McGill

Program/Major or Minor/Concentration Revision Form

(07/2004)

1.0 B.Sc.

1.1 Major Computer Science and Biology

1.2 Concentration (Legacy = Concentration/Option) If applicable (30 char. max.)

Computer Science and Biology

1.3 Minor (with Concentration, if applicable) (30 char. max.)

1.4 Category

Faculty Program (FP)	Honours (HON)
Major	Joint Honours Component (HC)
Joint Major	Internship/Co-op
Major Concentration (CON)	Thesis (T)
Minor	Non-Thesis (N)
Minor Concentration (CON)	Other
	Please specify

1.5 Joint Major Computer Science and Biology

2.0 Administering Faculty/Unit

Science

Offering Faculty/Department

Science / Computer Science

3.0 Effective Term of revision or retirement
Please give reasons in 5.0 "Rationale" in the case of retirement
(Ex. Sept. 2004 = 200409) Retirement

Term: 2012/01

4.0 Existing Credit Weight: 69-73

Proposed Credit Weight: 69-73

5.0 Rationale for revised program

These are minor changes, due to course title changes and course retirements. As COMP 304 and COMP 335 are both retired, we add COMP 361 to the list of complementary courses for compensation. The description at the end of the computer science block was adjusted to reflect the way we describe exclusions/inclusions in our other programs. Also, COMP 400 is not an option in this program, as the students have their own project course (COMP 401).

6.0 Revised Program Description (Maximum 150 words)

Major Computer Science and Biology (73 credits)
EXISTING PROGRAM as approved

Required Mathematics & Statistics Courses (6 credits)
MATH 222 (3) Calculus 3
MATH 223 (3) Linear Algebra
Required Computer Science Courses (12, 15 or 16 credits)
COMP 202* (3) Introduction to Computing 1
COMP 250 (3) Introduction to Computer Science
COMP 251 (3) Data Structures & Algorithms
COMP 206 (3) Introduction to Software Systems
COMP 462 (3) Computational Biology Methods
Or COMP 561 (4) Computational Biology Methods and Research
*Students who have sufficient knowledge in a programming language are not required to take COMP 202.
Required Biology Courses (20 credits)
BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology & Metabolism
BIOL 202 (3) Basic Genetics
BIOL 215 (3) Intro to Ecology & Evolution
BIOL 301 (3) Cell & Molecular Laboratory
CHEM 212 (4) Introduction to Organic Chemistry 1
Required Joint Courses (4 credits)
COMP 401 (3) Project in Biology & Computer Science
COMP 499 (1) Undergraduate Bioinformatics Seminar

Complementary Courses (27 credits)
6 credits, ONE of the following pairs of courses:
MATH 203 and MATH 204 or MATH 323 and MATH 324 or BIOL 309 and BIOL 373.
BIOL 309 (3) Mathematical Models in Biology
BIOL 373 (3) Biometry
MATH 203 (3) Principles of Statistics 1
MATH 204 (3) Principles of Statistics 2
MATH 323 (3) Probability
MATH 324 (3) Statistics
At least 21 credits selected from the following blocks, with the following requirements:
- at least 9 credits from each of the following two blocks
- at least 9 credits at the 400 level or above
- at least 3 credits at the 400 level or above from each block
Computer Science Block
MATH 240 (3) Discrete Structures 1
COMP 273 (3) Intro to Computer Systems
COMP 302 (3) Program. Languages & Paradigms
COMP 303 (3) Software Development
COMP 304 (3) Object Oriented Software Design
COMP 310 (3) Comp. Systems & Organization
COMP 330 (3) Theoretical Aspects: Computer Science
COMP 335 (3) Software Engineering Methods
COMP 350 (3) Numerical Computing
COMP 360 (3) Algorithm Design Techniques
All COMP courses at the 400-level (*except 401, 462 and 499*) and all courses at the 500-level (*except 561*).
Biology Block
BIOL 300 (3) Molecular Biology of the Gene
BIOL 309 (3) Mathematical Models in Biology
BIOL 310 (3) Biodiversity & Ecosystems
BIOL 313 (3) Eukaryotic Cell Biology
BIOL 395 (1) quantitative Biology seminar 1
BIOL 435 (3) Natural Selection
BIOL 495 (1 Quantitative Biology seminar 11
BIOL 518 (3) Advanced Topics in Cell Biology
BIOL 551 (3) Cell cycle
BIOL 568 (3) Topics on the Human Genome
BIOL 569 (3) Developmental Evolution
BIOL 572 (3) Molecular Evolution
BIOL 583 (3) Advanced Biometry

Major Computer Science and Biology (73 credits)-Revised Program
Required Courses (49 credits)

Required Mathematics & Statistics Courses (6 credits)
MATH 222 (3) Calculus 3
MATH 223 (3) Linear Algebra
Required Computer Science Courses (12, 15 or 16 credits)
COMP 202* (3) **Foundations of Programming**
COMP 250 (3) Introduction to Computer Science
COMP 251 (3) **Algorithms and Data Structures**
COMP 206 (3) Introduction to Software Systems
COMP 462 (3) Computational Biology Methods
Or COMP 561 (4) Computational Biology Methods and Research
*Students who have sufficient knowledge in a programming language are not required to take COMP 202.
Required Biology Courses (20 credits)
BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology & Metabolism
BIOL 202 (3) Basic Genetics
BIOL 215 (3) Intro to Ecology & Evolution
BIOL 301 (3) Cell & Molecular Laboratory
CHEM 212 (4) Introduction to Organic Chemistry 1
Joint Required Courses (4 credits)
COMP 401 (3) Project in Biology & Computer Science
COMP 499 (1) Undergraduate Bioinformatics Seminar

Complementary Courses (27 credits)
6 credits, ONE of the following pairs of courses:
MATH 203 and MATH 204 or MATH 323 and MATH 324 or BIOL 309 and BIOL 373.
BIOL 309 (3) Mathematical Models in Biology
BIOL 373 (3) Biometry
MATH 203 (3) Principles of Statistics 1
MATH 204 (3) Principles of Statistics 2
MATH 323 (3) Probability
MATH 324 (3) Statistics
At least 21 credits selected from the following blocks, with the following requirements:
- at least 9 credits from each of the following two blocks
- at least 9 credits at the 400 level or above
- at least 3 credits at the 400 level or above from each block
Computer Science Block
MATH 240 (3) Discrete Structures 1
COMP 273 (3) Intro to Computer Systems
COMP 302 (3) Program. Languages & Paradigms
COMP 303 (3) Software Development
~~COMP 304 (3) Object Oriented Software Design~~
COMP 310 (3) Comp. Systems & Organization
COMP 330 (3) **Theory of Computation**
~~COMP 335 (3) Software Engineering Methods~~
COMP 350 (3) Numerical Computing
COMP 360 (3) **Algorithm Design**
COMP 361 D1 (3) / COMP 361D2 (3) Software Engineering Project
All COMP courses at the 400-level or above (*except COMP 400*).
Biology Block
BIOL 300 (3) Molecular Biology of the Gene
BIOL 309 (3) Mathematical Models in Biology
BIOL 310 (3) Biodiversity & Ecosystems
BIOL 313 (3) Eukaryotic Cell Biology
BIOL 395 (1) quantitative Biology seminar 1
BIOL 435 (3) Natural Selection
BIOL 495 (1 Quantitative Biology seminar 11
BIOL 518 (3) Advanced Topics in Cell Biology
BIOL 551 (3) Cell cycle
BIOL 568 (3) Topics on the Human Genome
BIOL 569 (3) Developmental Evolution
BIOL 572 (3) Molecular Evolution
BIOL 583 (3) Advanced Biometry

8.0 Consultation with Related Units ☐ Yes ☐ No

Financial Consult ☐ Yes ☐ No

Attach list of consultations

9. Approvals

Routing Sequence	Name	Signature	Date
Department			
Curric/Acad Committee			
Faculty 1			
Faculty 2			
Faculty 3			
SCTP			
GS			
APPC			
Senate			

Submitted by

Name	
Phone	
Email	
Submission Date	

To be completed by ARR:

CIP Code