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**MEMORANDUM**

<b>ATTENTION</b>	Senate	<b>DATE</b>	August 4, 2017
<b>FROM</b>	Gordon Myers, Chair Senate Committee on Undergraduate Studies	<b>PAGES</b>	1/2
<b>RE:</b>	Program Changes		

**For information:**

Acting under delegated authority at its meeting of August 3, 2017 SCUS approved the following curriculum revisions effective Summer 2018.

**a. Faculty of Applied Sciences (SCUS 17-34)**1. School of Computing Sciences (SCUS 17-34a)

- (i) Upper division requirement changes to the BUS/CMPT Joint Major program

2. School of Engineering Science (SCUS 17-34b)

- (i) Requirement changes to the Engineering Science, Engineering Physics Option Honours program

**b. Beedie School of Business (SCUS 17-35)**

- (i) Requirement changes to the Management Information Systems Concentration affecting
- Business Major
  - Business Honours
  - Business-MSE double degree
  - Business & Economics Joint Major
  - Interactive Arts & Technology & Business Joint Majors (BA, BBA & BSc)
  - Joint Honours – Business & Economics
- (ii) Requirement changes to the Business Major and Honours programs
- (iii) Requirement changes to the Certificate in Innovation and Entrepreneurship program
- (iv) Requirement changes to the Innovation & Entrepreneurship Certificate affecting
- Business Major

- Business Honours
  - Mechatronics-Business double degree
  - Business & Economics Joint Major
  - Interactive Arts & Technology & Business Joint Major (all of BA, BBA, BSc)
  - Business & Economics Joint Honours
- (v) Requirement changes for High School admissions

**c. Faculty of Science (SCUS 17-36)**

**1. Department of Biological Sciences (SCUS 17-36a)**

- (i) Requirement changes to the Biological Sciences Post Baccalaureate Diploma
- (ii) Changes to the Residency requirements and Transfer Credits affecting the Biological Sciences Minor program
- (iii) Upper and Lower division requirement changes to the Biological Sciences Major and Honours programs

**2. Department of Earth Sciences (SCUS 17-36b)**

- (i) Upper division requirement changes to the EASC Major and Honours programs (*effective Fall 2018*)

## **Revision to Information Systems in Business Administration and Computing Science Joint Major**

**John Edgar**

**July 2017**

### **Description**

Remove CMPT 320 as a program requirement.

### **Rationale**

CMPT 320 (Social Implications of a Computerized Society) was removed as a requirement for the Computing Science Major and Honours programs (approved by Senate: S-16-41). This change is intended to bring the joint major into line with the major program.

## **Program Requirements**

### **Upper Division Requirements**

Students complete all of

BUS 312 - Introduction to Finance (4)  
BUS 336 - Data and Decisions II (4)  
BUS 343 - Introduction to Marketing (3)  
BUS 361 - Project Management (3)  
BUS 468 - Managing Information Technology for Business Value (3)  
BUS 478 - Strategy (3) ^  
CMPT 300 - Operating Systems I (3)  
CMPT 307 - Data Structures and Algorithms (3)  
~~CMPT 320 - Social Implications - Computerized Society (3)~~  
CMPT 354 - Database Systems I (3)

and one of

BUS 374 - Organization Theory (3)  
BUS 381 - Introduction to Human Resource Management (3)

and one of

BUS 466 - Web-Enabled Business (3)  
CMPT 371 - Data Communications and Networking (3)

and ~~twelve~~ **fifteen** additional upper division CMPT units, excluding CMPT 301. At least one of the courses must be at the 400 division or above.

^ to be completed at Simon Fraser University



**MEMORANDUM**

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**ATTENTION** John Edgar, Program Director, School of Computing Science  
**FROM** Andrew Gemino, Associate Dean Undergraduate Programs  
**RE:** **Beedie Undergraduate Curriculum Committee Approval of Changes to the Joint Major**  
**DATE** May 18, 2017

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The Undergraduate Curriculum Committee in the Beedie School of Business met on May 15, 2017 and approved the proposed change to the Information Systems in Business Administration and Computing Science Joint Major.

Removing CMPT 320 as a required course and allowing students to take additional CMPT units of their choice is an acceptable change to the program from the perspective of the Beedie undergraduate program.

Sincerely,

A handwritten signature in blue ink, appearing to read "AG", written over a horizontal line.

Andrew Gemino, Associate Dean  
Beedie School of Business

**Calendar Entry Change**

**Name of Program or Name of Faculty**

Rationale for change:  
Careful wording of the permitted PHYS course electives in the ENSC PHYS option to restrict access to approved 300 and 400 level courses.

Effective term and year: Summer 2018

The following program(s) will be affected by these changes:  
Engineering Science, Engineering Physics Option Honours

**Calendar Change:** “to” and “from” sections are not required. All deletions should be crossed out as follows: ~~sample~~. All additions should be marked by a **bold**.

PHYSICS ELECTIVES

In addition to the required physics courses and engineering science and design electives, students must also complete 3 physics electives. ~~One physics elective must be a 400 division physics course.~~

**selected from the list below, at least one of which must be a 400-level physics course.**

**PHYS 347 – Introduction to Biological Physics**  
**PHYS 390 – Introduction to Astrophysics**  
**PHYS 395 – Computational Physics**  
**PHYS 413 – Advanced Mechanics**  
**PHYS 415 – Quantum Mechanics**  
**PHYS 445 – Statistical Physics**  
**PHYS 465 – Solid State Physics**  
**PHYS 485 – Particle Physics**  
**PHYS 490 – General Relativity and Gravitation**

Alternative PHYS courses not on this list (such as 400-level special topics PHYS courses) may be used with prior approval from the ENSC UCC by filing an on-line appeal form (<https://courses.cs.sfu.ca/forms/>).



**Calendar Entry Change  
Beedie School of Business Undergraduate Program**

Rationale for change:

BUS 465 was created based on a selected topics course that had been offered multiple times as BUS 492 Business Systems Development. BUS 465 was added to the Business Technology Management Certificate and has now been determined to also be a relevant option for students completing the Management Information Systems concentration.

Effective term and year:

Summer 2018

The following program(s) will be affected by these changes:

Business Major  
Business Honours  
Business-MSE double degree  
Business & Economics Joint Major  
Interactive Arts & Technology & Business Joint Majors (BA, BBA & BSc)  
Joint Honours – Business & Economics

**Calendar Change:** “to” and “from” sections are not required. All deletions should be crossed out as follows: ~~sample~~. All additions should be marked by a **bold**.

Management Information Systems

For this concentration, students complete all of

BUS 361 - Project Management (3)  
BUS 362 - Business Process Analysis (4)  
BUS 468 - Managing Information Technology for Business Value (3)

and two of

BUS 462 - Business Analytics (3)  
BUS 464 - Business Data Management (3)  
**BUS 465 – Business Systems Development (3)**  
BUS 466 - Web-Enabled Business (3)  
BUS 490 - Selected Topics in Business Administration (3) \*\*  
BUS 491 - Selected Topics in Business Administration (3) \*\*



BUS 492 - Selected Topics in Business Administration (3) \*\*

BUS 493 - Selected Topics in Business Administration (3) \*\*

BUS 494 - Selected Topics in Business Administration (3) \*\*

BUS 495 - Selected Topics in Business Administration (3) \*\*

BUS 496 - Selected Topics in Business Administration (5) \*\*

\*\* When offered as a selected topics course in Management Information Systems.





## Calendar Entry Change Beedie School of Business Undergraduate Program

Rationale for change:  
Adding BUS 410 and BUS 417 to the list of international business course options will distribute the enrolment options for Finance concentrators as well as offer two courses that would appeal to Accounting concentrators.

Effective term and year:

Summer 2018

The following program(s) will be affected by these changes:

Business Major  
Business Honours

**Calendar Change:** “to” and “from” sections are not required. All deletions should be crossed out as follows: ~~sample~~. All additions should be marked by a **bold**.

### CORE COURSES

Students must complete all core courses with a minimum C- grade.

Students complete all of

BUS 303 - Business, Society and Ethics (3)

BUS 312 - Introduction to Finance (4)

BUS 336 - Data and Decisions II (4)

BUS 343 - Introduction to Marketing (3)

BUS 360W - Business Communication (4) ^

BUS 393 - Commercial Law (3)

BUS 478 - Strategy (3) ^^

and one of

BUS 374 - Organization Theory (3)

BUS 381 - Introduction to Human Resource Management (3)

and one of

BUS 346 - Global Business Environment (3)

**BUS 410 - Financial Institutions (3)**

**BUS 417 - Security Analysis (4)**



BUS 418 - International Financial Management (3)  
BUS 430 - Cross-Cultural Management (3)  
BUS 431 - Business with East Asian Countries (3)  
BUS 432 - International Human Resource Management (3)  
BUS 434 - Foreign Market Entry (3)  
BUS 435 - Management of International Firms (3)  
BUS 447 - Global Marketing Management (3)

^ to be completed before the student's 75th unit and at Simon Fraser University in accordance with the WQB requirements.

^^ to be completed at Simon Fraser University.

**Calendar Entry Change**  
**Certificate in Innovation and Entrepreneurship**

Rationale for change:

The Council that oversees the Certificate in Innovation and Entrepreneurship has added a number of courses to the optional pool at the request of the Faculty of Communications Arts and Technology.

Effective term and year:

Summer 2018

The following program(s) will be affected by these changes:

Certificate in Innovation and Entrepreneurship

**Calendar Change:** “to” and “from” sections are not required. All deletions should be crossed out as follows: ~~sample~~. All additions should be marked by a **bold**.

**Admission Requirements**

A student in any faculty at SFU may declare this certificate through the Beedie School of Business.

**Limitations**

Students may complete only one of the Certificate in Business Analytics and Decision Making, the Certificate in Business Technology Management, or the Certificate in Innovation and Entrepreneurship.

Additionally, units applied to one certificate may not be applied to another Simon Fraser University certificate or diploma, as noted here [*link to:*

*<http://www.sfu.ca/students/calendar/2017/fall/fees-and-regulations/credentials-offered/definitions.html#cert>*].

**Grade Requirements**

In addition to ~~normal~~ university grade point average requirements, the Beedie School of Business requires a minimum **2.30 overall SFU Business course** cumulative grade point average for entry into all 300 and 400 division business courses.

**Program Requirements**

Students must complete a minimum of 21 units, including foundational business courses, a capstone course, and additional coursework from a variety of disciplines.

Students will complete all of:

BUS 238 - Introduction to Entrepreneurship and Innovation (3)  
BUS 314 - Resourcing New Ventures (3)  
BUS 338 - Foundations of Innovation (3)  
BUS 361 - Project Management (3)

And one of\*:

BUS 477 - Startup Experience (4)  
ENV 495 - Environmental Capstone (4) \*\*  
**CA 489 – Creative and Cultural Entrepreneurship (4)**  
MSE 410 - Capstone Design Technical Project I (3)  
MSE 411W - Capstone Design Technical Project II (3)  
HSCI 495 – Applied Health Science Project (4)  
IAT 499 – Graduation Project (6)

Students‡ will complete two of\*:

BISC 373 - Brewing Science (3) or BISC 374 - Brewing Science with Lab (3)  
**BUS 406 – Startup Accelerator (3)‡**  
BUS 443 - New Product Development and Design (3)‡  
BUS 450 – Managing Emerging Opportunities (3)‡  
BUS 453 - Sustainable Innovation (3)‡  
BUS 490, 491, 492, 493, 494, 495, 496 – Selected Topics in Business Administration\*\*\*\*‡  
**CMNS 425 – Applied Communications for Social Issues (4)**  
CMPT 120 - Introduction to Computing Science and Programming I (3)  
CMPT 320 - Social Implications - Computerized Society (3)  
**CA 381 – Thriving as an Entrepreneur (4)**  
HSCI 130 - Foundations of Health Science (4)  
HSCI 305 - The Canadian Health System (3)  
HSCI 312 - Health Promotion: Individuals and Communities (3)  
IAT 333 - Interaction Design Methods (3)  
IAT 431 - Speculative Design (3)  
**IAT 481 – Designing Creative Ventures (4)**  
MSE 110 - Mechatronics Design I (3) or MSE 111 - Mechatronics for non-Engineers (3)  
**PUB 101 – The Publication of Self in Everyday Life (3)**  
**PUB 201 – The Publication of the Professional Self (3)**  
**PUB 212 – Public Relations and Public Engagement (3)**  
**PUB 456 – Institutional and International Event Planning and Management (4)**  
POL 150 – Science, Policy, and Innovation (3) POL  
457W – Technology and Innovation Policy (4)

‡ Students completing a Bachelor of Business Administration may not use **BUS 406**, **BUS 443**, **BUS 450**, **BUS 453**, or **BUS 49X** to meet the requirements of this section.



\* Substitutions with appropriate course content may be possible with permission from the Beedie School of Business.

\*\* ENV 495 will only count toward this certificate when offered as part of Change Lab. Students are to consult with a Faculty of Environment advisor before enrolling in this course.

\*\*\*\*When offered as a selected topics course in Innovation and Entrepreneurship.



### Calendar Entry Change Beedie School of Business Undergraduate Program

Rationale for change:

Additional courses were approved for the I&E certificate and the concentration is being modified in order to be in alignment.

Effective term and year:

Summer 2018

The following program(s) will be affected by these changes:

Business Major

Business Honours

Mechatronics-Business double degree

Business & Economics Joint Major

Interactive Arts & Technology & Business Joint Major (all of BA, BBA, BSc)

Business & Economics Joint Honours

**Calendar Change:** “to” and “from” sections are not required. All deletions should be crossed out as follows: ~~sample~~. All additions should be marked by a **bold**.

Innovation and Entrepreneurship

Students complete all of

BUS 314 - Resourcing New Ventures (3)

BUS 338 - Foundations of Innovation (3)

BUS 361 - Project Management (3)

BUS 477 - Startup Experience (4)

and one of

**BUS 406 – Startup Accelerator (3)**

BUS 443 - New Product Development and Design (3)

BUS 450 - Managing Emerging Opportunities (3)

BUS 453 - Sustainable Innovation (3)

BUS 490 - Selected Topics in Business Administration (3) \*\*

BUS 491 - Selected Topics in Business Administration (3) \*\*

BUS 492 - Selected Topics in Business Administration (3) \*\*

BUS 493 - Selected Topics in Business Administration (3) \*\*



BUS 494 - Selected Topics in Business Administration (3) \*\*

BUS 495 - Selected Topics in Business Administration (3) \*\*

BUS 496 - Selected Topics in Business Administration (5) \*\*

\*\* When offered as a selected topics course in Innovation and Entrepreneurship.

**Calendar Entry Change  
Beedie School of Business Undergraduate Program**

<p>Rationale for change:</p> <p>The resources required to process the small number of applications we receive from high school applicants for the summer term greatly outweigh the number of students we admit for this term.</p> <p>Additionally, as these students cannot take BUS 201, our transitions course, until the fall term, it benefits them to be admitted for September rather than May.</p>
<p>Effective term and year:</p> <p>Fall 2018</p>
<p>The following program(s) will be affected by these changes:</p> <p>Beedie School of Business (<a href="http://www.sfu.ca/students/calendar/2017/fall/faculties-research/faculty-business.html">http://www.sfu.ca/students/calendar/2017/fall/faculties-research/faculty-business.html</a>)</p>

**Calendar Change:** “to” and “from” sections are not required. All deletions should be crossed out as follows: ~~sample~~. All additions should be marked by a **bold**.

<p>DIRECT FROM SECONDARY SCHOOL (CATEGORY 1)</p> <p><del>A portion of the annual admission</del> <b>Secondary school graduates, or students with less than 24 units of transferable coursework from another post-secondary institution,</b> will be competitively selected <b>for admission in the fall and spring terms (only)</b> <del>from secondary school graduates,</del> based on the general Simon Fraser University admission requirements, faculty specific admission requirements, and a supplemental application <del>form</del>.</p> <p>An explanation of extra-curricular experience (i.e. in the areas of: athletics, arts, community leadership/involvement, work experience, and/or entrepreneurship)  Short answer questions  Online video interview  Reference, with at least one being academic in nature</p>
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**Calendar Entry Change**  
**Name of Program or Name of Faculty**

SCUS 17-36a

Rationale for change:

The change in wording aims to reduce confusion and direct students to the program advisor for personalized advice. While grad courses may count toward those 30 units, they are not required.

Effective term and year: Summer 2018

The following program(s) will be affected by these changes:

Biological Sciences Post Baccalaureate Diploma

**Calendar Change:** "to" and "from" sections are not required. All deletions should be crossed out as follows: ~~sample~~. All additions should be marked by a **bold**.

This program is available in various biological sciences areas for students who have already completed a degree (usually) in science, and who wish to upgrade their academic credentials. ~~See BISC Courses for 600 and 800 division course descriptions.~~ **Students should consult with the Biological Sciences program advisor regarding course selection and program approval.**



### Calendar Entry Change

#### Name of Program or Name of Faculty

Rationale for change:

In recent years, we have received a significant increase in requests from colleges and newly accredited universities to transfer upper division courses. The proposed Residency Requirements supplement SFU's existing residency requirements, and limit the number of upper division BISC courses that a student can transfer in. This will help to ensure that students who graduate with a BISC degree from SFU receive the full benefit of our program and courses, including contact with our research faculty.

Effective term and year: Summer 2018

The following program(s) will be affected by these changes:

Biological Sciences Minor

**Calendar Change:** "to" and "from" sections are not required. All deletions should be crossed out as follows: ~~sample~~. All additions should be marked by a **bold**.

## Residency Requirements and Transfer Credits

Students who transfer into the Biological Sciences Program from other institutions may count a maximum of 1 transfer course toward their upper division program requirements. Transfer students are encouraged to meet with the Undergraduate Advisor for further details.

**Motion 6:** To modify the calendar description of the BISC Major, as outlined.

**Rationale:** The proposed changes include:

(1) *Addition of a Residency Requirement.* See Motion 5 for BISC Minor.

(2) *Updates to the Open Concentration.* These bring the structure of the Open Concentration in line with the structure of our other two recently updated concentrations (EEC and CMP), while preserving the choice and flexibility for students.

(3) *Major editing changes.* These changes aim to preserve recent and substantive changes made to the programs. The goal of the edits is to better showcase the strengths of our programs, and to make these documents easier for students to read and interpret.

**Note:** This is a significant re-write of the Major description. The portions that are NOT changing have been highlighted in blue below.

# Biological Sciences Major

## BACHELOR OF SCIENCE

The Biological Sciences Major combines a broad foundation in the lower division with specialization in upper division. After completing their lower division courses, students select one of 3 concentrations: Cells, Molecules, Physiology (CMP); Ecology, Evolution, Conservation (EEC); or Open concentration.

## Admission Requirements

Students [meeting the admissions requirements to the Faculty of Science \(http://www.sfu.ca/students/admission-requirements.html\)](http://www.sfu.ca/students/admission-requirements.html) may receive direct entry to the BISC Major upon acceptance to SFU either from high school or as a transfer student. Students already at SFU may apply to the BISC Major once they have completed all Lower Division Requirements (details below). Students must have a GPA of 2.0 or higher on the Lower Division Requirements to be accepted into the program.

## Grade Requirements

*Pre-requisites.* Students are normally required to obtain at least a C- on all course pre-requisites, but in some cases the minimum grade requirement may be higher. Students are encouraged to plan ahead and consult the course calendar. In some cases, pre-requisites may be waived for BISC courses with the approval of the Department.

*Continuation.* To remain in the program, students must be in good academic standing, must maintain a CGPA of 2.0 in the Major Program Requirements (i.e., excluding electives), and

must not exceed SFU's limits on course repeats. Students who do not meet these requirements will be dropped from the Major Program. Students may apply for re-admission to the Major Program if they complete all Lower Division Requirements (details below) with a GPA of 2.0 or higher, without exceeding the course repeat limit. Students may also apply for admission to the General Science Double Minor Program within the Faculty of Science or other programs across the university.

## Program Requirements

Students must complete a minimum of 120 units, including 44 units at the upper division level.

### Lower Division Requirements

[No change to the list of required courses]

Students complete all of

...

PHYS 141 - Studio Physics - Optics, Electricity and Magnetism (4)

Students are encouraged to complete all lower division requirements before registering for upper division courses. Students who intend to apply for medical, dental, veterinary, or other professional program\*\* may need additional courses and are encouraged to consult with the Biological Sciences Undergraduate Advisor.

### Upper Division Requirements

Students complete a minimum of 12 upper division courses (a minimum of 36 units), consisting of 4 core courses plus 8 concentration specific courses, as specified below. Once students have completed their lower division requirements, they should meet with the Undergraduate Advisor to declare their concentration. Students must obtain a C- or better on all Upper Division Requirements.

All students complete 4 core courses, as follows.

[No change to the list of required courses]

BISC 300 - Evolution (3)

...

BISC 318 – Parasitology (3)

CELLS, MOLECULES, AND PHYSIOLOGY (CMP) CONCENTRATION

This concentration is for students who wish to specialize in Cell Biology, Molecular Biology, and Physiology. The program provides flexibility for students to pursue their interests across these disciplines.

[No change to the list of required courses]

Students who choose this concentration will complete two of the following techniques courses...

...

BPK 408W – Cell Physiology (3)

and two upper division elective courses...must be at the 400 level.

#### ECOLOGY, EVOLUTION, AND CONSERVATION (EEC) CONCENTRATION

This concentration integrates theoretical and applied approaches to Ecology, Evolution, and Conservation. Students interested in obtaining additional field biology experience may also take courses at Bamfield Marine Science Center, listed under Marine Sciences (MASC) in the course calendar. The EEC concentration is accredited by the College of Applied Biology (see the Biological Sciences website for details).

[No change to the list of required courses]

Students who choose this concentration will complete both:

...

BISC 499 – Undergraduate Research II (3)

Courses from other units...among their upper division courses.

#### OPEN CONCENTRATION

This concentration allows students to build their own program and combine interests spanning the full diversity of courses offered in the Department.

Students who choose this concentration will complete one of the following techniques courses:

BISC 302W – Genetic Analysis (3)

BISC 303 – Microbiology (4)

BISC 357 – Genetic Engineering (4)

BISC 360W – Techniques in Ecology and Evolution (3)

BPK 408W – Cell Physiology Lab (3)

and an additional 7 upper division BISC courses (totaling a minimum of 21 units). Students may substitute up to 2 upper division courses from other units (e.g., BPK, FENV, HSCI, MASC, MBB, PHYS, or STAT), subject to approval by the department. Students complete a total of five

lab courses (which may include one of BISC 497W, 498, 499) among their upper division courses. A minimum of 3 BISC courses must be at the 400 level.

## University Degree Requirements

[No change]

## Writing, Quantitative, and Breadth Requirements

[No change.]

## Residency Requirements and Transfer Credit

[In addition to SFU's policy:]

At least half of the program's ...At least two thirds... Simon Fraser University study.

[we add the following Departmental requirements:]

Students who transfer into the Biological Sciences Major from other institutions may count a maximum of 2 transfer courses toward their upper division program requirements. Transfer students are encouraged to meet with the Undergraduate Advisor for further details.

[Dropped 'Elective Courses' category as this was incorporated in the front piece.]

**Motion 7:** To modify the calendar description of the BISC Honours, as outlined.

**Rationale:** The proposed changes include:

(1) *Addition of a Residency Requirement.* See Motion 5 for BISC Minor.

(2) *Updates to the Open Concentration.* These bring the structure of the Open Concentration in line with the structure of our other two recently updated concentrations (EEC and CMP), while preserving the choice and flexibility for students.

(3) *Major editing changes.* These changes aim to preserve recent and substantive changes made to the programs. The goal of the edits is to better showcase the strengths of our programs, and to make these documents easier for students to read and interpret.

**Note:** This is a significant re-write of the Honours description. The portions that are NOT changing have been highlighted in blue below.

# Biological Sciences Honours

## BACHELOR OF SCIENCE

The Honours program is intended for academically strong students who wish to combine in-depth study and research-based courses in Biological Sciences. Like the Majors program, the Honours program combines a broad foundation in the lower division with specialization in upper division in one of 3 concentrations: Cells, Molecules, Physiology (CMP); Ecology, Evolution, Conservation (EEC); or Open concentration.

In addition to the Major Program Requirements, Honours students complete an Independent Study Semester (ISS) under the supervision of a faculty member, maintain a GPA of 3.0, complete 60 upper division units in BISC (or a related discipline), and graduate with a minimum of 124 units.

## Admission Requirements

Students may apply once they have completed all Lower Division Requirements and at least 15 upper division units in Biological Sciences. Entry requires a CGPA of 3.0 or higher. Interested students who meet the criteria should meet with the Undergraduate Program Advisor to apply.

## Grade Requirements

*Pre-requisites.* Students are normally required to obtain at least a C- on all course pre-requisites, but in some cases the minimum grade requirement may be higher. Students are encouraged to plan ahead and consult the course calendar. In some cases, pre-requisites may be waived for BISC courses with the approval of the Department.

*Continuation.* To remain in the program, students must be in good academic standing, must maintain a CGPA of 3.0 in the Honours Program Requirements (i.e, excluding electives), and must not exceed SFU's limits on course repeats.

## Program Requirements

Students must complete a minimum of 124 units, including 60 at the upper division level.

### Lower Division Requirements

[No change to the list of required courses]

Students complete all of

...

PHYS 141 - Studio Physics - Optics, Electricity and Magnetism (4)

Students are encouraged to complete all lower division requirements before registering for upper division courses. Students who intend to apply for medical, dental, veterinary, or other professional program may need additional courses and are encouraged to consult with the Biological Sciences Undergraduate Advisor.

### Upper Division Requirements

Students complete a minimum 60 upper division units in BISC, consisting of 4 core courses, 8 concentration specific courses, and a 3 course Independent Study Semester (ISS), as outline below. Students may need to take additional course(s) to satisfy the 60 unit requirement. Students must obtain a C- or better on all Upper Division Requirements.

All students complete 4 core courses, as follows.

[No change to the list of required courses]

BISC 300 - Evolution (3)

...

BISC 318 – Parasitology (3)

CELLS, MOLECULES, AND PHYSIOLOGY (CMP) CONCENTRATION



This concentration is for students who wish to specialize in Cell Biology, Molecular Biology, and Physiology. The program provides flexibility for students to pursue their interests across these disciplines.

[No change to the list of required courses]

Students who choose this concentration will complete two of the following techniques courses...

...

BPK 408W – Cell Physiology (3)

and two upper division elective courses...must be at the 400 level.

#### ECOLOGY, EVOLUTION, AND CONSERVATION (EEC) CONCENTRATION

This concentration integrates theoretical and applied approaches to Ecology, Evolution, and Conservation. Students interested in obtaining additional field biology experience may also take courses at Bamfield Marine Science Center, listed under Marine Sciences (MASC) in the course calendar. The EEC concentration is accredited by the College of Applied Biology (see the Biological Sciences website for details).

[No change to the list of required courses]

Students who choose this concentration will complete both:

...

BISC 499 – Undergraduate Research II (3)

Courses from other units...among their upper division courses.

#### OPEN CONCENTRATION

This concentration allows students to build their own program and combine interests spanning the full diversity of courses offered in the Department.

Students who choose this concentration will complete one of the following techniques courses:

BISC 302W – Genetic Analysis (3)

BISC 303 – Microbiology (4)

BISC 357 – Genetic Engineering (4)

BISC 360W – Techniques in Ecology and Evolution (3)

BPK 408W – Cell Physiology Lab (3)

and an additional 7 upper division BISC courses (totaling a minimum of 21 units). Students may substitute up to 2 upper division courses from other units (e.g., BPK, FENV, HSCI, MASC, MBB, PHYS, or STAT), subject to approval by the department. Students complete a total of five

lab courses (which may include one of BISC 497W, 498, 499) among their upper division courses. A minimum of 3 BISC courses must be at the 400 level.

## Independent Study Semester (ISS)

The ISS is a research-based thesis, completed under the supervision of a faculty member in Biological Sciences. It consists of 3 integrated courses, as follows:

BISC 490 - Research Design (5)

BISC 491 - Research Technique (5)

BISC 492W - Research Reporting (5)

## University Degree Requirements

[No change]

## Writing, Quantitative, and Breadth Requirements

[No change.]

## Residency Requirements and Transfer Credit

[In addition to SFU's policy:]

At least half of the program's ... At least two thirds... Simon Fraser University study.

[we add the following Departmental requirements:]

Students who transfer into the Biological Sciences Major from other institutions may count a maximum of 2 transfer courses toward their upper division program requirements. Transfer students are encouraged to meet with the Undergraduate Advisor for further details.

[Dropped 'Elective Courses' category as this was incorporated in the front piece.]



SCUS 17-36b

**Calendar Entry Change**  
**Name of Program or Name of Faculty**

Rationale for change:  
The changes allow students to receive credit for additional relevant electives in Physical Geography and GIS.

Effective term and year:  
Fall 2018

The following program(s) will be affected by these changes:  
  
EASC Major

**Calendar Change:** "to" and "from" sections are not required. All deletions should be crossed out as follows: ~~sample~~. All additions should be marked by a **bold**.

Upper Division Requirements

GEOLOGY STREAM

and at least 21 units chosen from

~~EASC 493 . . . . .~~

**GEOG 313 - River Geomorphology (4)**

**GEOG 355 - Geographical Information Science II (4)**

ENVIRONMENTAL GEOSCIENCE STREAM

and a minimum of 24 units **(with a maximum of 12 units from GEOG)** chosen from

**GEOG 314 - The Climate System (4)**

**GEOG 316 - Global Biogeochemical and Water Cycles (4)**

**GEOG 352 - Spatial Analysis (4)**

**GEOG 353 - Advanced Remote Sensing (4)**

**GEOG 355 - Geographical Information Science II (4)**

INSERT INTO  
EXISTING LIST.



**Calendar Entry Change**

**Name of Program or Name of Faculty**

Rationale for change:  
The changes allow students to receive credit for additional relevant electives in Physical Geography and GIS.

Effective term and year:  
Fall 2017

The following program(s) will be affected by these changes:

EASC Honours

**Calendar Change:** "to" and "from" sections are not required. All deletions should be crossed out as follows: ~~sample~~. All additions should be marked by a **bold**.

Upper Division Requirements

GEOLOGY STREAM

and at least 18 units chosen from

~~EASC 493 . . . . .~~

**GEOG 313 - River Geomorphology (4)**

**GEOG 355 - Geographical Information Science II (4)**

ENVIRONMENTAL GEOSCIENCE STREAM

and a minimum of 21 units **(with a maximum of 12 units from GEOG)** chosen from

**GEOG 314 - The Climate System (4)**

**GEOG 316 - Global Biogeochemical and Water Cycles (4)**

**GEOG 352 - Spatial Analysis (4)**

**GEOG 353 - Advanced Remote Sensing (4)**

**GEOG 355 - Geographical Information Science II (4)**

} INSERT INTO EXISTING LIST