SFU OFFICE OF THE ASSOCIATE VICE-PRESIDENT, ACADEMIC AND
ASSOCIATE PROVOST

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MEMORANDUM

ATTENTION	Senate	**DATE**	April 10, 2012
FROM	Bill Krane, Chair	**PAGES**	1/1
	Senate Committee on		
	Undergraduate Studies		
RE:	Faculty of Science (SCUS 12-21)		

For information:

Acting under delegated authority at its meeting of April 5, 2012, SCUS approved the following curriculum revisions effective Spring 2013:

1. Department of Biological Sciences (SCUS 12-21a)
   (i) Description and prerequisite change to BISC 419
   (ii) Prerequisite changes to BISC 101, 102

2. Department of Molecular Biology and Biochemistry (SCUS 12-21b)
   (i) New Course Proposal: MBB 471, Undergraduate Colloquium

3. Department of Statistics and Actuarial Science (SCUS 12-21c)
   (i) Prerequisite and/or description change to STAT 285, 380
   (ii) Course deletions of STAT 400, 402
   (iii) New Course Proposals:
      STAT 340-3, Introduction to Statistical Computing and Exploratory Data Analysis
      STAT 445-3, Applied Multivariate Analysis
      STAT 475-3, Applied Discrete Data Analysis
      STAT 485-3, Applied Time Series Analysis
   (iv) Changes to the Statistics Major and Honors Programs Upper Division requirements
   (v) Changes to the Statistics Minor Program Lower and Upper Division requirements

Senators wishing to consult a more detailed report of curriculum revisions may do so by going to Docushare: https://docushare.sfu.ca/dsweb/View/Collection-12682
If you are unable to access the information, please call 778-782-3168 or email shelley_gair@sfu.ca.

SIMON FRASER UNIVERSITY   THINKING OF THE WORLD

SFU

TO: Bill Krane, Chair, SCUS

FROM: G. Agnes, Associate Dean
Faculty of Science

RE: Faculty of Science Curriculum Items

DATE: March 26, 2012

The Faculty of Science has approved the following, which must now be considered by SCUS.

Please place these items on the agenda of the next SCUS meeting.

1. **Biological Sciences**
   a) ~~Change to description of how supplementary fees for MASC courses are approved~~
   b) Description and prerequisite changes for BISC 419
   c) Prerequisite changes to BISC 101 and BISC 102

2. **Molecular Biology & Biochemistry**
   New course – MBB 471

3. **Statistics & Actuarial Science**
   a) Prerequisite and description change to STAT 285 and prerequisite change to STAT 380
   b) Course deletions – STAT 400 and STAT 402
   c) New courses – STAT 340, STAT 445, STAT 475 and STAT 485
   d) Changes to the Statistics Major and Honors programs
   e) Changes to the Statistics Minor program

G. Agnes

Enclosure

c. J. Hinchliffe, C. Cupples

SFU

DEPARTMENT OF
BIOLOGICAL SCIENCES

David Green
Associate Professor

Chair, Departmental Undergraduate
Curriculum Committee

8888 University Drive,
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TEL: 778.782.3981
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EMAIL: djgreen@sfu.ca

ATTENTION : George Agnes
Faculty of Science Undergraduate Curriculum Committee

FROM: David Green, Chair, Undergraduate Curriculum Committee
COPY: Felix Breden, Chair Department of Mathematics

RE: Calendar Changes
DATE: Feb 1 2012

   Please find enclosed documents relating to undergraduate curriculum
changes approved by the Department of Biological Sciences on Jan 16 2012
to be considered at the next Faculty of Science Undergraduate Curriculum
Committee Meeting.

1. ~~That a proposed change to how the calendar describes how supplementary~~
~~fees for MASC courses is approved.~~
   * ~~Alter calendar entry to indicate students need to contact~~
     ~~Bamfield Marine Sciences Centre regarding supplementary fees.~~

2. That course description changes to BISC 419 be approved.
   * Remove the statement that attendance on field trips is required

3. That prerequisite changes to BISC 101, BISC102 and BISC 419 be
approved
   * Change the prerequisite of BISC 101 from
     Prerequisite: High school biology 12 (or equivalent) with a C grade
     or better, or BISC 100
     to
     Prerequisite: High school biology 12 (or equivalent) with a C grade
     or better, or BISC 100 with C- or better, or HSCI 100 with **C+** or
     better.

   * Change the prerequisite of BISC 102 from
     Prerequisite: High school biology 12 (or equivalent) with a C grade
     or better, or BISC 100
     to
     Prerequisite: High school biology 12 (or equivalent) with a C grade
     or better, or BISC 100 with C- or better, or HSCI 100 with **C+** or
     better.

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DEPARTMENT OF
BIOLOGICAL SCIENCES

- Change the prerequisite of BISC 419 from
  Prerequisite: BISC 304. Recommended: BISC 316
  to
  Prerequisite: BISC 304. Recommended: BISC 316 and STAT 201

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number   ☐ Credit   ☐ Title   ■ Description   ■ Prerequisite   ☐ Course deletion   ☐ Learning Outcomes

Indicate number of hours for: Lecture 3_____ Seminar_____ Tutorial _____ Lab 3_____

FROM   BISC 419 (Wildlife Biology)   **TO**

Course Subject/Number_____   Course Subject/Number _____

Credits _____   Credits_____

TITLE

(1) LONG title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM: TO:

(2) SHORT title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM: TO:

DESCRIPTION
FROM:

Theoretical and applied aspects of ecology and behavior in relation to wildlife populations and their habitats, with emphasis on important mammals and birds in British Columbia. Attendance on local field trips is required.

DESCRIPTION
TO:

Theoretical and applied aspects of ecology and behavior in relation to wildlife populations and their habitats, with emphasis on important mammals and birds in British Columbia

PREREQUISITE

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be noted in the prerequisite.

Prerequisite: BISC 304. Recommended BISC 316

FROM:

PREREQUISITE

Prerequisite: BISC 304. Recommended: BISC 316 and STAT

TO: 201

LEARNING OUTCOMES

RATIONALE

Change to course description: Field trips are not offered every time this course is taught

Change to pre-requisites: Labs include statistical analysis of data collected by students and sudents would be better prepared for the ocurse if they had taken STAT 201.

Effective term and year

~~Fall 2012 or~~ Fall 2013

JANUARY 2012

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number ☐ Credit ☐ Title ☐ Description ☑ Prerequisite ☐ Course deletion ☐ Learning Outcomes

Indicate number of hours for: Lecture 2 _____ Seminar _____ Tutorial 1 _____ Lab 4 _____

FROM	BISC 101	TO	
Course Subject/Number _____		Course Subject/Number _____	
Credits _____		Credits _____	

TITLE

(1) LONG title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM: TO:

(2) SHORT title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM: TO:

DESCRIPTION	DESCRIPTION
FROM:	TO:

PREREQUISITE	PREREQUISITE

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite.**

FROM: Prerequisite: High school biology 12 (or equivalent) with a C grade or better, or BISC 100

TO: Prerequisite: High school biology 12 (or equivalent) with a C grade or better, or BISC 100 with C- or better, or HSCI 100 with C+ or better.

LEARNING OUTCOMES

RATIONALE

For addition: HSCI 100 has a curriculum that is more closely aligned with the curriculum of Biology 12 than BISC 100 and is therefore equally well suited as a prerequisite for BISC 101. HSCI also uses BISC 101 as a required course.
For differences in grade requirements: Students in HSCI 100 and BISC 100 enter these courses with the same high school grades but there is a significant difference in the grades obtained by students in the two courses, in part because BISC 100 has a lab component and HSCI 100 does not. Specifying the grades required for HSCI 100 as C+ and BISC 100 as C- would mean that the proportion of students able to use the two courses as a prerequisite is equal, and students are equally well prepared for BISC 101. ⊞

Effective term and year

JANUARY 2012

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number ☐ Credit ☐ Title ☐ Description ☑ Prerequisite ☐ Course deletion ☐ Learning Outcomes

Indicate number of hours for: Lecture 2_____ Seminar_____ Tutorial 1_____ Lab 4_____

FROM   BISC 102   **TO**

Course Subject/Number_____ Course Subject/Number_____

Credits _____ Credits_____

TITLE

(1) LONG title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM: TO:

(2) SHORT title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM: TO:

DESCRIPTION
FROM:

DESCRIPTION
TO:

PREREQUISITE

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be noted in the prerequisite.

FROM: Prerequisite High school biology 12 (or equivalent) with a C grade or better, or BISC 100

PREREQUISITE

TO: Prerequisite High school biology 12 (or equivalent) with a C grade or better, or BISC 100 with C- or better, or HSCI 100 with C+ or better.

LEARNING OUTCOMES

RATIONALE

For addition: HSCI 100 has a curriculum that is more closely aligned with the curriculum of Biology 12 than BISC 100 and is therefore equally well suited as a prerequisite for BISC 101.
HSCI recommend this course to their students and want to increase course flexibility for students.
For differences in grade requirements: Students in HSCI 100 and BISC 100 enter these courses with the same high school grades but there is a significant difference in the grades obtained by students in the two courses, in part because BISC 100 has a lab component and HSCI 100 does not. Specifying the grades required for HSCI 100 as C+ and BISC 100 as C- would mean that the proportion of students able to use the two courses as a prerequisite is equal, and students are equally well prepared for BISC 102.

Effective term and year

~~Fall 2012~~ or Fall 2013

JANUARY 2012

MBB

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COURSE NUMBER__ MBB 471 – 1

COURSE TITLE
LONG — for Calendar/schedule, no more than 100 characters including spaces and punctuation

~~MBB~~ Undergraduate Colloquium

AND
SHORT — for enrollment/transcript, no more than 30 characters including spaces and punctuation

~~MBB~~ Undergraduate Colloquium

CREDITS

Indicate number of credits for: Lecture_____ Seminar____ **1hr**_____ Tutorial_____ Lab_____

COURSE DESCRIPTION (FOR CALENDAR). 3-4 LINES (50-60 WORDS) MAXIMUM. ATTACH A COURSE OUTLINE TO THIS PROPOSAL

Recent research articles on the molecular mechanisms underlying cellular activities or on the structure, function and interactions of macromolecules will be presented and discussed by students and faculty. This course will be available for MBB undergraduates to take once for undergraduate credit and will be offered in conjunction with MBB 821, 822, 823, 861, 862, or 863.

PREREQUISITE Permission of the Instructor
COREQUISITE none

SPECIAL INSTRUCTIONS
That is, does this course replicate the content of a previously-approved course to such an extent that students should not receive credit for both courses.? If so, this should be noted in the prerequisite.

This new course will allow undergraduate students in MBB to receive undergraduate credit for participating in already established graduate colloquium courses that they cannot receive undergraduate credit for.

COURSES(S) TO BE DELETED IF THIS COURSE IS APPROVED
NOTE: APPROPRIATE DOCUMENT FOR DELETION MUST BE SUBMITTED TO SCUS

RATIONALE FOR INTRODUCTION OF THIS COURSE

This is a one-credit elective course for advanced undergraduate students that will provide students with an exceptional opportunity to participate in a small colloquium course. While presentation of papers is part of many of our 400 level courses, this would be an opportunity for a student to focus intensely on the primary literature and participate in analysis and discussion with multiple faculty, graduate students and other advanced undergraduate students.

SCHEDULING AND ENROLLMENT INFORMATION

Indicate effective **term and year** course would first be offered and planned **frequency** of offering thereafter: **Spring 2013 (1131)**

(NOTE: There is a two-term wait for implementation of any new course.)

Indicate if there is a waiver required: _____ YES   _x_ NO

Will this be a required or elective course in the curriculum? **elective**

What is the probable enrollment when offered? **Estimate   1 or 2 students per semester**

Which of your present CFL faculty have the expertise to offer this course?

This course is already being presented twice a year by various faculty as a graduate course and any MBB faculty would have the expertise to facilitate the course.

Are there any proposed student fees associated with this course other than tuition fees? _____ YES ___x___ NO
(If yes, attach mandatory supplementary fee approval form.)

RESOURCE IMPLICATIONS

NOTE: Senate has approved (S.93-11) that no new course should be approved by Senate until funding has been committed for necessary library materials. Each new course proposal must be accompanied by a library report and, if appropriate, confirmation that funding arrangements have been addressed.

Campus where course will be taught   **Burnaby**

Library report status   **approved see   http://www.lib.sfu.ca/collections/course-assessments**

Provide details on how existing instructional resources will be redistributed to accommodate this new course. For example, will another course be eliminated or will the frequency of offering of other courses be reduced; are there changes in pedagogical style or class sizes that allow for this additional course offering?

No courses will be eliminated.

List any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc: **none**

Articulation agreement reviewed?   _____ YES _____ NO __X_____ Not applicable

OTHER IMPLICATIONS   **NONE**

APPROVALS

1   Departmental approval indicates that the Department or School has approved the content of the course, and has consulted with other Departments/Schools/Faculties regarding proposed course content and overlap issues.

_____   March 19, 2012
Chair, Department/School   Date

_____   March 27/2012
Chair, Faculty Curriculum Committee   Date

2   Faculty approval indicates that all the necessary course content and overlap concerns have been resolved, and that the Faculty/School/Department commits to providing the required Library funds.

_____   March 27/2012
Dean or designate   Date

LIST which other Departments, Schools and Faculties have been consulted regarding the proposed course content, including overlap issues. Attach documentary evidence of responses.

Other Faculties approval indicated that the Dean(s) or Designate of other Faculties AFFECTED by the proposed new course support(s) the approval of the new course:

_____ Date_____

_____ Date_____

3   SCUS approval indicates that the course has been approved for implementation subject, where appropriate, to financial issues being addressed.

COURSE APPROVED BY SCUS (Chair of SCUS):

_____ Date_____

Approval is signified by date and appropriate signature.

STATS

SFU

Rick Routledge
Department of Statistics and Actuarial Science
Simon Fraser University

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8888 University Drive, Burnaby, BC	FAX 778.782.4368	www.stat.sfu.ca/~routledg
Canada V5A 1S6		

MEMORANDUM ─────────────────────────────────

ATTENTION	Dr. George Agnes, Associate Dean of Science, Academic	**DATE**	March 1, 2012
FROM	Rick Routledge	**PAGES**	1/1
RE:	Undergraduate Curriculum Revisions		

We are hereby submitting a proposal, approved at a meeting of the Department of Statistics and Actuarial Science on February 10, 2012, for changes to the undergraduate major, honors, and minor programs in statistics offered by the department. This includes associated changes to several courses (deletions, additions, and alterations).

In addition to a major upgrading of the major and honors programs, the package contains a substantive change to the statistics minor. The new version allows students to complete a minor with a much stronger focus on applied techniques. We hope that this will provide a particularly appealing opportunity for students majoring in subjects in which statistical reasoning plays a significant role.

The proposal also calls for changes to several graduate courses that are to be taught in parallel with undergraduate courses, and these are also being forwarded to Dr. Peter Ruben.

Sincerely,

Rick Routledge

cc. Dr. Peter Ruben, Associate Dean of Science, Research and Graduate Studies
    Dr. Richard Lockhart, Chair, Department of Statistics and Actuarial Science

Curriculum Revision Package:
Summary of Most Salient Features
February 10, 2012

The Curriculum Review Committee now has a formal package ready for departmental discussion. Since the package is large, the committee has prepared the following list of the most salient features. The committee welcomes all discussion – on these points and others – at the upcoming meeting.

1. Changes to the BSc Major:
   a. Addition of a mandatory course in statistical computing STAT 340.
   b. Replacement of list of mandatory 400-level STAT requirements with a more flexible requirement that students select at least 4 such courses, but of their own choosing subject to advice from a departmental advisor.
   c. Conversion of STAT 402-3 to STAT 475-3 with a shift of emphasis from generalized linear modeling theory to discrete data analysis.
   d. Addition of two new courses in applied statistical methodology, one each in multivariate analysis (STAT 445) and time series analysis (STAT 485).
   e. Deletion of STAT 400 *& STAT 402*

2. Changes to the BSc Honours:
   a. Addition of a mandatory course in statistical computing STAT 340.
   b. Retention of the list of required courses.
   c. Conversion of STAT 402-3 to STAT 475-3 with a shift of emphasis from generalized linear modeling theory to discrete data analysis.
   d. Addition of two new courses in applied statistical methodology, one each in multivariate analysis (STAT 445) and time series analysis (STAT 485).
   e. Deletion of STAT 400. *& STAT 402*

3. Changes to BSc Minor:
   a. Major alteration of program to provide students with the opportunity to complete a minor in statistics through courses in applied statistical methodology.

4. Changes to Individual Courses:
   a. STAT 285: The elimination of the small component on time series analysis (to be taught more extensively in STAT 485) and updating of prerequisites.
   b. STAT 340: New course in statistical computing.
   c. STAT 380; Change of prerequisite.
   d. STAT 400: Course to be cancelled .
   e. STAT 402: Replaced by STAT 475.
   f. ~~STAT 602: Companion course to 402, replaced by STAT 675.~~
   g. STAT 445: New course in applied multivariate analysis.
   h. STAT 475: Revamped STAT 402, focusing on discrete data analysis
   i. STAT 485: New course in time series analysis.
   j. ~~STAT 645, 675, and 685: new companion courses to the above three available for graduate students from other departments.~~

Proposed Changes to Existing Courses

The department proposes changes to the following courses:

- STAT 285 (modification of syllabus and updating of prerequisite)
- STAT 380 (change of prerequisite)

Course change forms for both courses and a course outline for STAT 285 are appended.

EXISTING COURSE, CHANGES RECOMMENDED

SCUS 12-21c (i)

Please check appropriate revision(s):

☐ Course number ☐ Credit ☐ Title ☑ Description ☑ Prerequisite ☐ Course deletion

Indicate number of hours for: Lecture **3** Seminar_____ Tutorial _____ Lab _____

FROM	TO
Course Number _____ STAT285 _____	Course Number _____
Credits (Units) _____ 3 _____	Credits (Units)_____

TITLE

(1) Long title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM: Intermediate Probability and Statistics   TO:

(2) Short title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM: Interm. Prob. and Statist.   TO:

DESCRIPTION

FROM:This course is a continuation of STAT 270. Review of probability models; procedures for statistical inference from survey results and experimental data. Statistical model building. Elementary design of experiments and regression methods. Introduction to lifetime analysis. Introduction to time

DESCRIPTION

TO:This course is a continuation of STAT 270. Review of probability models; procedures for statistical inference from survey results and experimental data. Statistical model building. Elementary design of experiments and regression methods. Introduction to categorical data analysis. Quantitati

PREREQUISITE

FROM: STAT 270. Prerequisite or Corequisite MATH 232. This course may not be taken for credit by students who have credit for STAT 330 prior to the Fall 03-3 term.

PREREQUISITE

TO:STAT 270. Prerequisite or Corequisite MATH 232 or MATH 240. This course may not be taken for credit by students who have credit for STAT 330 prior to the Fall 2003.

RATIONALE

Extra material was added to this course several years ago primarily to meet accreditation requirements of the Society of Actuaries. Subsequent experience has shown this to have been a flawed approach. The course was too packed. The department proposes to rectify the situation by removing the extra material from STAT 285 and creating a new course, STAT 485, which will serve the needs of students in actuarial science, statistics, and other disciplines more effectively.

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

Effective term and year _____

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number   ☐ Credit   ☐ Title   ☐ Description   ☑ Prerequisite   ☐ Course deletion

Indicate number of hours for: Lecture __3__   Seminar _____   Tutorial __1__   Lab _____

FROM

Course Number _____STAT380_____

Credits (Units) _____3_____

TO

Course Number _____

Credits (Units) _____

TITLE

(1) Long title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM: Introduction to Stochastic Processes   TO:

(2) Short title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM: TO:

DESCRIPTION   DESCRIPTION

FROM: TO:

PREREQUISITE   PREREQUISITE

FROM: STAT285   TO: STAT330

RATIONALE

To reduce the substantial heterogeneity from two disparate levels of students: second-year Statistics majors who have just taken STAT285 and are not yet comfortable with probability, and graduating Actuarial Science majors who have had extensive exposure and practice with probability through ACMA335 and their SOA exams. Note that, due to entry restrictions on the required Business courses, the Actuarial Science students try to get them out of the way first and leave STAT380 for the end of their programme as a filler. (Checked with Math -- see notes from meeting with Dave Muraki in March 2011 -- they have no problem with this.)

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

Effective term and year _____

EXISTING COURSE, CHANGES RECOMMENDED

SCUS 12-21c (ii)

Please check appropriate revision(s):

☐ Course number   ☐ Credit   ☐ Title   ☐ Description   ☐ Prerequisite   ☑ Course deletion

Indicate number of hours for: Lecture___3___   Seminar_____   Tutorial _____   Lab _____

FROM   **TO**

Course Number ___STAT400___   Course Number _____

Credits (Units)___3___   Credits (Units)_____

TITLE

(1) Long title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM: Data Analysis   TO:

(2) Short title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM: TO:

DESCRIPTION   DESCRIPTION

FROM: TO:

PREREQUISITE   PREREQUISITE

FROM: TO:

RATIONALE

The revisions to the department's undergraduate programs in statistics have refocused the emphasis on data analysis, and has woven it more thoroughly into the curriculum. This has left a diminished role for STAT 400. To make the most effective use of the department's limited teaching resources, the department recommends that STAT 400 be dropped from its list of course offerings.

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

Effective term and year _____

JANUARY 2008

EXISTING COURSE, CHANGES RECOMMENDED

Please check appropriate revision(s):

☐ Course number ☐ Credit ☐ Title ☐ Description ☐ Prerequisite ☑ Course deletion

Indicate number of hours for: Lecture___3___ Seminar_____ Tutorial _____ Lab _____

FROM   **TO**

Course Number ___STAT 402___   Course Number _____

Credits (Units)___3___   Credits (Units)_____

TITLE

(1) Long title for calendar and schedule, no more than 100 characters including spaces and punctuation.

FROM: Generalized Linear and Nonlinear Modelling   TO:

(2) Short title for enrollment and transcript, no more than 30 characters including spaces and punctuation.

FROM: TO:

DESCRIPTION   DESCRIPTION
FROM: TO:

PREREQUISITE   PREREQUISITE
FROM: TO:

RATIONALE

As part of the department's revision to its undergraduate programming, this course and STAT 602 are to be replaced by STAT 475/675. The existing courses (402/602) originally focused on the general methodology of generalized linear modelling. We now defer this theoretical treatment to our graduate programs in statistics. The replacement courses emphasize the major applications of this methodology to the analysis of discrete data.

Does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisite**.

Effective term and year _____

JANUARY 2008

Proposed Course Additions

We propose adding the following courses to the department's offerings.

- STAT 340-3
- STAT 445-3
- STAT 475-3
- STAT 485-3
- ~~STAT 645-3~~
- ~~STAT 675-3~~ *
- ~~STAT 685-3~~ *

Proposal forms and course outlines are appended.

SCUS 12-21c (iii)

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* Associated graduate courses included for supplementary information in undergraduate proposal.

SFU

COURSE NUMBER _____STAT 340_____

COURSE TITLE

LONG — for Calendar/schedule, no more than 100 characters including spaces and punctuation

Introduction to Statistical Computing and Exploratory Data Analysis

AND

SHORT — for enrollment/transcript, no more than 30 characters including spaces and punctuation

Intro. to Stat. Comp. Dat. Anal.

CREDITS

Indicate number of credits for: Lecture ____3_____ Seminar_____ Tutorial ____1_____ Lab _____

COURSE DESCRIPTION (FOR CALENDAR). 50-60 WORDS MAXIMUM. ATTACH A COURSE OUTLINE TO THIS PROPOSAL.

Statistical computing in R and SAS. Data management: reading, editing and storing statistical data; querying databases with SQL. Data exploration and representation: summarizing data with tables, graphs and other statistical tools. Data simulation: model-based and empirical. The SAS component of the course will give students a good start for writing the SAS programming certification exams. Quantitative.

PREREQUISITE

STAT 285 or STAT 302 or STAT 305 or equivalent.

COREQUISITE

SPECIAL INSTRUCTIONS

That is, does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses.? If so, this should be noted in the prerequisiite.

COURSE(S) TO BE DELETED IF THIS COURSE IS APPROVED
NOTE: APPROPRIATE DOCUMENT FOR DELETION MUST BE SUBMITTED TO SCUS

None.

RATIONALE FOR INTRODUCTION OF THIS COURSE

With the advent of massive data sets, analyses of data are becoming more sophisticated. These analyses require data in a variety of forms that are often stored in complex data structures, and a firm grasp of the foundational ideas of Statistics. This course will present the common methods for managing, exploring and preparing data for analyses; it will also emphasize simulation experiments as a means to understand the foundational statistical concepts underlying all data analyses.

SCHEDULING AND ENROLLMENT INFORMATION

Indicate effective **term and year** course would first be offered and planned **frequency** of offering thereafter:

First Offering: Spring 2013; Planned Frequency: Once per year

(NOTE: There is a two-term wait for implementation of any new course.)

Indicate if there is a waiver required: ☐ YES ☒ NO   Will this be a required or elective course in the curriculum? ☑ Required ☐ Elective

What is the probable enrollment when offered?   Estimate ___30___

Which of your present CFL faculty have the expertise to offer this course?

Altman, Bingham, Campbell, Graham, Hu, Insley, Lockhart, Loughin, McNeney, Routledge, Schwarz, Swartz, Tang, Thompson

Are there any proposed student fees associated with this course other than tuition fees?   ☐ YES ☒ NO
(If yes, attach mandatory supplementary fee approval form.)

RESOURCE IMPLICATIONS

NOTE: Senate has approved (S.93-11) that no new course should be approved by Senate until funding has been committed for necessary library materials. Each new course proposal must be accompanied by a library report and, if appropriate, confirmation that funding arrangements have been addressed.

Campus where course will be taught _____Burnaby and potentially Surrey._____

Library report status_____The course is included in the list at http://www.lib.sfu.ca/collections/course-assessments_____

Provide details on how existing instructional resources will be redistributed to accommodate this new course. For example, will another course be eliminated or will the frequency of offering of other courses be reduced; are there changes in pedagogical style or class sizes that allow for this additional course offering?

This course is a key component to a major revision to the department's majors, honours, and minor programs in statistics. For further information on instructional resources, please see accompanying information.

List any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc:

Articulation agreement reviewed?   ☐ YES ☐ NO   ☑ Not applicable

OTHER IMPLICATIONS

APPROVALS

1   Departmental approval indicates that the Department or School has approved the content of the course, and has consulted with other Departments/Schools/Faculties regarding proposed course content and overlap issues.

7 March 2012

Chair, Department/School   Date

March 27/2012

Chair, Faculty Curriculum Committee   Date

2   Faculty approval indicates that all the necessary course content and overlap concerns have been resolved, and that the Faculty/School/Department commits to providing the required Library funds.

March 27/2012

Dean or designate   Date

LIST which other Departments, Schools and Faculties have been consulted regarding the proposed course content, including overlap issues. Attach documentary evidence of responses.

Other Faculties approval indicated that the Dean(s) or Designate of other Faculties AFFECTED by the proposed new course support(s) the approval of the new course:

_____ Date _____

_____ Date _____

3   SCUS approval indicates that the course has been approved for implementation subject, where appropriate, to financial issues being addressed.

COURSE APPROVED BY SCUS (Chair of SCUS):

_____ Date _____

APPROVAL IS SIGNIFIED BY DATE AND APPROPRIATE SIGNATURE.

Students requiring accommodations as a result of disability, must contact the Centre for Students with Disabilities 778-782-3112 or csdo@sfu.ca

Prerequisite: STAT 285 or 302 or 305

CandidateTextbooks:

Supplementary Texts for R component –
A Beginner's Guide to R by Zuur, Ieno and Meesters. Springer Verlag.
Data Manipulation With R by Spector. Springer Verlag.

Supplementary Texts for SAS component -
Applied Statistics and the SAS programming Language by Cody and Smith.
Learning SAS in the Computer Lab by Elliot.

Extended Calendar Description:

This course aims to foster active experimentation with fundamental concepts in Statistics through the use of computing tools such as R and SAS . After a brief introduction to the basics of data management, the focus will be on data exploration, representation, and simulation as a means to understand foundational ideas, rather than on surveying statistical techniques already covered in other courses. Data management: reading, editing and storing statistical data; querying databases with SQL. Data exploration and representation: summarizing data with tables, graphs and other statistical tools. Data simulation: model-based and empirical. The SAS component of the course will give students a good start for writing the SAS programming certification exams. Quantitative.

Outline:

Part 1. R component

1. What is the R programming environment

    - Downloading and installing

    - Basics of writing R functions

    - Basics of loops/if/while and other control-flow constructs

2. Data management in R

    - Reading and writing data: plain text files and spreadsheets, other file formats

    - Using R to query databases with SQL

    - Merging and re-shaping data

3. Data exploration and representation in R

    - Graphical displays. Customizing and extending these displays for your own research purposes.

    - Cross-tabulations and tests of association.

4. Data simulation and resampling in R

    a. Generating data from parametric distributions: uses in evaluating statistical procedures and in understanding classical large-sample results.

    b. Generating data by resampling: introduction to permutation, bootstrapping, cross-validation and their uses.

Part 2. SAS component

1. What is SAS?

    - Downloading and installing

- Overview of the system

2. Data management in SAS
   a. Data input and structures
      - DATA step
      - Reading specially formatted files
      - Date/time/character formats and manipulations
      - Derived variables
      - Exporting
   b. Data access: from database systems using query languages
   c. Merging and reshaping data
      - sorting/subsetting (set/if/where statements)/ merging/transposing
      - processing using DO LOOPS and SAS arrays
      - modify variable attributes

3. Data exploration and representation in SAS
   - basic procs (print, plot, tabulate, means, univariate, freq)
   - by statement and uses in analysis and simulation
   - output delivery system to extract information from analyses

4. Data simulation in SAS

Grading Scheme:

Assignments – 20%
R Component Exam – 40%
SAS Component Exam– 40%

The grading is subject to change.

Revised February 10, 2012

Expected Student Learning Outcomes

Students will be able to do the following:

1. Install SAS, R and contributed R packages on a computer.

2. Use R and SAS to import/export data from/to a variety of sources and formats, including plain-text files, spreadsheets and databases.

3. Write basic programs in R and SAS that use loops/if/while and other control-flow constructs.

4. Use SQL to create and query a relational database.

5. Merge and reshape data in R and SAS

6. Implement and interpret a variety of data visualization tools including figures and tables, and determine application specific modifications to emphasize key attribute.

7. Perform simulations in R and SAS to evaluate statistical procedures, understand large-sample results, carry out resampling-based inference, and do sample size calculations.

COURSE NUMBER _____ STAT 445 _____

COURSE TITLE

LONG — for Calendar/schedule, no more than 100 characters including spaces and punctuation

Applied Multivariate Analysis

AND

SHORT — for enrollment/transcript, no more than 30 characters including spaces and punctuation

Applied Multivariate Analysis

CREDITS

Indicate number of credits for: Lecture ___3___ Seminar ___0___ Tutorial ___1___ Lab ___0___

COURSE DESCRIPTION (FOR CALENDAR). 50-60 WORDS MAXIMUM. ATTACH A COURSE OUTLINE TO THIS PROPOSAL.

Introduction to principal components, cluster analysis, and other commonly used multivariate techniques. Quantitative.

PREREQUISITE

STAT 285 or STAT 302 or STAT 305 or equivalent.

COREQUISITE

SPECIAL INSTRUCTIONS

That is, does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses.? If so, this should be noted in the prerequisiite.

COURSE(S) TO BE DELETED IF THIS COURSE IS APPROVED
NOTE: APPROPRIATE DOCUMENT FOR DELETION MUST BE SUBMITTED TO SCUS

None

RATIONALE FOR INTRODUCTION OF THIS COURSE

This course is urgently needed to meet the validation by educational experience (VEE) requirements of the Society of Actuaries for the undergraduate program in actuarial mathematics. It will also serve as a valuable optional techniques course in the department's undergraduate programs in statistics and for students from other disciplines.

SCHEDULING AND ENROLLMENT INFORMATION

Indicate effective **term and year** course would first be offered and planned **frequency** of offering thereafter:

First Offering: ~~Fall 2012~~ Planned Frequency: Twice every three years

SPRING 2013

(NOTE: There is a two-term wait for implementation of any new course.)

Indicate if there is a waiver required: ☐ YES ☑ NO   Will this be a required or elective course in the curriculum? ☐ Required ☑ Elective

What is the probable enrollment when offered?   Estimate _____30_____

Which of your present CFL faculty have the expertise to offer this course?

Altman, Bingham, Campbell, Graham, Hu, Insley, Lockhart, Loughin, McNeney, Parker, Routledge, Schwarz, Swartz, Tang, Thompson

Are there any proposed student fees associated with this course other than tuition fees?   ☐ YES ☑ NO
(If yes, attach mandatory supplementary fee approval form.)

RESOURCE IMPLICATIONS

NOTE: Senate has approved (S.93-11) that no new course should be approved by Senate until funding has been committed for necessary library materials. Each new course proposal must be accompanied by a library report and, if appropriate, confirmation that funding arrangements have been addressed.

Campus where course will be taught ___Burnaby and possibly Surrey___

Library report status___The course is included in the list at http://www.lib.sfu.ca/collections/course-assessments___

Provide details on how existing instructional resources will be redistributed to accommodate this new course. For example, will another course be eliminated or will the frequency of offering of other courses be reduced; are there changes in pedagogical style or class sizes that allow for this additional course offering?

This course is a key component to a major revision to the department's majors, honours, and minor programs in statistics. For further information on instructional resources, please see accompanying information.

List any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc:

Articulation agreement reviewed?   ☐ YES ☑ NO   ☑ Not applicable

OTHER IMPLICATIONS

APPROVALS

1   Departmental approval indicates that the Department or School has approved the content of the course, and has consulted with other Departments/Schools/Faculties regarding proposed course content and overlap issues.

_____   8 March 2012
Chair, Department/School   Date

_____   March 27/2012
Chair, Faculty Curriculum Committee   Date

2   Faculty approval indicates that all the necessary course content and overlap concerns have been resolved, and that the Faculty/School/Department commits to providing the required Library funds.

_____   March 27/2012
Dean or designate   Date

LIST which other Departments, Schools and Faculties have been consulted regarding the proposed course content, including overlap issues. Attach documentary evidence of responses.

Other Faculties approval indicated that the Dean(s) or Designate of other Faculties AFFECTED by the proposed new course support(s) the approval of the new course:

_____   Date _____

_____   Date _____

3   SCUS approval indicates that the course has been approved for implementation subject, where appropriate, to financial issues being addressed.

COURSE APPROVED BY SCUS (Chair of SCUS):

_____   Date _____

APPROVAL IS SIGNIFIED BY DATE AND APPROPRIATE SIGNATURE.

Instructor:

Prerequisite:

STAT 285 or STAT 302 or 305 or equivalent.

Textbook:

To be identified.

Calendar Description:

Introduction to principal components, cluster analysis, and other commonly used multivariate techniques. Quantitative.

Outline:

1. Principal Components: Identification, use in multivariate regression, using R to perform the calculations. (~3 weeks)
2. Cluster Analysis: Survey of commonly used methods, computer calculations, graphical displays, and interpretation of results. (~3 weeks)
3. Other commonly used multivariate techniques subject to interest and expertise of the students and instructor. Examples include the following:
   a. Ordination Techniques: Methodology and survey of common applications, computer calculations. (~2 weeks)
   b. Discriminant Analysis: (~2 weeks)
   c. Canonical Correlation Analysis: (~2 weeks)
4. Student Presentations of Substantive Applications. (~1 week)

Grading Scheme:

Assignments: 20%
Project: 20%
Midterm: 20%
Final: 40%

Grading is subject to change.

Revised February 10, 2012

Expected Student Learning Outcomes

Students will be able to do the following:

1. Apply principal components to real data sets, and interpret the sources of variation.
2. Propose a reduced dimension subspace containing the important data structure for visualization and inference.
3. Apply clustering methods to determine natural groupings in the data and produce visual and/or numeric justification for the appropriate number of clusters.
4. Explain differences in results between various clustering algorithms.
5. Implement supervised learning techniques for classifying groups.
6. Explain the meaning of joint distributions, covariance and conditional distributions in the context of multivariate statistical inference.

SFU

COURSE NUMBER _____ STAT 475 _____

COURSE TITLE

LONG — for Calendar/schedule, no more than 100 characters including spaces and punctuation

Applied Discrete Data Analysis

AND

SHORT — for enrollment/transcript, no more than 30 characters including spaces and punctuation

Applied Discrete Data Analysis

CREDITS

Indicate number of credits for: Lecture ___3___ Seminar ___0___ Tutorial ___1___ Lab ___0___

COURSE DESCRIPTION (FOR CALENDAR). 50-60 WORDS MAXIMUM. ATTACH A COURSE OUTLINE TO THIS PROPOSAL.

Introduction to standard methodology for analyzing categorical data including chi-squared tests for two- and multi-way contingency tables, logistic regression, and loglinear (Poisson) regression.

Quantitative.

PREREQUISITE

STAT 285 or STAT 302 or STAT 305 or equivalent. Students with credit for the former STAT 402 or 602 may not take this course for further credit.

COREQUISITE

SPECIAL INSTRUCTIONS

That is, does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses? If so, this should be **noted in the prerequisiite.**

COURSE(S) TO BE DELETED IF THIS COURSE IS APPROVED
NOTE: APPROPRIATE DOCUMENT FOR DELETION MUST BE SUBMITTED TO SCUS

STAT 402.

RATIONALE FOR INTRODUCTION OF THIS COURSE

This course, along with STAT 675, is part of a package designed to replace STAT 402 and 602. The revised package targets the primary applications of generalized linear modeling (the focus of the former package), and is more suitable for the intended audience.

SCHEDULING AND ENROLLMENT INFORMATION

Indicate effective **term and year** course would first be offered and planned **frequency** of offering thereafter:

First Offering: Spring 2013; Planned Frequency: Once per year

(NOTE: There is a two-term wait for implementation of any new course.)

Indicate if there is a waiver required: ☐ YES ☒ NO   Will this be a required or elective course in the curriculum? ☑ Required ☑ Elective

What is the probable enrollment when offered?   Estimate ___30___

Which of your present CFL faculty have the expertise to offer this course?

Altman, Bingham, Campbell, Graham, Hu, Insley, Lockhart, Loughin, McNeney, Routledge, Schwarz, Swartz, Tang, Thompson

Are there any proposed student fees associated with this course other than tuition fees?   ☐ YES ☒ NO
(If yes, attach mandatory supplementary fee approval form.)

RESOURCE IMPLICATIONS

NOTE: Senate has approved (S.93-11) that no new course should be approved by Senate until funding has been committed for necessary library materials. Each new course proposal must be accompanied by a library report and, if appropriate, confirmation that funding arrangements have been addressed.

Campus where course will be taught ___Burnaby and possibly Surrey___

Library report status___The course is included in the list at http://www.lib.sfu.ca/collections/course-assessments___

Provide details on how existing instructional resources will be redistributed to accommodate this new course. For example, will another course be eliminated or will the frequency of offering of other courses be reduced; are there changes in pedagogical style or class sizes that allow for this additional course offering?

This course is a key component to a major revision to the department's majors, honours, and minor programs in statistics. For further information on instructional resources, please see accompanying information.

List any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc:

Articulation agreement reviewed?   ☐ YES ☐ NO ☑ Not applicable

OTHER IMPLICATIONS

APPROVALS

1   Departmental approval indicates that the Department or School has approved the content of the course, and has consulted with other Departments/Schools/Faculties regarding proposed course content and overlap issues.

_____   6 March 2012
Chair, Department/School   Date

_____   March 27/2012
Chair, Faculty Curriculum Committee   Date

2   Faculty approval indicates that all the necessary course content and overlap concerns have been resolved, and that the Faculty/School/Department commits to providing the required Library funds.

_____   March 27/2012
Dean or designate   Date

LIST which other Departments, Schools and Faculties have been consulted regarding the proposed course content, including overlap issues. Attach documentary evidence of responses.

Other Faculties approval indicated that the Dean(s) or Designate of other Faculties AFFECTED by the proposed new course support(s) the approval of the new course:

_____ Date _____

_____ Date _____

3   SCUS approval indicates that the course has been approved for implementation subject, where appropriate, to financial issues being addressed.

COURSE APPROVED BY SCUS (Chair of SCUS):

_____ Date _____

APPROVAL IS SIGNIFIED BY DATE AND APPROPRIATE SIGNATURE.

STAT 475
Applied Discrete Data Analysis

Semester
Day Course

Students requiring accommodations as a result of disability, must contact the Centre for Students with Disabilities 778-782-3112 or csdo@sfu.ca

Instructor:

Prerequisite:

STAT 285 or STAT 302 or 305 or equivalent. Students with credit for STAT 402 or 602 may not take this course for further credit.

Textbook (Optional):

An Introduction to Categorical Data Analysis, 2nd ed., by: Alan Agresti; publisher: Wiley.

Calendar Description:

Introduction to standard methodology for analyzing categorical data including chi-squared tests for two- and multi-way contingency tables, logistic regression, and loglinear (Poisson) regression. **Quantitative.**

Outline:

This course introduces students to the most important methods for analyzing categorical data. The focus of the course is twofold: classical methods in categorical data analysis, such as chi-squared tests, and logistic and loglinear (Poisson) regression techniques.

1. Introduction and review
2. Two-way contingency table
3. Three-way contingency table
4. Logistic regression
5. Loglinear regression
6. Case studies
7. Further topics, including goodness-of-fit and model selection, and over-dispersion.

Grading Scheme:

Assignments – 20%
Project – 20%
Midterm – 20%
Final – 40%
Grading is subject to change.

*Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester. Students are reminded that Academic Honesty is a cornerstone of the acquisition of knowledge. Scholarly integrity is required of all members of the University. Please consult the General Guidelines of the calendar for more details.*segment>

Revised February 10, 2012

COURSE NUMBER _____ STAT 485

COURSE TITLE

LONG — for Calendar/schedule, no more than 100 characters including spaces and punctuation

Applied Time Series Analysis

AND

SHORT — for enrollment/transcript, no more than 30 characters including spaces and punctuation

Appl. Time Series Anal.

CREDITS

Indicate number of credits for: Lecture ___3___ Seminar ___0___ Tutorial ___1___ Lab ___0___

COURSE DESCRIPTION (FOR CALENDAR). 50-60 WORDS MAXIMUM. ATTACH A COURSE OUTLINE TO THIS PROPOSAL.

Introduction to linear time series analysis including moving average, autoregressive and ARIMA models, estimation, data analysis, forecasting errors and confidence intervals, conditional and unconditional models, and seasonal models. Quantitative.

PREREQUISITE

STAT 285 or STAT 302 or STAT 305 or equivalent. (This course may not be taken for further credit by students who have credit for ECON 484.)

COREQUISITE

SPECIAL INSTRUCTIONS

That is, does this course replicate the content of a previously approved course to such an extent that students should not receive credit for both courses.? If so, this should be noted in the prerequisiite.

COURSE(S) TO BE DELETED IF THIS COURSE IS APPROVED
NOTE: APPROPRIATE DOCUMENT FOR DELETION MUST BE SUBMITTED TO SCUS

None

RATIONALE FOR INTRODUCTION OF THIS COURSE

This course is urgently needed to meet the validation by educational experience (VEE) requirements of the Society of Actuaries for the undergraduate program in actuarial mathematics. It will also serve as a valuable optional techniques course in the department's undergraduate programs in statistics and for students from other disciplines.

SCHEDULING AND ENROLLMENT INFORMATION

Indicate effective **term and year** course would first be offered and planned **frequency** of offering thereafter:

First Offering: ~~Fall 2012~~; Planned Frequency: Twice every three years

SPRING 2013

(NOTE: There is a two-term wait for implementation of any new course.)

Indicate if there is a waiver required: ☐ YES ☑ NO   Will this be a required or elective course in the curriculum? ☐ Required ☑ Elective

What is the probable enrollment when offered?   Estimate ___30___

Which of your present CFL faculty have the expertise to offer this course?

Altman, Bingham, Campbell, Graham, Hu, Insley, Lockhart, Loughin, McNeney, Parker, Routledge, Schwarz, Swartz, Tang, Thompson

Are there any proposed student fees associated with this course other than tuition fees?   ☐ YES ☑ NO
(If yes, attach mandatory supplementary fee approval form.)

RESOURCE IMPLICATIONS

NOTE: Senate has approved (S.93-11) that no new course should be approved by Senate until funding has been committed for necessary library materials. Each new course proposal must be accompanied by a library report and, if appropriate, confirmation that funding arrangements have been addressed.

Campus where course will be taught ___Burnaby and possibly Surrey___

Library report status ___The course is included in the list at http://www.lib.sfu.ca/collections/course-assessments___

Provide details on how existing instructional resources will be redistributed to accommodate this new course. For example, will another course be eliminated or will the frequency of offering of other courses be reduced; are there changes in pedagogical style or class sizes that allow for this additional course offering?

This course is a key component to a major revision to the department's majors, honours, and minor programs in statistics. For further information on instructional resources, please see accompanying information.

List any outstanding resource issues to be addressed prior to implementation: space, laboratory equipment, etc:

Articulation agreement reviewed?   ☐ YES ☑ NO   ☑ Not applicable

OTHER IMPLICATIONS

APPROVALS

1   Departmental approval indicates that the Department or School has approved the content of the course, and has consulted with other Departments/Schools/Faculties regarding proposed course content and overlap issues.

6 March 2012

Chair, Department/School   Date

March 27/2012

Chair, Faculty Curriculum Committee   Date

2   Faculty approval indicates that all the necessary course content and overlap concerns have been resolved, and that the Faculty/School/Department commits to providing the required Library funds.

March 27/2012

Dean or designate   Date

LIST which other Departments, Schools and Faculties have been consulted regarding the proposed course content, including overlap issues. Attach documentary evidence of responses.

Other Faculties approval indicated that the Dean(s) or Designate of other Faculties AFFECTED by the proposed new course support(s) the approval of the new course:

_____   Date _____

_____   Date _____

3   SCUS approval indicates that the course has been approved for implementation subject, where appropriate, to financial issues being addressed.

COURSE APPROVED BY SCUS (Chair of SCUS):

_____   Date _____

APPROVAL IS SIGNIFIED BY DATE AND APPROPRIATE SIGNATURE.

Instructor:

Prerequisite:

STAT 285 or STAT 302 or STAT 305. (This course may not be taken for further credit by students who already have credit for ECON 484.)

Textbook:

Shumway, R.H., and Stoffer, D.S. 2000. *Time Series Analysis and Its Applications*. Springer: New York, NY.

Calendar Description:

Introduction to linear time series analysis including moving average, autoregressive and ARIMA models, estimation, data analysis, forecasting errors and confidence intervals, conditional and unconditional models, and seasonal models. Quantitative.

Outline:

1. Autocorrelation, seasonality, and trends in time series and their impacts on standard statistical inference techniques. (~1 week)
2. Autoregressive models: definition, model formulation, and data analysis (~2 weeks)
3. Moving average models: definition model formulation, and data analysis (~2 weeks)
4. ARIMA models: definition, model formulation, and data analysis (~2 weeks)
5. Introduction to forecasting with linear time series models (~2 weeks)
6. Introduction to nonparametric fitting of trends and cycles to time series data (~2 weeks)
7. Case studies and student presentations (~2 weeks)

Grading Scheme:

Assignments: 10%
Project: 10%
Midterm: 30%
Final: 50%

Grading is subject to change.

Revised February 10, 2012

Proposed Calendar Changes: BSc Major in Statistics

The Department of Statistics and Actuarial Science proposes the following changes to the description of the BSc Major in Statistics in the academic calendar:

From:

Statistics Major Program (Bachelor of Science)

Department of Statistics and Acturarial Science | Faculty of Science
Simon Fraser University Calendar 2012 Spring

The department offers a bachelor of science (BSc) program in statistics within the Faculty of Science.

The program maintains a committee of advisors whose office hours are available at the general office and at www.stat.sfu.ca. Students should seek advice early in their academic careers about program planning from the department's advisors.

Admission Requirements

Students may be admitted by direct entry on their university application, or by application to the Department of Statistics, after they have been admitted. Students applying for a statistics minor must apply to the department.
Visithttp://www.stat.sfu.ca/programmes/statistics/admission-continuation for admittance and continuation requirements.

Courses for Further Credit

No student may complete, for further credit, any course offered by the Department of Statistics and Actuarial Science which is a prerequisite for a course the student has already completed with a grade of C- or higher without permission of the department.

Computing Recommendation

Some experience with a high level programming language is recommended by the beginning of the second year.

Prerequisite Grade Requirement

Students must have a grade of C- or better in prerequisites for STAT courses offered by the Department of Statistics and Actuarial Science.

GPA Required for Continuation

To continue in the program, students must maintain at least a 2.25 grade point average in MATH, STAT, MACM or ACMA courses.

Credit for Statistics Courses

Credit for STAT courses depends on the order in which the courses are completed. There are three kinds of courses:

- • introductory course STAT 100
- • service courses STAT 101, 201, 203, 301, 302, 403
- • mainstream courses STAT 270, 285, 300W, 330, 350, 380, 400, 410, 430, 450, 460

Once a service or mainstream course is completed, credit may not be obtained for STAT 100. Once a mainstream course is completed, credit may not be obtained for any service course. An except is that both STAT 302 and 403 may be completed for credit after completing STAT 270.

Program Requirements

Students complete 120 units, as specified below.

Lower Division Requirements

Students complete a total of 21-22 units, including one of

- CMPT-125-3 Introduction to Computing Science and Programming II
- CMPT 126-3 Introduction to Computer Science and Programming

and one of

- MATH 150-4 Calculus I with Review
- MATH 151-3 Calculus I
- MATH 154-3 Calculus I for the Biological Sciences
- MATH 157-3 Calculus for the Social Sciences I

and one of

- MATH 152-3 Calculus II
- MATH 155-3 Calculus II for the Biological Sciences
- MATH 158-3 Calculus for the Social Sciences II

and one of

- MATH 232-3 Elementary Linear Algebra
- MATH 240-3 Algebra I: Linear Algebra*

and all of

- MATH 251-3 Calculus III

- STAT 270-3 Introduction to Probability and Statistics
- STAT 285-3 Intermediate Probability and Statistics

*recommended

Upper Division Requirements

Students complete a total of 30 units, including all of

- STAT 330-3 Introduction to Mathematical Statistical
- STAT 350-3 Linear Models in Applied Statistics
- STAT 402-3 Generalized Linear and Nonlinear Modelling
- STAT 410-3 Statistical Analysis of Sample Surveys
- STAT 430-3 Statistical Design and Analysis of Experiments
- STAT 450-3 Statistical Theory

and four additional upper division ACMA, MACM, MATH or STAT courses (excluding STAT 301, 302, 403). Consult an advisor before selecting these courses. The following are recommended.

- MACM 316-3 Numerical Analysis I
- STAT 300W-3 Statistics Communication
- STAT 380-3 Introduction to Stochastic Processes
- STAT 400-3 Data Analysis
- STAT 460-3 Bayesian Statistics
- STAT 490-3 Selected Topics in Probability and Statistics
- STAT 495-3 Directed Studies in Probability and Statistics

Minor Program Requirement

Students complete a minor in a discipline other than statistics. The certificate in actuarial mathematics may fulfill this requirement.

Faculty of Science Requirements

In addition to the above requirements, students must also satisfy Faculty of Science major program requirements to complete a total of 120 units including

- additional upper division units to total a minimum of 44 upper division units (excluding EDUC 401, 406)
- students who were enrolled at Simon Fraser University between fall 1991 and summer 2006 are required to complete a minimum of 12 units in subjects outside the Faculty of Science (excluding EDUC 401 to 406) including six units minimum to be completed in the Faculty of Arts and Social Sciences

Writing, Quantitative, and Breadth Requirements

Students admitted to Simon Fraser University beginning in the fall 2006 term must meet writing, quantitative and breadth requirements as part of any degree program they may undertake. See Writing, Quantitative, and Breadth Requirements for university-wide information.

WQB Graduation Requirements
A grade of C- or better is required to earn W, Q or B credit.

Requirement	Units	Notes	
W - Writing	6		Must include at least one upper division course, taken at Simon Fraser University within the student's major subject
Q - Quantitative	6		Q courses may be lower or upper division
'B - Breadth	18	Designated Breadth	Must be outside the student's major subject, and may be lower or upper division 6 units Social Sciences: B-Soc 6 units Humanities: B-Hum 6 units Sciences: B-Sci
	6	Additional Breadth	6 units outside the student's major subject (may or may not be B-designated courses, and will likely help fulfill individual degree program requirements) Additional breadth units must be from outside the student's major and may be B-designated (B-Hum, B-Soc, B-Sci courses). Students choosing to complete a joint major, joint honors, double major, two extended minors, an extended minor and a minor, or two minors may satisfy the breadth requirements (designated or not designated) with courses completed in either one or both program areas.

Residency Requirements and Transfer Credit

The University's residency requirement stipulates that, in most cases, total transfer and course challenge credit may not exceed 60 units, and may not include more than 15 units as upper division work.

Elective Courses

In addition to the courses listed above, students should consult an academic advisor to plan the remaining required elective courses.

To:

Statistics Major Program (Bachelor of Science)

Department of Statistics and Acturarial Science | Faculty of Science
Simon Fraser University Calendar 2012 Fall

The department offers a bachelor of science (BSc) program in statistics within the Faculty of Science.

The program maintains a committee of advisors whose office hours are available at the general office and at www.stat.sfu.ca. Students should seek advice early in their academic careers about program planning from the department's advisors.

Admission Requirements

Students may be admitted by direct entry on their university application, or by application to the Department of Statistics, after they have been admitted. Students applying for a statistics minor must apply to the department.
Visithttp://www.stat.sfu.ca/programmes/statistics/admission-continuation for admittance and continuation requirements.

Courses for Further Credit

No student may complete, for further credit, any course offered by the Department of Statistics and Actuarial Science which is a prerequisite for a course the student has already completed with a grade of C- or higher without permission of the department.

Computing Recommendation

Some experience with a high level programming language is recommended by the beginning of the second year.

Prerequisite Grade Requirement

Students must have a grade of C- or better in prerequisites for STAT courses offered by the Department of Statistics and Actuarial Science.

GPA Required for Continuation

To continue in the program, students must maintain at least a 2.25 grade point average in MATH, STAT, MACM or ACMA courses.

Credit for Statistics Courses

Credit for STAT courses depends on the order in which the courses are completed. There are three kinds of courses:

- • introductory course STAT 100
- • service courses STAT 101, 201, 203, 301, 302, 305, 403
- • mainstream courses STAT 270, 285, 300W, 330, 340, 350, 380, 410, 430, 445, 450, 460, 475, 485

Once a service or mainstream course is completed, credit may not be obtained for STAT 100. Once a mainstream course is completed, credit may not be obtained for any service course. An exception is that both STAT 302, 305, and 403 may be completed for credit after completing STAT 270.

Program Requirements

Students complete 120 units, as specified below.

Lower Division Requirements

Students complete a total of at least 21-22 units, including one of

- CMPT-125-3 Introduction to Computing Science and Programming II
- CMPT 126-3 Introduction to Computer Science and Programming

and one of

- MATH 150-4 Calculus I with Review

- MATH 151-3 Calculus I
- MATH 154-3 Calculus I for the Biological Sciences
- MATH 157-3 Calculus for the Social Sciences I

and one of

- MATH 152-3 Calculus II
- MATH 155-3 Calculus II for the Biological Sciences
- MATH 158-3 Calculus for the Social Sciences II

and one of

- MATH 232-3 Elementary Linear Algebra
- MATH 240-3 Algebra I: Linear Algebra*

and all of

- MATH 251-3 Calculus III

- STAT 270-3 Introduction to Probability and Statistics
- STAT 285-3 Intermediate Probability and Statistics

*recommended

Upper Division Requirements

Students complete a total of 30 units, including all of

- STAT 330-3 Introduction to Mathematical Statistics
- STAT 340-3 Statistical Computing and Exploratory Data Analysis
- STAT 350-3 Linear Models in Applied Statistics

and an additional 12 units in 400-level STAT courses

and 9 additional upper division units in ACMA, MACM, MATH or STAT courses (excluding STAT 301, 302, 305, 403). Consult an advisor before selecting these courses. The following are recommended.

- MACM 316-3 Numerical Analysis I
- STAT 300W-3 Statistics Communication
- STAT 380-3 Introduction to Stochastic Processes
- STAT 410-3 Statistical Analysis of Sample Surveys
- STAT 430-3 Statistical Design and Analysis of Experiments
- STAT 445-3 Applied Multivariate Analysis
- STAT 450-3 Statistical Theory
- STAT 460-3 Bayesian Statistics

- STAT 475-3 Applied Discrete Data Analysis
- STAT 485-3 Applied Time Series Analysis
- STAT 490-3 Selected Topics in Probability and Statistics
- STAT 495-3 Directed Studies in Probability and Statistics

Minor Program Requirement

Students complete a minor in a discipline other than statistics. The certificate in actuarial mathematics may fulfill this requirement.

Faculty of Science Requirements

In addition to the above requirements, students must also satisfy Faculty of Science major program requirements to complete a total of 120 units including

- additional upper division units to total a minimum of 44 upper division units (excluding EDUC 401, 406)
- students who were enrolled at Simon Fraser University between fall 1991 and summer 2006 are required to complete a minimum of 12 units in subjects outside the Faculty of Science (excluding EDUC 401 to 406) including six units minimum to be completed in the Faculty of Arts and Social Sciences

Writing, Quantitative, and Breadth Requirements

Students admitted to Simon Fraser University beginning in the fall 2006 term must meet writing, quantitative and breadth requirements as part of any degree program they may undertake. See Writing, Quantitative, and Breadth Requirements for university-wide information.

WQB Graduation Requirements
A grade of C- or better is required to earn W, Q or B credit.

Requirement	Units	Notes	
W - Writing	6		Must include at least one upper division course, taken at Simon Fraser University within the student's major subject
Q - Quantitative	6		Q courses may be lower or upper division
B - Breadth	18	Designated Breadth	Must be outside the student's major subject, and may be lower or upper division 6 units Social Sciences: B-Soc 6 units Humanities: B-Hum 6 units Sciences: B-Sci
	6	Additional	6 units outside the student's major

| Breadth | subject (may or may not be B-designated courses, and will likely help fulfill individual degree program requirements) |
| | Additional breadth units must be from outside the student's major and may be B-designated (B-Hum, B-Soc, B-Sci courses). Students choosing to complete a joint major, joint honors, double major, two extended minors, an extended minor and a minor, or two minors may satisfy the breadth requirements (designated or not designated) with courses completed in either one or both program areas. |

Residency Requirements and Transfer Credit

The University's residency requirement stipulates that, in most cases, total transfer and course challenge credit may not exceed 60 units, and may not include more than 15 units as upper division work.

Elective Courses

In addition to the courses listed above, students should consult an academic advisor to plan the remaining required elective courses.

Proposed Calendar Changes: BSc Honors in Statistics

The Department of Statistics and Actuarial Science proposes the following changes to the description of the BSc Honors in Statistics in the academic calendar:

From:

Statistics Honours Program (Bachelor of Science)

Department of Statistics and Actuarial Science | Faculty of Science
Simon Fraser University Calendar 2012 Spring

The department offers a bachelor of science (BSc) honours program in statistics within the Faculty of Science.

The program maintains a committee of advisors whose office hours are available at the general office and at www.stat.sfu.ca. Students should seek advice early in their academic careers about program planning from the department's advisors.

Admission Requirements

Students may be admitted by direct entry on their university application, or by application to the Department of Statistics, after they have been admitted. Students applying for a statistics minor must apply to the department. Visit http://www.stat.sfu.ca/programmes/statistics/admission-continuationfor admittance and continuation requirements.

Courses for Further Credit

No student may complete, for further credit, any course offered by the Department of Statistics and Actuarial Science which is a prerequisite for a course the student has already completed with a grade of C- or higher without permission of the department.

Computing Recommendation

Some experience with a high level programming language is recommended by the beginning of the second year.

GPA Required for Continuation

To continue in the program, students must maintain at least a 3.00 grade point average (GPA) in MATH, STAT, MACM or ACMA courses.

Credit for Statistics Courses

Credit for STAT courses depends on the order in which the courses are completed. There are three kinds of courses:

- • introductory course STAT 100
- • service courses STAT 101, 201, 203, 301, 302, 403
- • mainstream courses STAT 270, 285, 300, 330, 350, 380, 400, 410, 430, 450, 460

Once a service or mainstream course is completed, credit may not be obtained for STAT 100. Once a mainstream course is completed, credit may not be obtained for any service course. An exception is that both STAT 302 and 403 may be completed for credit after completing STAT 270.

Program Requirements

Students complete 132 units, as specified below.

Lower Division Requirements

Students complete a total of 24-25 units, including one of

- CMPT-125-3 Introduction to Computing Science and Programming II
- CMPT 126-3 Introduction to Computer Science and Programming

and one of

- MATH 150-4 Calculus I with Review
- MATH 151-3 Calculus I
- MATH 154-3 Calculus I for the Biological Sciences
- MATH 157-3 Calculus for the Social Sciences I

and one of

- MATH 152-3 Calculus II
- MATH 155-3 Calculus II for the Biological Sciences
- MATH 158-3 Calculus for the Social Sciences II

and one of

- MATH 232-3 Elementary Linear Algebra
- MATH 240-3 Algebra I: Linear Algebra*

and all of

- MATH 242-3 Introduction to Analysis
- MATH 251-3 Calculus III

- STAT 270-3 Introduction to Probability and Statistics
- STAT 285-3 Intermediate Probability and Statistics

*recommended

Upper Division Requirements

Students complete a total of 42 units, including all of

- MATH 320-3 Advanced Calculus of One Variable
- MATH 322-3 Complex Variables
- STAT 330-3 Introduction to Mathematical Statistical
- STAT 350-3 Linear Models in Applied Statistics
- STAT 380-3 Introduction to Stochastic Processes
- STAT 402-3 Generalized Linear and Nonlinear Modelling
- STAT 410-3 Statistical Analysis of Sample Surveys
- STAT 430-3 Statistical Design and Analysis of Experiments
- STAT 450-3 Statistical Theory
- STAT 460-3 Bayesian Statistics

and four additional upper division ACMA, MACM, MATH or STAT courses (excluding STAT 301, 302, 403). Consult an advisor before selecting these courses. The following are recommended.

- MACM 316-3 Numerical Analysis I
- STAT 300W-3 Statistics Communication
- STAT 400-3 Data Analysis
- STAT 490-3 Selected Topics in Probability and Statistics
- STAT 495-3 Directed Studies in Probability and Statistics

Minor Program Requirement

Students complete a minor in a discipline other than statistics. The certificate in actuarial mathematics may fulfill this requirement.

Faculty of Science Requirements

In addition to the above requirements, students must also satisfy Faculty of Science honours program requirements as follows.

- students are required to complete additional upper division units to total a minimum of 60 upper division units (excluding EDUC 401, 407)

- students who were enrolled at Simon Fraser University between fall 1991 and summer 2006 are required to complete a minimum of 12 units in subjects outside the Faculty of Science (excluding EDUC 401 to 407) including six units minimum to be completed in the Faculty of Arts and Social Sciences

Writing, Quantitative, and Breadth Requirements

Students admitted to Simon Fraser University beginning in the fall 2006 term must meet writing, quantitative and breadth requirements as part of any degree program they may undertake. See Writing, Quantitative, and Breadth Requirements for university-wide information.

WQB Graduation Requirements
A grade of C- or better is required to earn W, Q or B credit.

Requirement	Units	Notes	
W - Writing	6		Must include at least one upper division course, taken at Simon Fraser University within the student's major subject
Q - Quantitative	6		Q courses may be lower or upper division
B - Breadth	18	Designated Breadth	Must be outside the student's major subject, and may be lower or upper division 6 units Social Sciences: B-Soc 6 units Humanities: B-Hum 6 units Sciences: B-Sci
	6	Additional Breadth	6 units outside the student's major subject (may or may not be B-designated courses, and will likely help fulfill individual degree program requirements) Additional breadth units must be from outside the student's major and may be B-designated (B-Hum, B-Soc, B-Sci courses). Students choosing to complete a joint major, joint honors, double major, two extended minors, an extended minor and a minor, or two minors may satisfy the breadth requirements (designated or not designated) with courses completed in either one or both program areas.

Residency Requirements and Transfer Credit

The University's residency requirement stipulates that, in most cases, total transfer and course challenge credit may not exceed 60 units, and may not include more than 15 units as upper division work.

Elective Courses

In addition to the courses listed above, students should consult an academic advisor to plan the remaining required elective courses.

To:

Statistics Honours Program (Bachelor of Science)

Department of Statistics and Actuarial Science | Faculty of Science
Simon Fraser University Calendar 2012 Fall

The department offers a bachelor of science (BSc) honours program in statistics within the Faculty of Science.

The program maintains a committee of advisors whose office hours are available at the general office and at www.stat.sfu.ca. Students should seek advice early in their academic careers about program planning from the department's advisors.

Admission Requirements

Students may be admitted by direct entry on their university application, or by application to the Department of Statistics, after they have been admitted. Students applying for a statistics minor must apply to the department. Visit http://www.stat.sfu.ca/programmes/statistics/admission-continuationfor admittance and continuation requirements.

Courses for Further Credit

No student may complete, for further credit, any course offered by the Department of Statistics and Actuarial Science which is a prerequisite for a course the student has already completed with a grade of C- or higher without permission of the department.

Computing Recommendation

Some experience with a high level programming language is recommended by the beginning of the second year.

GPA Required for Continuation

To continue in the program, students must maintain at least a 3.00 grade point average (GPA) in MATH, STAT, MACM or ACMA courses.

Credit for Statistics Courses

Credit for STAT courses depends on the order in which the courses are completed. There are three kinds of courses:

- introductory course STAT 100
- service courses STAT 101, 201, 203, 301, 302, 305, 403
- mainstream courses STAT 270, 285, 300, 330, 340, 350, 380, 410, 430, 445, 450, 460, 475, 485

Once a service or mainstream course is completed, credit may not be obtained for STAT 100. Once a mainstream course is completed, credit may not be obtained for any service course. An exception is that both STAT 302, 305, and 403 may be completed for credit after completing STAT 270.

Program Requirements

Students complete 132 units, as specified below.

Lower Division Requirements

Students complete a total of at least 24-25 units, including one of

- CMPT-125-3 Introduction to Computing Science and Programming II
- CMPT 126-3 Introduction to Computer Science and Programming

and one of

- MATH 150-4 Calculus I with Review
- MATH 151-3 Calculus I
- MATH 154-3 Calculus I for the Biological Sciences
- MATH 157-3 Calculus for the Social Sciences I

and one of

- MATH 152-3 Calculus II
- MATH 155-3 Calculus II for the Biological Sciences
- MATH 158-3 Calculus for the Social Sciences II

and one of

- MATH 232-3 Elementary Linear Algebra
- MATH 240-3 Algebra I: Linear Algebra*

and all of

- MATH 242-3 Introduction to Analysis
- MATH 251-3 Calculus III

- STAT 270-3 Introduction to Probability and Statistics
- STAT 285-3 Intermediate Probability and Statistics

*recommended

Upper Division Requirements

Students complete a total of 42 units, including all of

- MATH 320-3 Advanced Calculus of One Variable
- MATH 322-3 Complex Variables
- STAT 330-3 Introduction to Mathematical Statistics
- STAT 340-3 Statistical Computing and Exploratory Data Analysis
- STAT 350-3 Linear Models in Applied Statistics
- STAT 380-3 Introduction to Stochastic Processes
- STAT 410-3 Statistical Analysis of Sample Surveys
- STAT 430-3 Statistical Design and Analysis of Experiments
- STAT 450-3 Statistical Theory
- STAT 460-3 Bayesian Statistics
- STAT 475-3 Applied Discrete Data Analysis

and 10 additional credits in upper division ACMA, MACM, MATH or STAT courses (excluding STAT 301, 302, 305, 403). Consult an advisor before selecting these courses. The following are recommended.

- MACM 316-3 Numerical Analysis I
- STAT 300W-3 Statistics Communication
- STAT 445-3 Applied Multivariate Analysis
- STAT 485-3 Applied Time Series Analysis
- STAT 490-3 Selected Topics in Probability and Statistics
- STAT 495-3 Directed Studies in Probability and Statistics

Minor Program Requirement

Students complete a minor in a discipline other than statistics. The certificate in actuarial mathematics may fulfill this requirement.

Faculty of Science Requirements

In addition to the above requirements, students must also satisfy Faculty of Science honours program requirements as follows.

- students are required to complete additional upper division units to total a minimum of 60 upper division units (excluding EDUC 401, 407)
- students who were enrolled at Simon Fraser University between fall 1991 and summer 2006 are required to complete a minimum of 12 units in subjects outside the Faculty of Science (excluding EDUC 401 to 407) including six units minimum to be completed in the Faculty of Arts and Social Sciences

Writing, Quantitative, and Breadth Requirements

Students admitted to Simon Fraser University beginning in the fall 2006 term must meet writing, quantitative and breadth requirements as part of any degree program they may undertake. See Writing, Quantitative, and Breadth Requirements for university-wide information.

WQB Graduation Requirements
A grade of C- or better is required to earn W, Q or B credit.

Requirement	Units	Notes	
W - Writing	6		Must include at least one upper division course, taken at Simon Fraser University within the student's major subject
Q - Quantitative	6		Q courses may be lower or upper division
B - Breadth	18	Designated Breadth	Must be outside the student's major subject, and may be lower or upper division 6 units Social Sciences: B-Soc 6 units Humanities: B-Hum 6 units Sciences: B-Sci
	6	Additional Breadth	6 units outside the student's major subject (may or may not be B-designated courses, and will likely help fulfill individual degree program requirements) Additional breadth units must be from outside the student's major and may be B-designated (B-Hum, B-Soc, B-Sci courses). Students choosing to complete a joint major, joint honors, double major, two extended minors, an extended minor and a minor, or two minors may satisfy the breadth requirements (designated or not designated) with courses completed in either one or both program areas.

Residency Requirements and Transfer Credit

The University's residency requirement stipulates that, in most cases, total transfer and course challenge credit may not exceed 60 units, and may not include more than 15 units as upper division work.

Elective Courses

In addition to the courses listed above, students should consult an academic advisor to plan the remaining required elective courses.

Proposed Calendar Changes: Minor in Statistics

The Department of Statistics and Actuarial Science proposes the following changes to its Minor in Statistics. The most salient feature of this proposal is that, unlike the existing minor, it provides students with an opportunity to complete the Minor through a program of study that focuses on application-oriented courses that do not delve deeply into the underlying mathematical theory.

Proposed changes to the academic calendar descriptions are as follows:

From:

Statistics Minor Program

Department of Statistics and Actuarial Science | Faculty of Science
Simon Fraser University Calendar 2012 Spring

Program Requirements

Lower Division Requirements

Students complete a total of 18-19 units, including one of

- MATH 150-4 Calculus I with Review
- MATH 151-3 Calculus I
- MATH 154-3 Calculus I for the Biological Sciences
- MATH 157-3 Calculus for the Social Sciences I

and one of

- MATH 152-3 Calculus II
- MATH 155-3 Calculus II for the Biological Sciences
- MATH 158-3 Calculus for the Social Sciences II

and one of

- MATH 232-3 Applied Linear Algebra
- MATH 240-3 Algebra I: Linear Algebra

and all of

- MATH 251-3 Calculus III
- STAT 270-3 Introduction to Probability and Statistics
- STAT 285-3 Intermediate Probability and Statistics

Upper Division Requirements

Students complete a total of 15 units from the following courses:

- ACMA 315-3 Credibility Theory and Loss Distributions
- ACMA 320-3 Actuarial Mathematics I
- ACMA 335-3 Risk Theory
- ACMA 445-3 Loss Models: Estimation and Selection
- ACMA 490-3 Special Topics in Actuarial Science
- STAT 300W-3 Statistics Communication
- STAT 330-3 Introduction to Mathematical Statistics*
- STAT 350-3 Linear Models in Applied Statistics*
- STAT 380-3 Introduction to Stochastic Processes
- STAT 400-3 Data Analysis
- STAT 402-3 Generalized Linear and Nonlinear Modelling
- STAT 410-3 Statistical Analysis of Sample Surveys
- STAT 430-3 Statistical Design and Analysis of Experiments
- STAT 450-3 Statistical Theory
- STAT 460-3 Decision Analysis and Bayesian Inference
- STAT 490-3 Special Topics in Probability and Statistics
- STAT 495-3 Directed Studies in Probability and Statistics

*recommended

Faculty of Science Requirements

Statistics minor candidates are subject to the general regulations of the faculty in which they are enrolled (either the Faculty of Arts and Social Sciences, or the Faculty of Science)

To:

Statistics Minor Program

Department of Statistics and Actuarial Science | Faculty of Science
Simon Fraser University Calendar 2012 Fall

Program Requirements

Lower Division Requirements

Students complete one of

- MATH 150-4 Calculus I with Review
- MATH 151-3 Calculus I
- MATH 154-3 Calculus I for the Biological Sciences
- MATH 157-3 Calculus for the Social Sciences I

and one of

- MATH 152-3 Calculus II
- MATH 155-3 Calculus II for the Biological Sciences
- MATH 158-3 Calculus for the Social Sciences II

and one of

- STAT 101-3
- STAT 201-3
- STAT 203-3
- ‡STAT 270-3

Upper Division Requirements

Students complete a total of 15 units including one of

- STAT 302-3
- STAT 305-3
- ‡STAT 350-3

and at least two further upper division courses labeled STAT.

The remainder of the 15 required units may be completed using a combination of further STAT courses and other courses focusing on statistical inference or related study design or quantitative reasoning that do not overlap substantially with other courses that the

student is using to fulfill the requirements of the Minor. Recommended STAT courses are listed below. The eligibility of other courses will be at the discretion of a departmental student advisor.

- STAT 340-3 Statistical Computing and Exploratory Data Analysis
- STAT 403-3 Intermediate Sampling and Experimental Design
- STAT 445-3 Applied Multivariate Analysis
- STAT 475-3 Applied Logistic and Poisson Regression
- STAT 485-3 Applied Time Series Analysis

Other recommended courses requiring more extensive prerequisites:

- ‡STAT 300W-3 Statistics Communication
- ‡STAT 350-3 Linear Models in Applied Statistics
- ‡STAT 410-3 Statistical Analysis of Sample Surveys
- ‡STAT 430-3 Statistical Design and Analysis of Experiments
- ‡STAT 460-3 Decision Analysis and Bayesian Inference

Faculty Requirements

Statistics minor candidates are subject to the general regulations of the faculty in which they are enrolled.

‡ Courses with a more mathematical focus, most of which require extra prerequisites.