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MEMORANDUM

ATTENTION Senate
FROM Wade Parkhouse, Chair
Senate Committee on
Undergraduate Studies
RE: New Course Proposals

DATE October 12, 2018
PAGES 1/1

For information:

Acting under delegated authority at its meeting of October 11, 2018 SCUS approved the following curriculum revisions effective Summer 2019.

a. Beedie School of Business (SCUS 18-61)

(i) New Course Proposal: BUS 415-, Applied Portfolio Management (*Summer 2019*)

b. Faculty of Science (SCUS 18-62)**1. Department of Biological Sciences**

(i) New Course Proposal: BISC 212-3, Biological Research

2. Faculty of Science (SCUS 18-47)

(i) New Course Proposal: SCI 192-4, "The Science Around Us" Interdisciplinary Science for Pre-Service Teachers with B-Sci designation. (*Fall 2019*)

SFU

SENATE COMMITTEE ON
UNDERGRADUATE STUDIESNEW COURSE PROPOSAL
1 OF 3 PAGES

COURSE SUBJECT BUS

NUMBER 415

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

Applied Portfolio Management

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

Applied Portfolio Management

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.

Explores how investment selections can be used to form different portfolios, how to assess the ex-ante risk of those portfolios, and how to analyze portfolio performance. There will be a strong emphasis on ethics, development of investment policy, and integration of environmental, social, and governance in portfolio management.

REPEAT FOR CREDIT

☐ YES☒ NO

How many times?

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.

Library review done? Yes - no further resources are required

RATIONALE FOR INTRODUCTION OF THIS COURSE

This class was offered in Spring 2018 as a special topics course. It is taken by the BEAM (Beedie Endowment Asset Management) group of students who are engaged in investing \$7 million of the Beedie Endowment Funds at SFU. The students are undergraduate students who have applied for and been admitted to the BEAM Group after an extensive interview process. The students commit to be part of the BEAM Group for two years.

Following four years where BEAM was supported by a single academic course, the second class was added in 2018. The second class was added to adapt to the asset management industry's move toward a more quantitative approach to portfolio formation and analysis. The second class also reinforces the emphasis on sustainability in investment, which has become more important for the industry.

The second class has enhanced the professionalism of the BEAM program. It should continue as permanent part of the Undergraduate Program.



SENATE COMMITTEE ON
UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL
2 OF 3 PAGES

SCHEDULING AND ENROLLMENT INFORMATION

Term and year course would first be offered (e.g. FALL 2016) Summer 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: 10 students

UNITS

Indicate number of units: 3

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

OTHER

FACULTY

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

Derek Yee, Peter Klein

WQB DESIGNATION

(attach approval from Curriculum Office)

PREREQUISITE AND / OR COREQUISITE

BUS 318, BUS 360W, 60 units.

EQUIVALENT COURSES

Does this course replicate the content of a previously-approved course to such an extent that students should not receive credit for both courses?

Students who have taken BUS 493 when the subject of the course was Portfolio Management may not take this course for further credit.



SENATE COMMITTEE ON
UNDERGRADUATE STUDIES

NEW COURSE PROPOSAL
3 OF 3 PAGES

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:

OTHER IMPLICATIONS

Final exam required ☐ YES ☒ NO

Criminal Record Check required ☐ YES ☒ NO

OVERLAP CHECK

Checking for overlap is the responsibility 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

Stephen Spector

Course: BUS 415**Title: Applied Portfolio Management****Course Description**

The course is a continuation of BUS 318, which focuses on valuing equities and making credit decisions. BUS 415 explores how investment selections can be used to form different portfolios, how to assess the ex-ante risk of those portfolios, and how to analyze portfolio performance. There will be a strong emphasis on ethics, development of investment policy, and integration of environmental, social, and governance in portfolio management.

Rationale

This class was offered in Spring 2018 as a special topics course. It is taken by the BEAM (Beedie Endowment Asset Management) group of students who are engaged in investing \$7 million of the Beedie Endowment Funds at SFU. The students are undergraduate students who have applied for and been admitted to the BEAM Group after an extensive interview process. The students commit to be part of the BEAM Group for two years.

Following four years where BEAM was supported by a single academic course, the second class was added in 2018. The second class was added to adapt to the asset management industry's move toward a more quantitative approach to portfolio formation and analysis. The second class also reinforces the emphasis on sustainability in investment, which has become more important for the industry.

The second course has enhanced the professionalism of the BEAM program. It should continue as permanent part of the Undergraduate Program.

Learning Objectives

- Form different types of portfolios (concentrated, semi-active, long-short) for a set of investment recommendations.
- Build different portfolios from fundamental and from purely quantitative inputs, including the use commercial optimization tools.
- Calculate ex-ante risk measures, including Value at Risk (VaR) and expected track record for portfolios.
- Build predictive tools that will estimate ex-ante performance in different economic scenarios.
- Construct paper portfolios that use derivative instruments for currency hedging and other purposes.
- Understand ethical performance presentation and the GICS standard for performance presentation
- Build portfolios that incorporate Environmental, Social and Governance (ESG) factors

Textbooks

[Type here]

[Type here]

item 5a ii

The textbook from BUS 318, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, University Edition by Aswath Damodaran, Third Edition, will be used as a reference book.

Evaluation

The course requires completion of eight assignments that will be presented by students on a rotating basis. The assignments are meant to provide hands-on experience in securities selection and portfolio management, and to build skills in Microsoft Excel, including Solver (Reduced Gradient Algorithm), VBA and User-defined functions, and matrix calculations. The course will have two midterms and no final exam. Individual instructors may modify this assessment method.

Proposed evaluation components are as follows:

Assignments	40%
Midterm 1	30%
Midterm 2	30%

COURSE SUBJECT NUMBER

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

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

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.

Students experience the practical challenges and creative joys of biological research. Initially, students learn to think, research, and collaborate like scientists, while finding solutions to several “Real-World Problems”. In subsequent weeks, students design, propose, conduct, and present their own original research projects, in teams.

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

Throughout their high school and lower-division post-secondary courses, most students experience Biology (and Science, in general) as a collection of facts and formulas to be memorized and recalled. As a result, they lack both an understanding of the nature of scientific discovery and the creativity and critical-thinking skills needed to be successful researchers. This is harmful to our students because it lowers their motivation to stay in science programs, it reduces their learning to a fact-memorizing chore, and it generates graduates without the skills and experiences necessary to succeed in a career in science.

While Independent Study Semesters and Undergraduate Research courses (e.g. BISC 498) can give students genuine research experiences, these are generally not available to lower-division students. The introduction of BISC 298 opens a door, but very few lower-division students have the skills, confidence and good fortune to find a professor who is willing to supervise them. BISC 212 can make a significant impact here, by taking first- and second-year students (most of whom have no research experience), and spending a semester turning them into confident and capable researchers.

This course has been offered twice (as BISC 272 - Special topics: Biological Research), and its students have shown great growth and success in their development as researchers and critical thinkers, both during and after our semester together. For example:

- To date, six out of 20 BISC 272 research groups have taken the time to submit their findings to the peer-reviewed SFU Student Undergraduate Research Journal (SURJ). Two of these have already been published, and two more have just been accepted for publication, pending revisions. One BISC 272 alumnus is also currently an executive editor for SFU SURJ.
- Many BISC 272 alumni continue to conduct original research, as co-op students, USRA recipients, BISC 498 students, and research volunteers. Some of them met their subsequent supervisors during the public poster sessions that ended each BISC 272 experience.
- Twelve of the 23 original BISC 272 students (from 2015) returned as peer-mentors for the 48 new BISC 272 students (in 2017). These mentor's insightful advice highlighted how much their scientific thinking skills had developed, since taking BISC 272.
- Surprisingly, these research and mentorship activities are not restricted to the academic stars of the course. Even students who entered and exited BISC 272 with C+ to B- CGPAs continue to take part in research and mentorship with great confidence and skill.
- Overall, the SETC comments for BISC 272 attest to its great value to students, despite the huge workload (which I've now reduced).

SCHEDULING AND ENROLLMENT INFORMATION

Effective term and year (e.g. FALL 2016) Term in which course will typically be offered ☐ Spring ☒ Summer ☐ FallOther (describe) Will this be a required or elective course in the curriculum? ☐ Required ☒ ElectiveWhat is the probable enrollment when offered? Estimate:

UNITS

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

OTHER

FACULTY

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

Kevin Lam, Megan Barker, Julian Christians, Kathleen Fitzpatrick, Erin Barley, Peter Hollman, and any other faculty members with research experience and a keen interest in training young undergraduates to be capable researchers.

WQB DESIGNATION

(attach approval from Curriculum Office)

PREREQUISITE AND / OR COREQUISITE

ANY TWO of the following courses: BISC 101, BISC 102, BPK 142, CHEM 121, CHEM 126, EASC 101, PHYS 132, PHYS 133, PHYS 140, and PHYS 141, with a grade of C- or better. Completion of less than 60 units is preferred. Course entry is by application and approval by the instructor.

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.]

Students with credit for BISC 272 - Special Topics: Biological Research may not take this course for further credit.

FEES

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

COURSE - LEVEL EDUCATIONAL GOALS (OPTIONAL)

By the end of the semester, successful students will be able to:

1. Use primary literature, and preliminary experiments, to find and refine their own original research questions.
2. Write and defend research proposals, and plan a research program that fits within given time and budgetary constraints.
3. Design and conduct new experiments, and record detailed observations in lab notebooks.
4. Conduct statistical analyses of experimental results, and use the outcomes of these analyses to refine subsequent hypotheses/experiments.
5. Participate in lab meetings, to give and receive feedback on research teams' methods, results, conclusions, and challenges.
6. Share research findings concisely and accurately, via research posters and presentations.
7. Present and discuss findings with faculty members and graduate students, during a public poster session at the end of the semester.

RESOURCES

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

N/A

OTHER IMPLICATIONS

Final exam required ☐ YES ☒ NO

Criminal Record Check required ☐ YES ☒ NO

OVERLAP CHECK

Checking for overlap is the responsibility 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

Kevin Lam

COURSE SUBJECT SCI

NUMBER 192

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

"The Science Around Us" Interdisciplinary Science for Pre-Service Teachers

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

Science for Teaching K-8

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 science inquiry, the processes of doing science, and the science around us. This studio format course engages future teachers in key biology, chemistry, physics and Earth sciences topics through the core competencies outlined in the BC K-8 curriculum. Connections between the sciences are highlighted through themes such as climate change and energy.

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

The newly re-designed British Columbia K-8 curriculum requires teachers to teach science as inquiry, through the curricular competencies of questioning and predicting, planning and conducting, processing and analyzing data and information, evaluating, applying and innovating, and communicating. Science topics are organized as 'big ideas' in subject areas including life sciences, chemistry, physics and Earth sciences.

Currently, pre-service teachers admitted into the Professional Development Program (PDP) at SFU are required to take one lab science course from any of the scientific disciplines. Since many PDP applicants do not have a strong background in science, having one science course from one science discipline does not adequately prepare them to teach the range of topics designated in the K-8 curriculum.

We propose to offer an interdisciplinary science course covering selected topics from most of the main science disciplines, highlight connections between the sciences through interdisciplinary themes such as climate change and energy, and teach through a studio format where students learn experientially about the processes and competencies of doing science. Our team of faculty members from five science departments (EASC, BPK, BISC, PHYS, CHEM), the Faculty of Education, and the Curriculum Coordinator of School District 43 Coquitlam, are collaboratively designing this course which we believe will better prepare future teachers to engage their students with science inquiry, and meet the requirements of the BC K-8 curriculum.



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*) If needed, also in spring and summer.

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

What is the probable enrollment when offered? Estimate: 30-80

UNITS

Indicate number of units: 4

Indicate no. of contact hours: Lecture Seminar Tutorial Lab 6 Other; explain below

OTHER

Studio course with two three hour blocks per week.

FACULTY

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

Diana Bedoya, Rebecca Goyan, Peter Hollman, Sarah Johnson, Eileen van der Flier-Keller, Glyn Williams-Jones

WQB DESIGNATION

(attach approval from Curriculum Office)

B-Sci

PREREQUISITE AND / OR COREQUISITE

none

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.

N/A

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.

N/A

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.

N/A

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.]

N/A

FEES

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

COURSE – LEVEL EDUCATIONAL GOALS (OPTIONAL)

1. Describe fundamental science concepts that explain the behaviour of the world around us.
2. Explain how the scientific method is used to learn about natural systems by creating hypotheses based on observations, performing and evaluating experiments, iterating and organising and communicating findings.
3. Design and carry out an experiment, record, analyse and interpret the results.
4. Model and analyse a science problem with methods typically used at the K-8 level.
5. Create meaningful assignments, activities and assessments for K-8 students about science problems, using everyday materials where possible, and address typical misconceptions.
6. Communicate science appropriately in various forms such as words, graphs, equations and diagrams, and to various audiences.
7. Explain the relevance of science to society using examples, including technical applications. See science around us, and be its advocate.
8. Find reliable sources of information on topics relevant to the BC K-8 science curriculum, and distinguish them from dubious ones.
9. Distinguish the scientific method from other approaches to describing and understanding the world. Know the limitations and strengths (and history) of science, and distinguish it from bogus or fake science.
10. Analyse their own understanding of science and be willing to be life-long learners.



RESOURCES

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

none

OTHER IMPLICATIONS

Final exam required ☐ YES ☒ NO

Criminal Record Check required ☐ YES ☒ NO

OVERLAP CHECK

Checking for overlap is the responsibility 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

Eileen van der Flier-Keller



UNIVERSITY CURRICULUM AND INSTITUTIONAL LIAISON
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MEMORANDUM

ATTENTION Carl Lowenberger, Associate Dean,
Faculty of Science

DATE August 13, 2018

FROM Susan Rhodes, Director
University Curriculum & Institutional Liaison

PAGES 1

RE: SCI Breadth designation approval

The University Curriculum Office has reviewed and approved **B-Sci** designation for the following proposed Faculty of Science course, effective Summer 2019 (1194):

SCI 192-4 The Science Around Us: Interdisciplinary Science for Pre-Service Teachers

Please forward this memo to your Faculty UCC and then on to SCUS and Senate for further approval.

cc: Glyn Williams-Jones, UCC Chair, Earth Sciences
Eileen van der Flier-Keller, Special Advisor, Office of the Dean of Science