S.18-86

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MEMORANDUM

ATTENTION	Senate
FROM	Mark Lechner, Acting Chair Senate Committee on Undergraduate Studies
RE:	New Course Proposals
DATE	July 6, 2018
PAGES	1/1

For information:

Acting under delegated authority at its meeting of July 5, 2018 SCUS approved the following curriculum revisions effective Summer 2019.

a. Faculty of Science (SCUS 18-47)

1. Department of Molecular Biology and Biochemistry (Fall 2019)

(i) New Course Proposal: MBB 460-3, Selected Topics in Bioinformatics and Genomics

2. Department of Statistics and Actuarial Science (Fall 2019)

(i) New Course Proposals:
- STAT 310-2, Introduction to Data Science for the Social Sciences
- STAT 311-2, Data Science Laboratory for the Social Sciences

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL
1 OF 4 PAGES

COURSE SUBJECT MBB **NUMBER** 460-3

COURSE TITLE LONG — for Calendar/schedule, no more than 100 characters including spaces and punctuation
Selected Topics in Bioinformatics and Genomics

COURSE TITLE SHORT — for enrollment/transcript, no more than 30 characters including spaces and punctuation
Selected Topics in Genomics

CAMPUS where course will be normally taught: ☑ Burnaby ☐ Surrey ☐ Vancouver ☐ Great Northern Way ☐ Off campus

COURSE DESCRIPTION — 50 words max. Attach a course outline. Don't include WQB or prerequisites info in this description box.

The topics in this course will vary from term to term, depending on faculty availability and student interest. Prerequisite: will depend upon the nature of the topic offered.

REPEAT FOR CREDIT ☑ YES [ ] NO Total completions allowed Within a term? ☐ YES ☑ NO

LIBRARY RESOURCES
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 the email that serves as proof of assessment. For more information, please visit www.lib.sfu.ca/about/overview/collections/course-assessments.

RATIONALE FOR INTRODUCTION OF THIS COURSE

MBB offers 400-level selected topics courses in Biochemistry (MBB 420-3) and Molecular Biology (MBB 440-3). Bioinformatics and Genomics together represent a major research strength in our department. A specialized current topics course in this area is expected to appeal to many students.

SCHEDULING AND ENROLLMENT INFORMATION

Effective term and year (e.g. FALL 2016) Fall 2019

Term in which course will typically be offered ☑ Spring ☐ Summer ☑ Fall

Other *(describe)*

Will this be a required or elective course in the curriculum? ☐ Required ☑ Elective

What is the probable enrollment when offered? Estimate: 40

UNITS

Indicate number of units: 3

Indicate no. of contact hours: 3 Lecture 3 Seminar Tutorial Lab Other; explain below

OTHER

FACULTY

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

Fiona Brinkman, Jack Chen, Rob Holt, Steve Jones, Ryan Morin

WQB DESIGNATION

(attach approval from Curriculum Office)

PREREQUISITE AND / OR COREQUISITE

Will vary depending on the topic.

EQUIVALENT COURSES [For more information on equivalency, see Equivalency Statements under Information about Specific Course components.]

1. SEQUENTIAL COURSE [is not hard coded in the student information management system (SIMS).]

Students who have taken (*place relevant course(s) in the blank below (ex: STAT 100)*) **first** may not then take this course for further credit.

2. ONE-WAY EQUIVALENCY [is not hard coded in SIMS.]

(*Place relevant course(s) in the blank below (ex: STAT 100)*) will be accepted in lieu of this course.

3. TWO-WAY EQUIVALENCY [is hard coded and enforced by SIMS.]

Students with credit for (*place relevant course(s) in the blank below (ex: STAT 100)*) may not take this course for further credit.

Does the partner academic unit agree that this is a two-way equivalency? ☐ YES ☐ NO
Please also have the partner academic unit submit a course change form to update the course equivalency for their course(s).

4. SPECIAL TOPICS PRECLUSION STATEMENT [is not hard coded in SIMS.]

FEES

Are there any proposed student fees associated with this course other than tuition fees? ☐ YES ☑ NO

COURSE – LEVEL EDUCATIONAL GOALS (OPTIONAL)

RESOURCES

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

Course will be held in a lecture theatre and in the MBB computer lab so no additional resources are neccesary.

OTHER IMPLICATIONS

Final exam required ☐ YES ☑ NO

Criminal Record Check required ☐ YES ☑ NO

OVERLAP CHECK

Checking for overlap is the responsiblity of the Associate Dean.

Each new course proposal must have confirmation of an overlap check completed prior to submission to the Faculty Curriculum Committee.

Name of Originator

Lisa Craig

COURSE SUBJECT STAT **NUMBER** 310

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

Introduction to Data Science for the Social Sciences

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

Data Science for Social Sci

CAMPUS where course will be normally taught: ☑ Burnaby ☐ Surrey ☐ Vancouver ☐ Great Northern Way ☐ Off campus

COURSE DESCRIPTION — 50 words max. Attach a course outline. Don't include WQB or prerequisites info in this description box.

An introduction to modern tools and methods for data acquisition, management, visualization, and machine learning, capable of scaling to Big Data. No prior computer programming experience required. Examples will draw from the social sciences.

REPEAT FOR CREDIT ☐ YES ☑ NO Total completions allowed ☐ Within a term? ☐ YES ☐ NO

LIBRARY RESOURCES

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 the email that serves as proof of assessment. For more information, please visit www.lib.sfu.ca/about/overview/collections/course-assessments.

RATIONALE FOR INTRODUCTION OF THIS COURSE

Data science methods for collecting, formatting, and analyzing (potentially big) data sets are used increasingly in the social sciences. Data Science is an interdisciplinary field focused on obtaining and extracting value from data. The proposed course is a gentle introduction to this field, and (unlike STAT 240) will be specially designed for students who have no prior programming experience.

The proposed course is intended to accompany STAT 311 (a proposed 2 unit laboratory course where students will apply data science methods to problems from the social sciences). Together, STAT 310 and STAT 311 will provide an introduction to data science tools and the topical insights that come from combining analytic skills and subject matter expertise, while tailoring content to students who have no programming experience.

Initially, we will require that STAT 310 and STAT 311 be taken concurrently. However, we will encourage social sciences departments to develop their own, discipline-specific laboratory courses that could substitute for STAT 311. STAT 310 will cover the required statistical methods, while the complementary courses in social sciences would cover applications and context for these methods. In this way, we can facilitate social sciences students' exposure to the applications in their particular fields of interest, while preventing redundancy by teaching the statistical methods in a single course (STAT 310).

SCHEDULING AND ENROLLMENT INFORMATION

Effective term and year (e.g. FALL 2016) Fall 2019

Term in which course will typically be offered ☐ Spring ☐ Summer ☑ Fall

Other *(describe)*

Will this be a required or elective course in the curriculum? ☐ Required ☑ Elective

What is the probable enrollment when offered? Estimate: 50

UNITS

Indicate number of units: 2

Indicate no. of contact hours: 2 Lecture ☐ Seminar ☐ Tutorial ☐ Lab ☐ Other; explain below

OTHER

FACULTY

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

David Campbell, Luke Bornn, Lloyd Elliott, Brad McNeney

WQB DESIGNATION

(attach approval from Curriculum Office)

Q Designation

PREREQUISITE AND / OR COREQUISITE

Prerequisite: One of STAT 201, STAT 203, STAT 205, STAT 270, BUEC 232, or POL 201.
Corequisite: STAT 311

EQUIVALENT COURSES [For more information on equivalency, see Equivalency Statements under Information about Specific Course components.]

1. SEQUENTIAL COURSE [is not hard coded in the student information management system (SIMS).]

Students who have taken (*place relevant course(s) in the blank below (ex: STAT 100)*) **first** may not then take this course for further credit.

STAT 240, STAT 440

2. ONE-WAY EQUIVALENCY [is not hard coded in SIMS.]

(*Place relevant course(s) in the blank below (ex: STAT 100)*) will be accepted in lieu of this course.

3. TWO-WAY EQUIVALENCY [is hard coded and enforced by SIMS.]

Students with credit for (*place relevant course(s) in the blank below (ex: STAT 100)*) may not take this course for further credit.

Does the partner academic unit agree that this is a two-way equivalency? ☐ YES ☐ NO

Please also have the partner academic unit submit a course change form to update the course equivalency for their course(s).

4. SPECIAL TOPICS PRECLUSION STATEMENT [is not hard coded in SIMS.]

FEES

Are there any proposed student fees associated with this course other than tuition fees? ☐ YES ☑ NO

COURSE – LEVEL EDUCATIONAL GOALS (OPTIONAL)

With an emphasis on modern methods, this course will introduce students to tools for reproducible research (RStudio), collaboration (Github), database handling (SQL), data acquisition through APIs, data cleaning, and exploratory analysis for acquired demographics, text, time and date, and spatial data.

RESOURCES

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

OTHER IMPLICATIONS

Final exam required ☑ YES ☐ NO

Criminal Record Check required ☐ YES ☑ NO

OVERLAP CHECK

Checking for overlap is the responsiblity of the Associate Dean.

Each new course proposal must have confirmation of an overlap check completed prior to submission to the Faculty Curriculum Committee.

Name of Originator

Rachel Altman

COURSE SUBJECT STAT **NUMBER** 311

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

Data Science Laboratory for the Social Sciences

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

Data Science Lab for Soc Sci

CAMPUS where course will be normally taught: ☑ Burnaby ☐ Surrey ☐ Vancouver ☐ Great Northern Way ☐ Off campus

COURSE DESCRIPTION — 50 words max. Attach a course outline. Don't include WQB or prerequisites info in this description box.

A hands-on application of modern tools and methods for data acquisition, management, visualization, and machine learning, capable of scaling to Big Data. No prior computer programming experience required. Projects will draw from the social sciences and integrate application area insight into the analytic toolkit from STAT 310.

REPEAT FOR CREDIT ☐ YES ☑ NO Total completions allowed ☐ Within a term? ☐ YES ☐ NO

LIBRARY RESOURCES

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RATIONALE FOR INTRODUCTION OF THIS COURSE

Data science methods for collecting, formatting, and analyzing (potentially big) data sets are used increasingly in the social sciences.

The proposed laboratory course is intended to accompany STAT 310 (a proposed 2 unit course that will introduce social sciences students to data science methods). Together, STAT 310 and STAT 311 will provide a gentle introduction to this field, and (unlike STAT 240) will be specially tailored to students who have no prior programming experience.

Initially, we will require that STAT 310 and STAT 311 be taken concurrently. However, we will encourage social sciences departments to develop their own, discipline-specific laboratory courses that could substitute for STAT 311. In this way, we can facilitate social sciences students' exposure to the applications in their particular fields of interest, while preventing redundancy by teaching the statistical methods in a single course (STAT 310).

SCHEDULING AND ENROLLMENT INFORMATION

Effective term and year (e.g. FALL 2016) Fall 2019

Term in which course will typically be offered ☐ Spring ☐ Summer ☑ Fall

Other *(describe)*

Will this be a required or elective course in the curriculum? ☐ Required ☑ Elective

What is the probable enrollment when offered? Estimate: 50

UNITS

Indicate number of units: 2

Indicate no. of contact hours: ☐ Lecture ☐ Seminar ☐ Tutorial 2 Lab ☐ Other; explain below

OTHER

FACULTY

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

David Campbell, Luke Bornn, Lloyd Elliott, Brad McNeney

WQB DESIGNATION

(attach approval from Curriculum Office)

Q Designation

PREREQUISITE AND / OR COREQUISITE

Prerequisite: One of STAT 201, STAT 203, STAT 205, STAT 270, BUEC 232, or POL 201.
Corequisite: STAT 310

EQUIVALENT COURSES [For more information on equivalency, see Equivalency Statements under Information about Specific Course components.]

1. SEQUENTIAL COURSE [is not hard coded in the student information management system (SIMS).]

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STAT 240, STAT 440

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Does the partner academic unit agree that this is a two-way equivalency? ☐ YES ☐ NO

Please also have the partner academic unit submit a course change form to update the course equivalency for their course(s).

4. SPECIAL TOPICS PRECLUSION STATEMENT [is not hard coded in SIMS.]

FEES

Are there any proposed student fees associated with this course other than tuition fees? ☐ YES ☑ NO

COURSE – LEVEL EDUCATIONAL GOALS (OPTIONAL)

This course integrates domain expertise into the analytic toolkit from STAT 310. Examples include: using Twitter APIs from STAT 310 to gain insight into election discussion, using spatial data from a crime database to examine questions of public safety, using census data to consider resource allocation.

RESOURCES

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

OTHER IMPLICATIONS

Final exam required ☐ YES ☑ NO

Criminal Record Check required ☐ YES ☑ NO

OVERLAP CHECK

Checking for overlap is the responsiblity of the Associate Dean.

Each new course proposal must have confirmation of an overlap check completed prior to submission to the Faculty Curriculum Committee.

Name of Originator

Rachel Altman

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MEMORANDUM

ATTENTION Carl Lowenberger, Associate Dean, Faculty of Science
DATE July 5, 2018

FROM Susan Rhodes, Director
University Curriculum & Institutional Liaison
PAGES 1

RE: STAT Q designation approval

The University Curriculum Office has approved **Q** designation for the following new STAT corequisite courses, effective FALL | 2019 (1197):

STAT 310-2 Introduction to Data Science for the Social Sciences
STAT 311-2 Data Science Laboratory for the Social Sciences

Please forward this memo to SCUS and Senate for further approval.

cc: Rachel Altman, UGC Chair, Department of Statistics