307H1; ENV320H1; ENV322H1; ENV323H1; JGE321H1; JGE331H1; ENV333H1; ENV335H1; ENV341H1; ENV347H1; ENV350H1; ENV361H1; ENV362H1; ENV381H1; ENV382H1; ENV395H0; ENV395Y0; ENV395Y1; ENV396H0; ENV396Y1; ENV396Y0; ENV421H1*; ENV422H1*; ENV430H1*; ENV431H1*; ENV440H1*; ENV461H1; ENV462H1; PHL273H1
*Note: with permission of Undergraduate Coordinator

**Note: Daniels Students enrolled in this program may be able to fulfil up to 1.5 FCE in requirement 3 from ARC courses. Consult the School of the Environment for more information:

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

### 4 Course Modifications:

#### ENV223H1: Fundamental Environmental Skills

**Corequisites:**
- ENV221H1 and enrolment in a School Major program, or permission of Undergraduate Academic Associate Director.

**Rationale:**

**Consultation:**

**Resources:**

#### ENV421H1: Environmental Research

**Prerequisites:**
- (ENV221H1, ENV222H1); completion of 10 FCE or their equivalent, and enrolment in one of the School's core major or collaborative specialist programs; or permission of the Undergraduate Academic Associate Director.

**Rationale:**

**Consultation:**

**Resources:**

#### ENV481H1: Special Topics in the Environment

**Prerequisites:**
- (ENV221H1, ENV222H1) and completion of at least 10 FCE and enrolment in a School Environmental program, or permission of Undergraduate Academic Associate Director.

**Rationale:**
Environment (FAS), School of

| Consultation: |
| Resources: |

**ENV482H1: Special Topics in the Environment**

<table>
<thead>
<tr>
<th>Prerequisites:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ENV221H1, ENV222H1) and completion of at least 10 FCE and enrolment in a School Environmental program, or permission of Undergraduate Academic Associate Director.</td>
</tr>
</tbody>
</table>

| Rationale: |
| Consultation: |
| Resources: |
3 Minor Program Modifications:

**Forest Conservation Minor**

**Completion Requirements:**

(4 full courses or their equivalent)

First Year: 1.0 FCE from ANT100Y1; **ECO101H1, ECO102H1, ECO100Y1**; ENV200H1; **GGR100H1, GGR101H1, JEG100H1**

Higher Years: 3.0 FCEs from FOR200H1, FOR201H1, FOR300H1, FOR301H1, FOR302H1, FOR303H1, FOR305H1, FOR306H1, FOR307H1, FOR310H1, FOR400Y1, FOR401H1

**Description of Proposed Changes:**

Adjusting for course changes in other departments: ECO100Y1 has been divided up into ECO101H1 and ECO102H1. Adding in **JEG100H1** which is a new course with similar components to the GGR100H1 and ESS102H1.

**Rationale:**

Adjusting for course changes in other departments: ECO100Y1 has been divided up into ECO101H1 and ECO102H1. Adding in **JEG100H1** which is a new course with similar components to the GGR100H1 and ESS102H1.

**Impact:**

**Consultation:**

**Resource Implications:**

---

**Forest Conservation Science Minor**

**Completion Requirements:**

(4 full courses or their equivalent, including at least 1.0 300-series course and 1.0 400-series course)

First Year: 1.0 FCE from **BIO120H1, GGR100H1, GGR101H1, CHM135H1, CHM138H1, CHM136H1, CHM139H1**

Second Year: FOR200H1, FOR201H1

Third Year: 1.0 FCE from FOR300H1, FOR301H1, FOR302H1, FOR303H1, FOR305H1, FOR306H1, FOR307H1, FOR310H1

Fourth Year: FOR400Y1

**Description of Proposed Changes:**

Adjusting for course changes in other departments: CHM138H1 and CHM139H1 are now CHM135H1 and CHM136H1.

**Rationale:**
Forest Conservation Science Specialist

Completion Requirements:

(12 full courses or their equivalent, including at least 3.5 300-series courses and 2.0 400-series courses; other equivalent and approved courses offered by other Faculties, University of Toronto Mississauga or University of Toronto Scarborough may be eligible for inclusion.)

First Year:
BIO120H1; plus 2.5 first year Science FCEs (GGR100H1, GGR101H1; CHM135H1, CHM138H1, CHM136H1 recommended)

Second Year:
1. ENV234H1; FOR200H1, FOR201H1
2. 1.0 FCE from ECO220Y1, ECO227Y1; GGR270H1, GGR271H1; STA220H1, STA221H1
3. 1.0 FCE from BIO220H1, BIO251H1, BIO260H1; GGR205H1, GGR206H1, GGR272H1, GGR273H1; PHL273H1; ENV221H1, ENV222H1; ENV234H1, ENV237H1, ENV238H1

Third Year:
1. FOR301H1, FOR305H1; 1.0 FCE from FOR300H1, FOR302H1, FOR303H1, FOR306H1, FOR307H1, FOR310H1; ENV334H1
2. 0.5 FCE from EEB319H1, EEB321H1, EEB323H1, EEB328H1; CSB340H1
3. 1.0 FCE from EEB324H1, EEB365H1, EEB386H1, EEB388H1; GGR303H1; GGR305H1, GGR314H1; ENV320H1, ENV322H1, ENV323H1

Fourth Year:
1. FOR400Y1, FOR401H1
2. 0.5 FCE from FOR403H1, FOR405H1, FOR410H1, FOR417H1, FOR418H1, FOR419H1, FOR420H1, FOR423H1; GGR403H1; ENV347H1; JFG470H1, JFG475H1; EEB403H1, EEB406H1, EEB407H1

Description of Proposed Changes:
Adjusting for course changes in other departments: CHM138H1 and CHM139H1 are now CHM135H1 and CHM136H1. All other removed courses are no longer on offer by their respective departments

Rationale:
Adjusting for course changes in other departments: CHM138H1 and CHM139H1 are now CHM135H1 and CHM136H1. All other removed courses are no longer on offer by their respective departments

Impact:

Consultation:

Resource Implications:
2 Minor Program Modifications:

**Immunology Minor**

**Completion Requirements:**

For more information, refer to the Immunology website at: www.immunology.utoronto.ca.

(4 full courses or their equivalents)

First Year:
BIO120H1; BIO130H1; [CHM135H1 (formerly CHM139H1); CHM136H1 (formerly CHM138H1)]/CHM151Y1

Second Year:
BIO230H1; IMM250H1

Third Year:
IMM340H1; IMM350H1

**Description of Proposed Changes:**

The proposed changes aim at correcting some mistakes that had somehow been introduced in our curriculum. The modifications also fix and simplify some of the wording for course requirements. We would just like to run these changes by the concerned units for accuracy and approval.

**Rationale:**

The proposed changes aim at correcting some mistakes that had somehow been introduced in our curriculum. The modifications also fix and simplify some of the wording for course requirements. We would just like to run these changes by the concerned units for accuracy and approval.

**Impact:**

**Consultation:**

**Resource Implications:**

**Immunology Specialist**

**Enrolment Requirements:**

This is a limited enrolment program that can only accommodate a limited number of students. Eligibility will be competitive and based on a student’s marks in the 3.0 required first-year courses:

BIO120H1, BIO130H1, [CHM135H1(formerly CHM139H1); CHM136H1 (formerly CHM138H1)]/CHM151Y1, (MAT135H1, MAT136H1)/MAT137Y1 with an average of at least 70% on these 3.0 full-course equivalents (FCEs) and a final mark of at least 65% in each course.

While it is difficult to predict what will be competitive course marks and average in a given year, based on previous years, the estimate is: course marks = high 70s; average = high 70s.

Achieving these estimated marks does not guarantee admission to the program in any given year.
Immunology (MED), Department of

Note: Students must apply to this program on the A&S Current Students Program Enrolment website.

For more information, refer to the Immunology website at: www.immunology.utoronto.ca.

Completion Requirements:

(13.5 full courses or their equivalents)

First Year:
BIO120H1; BIO130H1; [CHM135H1 (formerly CHM139H1); CHM136H1 (formerly CHM138H1)]/CHM151Y1;
(MAT135H1; MAT136H1)/MAT137Y1

First Year or upper years:
(PHY131H1; PHY132H1) 4/(PHY151H1; PHY152H1) 4

Second Year:
1. BCH242Y1; BIO230H1; BIO260H1/HMB265H1; CHM220H1; IMM250H1
2. One course from the following list: BIO220H1/STA220H1/TRN225Y1/TRN236H1/CHM247H1/CHM249H1

Third Year:
BCH377H1; IMM341H1; IMM351H1; MGY311Y1; MGY377H1; MGY378H1

Fourth Year:
1. IMM435H1
2. Two courses from the following list: IMM428H1/IMM429H1/IMM430H1/MIJ485H1
3. IMM450Y1 or one full course equivalent at the 400-series in ANA, BCH, IMM, LMP, MGY, CSB.

Notes:

1. (PHY131H1 ; PHY132H1)/(PHY151H1 ; PHY152H1) These courses may be taken in the first year or subsequent years and are not required for entrance into the specialist program.
2. IMM435H1 This course is capped at 40 students. Priority will be given to Immunology Specialist students, followed by Immunology Major students.

Description of Proposed Changes:

The proposed changes aim at correcting some mistakes that had somehow been introduced in our curriculum. The modifications also fix and simplify some of the wording for course requirements. We would just like to run these changes by the concerned units for accuracy and approval.

Rationale:

The proposed changes aim at correcting some mistakes that had somehow been introduced in our curriculum. The modifications also fix and simplify some of the wording for course requirements. We would just like to run these changes by the concerned units for accuracy and approval.

Impact:

Consultation:

Resource Implications:
1 Course Modification:

**PSL440Y1: Neuroscience I: Systems and Behaviour**

<table>
<thead>
<tr>
<th>Title:</th>
<th>Neuroscience I: Systems and Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale:</td>
<td>We have removed the I from the title because the Neuroscience I implied that this course had to be taken before students could take the Neuroscience II course -- this is not the case.</td>
</tr>
<tr>
<td>Consultation:</td>
<td></td>
</tr>
<tr>
<td>Resources:</td>
<td></td>
</tr>
</tbody>
</table>
## 2 Course Modifications:

### PSY311H1: Social Development

<table>
<thead>
<tr>
<th>Prerequisites:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY201H1 (or equivalent exclusion), PSY210H1/PSY220H1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rationale:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consultation:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resources:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### PSY321H1: Cross-Cultural Psychology

<table>
<thead>
<tr>
<th>Prerequisites:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY201H1 (or exclusion), PSY220H1; and PSY230H1/PSY240H1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rationale:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consultation:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resources:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
2 Course Modifications:

TRN125Y1: Contemporary Issues in Health Science

Description:

Can the immune system be strengthened? Are some diseases incurable? What is the best way to stop the spread of a virus? This course examines focuses on the scientific principles underlying contemporary current controversial issues in the science of human health with the goal of exposing students to the current state of biomedical research sciences. We will develop three distinct types of understanding that are essential to literacy about the science of human health: the basic concepts in science; the nature of scientific research; and the rules that govern how scientists do their work. This course The four six-week modules will explore contemporary topics such as stem cells, gene editing transplantation, regenerative medicine, vaccination, drug development, and personalized medicine from the perspective of developing opinion based on scientific understanding. Not eligible for CR/NCR.

Rationale:

Consultation:

Resources:

TRN135Y1: Science and Social Choice

Description:

Many of the Scientific discoveries shape how we see ourselves and decisions made about how we make as a society rely on advances in scientific knowledge. In this course, we will discuss a number of contemporary medical topics that involve complex scientific discoveries about health, the human body, disease, live our lives and infection run our societies. We will consider genes and study the medical discuss broader implications of our growing understanding of the human genome . We will study a number of recent cases in order to explore how scientific research findings influence decision-making in hospitals and the selection of for making social policies decisions. We Topics will also discuss the background forces that shape medical research include: genes and how this affects the kinds genetic determinism; evolutionary explanations of health problems that are prioritized. The objective of this course is to develop a solid understanding of biological concepts related to human health behavior and consider them in their wider social disease; scientific uncertainty and ethical contexts public communication. Not eligible for CR/NCR.

Rationale:

Consultation:

Resources:
1 Course Modification:

**ANA300Y1: Human Anatomy and Histology**

<table>
<thead>
<tr>
<th>Exclusions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous: ANA126Y1</td>
</tr>
<tr>
<td>New:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rationale:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Consultation:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Resources:</th>
</tr>
</thead>
</table>