Science Curriculum Committee
Abbreviated Review Proposals By Unit

(Proposals for Information)
2 Minor Program Modifications:

Astronomy & Astrophysics Major

Completion Requirements:

This program is appropriate for students interested in a more flexible and diverse undergraduate program. It may be tailored to be a natural counterpart to a second major in Mathematics, Physics or Computer Science; students should consult the undergraduate chairs of Astronomy & Astrophysics and the respective departments for advice on course selection.

(8 full courses or their equivalent, including at least 2 at the 300+ level, and at least 0.5 at the 400 level)

First Year:
(MAT135H1, MAT136H1)/MAT137Y1/MAT157Y1; (PHY131H1, PHY132H1)/(PHY151H1, PHY152H1)

Second Year:
1. AST221H1, AST222H1; MAT235Y1/MAT237Y1; PHY252H1
2. One of PHY224H1, PHY250H1, PHY254H1, PHY256H1

Third Year:
AST320H1, AST325H1/AST326Y1

Third or fourth year:
1. HPS200H1/JPH441H1, or another course with a significant emphasis on Social and Ethical Responsibility approved by the Undergraduate Chair.
2. At least one of: CSC336H1, CSC350H1, CSC351H1, CSC456H1; ECE385H1; PHY350H1, PHY354H1, PHY356H1, PHY357H1, PHY358H1, PHY385H1, PHY407H1/PHY408H1, PHY450H1, JPE395H1
3. Any other APM/AST/CTA/CSC/MAT/PHY/STA at the 300+ level to make up the total of 8 full-course equivalents.

Fourth Year:
AST424H1

Notes:
1. The Astronomy & Astrophysics Major program is not designed primarily for students intending to pursue graduate studies in Astronomy & Astrophysics. Such students should consider the Astronomy & Physics Specialist program, or consult the Undergraduate Chair about their course selections.
2. Students interested in pursuing a research project in fourth year (AST425Y1) should consult the undergraduate chair.
3. Third-year students are invited and fourth-year students are expected to attend the weekly departmental colloquia and G2000 talks.

Description of Proposed Changes:

Rationale:

Impact:

Consultation:
Astronomy and Astrophysics (FAS), Department of

Resource Implications:

Astronomy & Physics Specialist

Completion Requirements:

The Astronomy & Physics Specialist program combines rigorous training in the full spectrum of core physics subfields with their application in astronomy. Lecture courses are complemented by practical courses, and the program culminates in a supervised research project, where all the skills learned are used, and which is intended to be published.

(14 full courses or their equivalent, including at least 4 at the 300+ level, and at least 1 at the 400 level)

First Year:
MAT137Y1/MAT157Y1, MAT223H1/MAT240H1; PHY151H1, PHY152H1

Second Year:
AST221H1, AST222H1; MAT237Y1/MAT257Y1/MAT235Y1, MAT244H1/MAT267H1; PHY250H1, PHY252H1, PHY256H1
(MAT237Y1, MAT244H1 recommended)

Third Year:
1. APM346H1; AST320H1, AST325H1/AST326Y1; PHY224H1, PHY254H1, PHY354H1, PHY356H1
2. One of MAT224H1, MAT327H1, MAT334H1, MAT363H1, STA257H1

Fourth Year:
1. AST425Y1; PHY350H1, PHY450H1
2. One half course from PHY324H1, PHY357H1, PHY358H1, PHY385H1, PHY407H1, PHY408H1, PHY483H1, JPE395H1
3. One half course from AST430H1, PHY454H1, PHY456H1, PHY460H1, PHY483H1, PHY484H1, PHY495H1
4. HPS200H1/JP441H1, or another course with a significant emphasis on Social and Ethical Responsibility approved by the Undergraduate Chair.

Notes:
1. Second-year students who wish to keep open the option of pursuing a physics specialist degree should consider taking PHY254H1 in 2nd year.
2. Third-year students are invited and fourth-year students are expected to attend the weekly departmental colloquia and G2000 talks.

Description of Proposed Changes:

- Removed attendance at G2000, which is no longer offered by Department. Also updated some course requirements to reflect changes in Department of Physics.

Rationale:

Impact:

Consultation:

Resource Implications:
10 Minor Program Modifications:

Animal Physiology Major

Completion Requirements:

(8 full courses or their equivalent)

First Year: BIO120H1, BIO130H1; (CHM135H1, CHM136H1)/(CHM138H1, CHM139H1)/CHM151Y1; JMB170Y1/ (MAT135H1, MAT136H1)/MAT137Y1/MAT157Y1/(PHY131H1, PHY132H1)/(PHY151H1, PHY152H1)

Higher Years:
1. (BIO220H1, BIO230H1/BIO255H1)
2. BIO270H1, BIO271H1
3. CSB325H1
4. 0.5 FCE from: CJH332H1; CSB332H1, CSB343H1, CSB346H1
5. 1.5 FCEs (at least 0.5 FCE must be at the 300+level) from: BCH210H1; BIO260H1/HMB265H1; CJH332H1; CSB299Y1, CSB327H1, CSB329H1, CSB330H1, CSB331H1, CSB332H1, CSB343H1, CSB345H1, CSB346H1, CSB348H1, CSB352H1, CSB397Y1; CSB399Y1; EEB263H1; PSY397H1; STA220H1
6. 0.5 FCE at the 400-level from CSB426H1, CSB432H1, CSB443H1, CSB445H1, CSB447H1, CSB492H1, CSB497H1, CSB498Y1, CSB499Y1; HMB430H1, HMB472H1, HMB496Y1, HMB499Y1; PSL432H1, PSL452H1

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

Cell & Molecular Biology Major

Completion Requirements:

(8 full courses or their equivalent)

First Year: BIO120H1, BIO130H1; (CHM135H1, CHM136H1)/(CHM138H1, CHM139H1)/CHM151Y1; JMB170Y1/ (MAT135H1, MAT136H1)/MAT137Y1/MAT157Y1/(PHY131H1, PHY132H1)/(PHY151H1, PHY152H1)

Higher Years:
1. (BIO220H1, BIO230H1/BIO255H1)
2. BIO260H1/HMB265H1; BCH210H1
3. CSB349H1
4. 1.0 FCE from: CSB327H1, CSB328H1, CSB329H1, CSB331H1, CSB340H1, CSB353H1
5. 1.5 FCEs (at least 0.5 FCE at the 400-level) from: BCH422H1, BCH426H1, BCH440H1, BCH441H1, BCH444H1, BCH445H1, CJH332H1, CSB299Y1, CSB327H1, CSB328H1, CSB329H1, CSB330H1, CSB331H1, CSB332H1, CSB333H1, CSB334H1, CSB340H1, CSB350H1, CSB351Y1, CSB352H1, CSB353H1, CSB397Y0, CSB399Y1, CSB427H1, CSB428H1, CSB429H1, CSB430H1, CSB431H1, CSB435H1, CSB447H1, CSB450H1, CSB452H1, CSB457H1, CSB458H1, CSB459H1, CSB460H1, CSB461H1, CSB462H1, CSB463H1, CSB464H1, CSB465H1, CSB466H1, CSB467H1, CSB468H1, CSB469H1, CSB470H1, CSB471H1, CSB472H1, CSB473H1, CSB474H1, CSB475H1, CSB476H1, CSB477H1, CSB478H1, CSB479H1, CSB480H1, CSB481H1, CSB482H1, CSB483H1, CSB484H1, CSB485H1, CSB486H1, CSB487H1, CSB488H1, CSB489H1, CSB490H1, CSB491H1, CSB492H1, CSB493H1, CSB494H1, CSB495H1, CSB496H1, CSB497H1, CSB498H1, CSB499H1, HMB430H1, HMB472H1, HMB496Y1, HMB499Y1; PSL432H1, PSL452H1
Cell and Systems Biology (FAS), Department of

CSB460H1, CSB472H1, CSB473H1, CSB474H1, CSB475H1, CSB483H1, CSB490H1, CSB491H1, CSB492H1, CSB497H1, CSB498Y1, CSB499Y1, HMB496Y1/HMB499Y1, MGY480Y1. No more than 0.5 FCE in BCH can be used towards this requirement.

The Cell & Molecular Biology Major Program has the additional option of a Disciplinary Focus.

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

Cell & Molecular Biology Major: Focus in Molecular Networks of the Cell

Title:

Cell & Molecular Biology Major: Focus in Molecular Networks of the Cell (Major)

Enrolment Requirements:

Once you have enrolled in the Cell and Molecular Biology Major program, you have the option to apply for entry into a focus. The focuses have a limited enrolment and can only accommodate a restricted number of students with a particular interest in the topic of the focus. Students can only apply for one focus. Admission will be determined with a minimum grade of 80% in BIO130H1. If the student does not achieve 80% in BIO130H1, admission can be determined with a minimum grade of 80% in BIO230H1 or CSB349H1. In addition, students must submit a 300-word statement of interest regarding the topic of the focus. Statement submission instructions are at http://csb.utoronto.ca/undergraduate-studies/undergraduate-programs/. Achieving these requirements does not necessarily guarantee admission to the focus in any given year.

Students in a focus complete the requirements of First Year, the requirements 1.-3. of Higher Years, as well as requirements 4.-7. specific to each focus.

Each year students are enrolled in a focus, they must also be an active participant in the faculty-led learning community for their focus(requirement 7.). The learning community appears as a non-credit course recognized on the co-curricular record. Students who fail to contribute to the faculty-led learning community will be removed from the focus.

Completion Requirements:

This Focus is part of the Cell and Molecular Biology Major and begins with the requirements of First Year and of lines 1-3 of Higher Years of the Cell and Molecular Biology Major Program.

4. 1.0 FCE from: CJH332H1, CSB327H1, CSB331H1, CSB353H1
5. 0.5 FCE from: CSB399Y1, CSB427H1, CSB428H1, CSB429H1, CSB435H1, CSB457H1, CSB458H1, CSB459H1, CSB460H1, CSB475H1
6. 1.0 FCE from: BCH422H1, BCH426H1, BCH444H1, BCH445H1, CJH332H1, CSB299Y1, CSB327H1, CSB330H1, CSB331H1, CSB353H1, CSB397Y0, CSB427H1, CSB428H1, CSB429H1, CSB435H1, CSB450H1, CSB452H1, CSB457H1, CSB458H1, CSB459H1, CSB460H1, CSB475H1, CSB490H1, CSB491H1, CSB497H1, CSB498Y1,
Cell and Systems Biology (FAS), Department of

CSB499Y1. No more than 0.5 FCE in BCH can be used towards this requirement.
7. Molecular Network Learning Community (each year of focus enrolment)

**Description of Proposed Changes:**
CSB349H1 has been added to the entrance requirements to allow students who had not met the requirements of BIO130H1 or BIO230H1 to have this opportunity if their academic record improves after 2nd year.

**Rationale:**

**Impact:**

**Consultation:**

**Resource Implications:**

### Cell & Molecular Biology Major: Focus in Plant Genomics and Biotechnology

**Title:**
Cell & Molecular Biology Major : Focus in Plant Genomics and Biotechnology

**Enrolment Requirements:**

Once you have enrolled in the Cell and Molecular Biology Major program, you have the option to apply for entry into a focus. The focuses have a limited enrolment and can only accommodate a restricted number of students with a particular interest in the topic of the focus. **Students can only apply for one focus.** Admission will be determined with a minimum grade of 80% in BIO130H1. If the student does not achieve 80% in BIO130H1, admission can be determined with a minimum grade of 80% in BIO230H1 or CSB349H1. In addition, students must submit a 300-word statement of interest regarding the topic of the focus. Statement submission instructions are at http://csb.utoronto.ca/undergraduate-studies/undergraduate-programs/. Achieving these requirements does not necessarily guarantee admission to the focus in any given year.

Students in a focus complete the requirements of First Year, the requirements 1.-3. of Higher Years, as well as requirements 4.-7 specific to each focus.

Each year students are enrolled in a focus, they must also be an active participant in the faculty-led learning community for their focus(requirement 7.). The learning community appears as a non-credit course recognized on the co-curricular record. Students who fail to contribute to the faculty-led learning community will be removed from the focus.

**Completion Requirements:**

This Focus is part of the Cell and Molecular Biology Major and begins with the requirements of First Year and of lines 1-3 of Higher Years of the Cell and Molecular Biology Major Program.

4. 1.0 FCE from: CSB340H1, CSB350H1/CSB352H1, CSB353H1
5. 0.5 FCE from: CSB435H1, CSB450H1, CSB452H1, CSB459H1, CSB460H1, CSB472H1, CSB473H1, CSB474H1, CSB475H1
6. 1.0 FCE from: CSB299Y1, CSB330H1, CSB340H1, CSB350H1, CSB351Y1, CSB352H1, CSB353H1, CSB397Y0, CSB399Y1, CSB435H1, CSB450H1, CSB452H1, CSB459H1, CSB460H1, CSB472H1, CSB473H1, CSB474H1, CSB475H1, CSB490H1, CSB491H1, CSB497H1, CSB498Y1, CSB499Y1.
7. Plant Biotech Learning Community (each year of focus enrolment)
**Description of Proposed Changes:**
CSB349H1 has been added to the entrance requirements to allow students who had not met the requirements of BIO130H1 or BIO230H1 to have this opportunity if their academic record improves after 2nd year.

**Rationale:**

**Impact:**

**Consultation:**

**Resource Implications:**

### Cell & Molecular Biology Major: Focus in Stem Cells and Developmental Biology

**Title:**
Cell & Molecular Biology Major : Focus in Stem Cells and Developmental Biology

**Enrolment Requirements:**

Once you have enrolled in the Cell and Molecular Biology Major program, you have the option to apply for entry into a focus. The focuses have a limited enrolment and can only accommodate a restricted number of students with a particular interest in the topic of the focus. **Students can only apply for one focus.** Admission will be determined with a minimum grade of 80% in BIO130H1. If the student does not achieve 80% in BIO130H1, admission can be determined with a minimum grade of 80% in BIO230H1 or CSB349H1. In addition, students must submit a 300-word statement of interest regarding the topic of the focus. Statement submission instructions are at http://csb.utoronto.ca/undergraduate-studies/undergraduate-programs/. Achieving these requirements does not necessarily guarantee admission to the focus in any given year.

Students in a focus complete the requirements of First Year, the requirements 1.-3. of Higher Years, as well as requirements 4.-7 specific to each focus.

Each year students are enrolled in a focus, they must also be an active participant in the faculty-led learning community for their focus(required 7.). The learning community appears as a non-credit course recognized on the co-curricular record. Students who fail to contribute to the faculty-led learning community will be removed from the focus.

**Completion Requirements:**

This Focus is part of the Cell and Molecular Biology Major and begins with the requirements of First Year and of lines 1-3 of Higher Years of the Cell and Molecular Biology Major Program.

4. 1.0 FCE from: CSB328H1, CSB329H1, CSB340H1
5. 0.5 FCE from: CSB399Y1, CSB427H1, CSB429H1, CSB430H1, CSB431H1, CSB483H1
6. 1.0 FCE from: CSB299Y1, CSB328H1, CSB329H1, CSB340H1, CSB397Y0, CSB427H1, CSB429H1, CSB430H1, CSB431H1, CSB483H1, CSB497H1, CSB498Y1, CSB499Y1.
7. Multicellularity Learning Community (each year of focus enrolment)

**Description of Proposed Changes:**
CSB349H1 has been added to the entrance requirements to allow students who had not met the requirements of BIO130H1 or BIO230H1 to have this opportunity if their academic record improves after 2nd year.

**Rationale:**
Cell & Molecular Biology Specialist

Completion Requirements:

(12.5 full courses or their equivalent, including at least one 400-series course)

First Year:
BIO120H1, BIO130H1; (CHM135H1, CHM136H1)/(CHM138H1, CHM139H1)/CHM151Y1; JMB170Y1/(MAT135H1, MAT136H1)/MAT137Y1/MAT157Y1.

Higher Years:
1. (PHY131H1, PHY132H1)/(PHY151H1, PHY152H1)
2. (BIO220H1, BIO230H1/BIO255H1), (BIO270H1, BIO271H1), BIO260H1/HMB265H1; BCH210H1
3. CSB330H1/CSB350H1/CSB352H1, CSB349H1
4. 1.0 FCE from: CJH332H1, CSB327H1, CSB328H1, CSB329H1, CSB331H1, CSB340H1, CSB353H1
5. 1.0 FCE from: BCH422H1, BCH426H1, BCH444H1, BCH445H1, CSB427H1, CSB428H1, CSB429H1, CSB430H1, CSB431H1, CSB435H1, CSB450H1, CSB452H1, CSB457H1, CSB458H1, CSB459H1, CSB460H1, CSB472H1, CSB473H1, CSB474H1, CSB475H1, CSB483H1
6. 2.5 FCEs from: BCH422H1, BCH426H1, BCH440H1, BCH441H1, BCH444H1, BCH445H1, CJH332H1, CSB299Y1, CSB327H1, CSB328H1, CSB329H1, CSB330H1, CSB331H1, CSB340H1, CSB350H1, CSB351Y1, CSB352H1, CSB353H1, CSB397Y0, CSB399Y1, CSB427H1, CSB428H1, CSB429H1, CSB430H1, CSB431H1, CSB435H1, CSB447H1, CSB450H1, CSB452H1, CSB457H1, CSB458H1, CSB459H1, CSB460H1, CSB472H1, CSB473H1, CSB474H1, CSB475H1, CSB483H1, CSB490H1, CSB491H1, CSB492H1, CSB497H1, CSB498Y1, CSB499Y1, HMB496Y1/HMB499Y1, MGY480Y1

NOTE: No more than 0.5 FCE in BCH can be used towards requirements 5. and 6.

The Cell & Molecular Biology Specialist Program has the additional option of a Disciplinary Focus.

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

Cell & Molecular Biology Specialist: Focus in Molecular Networks of the Cell

Title: Cell & Molecular Biology Specialist: Focus in Molecular Networks of the Cell (Specialist)
Enrolment Requirements:

Once you have been approved for and have enrolled in the Cell and Molecular Biology Specialist program, you have the option to apply for entry into a focus. The focuses have a limited enrolment and can only accommodate a restricted number of students with a particular interest in the topic of the focus. **Students can only apply for one focus.** Admission will be determined with a minimum grade of 80% in BIO130H1. If the student does not achieve 80% in BIO130H1, admission can be determined with a minimum grade of 80% in BIO230H1 or CSB349H1. In addition, students must submit a 300-word statement of interest regarding the topic of the focus. Statement submission instructions are at http://csb.utoronto.ca/undergraduate-studies/undergraduate-programs/. Achieving these requirements does not necessarily guarantee admission to the focus in any given year.

Students in a focus complete the requirements of First Year, the requirements 1.-3. of Higher Years, as well as requirements 4.-7 specific to each focus.

Each year students are enrolled in a focus, they must also be an active participant in the faculty-led learning community for their focus (requirement 7.). The learning community appears as a non-credit course recognized on the co-curricular record. Students who fail to contribute to the faculty-led learning community will be removed from the focus.

Completion Requirements:

This Focus is part of the Cell and Molecular Biology Specialist and begins with the requirements of First Year and of lines 1-3 of Higher Years of the Cell and Molecular Biology Specialist Program.

4. 1.0 FCE from: CJH332H1, CSB327H1, CSB331H1, CSB353H1
5. 1.0 FCE from: CSB427H1, CSB428H1, CSB429H1, CSB435H1, CSB457H1, CSB458H1, CSB459H1, CSB460H1, CSB475H1
6. 2.5 FCEs from: BCH422H1, BCH426H1, BCH440H1, BCH441H1, BCH444H1, BCH445H1, CJH332H1, CSB299Y1, CSB327H1, CSB328H1, CSB329H1, CSB330H1, CSB331H1, CSB340H1, CSB350H1, CSB351Y1, CSB352H1, CSB353H1, CSB397Y0, CSB399Y1, CSB427H1, CSB428H1, CSB429H1, CSB430H1, CSB431H1, CSB435H1, CSB447H1, CSB450H1, CSB452H1, CSB457H1, CSB458H1, CSB459H1, CSB460H1, CSB472H1, CSB473H1, CSB474H1, CSB475H1, CSB483H1, CSB490H1, CSB491H1, CSB492H1, CSB497H1, CSB498Y1, CSB499Y1. No more than 0.5 FCE in BCH can be used towards this requirement.
7. Molecular Network Learning Community (each year of focus enrolment)

Description of Proposed Changes:

CSB349H1 has been added to the entrance requirements to allow students who had not met the requirements of BIO130H1 or BIO230H1 to have this opportunity if their academic record improves after 2nd year.

Rationale:

Impact:

Consultation:

Resource Implications:

Cell & Molecular Biology Specialist: Focus in Plant Genomics and Biotechnology

**Title:**

Cell & Molecular Biology Specialist : Focus in Plant Genomics and Biotechnology (Specialist)
Enrolment Requirements:

Once you have been approved for and have enrolled in the Cell and Molecular Biology Specialist program, you have the option to apply for entry into a focus. The focuses have a limited enrolment and can only accommodate a restricted number of students with a particular interest in the topic of the focus. **Students can only apply for one focus.** Admission will be determined with a minimum grade of 80% in BIO130H1. If the student does not achieve 80% in BIO130H1, admission can be determined with a minimum grade of 80% in BIO230H1 or CSB349H1. In addition, students must submit a 300-word statement of interest regarding the topic of the focus. Statement submission instructions are at http://csb.utoronto.ca/undergraduate-studies/undergraduate-programs/. Achieving these requirements does not necessarily guarantee admission to the focus in any given year.

Students in a focus complete the requirements of First Year, the requirements 1.-3. of Higher Years, as well as requirements 4.-7 specific to each focus.

Each year students are enrolled in a focus, they must also be an active participant in the faculty-led learning community for their focus(requirement 7.). The learning community appears as a non-credit course recognized on the co-curricular record. Students who fail to contribute to the faculty-led learning community will be removed from the focus.

Completion Requirements:

This Focus is part of the Cell and Molecular Biology Specialist and begins with the requirements of First Year and of lines 1-3 of Higher Years of the Cell and Molecular Biology Specialist Program.

4. 1.0 FCE from: CSB340H1, CSB350H1/CSB352H1, CSB353H1
5. 1.0 FCE from: CSB435H1, CSB450H1, CSB452H1, CSB459H1, CSB460H1, CSB472H1, CSB473H1, CSB474H1, CSB475H1
6. 2.5 FCEs from: BCH422H1, BCH426H1, BCH440H1, BCH441H1, BCH444H1, BCH445H1, CSB299Y1, CSB328H1, CSB329H1, CSB330H1, CSB331H1, CSB340H1, CSB350H1, CSB351Y1, CSB352H1, CSB353H1, CSB397Y0, CSB399Y1, CSB428H1, CSB431H1, CSB435H1, CSB450H1, CSB452H1, CSB458H1, CSB459H1, CSB460H1, CSB472H1, CSB473H1, CSB474H1, CSB475H1, CSB483H1, CSB490H1, CSB491H1, CSB492H1, CSB497H1, CSB498Y1, CSB499Y1. No more than 0.5 FCE in BCH can be used towards this requirement.
7. Plant Biotech Learning Community (each year of focus enrolment)

Description of Proposed Changes:

CSB349H1 has been added to the entrance requirements to allow students who had not met the requirements of BIO130H1 or BIO230H1 to have this opportunity if their academic record improves after 2nd year.

Rationale:

Impact:

Consultation:

Resource Implications:

Cell & Molecular Biology Specialist: Focus in Stem Cells and Developmental Biology

Title: Cell & Molecular Biology Specialist : Focus in Stem Cells and Developmental Biology

Enrolment Requirements:
Once you have been approved for and have enrolled in the Cell and Molecular Biology Specialist program, you have the option to apply for entry into a focus. The focuses have a limited enrolment and can only accommodate a restricted number of students with a particular interest in the topic of the focus. **Students can only apply for one focus.** Admission will be determined with a minimum grade of 80% in BIO130H1. If the student does not achieve 80% in BIO130H1, admission can be determined with a minimum grade of 80% in BIO230H1 or CSB349H1. In addition, students must submit a 300-word statement of interest regarding the topic of the focus. Statement submission instructions are at http://csb.utoronto.ca/undergraduate-studies/undergraduate-programs/. Achieving these requirements does not necessarily guarantee admission to the focus in any given year.

Students in a focus complete the requirements of First Year, the requirements 1.-3. of Higher Years, as well as requirements 4.-7 specific to each focus.

Each year students are enrolled in a focus, they must also be an active participant in the faculty-led learning community for their focus(requirement 7.). The learning community appears as a non-credit course recognized on the co-curricular record. Students who fail to contribute to the faculty-led learning community will be removed from the focus.

**Completion Requirements:**

This Focus is part of the Cell and Molecular Biology Specialist and begins with the requirements of First Year and of lines 1-3 of Higher Years of the Cell and Molecular Biology Specialist Program.

4. 1.0 FCE from: CSB328H1, CSB329H1, CSB340H1
5. 1.0 FCE from: CSB427H1, CSB429H1, CSB430H1, CSB431H1, CSB483H1
6. 2.5 FCEs from: BCH422H1, BCH426H1, BCH440H1, BCH441H1, BCH444H1, BCH445H1, CSB299Y1, CSB327H1, CSB328H1, CSB329H1, CSB330H1, CSB331H1, CSB340H1, CSB350H1, CSB352H1, CSB397Y0, CSB399Y1, CSB427H1, CSB428H1, CSB429H1, CSB430H1, CSB431H1, CSB435H1, CSB450H1, CSB458H1, CSB460H1, CSB472H1, CSB473H1, CSB474H1, CSB483H1, CSB490H1, CSB491H1, CSB492H1, CSB497H1, CSB498Y1, CSB499Y1. No more than 0.5 FCE in BCH can be used towards this requirement.
7. Multicellularity Learning Community (each year of focus enrolment)

**Description of Proposed Changes:**

CSB349H1 has been added to the entrance requirements to allow students who had not met the requirements of BIO130H1 or BIO230H1 to have this opportunity if their academic record improves after 2nd year.

**Rationale:**

**Impact:**

**Consultation:**

**Resource Implications:**

**Genome Biology Major**

**Completion Requirements:**

This program is a joint program of the departments of Cell & Systems Biology, Ecology & Evolutionary Biology, and Molecular Genetics. It is administered through the Department of Cell & Systems Biology.
First year: BIO120H1, BIO130H1; (CHM135H1, CHM136H1)/(CHM138H1, CHM139H1)/CHM151Y1; (MAT135H1, MAT136H1)/MAT137Y1/MAT157Y1

Higher years:
1. BIO220H1, BIO230H1/BIO255H1; BIO260H1/HMB265H1; EEB225H1/STA220H1
2. Genomics fundamentals: BCH311H1/CSB349H1/MGY311Y1, CSB352H1; EEB323H1
3. 0.5 FCE laboratory course from: CSB472H1, CSB474H1; EEB460H1
4. 1.0 FCE genomics elective from: CSB330H1, CSB350H1, CSB397Y0, CSB427H1, CSB435H1, CSB450H1, CSB457H1, CSB458H1, CSB473H1, CSB490H1, CSB491H1, CSB497H1/CSB498Y1/CSB499Y1; EEB362H1, EEB459H1, EEB497H1/EEB498Y1/EEB499Y1; EHJ352H1; MGY350H1, MGY360H1, MGY428H1, MGY470H1, MGY480Y1

NOTE: Students taking CSB397Y0, CSB490H1, CSB491H1, CSB497H1/CSB498Y1/CSB499Y1, EEB497H1/EEB498Y1/EEB499Y1 or MGY480Y1 are encouraged to conduct a genomics-related research project.

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:
3 Course Modifications:

CSC165H1: Mathematical Expression and Reasoning for Computer Science

<table>
<thead>
<tr>
<th>Corequisites:</th>
<th>CSC148H1/(CSC108H1/CSC120H1/CSC121H1, MAT137Y1/MAT157Y1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale:</td>
<td></td>
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<tr>
<td>Consultation:</td>
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<tr>
<td>Resources:</td>
<td></td>
</tr>
</tbody>
</table>

CSC207H1: Software Design

| Prerequisites: | 60% or higher in CSC148H1 (Please note: The minimum prerequisite grade in CSC148H1 is lower than the minimum grade for program admission in Computer Science. If you take this course when your grade in CSC148H1 is lower than the requirement for program admission, you will be unable to enrol in a Computer Science program. If you hope to enrol in a Computer Science program in future, please ensure that you satisfy the program admission grade requirements in CSC148H1 and CSC165H1/CSC240H1 before completing any 200-level course.) |
| Rationale:     | To minimize student confusion regarding minimum grade needed to take this course versus minimum grade needed for actual program admission. |
| Consultation:  |                                                                 |
| Resources:     |                                                                 |

CSC236H1: Introduction to the Theory of Computation

| Prerequisites: | 60% or higher in CSC148H1, 60% or higher in CSC165H1 (Please note: The minimum prerequisite grade in CSC148H1 and CSC165H1/CSC240H1 is lower than the minimum grade for program admission in Computer Science. If you take this course when your grade in CSC148H1 or CSC165H1/CSC240H1 is lower than the requirement for program admission, you will be unable to enrol in a Computer Science program. If you hope to enrol in a Computer Science program in future, please ensure that you satisfy the program admission grade requirements in CSC148H1 and CSC165H1/CSC240H1 before completing any 200-level course.) |
| Rationale:     | To minimize student confusion regarding minimum grade needed to take this course versus minimum grade needed for actual program admission. |
| Consultation:  |                                                                 |
| Resources:     |                                                                 |
1 Minor Program Modification:

Geoscience Minor

Description:

Previous:

New:

The study of Earth Sciences (or “Geology” to use the Greek term) integrates the classical sciences of chemistry, physics and biology, and applies their principles to a diverse range of processes on Earth and other planets, from landform evolution to plate tectonics all the way to the origin and evolution of life and geomicrobiology. The Geoscience Minor program aims to give students as much leeway as possible to choose particular interests within the diverse and dynamic field of Earth Sciences. Students are advised to check course prerequisites, to review the clusters of courses listed for the geoscience major program, and to consult the Earth Sciences Undergraduate Handbook for logical course progressions. For further questions, please contact the Student Affairs Coordinator (Scott Moore, Department of Earth Sciences, 22 Russell St. Earth Sciences Center, Room 1062 email: ugrad@es.utoronto.ca).

Keywords: Geology

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

7 Course Modifications:

ESS262H1: Earth System Processes

Exclusions:

Previous:

New: JEG100H1

Rationale:

Consultation:

Resources:

ESS322H1: Igneous and Metamorphic Petrology

Prerequisites:

ESS221H1, ESS222H1, ESS223H1 & ESS211H1/ENV233H1, ESS330H1
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Recommended Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS362H1</td>
<td>Oceanography</td>
<td>8.0 FCE including ESS264H1/ESS262H4</td>
<td>ESS102H1/PHY131H1/PHY132H1/CHM138H1/CHM139H1/BIO120H1/MAT135H1/ESS261H1/ESS262H1</td>
</tr>
<tr>
<td>ESS425H1</td>
<td>Analytical Methods for the Geosciences</td>
<td>Previous: ESS322H1</td>
<td>ESS222H1, ESS223H1 &amp; ESS311H1</td>
</tr>
<tr>
<td>ESS445H1</td>
<td>Global Tectonics</td>
<td>Previous: ESS441H1</td>
<td>ESS322H1, ESS332H1 &amp; ESS441H1</td>
</tr>
</tbody>
</table>
# ESS463H1: Contaminants in the Environment

<table>
<thead>
<tr>
<th>Title:</th>
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<tbody>
<tr>
<td>Previous: Contaminants in the Environment</td>
</tr>
<tr>
<td>New: Earth System Chemistry 3 : Contaminants</td>
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<thead>
<tr>
<th>Breadth Requirements:</th>
</tr>
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<tbody>
<tr>
<td>Previous:</td>
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<tr>
<td>New: The Physical and Mathematical Universes (5)</td>
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<table>
<thead>
<tr>
<th>Rationale:</th>
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<th>Consultation:</th>
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<th>Resources:</th>
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# ESS490H1: Geological Capstone Fieldtrip

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<tr>
<th>Prerequisites:</th>
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<tbody>
<tr>
<td>ESS241H1, ESS221H1, ESS234H1/ESS330H1/ESS334H1/ESS420H1/ESS450H1</td>
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<th>Rationale:</th>
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<tr>
<th>Consultation:</th>
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<th>Resources:</th>
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</table>
1 Minor Program Modification:

Biology Minor (Jointly Offered With National University Of Singapore)

Completion Requirements:

(4 full courses or their equivalent)

First Year (1.0 FCE): BIO120H1; BIO130H1

Higher Years:

1. 1.0 FCE from: BIO220H1; BIO230H1/BIO255H1; BIO251H1; BIO270H1/PSL300H1; BIO271H1/PSL301H1; BIO260H1/HMB265H1; ENV234H1

2. 2.0 FCEs: any available 2000+ LSM courses at the National University of Singapore for which you have the appropriate equivalent U of T course prerequisite and for which space is available (note: 1.0 FCE at NUS must be at the 3000 or 4000 level). You enrol through the NUS generic courses at U of T: NUS201H0, NUS301H0, NUS302H0, etc. For a list of LSM courses see: http://www.lifesciences.nus.edu.sg/lsm.html. To discuss exclusions and prerequisites contact the EEB Undergraduate Office.

Description of Proposed Changes:

Added some wording in the program requirements to reflect the addition of a generic NUS 200 level course NUS201H0 allowing students to take a 2000 LSM course when on exchange.

Rationale:

Impact:

Consultation:

Resource Implications:
1 Minor Program Modification:

Environment & Toxicology Specialist

Description:

This program is jointly sponsored by the Department of Pharmacology and Toxicology and the School of the Environment. For additional information see “School of the Environment” (www.environment.utoronto.ca) or consult our website: www.pharmtox@utoronto.ca

The Environment and Toxicology Specialist program is an interdisciplinary program which spans the social, physical and life sciences and integrates study of the effects of chemicals not only on the health and behaviour of human beings but on whole ecosystems as the adverse effects associated with therapeutic and environmental chemicals are discussed. This program emphasizes the application of knowledge of environmental toxicology and risk assessment and prepares students for a variety of job opportunities following its completion. Graduates of the Environment and Toxicology program may pursue careers in scientific research, environmental science, conservation science, governmental agencies, consulting agencies, and within chemical, manufacturing or agriculture industries. Students learn to integrate basic environmental and life science with particular aspects of clinical toxicology and related areas through lectures, tutorials, and laboratory and independent research project experience. The senior independent research project course enables students to gain valuable research experience while working under the supervision of an individual faculty member in either a laboratory-based or a non-laboratory-based setting.

The Professional Experience Year (PEY) internship program is an elective 12-16 month paid employment placement within pharmaceutical/biotechnology/chemical companies, university research laboratories, university-affiliated organizations, consulting companies or government research agencies. The PEY takes place between the 3rd and 4th years of undergraduate study and is open to Specialists in Pharmacology and Biomedical Toxicology who have a cGPA of at least 3.0. Students who participate in this program agree to return to their SPE program in the Department to complete their 4th year and their degree. The PEY internship provides an excellent opportunity for real-world experience in drug development, project management, client relations, basic and clinical research, information management and regulatory affairs.

Completion Requirements:

(15 full courses or their equivalent, including 4.0 300+-level courses, 1.0 of which must be at the 400-level).

First Year: BIO120H1; BIO130H1; CHM135H1; CHM136H1/CHM138H1; CHM139H1; and at least 0.5 FCE from PHY131H1; MAT135H1; JEG100H1

First or Second Year: At least 1.5 FCE from GGR100H1 (if not counted in First Year, 2 above); GGR101H1; MAT135H1 (if not counted in First Year, 2 above); MAT136H1/JMB170Y1; PHY131H1 (if not counted in First Year, 2 above); PHY132H1

Second Year: BCH210H1; BIO230H1/(BIO240H1, 241H1); ENV221H1; ENV222H1, PCL201H1 and CHM247H1. One FCE from (BIO270H1, BIO271H1)/(PSL300H1, PSL301H1)/PSL302Y1 (see NOTE 1)

Third and Fourth Years: BIO220H1; ENV234H1; JGE321H1; ENV334H1; CHM210H1; PCL302H1; PCL362H1; PCL473Y1.
One from STA220H1/STA221H1/STA288H1/EEB225H1 (see NOTE 2).
One from ENV421H1/PCL366H1/PCL474Y1 (see NOTE 2).
At least 1.0 FCE from: ENV341H1; ENV235H1/PHY231H1; JGE236H1/JEE337H1; CHM310H1; ESS463H1; PCL465H1; PCL477H1; PCL481H1; PCL484H1; PCL486H1; PCL490H1; LMP301H1; LMP363H1 (see NOTE 3)

NOTES:
1. PSL300H1 and PSL301H1 require MAT100/PHY100-series courses.  
2. PCL302H1 is a required co-requisite of PCL366H1; STA288H1, PCL201H1, PCL302H1, and PCL465H1 are pre-requisites for students intending to take PCL474Y1. Students intending to take PCL474Y1 must obtain permission from the Undergraduate Student Advisor of the School of the Environment 3 months prior to the intended date of enrolment. Students must also consult with the Department of Pharmacology and Toxicology at least 3 months prior to the intended date of enrolment as the student is responsible for arranging for a supervisor.  
3. Students taking PCL481H1 must take BCH210H1, PCL302H1 and PCL362H1 as prerequisites. Students taking PCL477H1 must take BCH210H1 prior. Students taking ENV421H1 or PCL366H1 must take 1.5 FCE from program electives (group 7) to ensure 15 FCE program credits

### Description of Proposed Changes:

PCL465H1 is being retired, so should be removed from the list of electives. PCL490H1 is a new course which is being added to replace PCL465H1 as a fourth year elective course for the program.

### Rationale:

To maintain the number of fourth-year elective options for students with the retirement of PCL465H1.

### Impact:

Consultation:

The School consulted with Pharmacology and Toxicology about this change.

### Resource Implications:

None

## 18 Course Modifications:

### ENV281H1: Special Topics in Environment

**Exclusions:**

- **Previous:**
  - New: BIG102Y1 if ENV281H1 taken in 2015-16 or 2016-17

**Rationale:**

Consultation:

Resources:

### ENV282H1: Special Topics in the Environment

**Exclusions:**

- **Previous:**
  - New: BIG101Y1 if ENV282H1 taken in 2015-16 or 2016-17

**Rationale:**

Consultation:

Resources:
### ENV307H1: Urban Sustainability (formerly JIE307Y1)

<table>
<thead>
<tr>
<th>Prerequisites:</th>
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<tbody>
<tr>
<td>(ENV221H1, ENV222H1) and completion of at least 8 FCE of courses; or permission of the Academic Associate Director</td>
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<thead>
<tr>
<th>Recommended Preparation:</th>
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<tr>
<td>Previous:</td>
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<tr>
<td>New: An environmental studies half course.</td>
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<table>
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<tr>
<th>Rationale:</th>
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<tbody>
<tr>
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<td>None.</td>
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<th>Resources:</th>
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<td>None.</td>
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### ENV320H1: National Environmental Policy (formerly ENV320Y1)

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<tr>
<th>Prerequisites:</th>
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<tr>
<td>(ENV221H1, ENV222H1) and completion of at least 8 FCE of courses; or permission of the Academic Associate Director</td>
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<tr>
<th>Consultation:</th>
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<td>None.</td>
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<tr>
<th>Resources:</th>
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<td>None.</td>
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### ENV322H1: International Environmental Policy (formerly ENV320Y1)

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<tr>
<th>Prerequisites:</th>
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<tbody>
<tr>
<td>(ENV221H1, ENV222H1) and completion of at least 8 FCE of courses; or permission of the Academic Associate Director</td>
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<tr>
<th>Rationale:</th>
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<th>Resources:</th>
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<td>None.</td>
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### ENV323H1: Ontario Environmental Policy (formerly ENV423H1)

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<th>Prerequisites:</th>
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<th>Rationale:</th>
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<tbody>
<tr>
<td>We are changing the enrolment control for the course from a PE to a P, so we are adding the prerequisite requirement of 8 FCE of courses completed in order to prevent first and second year students from enrolling in the course without permission from the Academic Associate Director.</td>
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<th>Resources:</th>
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<tr>
<td>None.</td>
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</table>
Environment (FAS), School of

| Prerequisites: | (ENV221H1, ENV222H1) and completion of at least 8 FCE of courses; or permission of the Academic Associate Director. |
| Rationale: | We are changing the enrolment control for the course from a PE to a P, so we are adding the prerequisite requirement of 8 FCE of courses completed in order to prevent first and second year students from enrolling in the course without permission from the Academic Associate Director. |
| Consultation: | |
| Resources: | None. |

**ENV333H1: Ecological Worldviews**

| Prerequisites: | (ENV221H1, ENV222H1) and completion of at least 8 FCE of courses; or permission of the Academic Associate Director. |
| Rationale: | |
| Consultation: | |
| Resources: | |

**ENV335H1: Environmental Design**

| Prerequisites: | (ENV221H1, ENV222H1) and completion of at least 8 FCE of courses; or permission of the Academic Associate Director. |
| Rationale: | |
| Consultation: | |
| Resources: | |

**ENV341H1: Environment and Human Health**

| Prerequisites: | (ENV221H1, ENV222H1) and completion of at least 8 FCE of courses; or permission of the Academic Associate Director. |
| Rationale: | We are changing the enrolment control for the course from a PE to a P, so we are adding the prerequisite requirement of 8 FCE of courses completed in order to prevent first and second year students from enrolling in the course without permission from the Academic Associate Director. |
| Consultation: | |
| Resources: | None. |
### ENV347H1: The Power of Economic Ideas (formerly ENV447H1)

**Prerequisites:**
(ENV221H1, ENV222H1) and completion of at least 8 FCE of courses; or permission of the Academic Associate Director.

**Rationale:**
We are changing the enrolment control for the course from a PE to a P, so we are adding the prerequisite requirement of 8 FCE of courses completed in order to prevent first and second year students from enrolling in the course without permission from the Academic Associate Director.

**Consultation:**

**Resources:**
None.

### ENV350H1: Energy Policy and Environment

**Prerequisites:**
(ENV221H1, ENV222H1) and completion of at least 8 FCE of courses; or permission of the Academic Associate Director.

**Rationale:**
We are changing the enrolment control for the course from a PE to a P, so we are adding the prerequisite requirement of 8 FCE of courses completed in order to prevent first and second year students from enrolling in the course without permission from the Academic Associate Director.

**Consultation:**

**Resources:**
None.

### ENV381H1: Special Topics in Environment

**Exclusions:**
Previous:
New: BIG102Y1 if ENV381H1 taken in 2015-16 or 2016-17

**Rationale:**

**Consultation:**

**Resources:**

### ENV382H1: Special Topics in Environment

**Description:**
Special topics course designed for students in School of the Environment programs. Content in any given year depends on instructor. *Will be offered in 2018-19 on the subject area of religion and environment. See School of the Environment website for more details.*
Environment (FAS), School of

<table>
<thead>
<tr>
<th>Exclusions:</th>
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<tbody>
<tr>
<td>Previous:</td>
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<tr>
<td>New: BIG101Y1 if ENV382H1 taken in 2015-16 or 2016-17</td>
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<th>Rationale:</th>
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<td>Consultation:</td>
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<td>Resources:</td>
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**ENV422H1: Environmental Law**

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<tr>
<th>Prerequisites:</th>
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<tbody>
<tr>
<td><em>(ENV221H1, ENV222H1)</em> and enrolment in a School program, and completion of at least 12 FCE of courses; or permission of the Academic Associate Director.</td>
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<table>
<thead>
<tr>
<th>Rationale:</th>
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<tbody>
<tr>
<td>We are changing the enrolment control for the course from a PE to a P, so we are adding the prerequisite requirement of 12 FCE of courses completed in order to prevent first and second year students from enrolling in the course without permission from the Academic Associate Director.</td>
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<th>Consultation:</th>
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<td>Resources:</td>
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<td>None.</td>
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**ENV451H1: Current Environmental Topics**

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<tr>
<th>Prerequisites:</th>
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<tbody>
<tr>
<td><em>(ENV221H1, ENV222H1)</em>, completion of 12 FCE or their equivalent, and enrolment in one of the School's BA core major programs; or permission of the Academic Associate Director.</td>
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<table>
<thead>
<tr>
<th>Rationale:</th>
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<tbody>
<tr>
<td>We are changing the enrolment control for the course from a PE to a P, so we are adding the prerequisite requirement of 12 FCE of courses completed in order to prevent first and second year students from enrolling in the course without permission from the Academic Associate Director.</td>
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<tr>
<th>Consultation:</th>
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<tr>
<td>Resources:</td>
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<td>None.</td>
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**ENV452H1: Environmental Science Seminar**

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<tr>
<th>Prerequisites:</th>
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<tbody>
<tr>
<td>ENV316H1/ENV334H1/ENV337H1 JEE337H1, completion of 12 FCE of courses 10 FCEs, and enrolment in a School of the Environment BSc program; Environmental Science Major; or permission of the Academic Associate Director</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Rationale:</th>
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<tbody>
<tr>
<td>We are changing the enrolment control for the course from a PE to a P, so we are adding the prerequisite requirement of 12 FCE of courses completed in order to prevent first and second year students from enrolling in the course without permission from the Academic Associate Director.</td>
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<tr>
<th>Consultation:</th>
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<tr>
<td>Resources:</td>
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<tr>
<td>None.</td>
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</table>
ENV461H1: The U of T Campus as a Living Lab of Sustainability

Prerequisites:
- **Previous**: Students must have completed a minimum of 10.0 FCE to register for the course.
- **New**: ENV221H1 and completion of 10 FCE of courses, or permission of the Academic Associate Director

Rationale:
Students should have at least a basic understanding of environmental issues from an interdisciplinary perspective, and ENV221H1, which is the core course for all of our School programs, provides this.

Consultation:

Resources:
None

ENV462H1: Energy and Environment: Economics, Politics, and Sustainability

Prerequisites:
- Students must have completed a minimum of 10.0 FCE’s to register for the course; of which 3.0 must be ENV courses.

Rationale:

Consultation:

Resources:
3 Minor Program Modifications:

Forest Biomaterials Science Major

Completion Requirements:

The Forest Biomaterials major or minor may be strengthened by an accompanying major or minor (s) in Biology (major, minor), Biochemistry (major), Forest Conservation (major, minor), Chemistry (major, minor), Environmental Chemistry (minor), Materials Chemistry (minor) or Environment & Science (major, minor).

Consult the Program Coordinator, Professor Sally Krigstin, Room 3029; Earth Sciences Centre (416-946-8507)

(8 full courses or their equivalent, including at least 2.0 FCE 300-series courses and 2.0 FCE 400-series courses; other equivalent and approved courses offered by other Faculties may be eligible for inclusion.)

1. BIO120H1; 1.0 FCE from MSE101H1; ECO100Y1; ECO101H1, ECO102H1, ECO105Y1; CHM135H1 CHM138H1, CHM136H1 CHM139H1; MAT135H1
2. FOR200H1, STA220H1; 1.0 FCE from CHM220H1; ENV221H1, ENV234H1; MSE219H1; BCH210H1; BCH242Y1; STA221H1; EEB225H1; MGT201H1, RSM100Y1; BIO220H1, BIO251H1
3. FOR300H1, FOR310H1; 1.0 FCE from FOR302H1, FOR305H1; ENV350H1; MSE316H1; BCH370H1; GGR348H1
4. FOR401H1, FOR410H1; 1.0 FCE from FOR403H1, FOR405H1, FOR420H1, FOR423H1; CHE475H1

An additional 0.5 FCE can be taken from any 3rd or 4th year elective listed above.

Description of Proposed Changes:

Adjusting for course changes in other departments: CHM138H1 and CHM139H1 are now CHM135H1 and CHM136H1; ECO100Y1 has been divided up into ECO101H1 and ECO102H1.

Rationale:

Adjusting for course changes in other departments: CHM138H1 and CHM139H1 are now CHM135H1 and CHM136H1; ECO100Y1 has been divided up into ECO101H1 and ECO102H1.

Impact:

Consultation:

Resource Implications:

Forest Biomaterials Science Minor

Completion Requirements:

The Forest Biomaterials major or minor may be strengthened by an accompanying major or minor (s) in Biology (major, minor), Biochemistry (major), Forest Conservation (major, minor), Chemistry (major, minor), Environmental Chemistry (minor), Materials Chemistry (minor) or Environment & Science (major, minor).

Consult the Program Coordinator, Professor Sally Krigstin, Room 3029; Earth Sciences Centre (416-946-8507)

(4 full courses or their equivalent, including at least 1.5 FCE 300-series course and 1.0 FCE 400-series courses)
Forestry, Faculty of

1. 1.5 FCE from BIO120H1; MSE101H1; ECO105Y1; CHM135H1 CHM136H1 CHM138H1 CHM139H1, CHM220H1; FOR200H1; ENV234H1; MGT201H1
2. FOR300H1, FOR310H1; 0.5 FCE from ENV350H1; MSE219H1, MSE316H1; FOR305H1, BCH370H1; GGR348H1
3. 1.0 FCE from FOR401H1, FOR405H1, FOR410H1, FOR420H1, FOR423H1

**Description of Proposed Changes:**

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

**Rationale:**

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

**Impact:**

**Consultation:**

**Resource Implications:**

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**Forest Conservation Science Major**

**Completion Requirements:**

(8 full courses or their equivalent, including at least 2.0 300-series courses and 1.0 400-series course; 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 CHM139H1 recommended)

Second Year:
FOR200H1, FOR201H1; 1.0 FCE from ENV234H1, ENV237H1, ENV238H1; GGR201H1, GGR203H1, GGR205H1, GGR206H1, GGR223H1, GGR272H1, GGR273H1; BIO220H1

Third Year:
FOR305H1; 1.5 FCE from FOR300H1, FOR301H1, FOR302H1, FOR303H1, FOR306H1, FOR307H1, FOR310H1; EEB321H1

Fourth Year:
FOR400Y1

**Description of Proposed Changes:**

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

**Rationale:**

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

**Impact:**

**Consultation:**
| Resource Implications: |  |
1 Minor Program Modification:

Geographic Information Systems Minor

Completion Requirements:

*First Year Geography Courses*: Any 2 courses (1.0 FCE) from GGR100H1/JEG100H1, GGR101H1, GGR107H1, GGR112H1, GGR124H1. 200/300 level GGR courses may also be used to meet this requirement. Contact the Undergraduate Administrator to update your program.

*Methods & Core Courses*: All (2.0 FCEs) of GGR270H1, GGR272H1, GGR273H1, GGR373H1

*Applications*: Any 2 courses (1.0 FCE) from GGR225H1, GGR337H1, GGR372H1, GGR386H1, GGR413H1, GGR414H1, GGR462H1, GGR472H1, GGR473H1, GGR491Y1, GGR492H1, GGR493Y1 (0.5 FCE can be used based on internship), GGR497H1, GGR498H1, GGR499H1, JFG470H1, JFG475H1

Note: At least 1.0 FCE must be 300/400 series courses

Total FCEs: 4.0

Description of Proposed Changes:
Adding a course that was approved at the November 2017 Social Sciences Curriculum Committee meeting.

Rationale:
The course added is a Special Topics course, specific to the GIS program so it is easily identifiable as belonging to this program.

Impact:

Consultation:

Resource Implications:

2 Course Modifications:

**GGR270H1: Introductory Analytical Methods**

**Breadth Requirements:**
- Previous: None
- New: The Physical and Mathematical Universes (5)

**Distribution Requirements:**
- Social Science, Science

Rationale:
The Breadth and Distribution requirements are being updated to accurately reflect the skills and methods learned and in this course, which are statistical/mathematical. These skills are used to interpret Social Science data.

Consultation:

Resources:
### JEG100H1: Introduction to Physical Geography and Earth Science

**Contact Hours:**
- **Previous:** Lecture: 24 / Practical: 10
- **New:** Lecture: 24 / Practical: 12

**Description:**
This introduction to Physical Geography and Earth Sciences examines the atmosphere, lithosphere, hydrosphere, cryosphere and biosphere, emphasizing processes, flows of energy and materials, and the interconnectedness of these Earth systems. Specific topics include weather and climate, earth materials, geological and geomorphic processes involved in the genesis of landforms, river systems, glaciers, soils, and biomes. Six five laboratory meetings during the term.

**Exclusions:**
- GGR100H1, and ESS102H1, ESS262H1

**Rationale:**

**Consultation:**

**Resources:**
2 Minor Program Modifications:

Mathematics & Its Applications Specialist (Physical Science)

Completion Requirements:

(13.5-14.5 FCE, including at least 1.0 FCE at the 400 level)

Core Courses:

First Year:
(CSC108H1, CSC148H1)/CSC150H1, MAT137Y1/MAT157Y1, MAT223H1/MAT240H1, MAT224H1/MAT247H1

Second Year:
MAT224H1/MAT247H1, MAT235Y1/MAT237Y1/MAT257Y1, MAT246H1 (waived for students taking MAT157Y1), MAT244H1/MAT267H1, STA257H1

Note:
Second and Higher Years:
1. At least 0.5 FCE with a significant emphasis on ethics and social responsibility: ENV333H1/ETH201H1/ETH210H1/ETH220H1/HPS200H1/IMC200H1/JPH441H1/PRL265H1/PRL273H1/PRL275H1/PRL281H1 or another H course approved by the Department. Note: Students may use the CR/NCR option with this H course and have it count toward the program. Students in the VIC program may also use VIC172Y1.

Higher Years:
MAT301H1, MAT334H1

NOTE:
1. Students planning to take specific fourth year courses should ensure that they have the necessary second and third year prerequisites.

Physical Sciences Concentration:

2. PHY151H1, PHY152H1, AST221H1
3. Three of: AST222H1, PHY250H1, PHY252H1, PHY254H1, PHY256H1
4. APM346H1/MAT351Y1
5. Three of: AST320H1, AST325H1, MAT337H1, MAT363H1/MAT367H1, PHY350H1, PHY354H1, PHY356H1, PHY357H1, PHY358H1
6. Two of: APM421H1, APM426H1, APM441H1, APM446H1, PHY407H1, PHY408H1, PHY456H1

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:
Mathematics & Its Applications Specialist (Teaching)

Completion Requirements:

(11.5 - 12 FCE, including at least 1.0 FCE at the 400 level)

Core Courses:

First Year:
CSC108H1; MAT137Y1/MAT157Y1, MAT223H1/MAT240H1, MAT224H1/MAT247H1

Second Year:
MAT224H1/MAT247H1, MAT235Y1/MAT237Y1/MAT257Y1, MAT246H1 (waived for students taking MAT157Y1), MAT244H1/MAT267H1; STA257H1

Note:
1. MAT237Y1/MAT257Y1 is a direct or indirect prerequisite for many courses in each of the areas of concentration except the Teaching Concentration. Students are advised to take MAT237Y1/MAT257Y1 unless they have planned their program and course selection carefully and are certain that they will not need it.

Second and Higher Years:
1. At least 0.5 FCE with a significant emphasis on ethics and social responsibility: ENV333H1/ETH201H1/ETH210H1/ETH220H1/HS200H1/IMC200H1/JPH441H1/PHL265H1/PHL273H1/PHL275H1/PHL281H1 or PHL281H1 or another H course approved by the Department. Note: Students may use the CR/NCR option with this H course and have it count toward the program. Students in the VIC program may also use VIC172Y1.

Higher Years:
MAT301H1, MAT334H1

NOTE:
1. Students planning to take specific fourth year courses should ensure that they have the necessary second and third year prerequisites.

Teaching Concentration:

For course selection, note that OISE requires students to have a second teachable subject.
1. MAT329Y1, HPS390H1 HPS/MAT390H1, HPS391H1 HPS/MAT391H1
2. Two of: MAT332H1/MAT344H1, MAT335H1, MAT337H1, MAT363H1/MAT367H1
3. Two of: MAT309H1, MAT315H1; STA302H1/STA347H1
4. MAT401H1/MAT402H1 and 0.5 FCE at the 400-level from MAT, APM, STA

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:
3 Course Modifications:

**MAT157Y1: Analysis I**

**Exclusions:**
- MAT137Y1, MATA37H3, MAT137Y5, MAT195H1, MAT195H, & MAT197H1

**Recommended Preparation:**
- **Previous:**
  - New: Students should consider taking the Preparing for University Math Level II in order to prepare in advance for MAT157Y1. Students may also take MAT138H1 concurrently with MAT157Y1. Students will receive credit for both MAT157Y1 and MAT138H1 if MAT138H1 is taken before or along with MAT157Y1.

**Rationale:**

**Consultation:**

**Resources:**

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**MAT257Y1: Analysis II**

**Prerequisites:**
- MAT157Y1, MAT240H1, MAT247H1

**Rationale:**

**Consultation:**

**Resources:**

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**MAT327H1: Introduction to Topology**

**Prerequisites:**
- (MAT157Y1, MAT247H1) or (MAT224H1, MAT247H1, MAT237Y1, MAT246H1 and permission of the instructor).

**Rationale:**

**Consultation:**

**Resources:**
# 1 Course Modification:

<table>
<thead>
<tr>
<th>Title:</th>
<th>An Introduction to Current Topics in Molecular Genetics and Microbiology</th>
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| Abbreviated Title: | Previous: Topics Molgen Micro  
New: Intro Molec Gen and Microbio |
| Description: | Introduction to the core concepts modern era of genetics and microbiology; and its impact on human health. Included are also topical Topical biological problems and cutting-edge scientific approaches with some examples from world-class Toronto labs. Historical context is often used to deliver material. Topics include: core concepts in genetics, an introduction to cancer and stem cells; the genetic regulation of aging; core concepts in microbiology; combating HIV; emerging and recurring microbial threats; genetic engineering repairing spinal cord injury; cancer biology; power of stem cells; fountain of youth. |
| Rationale: | |
| Consultation: | |
| Resources: | |
6 Minor Program Modifications:

Biomedical Toxicology Major

Completion Requirements:

(8 full courses or their equivalent)

First Year: BIO120H1; BIO130H1; (CHM135H1, CHM136H1)/(CHM138H1, CHM139H1)/CHM151Y1

Second Year: BCH210H1; BIO230H1/(BIO240H1, 241H1); PCL201H1; CHM247H1/CHM249H1; (PSL300H1, PSL301H1)/PSL302Y1 (NOTE: PSL201Y1 is not acceptable).

Third Year: PCL302H1; PCL362H1. (See NOTE 1)

Third or Fourth Year: 1.0 full-credit equivalent with at least one-half credit equivalent from PCL courses: PCL345H1/PCL389H1/PCL402H1/PCL475Y1/PCL477H1/PCL481H1/PCL484H1/PCL486H1/PCL490H1/ANA301H1/BCH370H1/LMP301H1/LMP363H1.

Fourth Year: PCL473Y1

NOTES
1. Although LMP301H1 (Introduction to the Biochemistry of Human Disease) and LMP363H1 (Principles of Pathobiology) are not prerequisites to enroll in PCL473Y1, students are recommended to enroll in at least one of these courses.

2. Students are not allowed to enroll concurrently in the Major Program in Pharmacology and the Major Program in Toxicology.

3. Students are not allowed to enroll concurrently in the Major Program in Pharmacology and a Specialist Program in Toxicology.

4. Students are not permitted to take PCL472Y1 or PCL474Y1.

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

Biomedical Toxicology Specialist

Completion Requirements:
Pharmacology & Toxicology (MED), Department of

(14.5 full courses or their equivalent)

First Year: BIO120H1; BIO130H1; (CHM135H1, CHM136H1/(CHM138H1, CHM139H1))/CHM151Y1; and 1 FCE from any combination of (MAT135H1, MAT136H1); PHY131H1/PHY151H1; PHY132H1/PHY152H1 (see NOTE 1)

Second Year: BCH210H1; BIO230H1/(BIO240H1, 241H1); BIO260H1/HMB265H1; CHM247H1/CHM249H1; STA288H1; PCL201H1; (PSL300H1, PSL301H1)/PSL302Y1 (NOTE: PSL201Y1 is not acceptable).

Third Year: PCL302H1; PCL362H1; PCL366H1

Third or Fourth Year: LMP363H1 and two and a half (2.5 FCE) full-credit equivalent with at least 1.5 full credit equivalent from PCL courses: PCL345H1/PCL389H1/PCL461H1 PCL465H1/PCL475Y1/PCL477H1/PCL484H1/PCL486H1/PCL490H1/PCL491H1/ANA301H1/BCH370H1/CHM310H1/ESS463H1/LMP301H1.

Fourth Year: PCL402H1; PCL473Y1; PCL474Y1 (see NOTE 2); PCL481H1.

NOTES
1. Any PHY/MAT courses should be completed during the first year and included for program enrollment.
2. Enrollment in the Research Project Course (PCL474Y1) is limited and requires permission from the Department of Pharmacology and Toxicology. Students must receive prior consent of an approved supervisor according to departmental guidelines before the Department of Pharmacology and Toxicology will register them in the course. It is the student’s responsibility to initiate all necessary preparations before the session starts (see course description).

Professional Experience Year:

The Professional Experience Year (PEY) internship program is an elective 12-16 month paid employment placement within pharmaceutical/biotechnology/chemical companies, university research laboratories, university-affiliated organizations, consulting companies or government research agencies. The PEY takes place between the 3rd and 4th years of undergraduate study and is open to Specialists in Biomedical Toxicology who have a cGPA of at least 3.0. Students who participate in this program agree to return to their SPE program in the Department to complete their 4th year and their degree. The PEY internship provides an excellent opportunity for real-world experience in drug development, project management, client relations, basic and clinical research, information management and regulatory affairs.

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

Environment & Toxicology Specialist

Description:

This program is jointly sponsored by the Department of Pharmacology and Toxicology and the School of the Environment. For additional information see “School of the Environment”(www.environment.utoronto.ca) or consult our website: www.pharmtox@utoronto.ca
The Environment and Toxicology Specialist program is an interdisciplinary program which spans the social, physical and life sciences and integrates study of the effects of chemicals not only on the health and behaviour of human beings but on whole ecosystems as the adverse effects associated with therapeutic and environmental chemicals are discussed. This program emphasizes the application of knowledge of environmental toxicology and risk assessment and prepares students for a variety of job opportunities following its completion. Graduates of the Environment and Toxicology program may pursue careers in scientific research, environmental science, conservation science, governmental agencies, consulting agencies, and within chemical, manufacturing or agriculture industries. Students learn to integrate basic environmental and life science with particular aspects of clinical toxicology and related areas through lectures, tutorials, and laboratory and independent research project experience. The senior independent research project course enables students to gain valuable research experience while working under the supervision of an individual faculty member in either a laboratory-based or a non-laboratory-based setting.

The Professional Experience Year (PEY) internship program is an elective 12-16 month paid employment placement within pharmaceutical/biotechnology/chemical companies, university research laboratories, university-affiliated organizations, consulting companies or government research agencies. The PEY takes place between the 3rd and 4th years of undergraduate study and is open to Specialists in Pharmacology and Biomedical Toxicology who have a cGPA of at least 3.0. Students who participate in this program agree to return to their SPE program in the Department to complete their 4th year and their degree. The PEY internship provides an excellent opportunity for real-world experience in drug development, project management, client relations, basic and clinical research, information management and regulatory affairs.

**Completion Requirements:**

(15 full courses or their equivalent, including 4.0 300+-level courses, 1.0 of which must be at the 400-level).

First Year: BIO120H1; BIO130H1; CHM135H1; CHM136H1/CHM138H1; CHM139H1; and at least 0.5 FCE from PHY131H1; MAT135H1; JEG100H1

First or Second Year: At least 1.5 FCE from GGR100H1 (if not counted in First Year, 2 above); GGR101H1; MAT135H1 (if not counted in First Year, 2 above); MAT136H1/JMB170Y1; PHY131H1 (if not counted in First Year, 2 above); PHY132H1

Second Year: BCH210H1; BIO230H1/(BIO240H1, 241H1); ENV221H1; ENV222H1, PCL201H1 and CHM247H1. One FCE from (BIO270H1, BIO271H1)/(PSL300H1, PSL301H1)/PSL302Y1 (see NOTE 1)

Third and Fourth Years: BIO220H1; ENV234H1; JGE321H1; ENV334H1; CHM210H1; PCL302H1; PCL362H1; PCL473Y1.

One from STA220H1/STA221H1/STA288H1/EEB225H1 (see NOTE 2).

One from ENV421H1/PCL366H1/PCL474Y1 (see NOTE 2).

At least 1.0 FCE from: ENV341H1; ENV235H1/PHY231H1; JGE236H1/JEE337H1; CHM310H1; ESS463H1; PCL465H1; PCL477H1; PCL481H1; PCL484H1; PCL486H1; PCL490H1; LMP301H1; LMP363H1 (see NOTE 3)

**NOTES:**

1. PSL300H1 and PSL301H1 require MAT100/PHY100 -series courses.

2. PCL302H1 is a required co-requisite of PCL366H1; STA288H1, PCL201H1, PCL302H1, and PCL465H1 are prerequisites for students intending to take PCL474Y1. Students intending to take PCL474Y1 must obtain permission from the Undergraduate Student Advisor of the School of the Environment 3 months prior to the intended date of enrolment. Students must also consult with the Department of Pharmacology and Toxicology at least 3 months prior to the intended date of enrolment as the student is responsible for arranging for a supervisor.

3. Students taking PCL481H1 must take BCH210H1, PCL302H1 and PCL362H1 as prerequisites. Students taking PCL477H1 must take BCH210H1 prior. **Students taking ENV421H1 or PCL366H1 must take 1.5 FCE from program electives (group 7) to ensure 15 FCE program credits**

**Description of Proposed Changes:**

PCL465H1 is being retired, so should be removed from the list of electives. PCL490H1 is a new course which is being added to replace PCL465H1 as a fourth year elective course for the program.
**Pharmacology & Toxicology (MED), Department of**

| **Rationale:** | To maintain the number of fourth-year elective options for students with the retirement of PCL465H1. |
| **Impact:** | |
| **Consultation:** | The School consulted with Pharmacology and Toxicology about this change. |
| **Resource Implications:** | None |

**Pharmacology Major**

**Completion Requirements:**

(8 full courses or their equivalent)

First Year: BIO120H1; BIO130H1; (CHM135H1, CHM136H1)/(CHM138H1, CHM139H1)/CHM151Y1

Second Year: BCH210H1; BIO230H1/(BIO240H1, BIO241H1); PCL201H1; CHM247H1/CHM249H1; (PSL300H1, PSL301H1)/PSL302Y1 (NOTE: PSL201Y1 is not acceptable).

Third Year: PCL302H1; BCH311H1

Third or Fourth Year: PCL469H1 and 1.0 full course equivalent from: PCL345H1/PCL389H1/PCL402H1/PCL490H1/PCL475Y1/PCL477H1/PCL484H1/PCL486H1/BCH370H1

Fourth Year: PCL470H1/PCL470Y1

**NOTES**

1. Students are not allowed to enroll concurrently in the Major Program in Pharmacology and the Major Program in Toxicology.
2. Students are not allowed to enroll concurrently in the Major Program in Pharmacology and a Specialist Program in Toxicology.
3. Students are not permitted to take PCL472Y1 or PCL474Y1.

**Description of Proposed Changes:**

**Rationale:**

**Impact:**

**Consultation:**

**Resource Implications:**

**Pharmacology Specialist**

**Completion Requirements:**
Pharmacology & Toxicology (MED), Department of

Students will follow the calendar year in which they initially enter one of our programs (ie for the majority of students that will be ASMAJ2675/ASSPE2675).

(14.5 full courses or their equivalent)

First Year: BIO120H1; BIO130H1; (CHM135H1, CHM136H1)/(CHM138H1, CHM139H1)/CHM151Y1; and 1 FCE from any combination of (MAT135H1, MAT136H1); PHY131H1/PHY151H1; PHY132H1/PHY152H1 (see NOTE 1)

Second Year: BCH210H1; BIO230H1/(BIO240H1, 241H1); BIO260H1/HMB265H1; CHM247H1/CHM249H1; STA288H1; PCL201H1; (PSL300H1, PSL301H1)/PSL302Y1 (NOTE: PSL201Y1 is not acceptable).

Third Year: BCH311H1; PCL302H1; PCL366H1

Third or Fourth Year: PCL469H1 and 3.5 full-course equivalents with at least 1.5 full credit equivalents from PCL courses: PCL345H1/PCL389H1/CL389H1/PCL461H1/PCL475Y1/PCL477H1/PCL484H1/PCL486H1/PCL490H1/PCL491H1/ANA300Y1/BCH340H1/BCH350H1/BCH370H1/CSB328H1 (See NOTE 2)/PSL372H1.

Fourth Year: PCL402H1; PCL470H1/PCL470Y1; PCL472Y1 (see NOTE 3)

Notes

1. Any PHY/MAT courses should be completed during the first year and included for program enrollment.

2. Some of the choices listed above are only available to students who are enrolled in a POSf sponsored by the department or unit offering the course, and/or who have completed specified prerequisites

3. Enrollment in the Research Project Course (PCL472Y1) is limited and requires permission from the Department of Pharmacology and Toxicology. Students must receive prior consent of an approved supervisor according to Departmental guidelines before the Department will register them in the course. It is the student’s responsibility to make all necessary preparations before the session starts (see course description).

Professional Experience Year:

The Professional Experience Year (PEY) internship program is an elective 12-16 month paid employment placement within pharmaceutical/biotechnology/chemical companies, university research laboratories, university-affiliated organizations, consulting companies or government research agencies. The PEY takes place between the 3rd and 4th years of undergraduate study and is open to Specialists in Pharmacology who have a cGPA of at least 3.0. Students who participate in this program agree to return to their SPE program in the Department to complete their 4th year and their degree. The PEY internship provides an excellent opportunity for real-world experience in drug development, project management, client relations, basic and clinical research, information management and regulatory affairs.

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:
Specialist in Pharmacology and Biomedical Toxicology

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, CHM136H1)/(CHM138H1, CHM139H1)/CHM151Y1, and 1.0 FCE from (MAT135H1, MAT136H1)/MAT137Y1/MAT157Y1/(PHY131H1, PHY132H1)/(PHY151H1, PHY152H1) with an average of at least 70% on these 3.0 full-course equivalents (FCEs) and a final mark of at least 60% in each course.

Achieving these estimated marks does not guarantee admission to the program in any given year.

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 = mid 80s; average = mid 80s.

Students must apply to this program on the Arts & Science Faculty Registrar’s Office website (see the Arts & Science Program Enrolment web site for application procedures). Students wishing to enroll in this program will initially apply to a general departmental Specialist after their first year and during the spring of their second year of study (and completion of PCL201H1) students will select the focus for their future studies (i.e. Pharmacology and/or Biomedical Toxicology). First and second year courses are the same for ALL SPECIALIST programs within the Department (ASSPE2675/ASSPE2082/ASSPE2340/ASSPE2753).

Students will follow the calendar year in which they initially enter one of our programs (ie for the majority of students that will be ASMAJ2675/ASSPE2675).

Students wishing to enroll after their second year who have taken PCL201H1 will be considered on a case by case basis. Successful completion of required pre-requisite courses is required to further enroll in upper level program courses.

Students may not transfer to the Major program from the Specialist after completion of PCL461H1/PCL465H1 or PCL472Y1/PCL474Y1 courses or PEY.

Completion Requirements:

(15 full courses or their equivalent)

First Year: BIO120H1; BIO130H1; (CHM135H1, CHM136H1)/(CHM138H1, CHM139H1)/CHM151Y1; and 1 FCE from any combination of (MAT135H1, MAT136H1); PHY131H1/PHY151H1; PHY132H1/PHY152H1 (see NOTE 1)

Second Year: BCH210H1; BIO230H1/(BIO240H1, 241H1); BIO260H1/HMB265H1; CHM247H1/CHM249H1; STA288H1; PCL201H1; (PSL300H1, PSL301H1)/PSL302Y1 (NOTE: PSL201Y1 is not acceptable).

Third Year: BCH311H1; PCL302H1; PCL362H1; PCL366H1 (See NOTE 2)

Third or Fourth Year: LMP363H1, PCL469H1, and a one and half (1.5 FCE) full-credit equivalent from the following courses: PCL345H1/PCL389H1/PCL461H1/PCL465H1 (See NOTE 2)/PCL475Y1/PCL477H1/PCL484H1/PCL486H1/PCL490H1/PCL491H1/LMP301H1. Additional courses that may strengthen your background in this program can be taken, but will not count towards your program: ANA300Y1/ANA301H1/BCH340H1/BCH370H1/CHM310H1/CSB328H1 (see NOTE 3 4)/ESS463H1/PSL372H1

Fourth Year: PCL402H1; PCL470H1/PCL470Y1; PCL473Y1; PCL472Y1/PCL474Y1 (see NOTE 2 3); PCL481H1.

NOTES
1. Any PHY/MAT courses should be completed during the first year and included for program enrollment.
2. Students may take either PCL461H1 or PCL465H1.
3. Enrollment in the Research Project Course (PCL472Y1/PCL474Y1) is limited and requires permission from the department.
Department of Pharmacology and Toxicology. Students must receive prior consent of an approved supervisor according to Departmental guidelines before the Department will register them in the course. It is the student’s responsibility to make all necessary preparations before the session starts (see course description).

Some of the choices listed above are only available to students who are enrolled in a POSt sponsored by the department or unit offering the course, and/or who have completed specified prerequisites.

**Professional Experience Year:**

The Professional Experience Year (PEY) internship program is an elective 12-16 month paid employment placement within pharmaceutical/biotechnology/chemical companies, university research laboratories, university-affiliated organizations, consulting companies or government research agencies. The PEY takes place between the 3rd and 4th years of undergraduate study and is open to Specialists in Pharmacology and Biomedical Toxicology who have a cGPA of at least 3.0. Students who participate in this program agree to return to their SPE program in the Department to complete their 4th year and their degree. The PEY internship provides an excellent opportunity for real-world experience in drug development, project management, client relations, basic and clinical research, information management and regulatory affairs.

**Description of Proposed Changes:**

**Rationale:**

**Impact:**

**Consultation:**

**Resource Implications:**
1 Minor Program Modification:

Physiology Minor

Completion Requirements:

(4 full courses or their equivalent; one 300+ level FCE must be included in the program)

1. 2 full course equivalents from: (BIO120H1, BIO130H1/PSL150Y1; PSL201Y1/PSL300H1, PSL301H1)
2. 2 full course equivalents from: BIO251H1, BIO270H1, BIO271H1; CSB325H1, CSB332H1/CJH332H1, CSB343H1, CSB344H1, CSB345H1/CSB445H1, CSB346H1, CSB347H1; EEB328H1; HMB200H1/HMB220H1, HMB430H1, HMB470H1, HMB472H1; PSL280H1, PSL299Y1, PSL304H1, PSL305H1, PSL310H1, PSL350H1, PSL372H1, PSL374H1, PSL378H1/PSL379H0/PSL379H1/PSL398H0, PSL399Y1 PSL398H1, PSL400-series; PSY290H1, PSY396H1, PSY397H1, PSY369H1/PSY399H1, PSY490H1, PSY492H1, PSY494H1, PSY497H1

Description of Proposed Changes:

Rationale:

Impact:

Consultation:

Resource Implications:

4 Course Modifications:

PSL378H1: Field Physiology: Marine Mammal Autopsy

Prerequisites:
BIO270H1, BIO271H1/PSL201Y1/PSL280H1/PSL300H1, PSL301H1 or permission of the course coordinator

Rationale:

Consultation:

Resources:

PSL420H1: Reproduction I: Development and Function

Title:
Reproduction I: Development and Function

Rationale:

Consultation:
# PSL440Y1: Neuroscience I: Systems and Behaviour

**Description:**

Introduction to systems neuroscience. A review of basic neuroanatomy and physiology followed by in-depth study of selected sensory and motor systems, with an emphasis on clinical applications in the second term. Students with an elementary neuroscience background progress to reading neuroscience literature on their own.

**Rationale:**

**Consultation:**

**Resources:**

# PSL462H1: Molecular Aspects of Cardiovascular Function

**Prerequisites:**

- PSL300H1, PSL301H1; PSL304H1

**Rationale:**

**Consultation:**

**Resources:**
1 Minor Program Modification:

Cognitive Science Major (Science Program)

Completion Requirements:

(8 FCEs FCE)

Note that some Computer Science courses included below under Streams 1 and 2 have unlisted co- or prerequisites. Please consult the Faculty of Arts and Science Course Calendar. Those interested in the Science Major are advised to consider also registering for a Computer Science Specialist, Major, or Minor (for Stream 1) or a Human Biology Neuroscience Specialist or Major (for Stream 2).

First Year:

CSC108H1/CSC120H1 (recommended option); CSC148H1; MAT135H1 and MAT136H1 (or MAT137Y1); COG250Y1 (may be taken as a corequisite in Year 2)

Second Year:

STA220H1/STA257H1/PSY201H1

Second Year and Higher:

PHL342H1; PSY473H1/PSY493H1; and 3 FCEs from one of Stream 1 or 2:

Stream 1: Computational Cognition

Computational cognition is the interdisciplinary study of the information-processing underpinnings of cognitive mental processes. It seeks an understanding of cognition in mathematical terms and to apply this understanding to debates in artificial intelligence, cognitive psychology, and beyond.

No more than 1.5 FCEs of the 3 FCEs required from this list of options may come from any single 3-letter course designator, except for CSC courses. For CSC courses, a minimum of 1 FCE and up to 2 FCEs may be chosen. At least 1 FCE of the 3 FCEs must be at the 300-level 300+-level. COG260H1/COG341H1/COG342H1/COG415H1/COG498H1/COG499H1/CSC207H1/ CSC304H1/ CSC321H1/ CSC324H1/CSC330H1/ CSC384H1/ CSC401H1/ CSC420H1/ CSC485H1/ CSC486H1; COG243H1/JLP315H1 COG342H1; COG415H1; COG498H1/JLP374H1/JLP471H1/COG499H1; LIN102H1/ LIN228H1/ LIN232H1/ LIN241H1/JLP315H1; LIN323H1/ LIN331H1/ LIN341H1/ NEW232Y1/NEW333H1/NEW438H1/JLP374H1/JLP471H1/PHL240H1/PHL245H1/CSC330H1/PHL246H1/PHL345H1/PHL347H1/PHL348H1/PHL349H1/PHL355H1/PSY210H1/PSY220H1/PSY230H1/PSY260H1/PSY270H1/PSY280H1/PSY290H1/PSY312H1/PSY305H1/PSY316H1/PSY330H1/PSY331H1/PSY362H1/PSY370H1/PSY371H1/PSY372H1/PSY378H1/PSY379H1/PSY380H1/PSY414H1/PSY475H1/NEW232Y1/44

COG499H1

Stream 2: Cognition and the Brain

Today’s cognitive scientists are more interested than ever before in the way the brain implements the information-processing underpinnings of cognitive mental processes. The study of cognition and the brain is the study, grounded in cognitive neuroscience, of those aspects of brain activity directly relevant to the performance of cognitive functions.

BIO120H1 and BIO220H1 (or BIO150Y1); and 2 FCEs of the following courses, with at least 1 FCE coming from PSY courses. At least 0.5 FCE of the 2 FCEs must be at the 300-level 300+-level. COG260H1/COG341H1/COG342H1/COG415H1/COG498H1/COG499H1/CSC207H1/CSC321H1/JLP471H1/JLS472H1/JLS473H1/NEW232Y1/44
Description of Proposed Changes:

Minor housekeeping changes to electives, to adjust to accommodate for new courses and phase out other electives whose topics are less relevant to the program.

Rationale:

Inclusion of two new courses: COG260H1 and COG343H1, which will help strengthen the computational component of the program, and in keeping with the curricular goals stated in the program review, and in a recently funded ATLAS initiative.

Impact:

Strengthen the computational component of the program.

Consultation:

COG Advisory board, the Undergraduate coordinators in Psychology and CSC.

Resource Implications:

1 Course Modification:

COG402H1: Seminar in Cognitive Science

Description:

An advanced treatment of Advanced topics in cognitive science topics such as neuroscientific theories of consciousness, rationality and modelling of cognitive processes.

Rationale:

Consultation:

Resources: