1.0 Degree Title
Specify the two degrees for concurrent degree programs
B. SC

1.1 Major (Legacy = Subject) (30-char. max.)
Honours Statistics and Computer Science

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

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

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

1.5 B. SC Honours Statistics and Computer Science

2.0 Administering Faculty/Unit
Science/Mathematics and Statistics

Offering Faculty/Department
Mathematics and Statistics

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: 201409

4.0 Existing Credit Weight
79

4.0 Proposed Credit Weight
79

5.0 Rationale for revised program
Since basic measure theory is taught in MATH 587 and since it introduces students to crucial notions in probability (for example, distributions, expectation, independence, laws of large numbers, conditional expectation), topics not part of the MATH 355 syllabus, it is felt that MATH 587 should replace MATH 355 as one complementary course.

6.0 Revised Program Description (Maximum 150 words)
7.0 List of existing program and proposed program

Existing program (list courses as follows: Subj Code/Crse Num, Title, Credit weight, under the headings of: Required Courses, Complementary Courses, Elective Courses)

Required Courses (49 credits)
* Students who have sufficient knowledge in a programming language are not required to take COMP 202.
** Students take either MATH 251 or MATH 247, but not both.
COMP 202 Foundations of Programming (3 credits) *
COMP 208 Introduction to Software Systems (3 credits)
COMP 250 Introduction to Computer Science (3 credits)
COMP 252 Honours Algorithms and Data Structures (3 credits)
COMP 273 Introduction to Computer Systems (3 credits)
COMP 302 Programming Languages and Paradigms (3 credits)
COMP 330 Theory of Computation (3 credits)
COMP 362 Honours Algorithm Design (3 credits)
MATH 235 Algebra 1 (3 credits)
MATH 242 Analysis 1 (3 credits)
MATH 247 Honours Applied Linear Algebra (3 credits) **
MATH 248 Honours Advanced Calculus (3 credits)
MATH 251 Honours Algebra 2 (3 credits) **
MATH 255 Honours Analysis 2 (3 credits)
MATH 356 Honours Probability (3 credits)
MATH 357 Honours Statistics (3 credits)
MATH 533 Honours Regression and Analysis of Variance (4 credits)

Complementary Courses (30 credits)
15 credits in Mathematics selected as follows:

3 credits selected from:
MATH 387 Honours Numerical Analysis (3 credits)
MATH 397 Honours Matrix Numerical Analysis (3 credits)

At least 8 credits selected from:
MATH 523 Generalized Linear Models (4 credits)
MATH 524 Nonparametric Statistics (4 credits)
MATH 525 Sampling Theory and Applications (4 credits)
MATH 556 Mathematical Statistics 1 (4 credits)
MATH 557 Mathematical Statistics 2 (4 credits)

The remaining Mathematics credits selected from:
** MATH 578 and COMP 540 cannot both be taken for program credit.
MATH 350 Graph Theory and Combinatorics (3 credits)
MATH 352 Problem Seminar (1 credit)
MATH 354 Honours Analysis 3 (3 credits)
MATH 355 Honours Analysis 4 (3 credits)
MATH 545 Introduction to Time Series Analysis (4 credits)
MATH 578 Numerical Analysis 1 (4 credits) **

15 credits in Computer Science selected as follows:
At least 6 credits selected from:
COMP 424 Artificial Intelligence (3 credits)
COMP 462 Computational Biology Methods (3 credits)
COMP 526 Probabilistic Reasoning and AI (3 credits)
COMP 540 Matrix Computations (3 credits) **
COMP 547 Cryptography and Data Security (4 credits)
COMP 552 Combinatorial Optimization (4 credits)
COMP 564 Computational Gene Regulation (3 credits)
COMP 566 Discrete Optimization 1 (3 credits) **
COMP 567 Discrete Optimization 2 (3 credits)

The remaining Computer Science credits are selected from COMP courses at the 300 level or above excluding COMP 396 and COMP 431.

Proposed program (list courses as follows: Subj Code/Crse Num, Title, Credit weight, under the headings of: Required Courses, Complementary Courses, Elective Courses)

Required Courses (46 credits)
* Students who have sufficient knowledge in a programming language are not required to take COMP 202.
** Students take either MATH 251 or MATH 247, but not both.
COMP 202 Foundations of Programming (3 credits) *
COMP 206 Introduction to Software Systems (3 credits)
COMP 250 Introduction to Computer Science (3 credits)
COMP 252 Honours Algorithms and Data Structures (3 credits)
COMP 273 Introduction to Computer Systems (3 credits)
COMP 302 Programming Languages and Paradigms (3 credits)
COMP 330 Theory of Computation (3 credits)
COMP 362 Honours Algorithm Design (3 credits)
MATH 235 Algebra 1 (3 credits)
MATH 247 Honours Applied Linear Algebra (3 credits) **
MATH 248 Honours Advanced Calculus (3 credits)
MATH 251 Honours Algebra 2 (3 credits) **
MATH 255 Honours Analysis 2 (3 credits)
MATH 356 Honours Probability (3 credits)
MATH 357 Honours Statistics (3 credits)
MATH 533 Honours Regression and Analysis of Variance (4 credits)

Complementary Courses (33 credits)
15 credits in Mathematics selected as follows:

3 credits selected from:
MATH 242 Analysis 1 (3 credits) *
*MATH 254 Honours Analysis 1 (3 credits)

* It is strongly recommended that students take MATH 254

3 credits selected from:
MATH 387 Honours Numerical Analysis (3 credits)
MATH 397 Honours Matrix Numerical Analysis (3 credits)

At least 8 credits selected from:
MATH 523 Generalized Linear Models (4 credits)
MATH 524 Nonparametric Statistics (4 credits)
MATH 525 Sampling Theory and Applications (4 credits)
MATH 556 Mathematical Statistics 1 (4 credits)
MATH 557 Mathematical Statistics 2 (4 credits)

The remaining Mathematics credits selected from:
** MATH 578 and COMP 540 cannot both be taken for program credit.
MATH 350 Graph Theory and Combinatorics (3 credits)
MATH 352 Problem Seminar (1 credit)
MATH 354 Honours Analysis 3 (3 credits)
MATH 355 Honours Analysis 4 (3 credits)
MATH 545 Introduction to Time Series Analysis (4 credits)
MATH 578 Numerical Analysis 1 (4 credits) **

15 credits in Computer Science selected as follows:
At least 6 credits selected from:
COMP 424 Artificial Intelligence (3 credits)
COMP 462 Computational Biology Methods (3 credits)
COMP 526 Probabilistic Reasoning and AI (3 credits)
COMP 540 Matrix Computations (3 credits) **
COMP 547 Cryptography and Data Security (4 credits)
COMP 552 Combinatorial Optimization (4 credits)
COMP 564 Computational Gene Regulation (3 credits)
COMP 566 Discrete Optimization 1 (3 credits) **
COMP 567 Discrete Optimization 2 (3 credits)

The remaining Computer Science credits are selected from COMP courses at the 300 level or above excluding COMP 396 and COMP 431

Attach extra page(s) as needed
9. Approvals

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<td>Voikan Jaksic - Director - CUA</td>
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Submitted by

Name
Phone
Email
Submission Date

To be completed by ARR:

CIP Code