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MEMORANDUM

ATTENTION Senate
FROM Bill Krane, Chair
Senate Committee on
Undergraduate Studies
RE: Faculty of Environment

DATE December 2, 2011
PAGES 1/1

For information:

Acting under delegated authority at its meeting of December 1, 2011, SCUS approved the following curriculum revisions effective Fall 2012:

1. Department of Archaeology (SCUS 11-52a)

- (a) Changes to the Lower and Upper Division requirements for the major and honours programs
- (b) Changes to the program requirements and Option Course list for the CRM Certificate

2. Faculty of Environment (SCUS 11-52b)

- (a) New Course Proposal: ENV 222-3, Environmental Controversy: An interdisciplinary study of environmental issues.

3. Environmental Science Program (SCUS 11-52d)

- (a) Clarification of the program status of the four new Concentrations approved in October.

4. Department of Geography (SCUS 11-52e)

- (a) Prerequisite change to GEOG 389W

5. School of Resource and Environmental Management (REM) (SCUS 11-52f)

- (a) New Course Proposal: REM 350-4, Sustainable Energy and Materials Management
(effective Spring 2013)

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](tel:778-782-3168) or email shelley_gair@sfu.ca.



faculty of environment

MEMO

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ATTENTION	Bill Krane, Chair, SCUS
FROM	Duncan Knowler, Chair, FENV Curriculum Committee
RE	Faculty of Environment Course and Program Changes
DATE	November 21, 2011

The following were approved by the Faculty of Environment Undergraduate Curriculum Committee at its meeting of October 27, 2011 and are being forwarded to SCUS for approval and recommendation to Senate.

- Department of Archaeology (ARCH)
 - ~~elimination of calendar references to deleted joint LAS Major program~~
 - elimination of calendar references to deleted course (EVSC 200)
 - addition of an SFU residency requirement for the CRM Certificate
 - reduction in required credits for the CRM Certificate
 [Note: several other minor revisions to calendar language are included that would not normally need approval by SCUS]
- Faculty of Environment (ENV)
 - ENV 222-3 - new course proposal
 - Certificate in Environmental Literacy - full program proposal
- Environmental Science Program (EVSC)
 - identification of areas of "Concentration" on transcripts for Major
- Department of Geography (GEOG)
 - GEOG 389W-4 - course prerequisite change
- School of Resource and Environmental Management (REM)
 - REM 350-4 - new course proposal

Could you add these to the agenda for the next SCUS meeting.

Thanks kindly,

Duncan Knowler
Associate Dean, FENV



**DEPARTMENT OF ARCHAEOLOGY
MEMORANDUM**

To: Duncan Knowler, Chair, Faculty of Environment Curriculum Committee
From: John R. Welch, Undergraduate Curriculum Committee Chair, Archaeology
Re: Dept. of Archaeology Undergraduate Curriculum Items for Review and Approval
Date: October 7, 2011

The Department of Archaeology faculty and the Faculty of Environment (FENV) Curriculum Committee recently approved changes to enable course delivery with reduced faculty complement and to integrate the curriculum with FENV. Approved with minor revisions by the FENV Curriculum Committee, the proposed changes will be effective in Fall 2012.

Intervening alterations to Environmental Sciences and Latin American Studies programs, together with Department of Archaeology commitments to program clarity and cohesion, now oblige the following 'housekeeping' adjustments to Department of Archaeology programs, as well as Calendar revisions proposed on the attachment:

1. **Elimination of references to the joint Archaeology-Latin American Studies Major.**
Notes: the Latin American Studies Major has been cancelled, and with it the option for a joint major with Archaeology. No students are currently declared ARCH-LAS majors.
2. **Replacement of all references to Environmental Sciences 200 (EVSC 200) with Environmental Sciences 100 (EVSC 100).**
Notes: EVSC 200 is in the process of being re-designated as EVSC 100.
3. **Addition of SFU 'residency requirements' for students pursuing Archaeology's CRM (cultural resource management) Certificate, which we propose as one half (12) of the required (24) credits**
Notes: this minor oversight in program transfer to FENV makes it possible for students to receive the CRM Certificate solely on the basis of transfer credit. Seventeen students are current candidates for the certificate.
4. **Reduction in field school credits required for the Archaeology CRM Certificate, from the current requirement (10) to nine (9).** As a result CRM Certificate requirements are reduced from 30 to 29 units.
Notes: this change will curtail receipts of student requests for one-credit waivers.

We accordingly submit the revised program for your review and Senate consideration, as recently approved by the Archaeology Undergraduate Curriculum Committee. Pending approval, changes will be effective Fall semester 2012.

DEPARTMENT OF ARCHAEOLOGY
PROPOSED PROGRAM/PROGRAM RELATED CALENDAR CHANGES

The following program/calendar changes are submitted to the chair of the Faculty of Environment Curriculum Committee for consideration, as needed, by the committee at its meeting on October 27, 2011. Rationale for these changes is provided in the preceding memorandum. Here we proceed from the existing program and calendar description to the proposed program and calendar description. In the latter, we reference course additions and course changes as submitted.

FROM (Current Program)

~~1. ARCHAEOLOGY AND LATIN AMERICAN STUDIES JOINT MAJOR PROGRAM~~

~~*Department of Archaeology | Faculty of Environment
Latin American Studies Program | Faculty of Arts and Social Sciences
Simon Fraser University Calendar 2011 Summer*~~

~~This joint major is available with the Department of Archaeology. The joint major combines selected disciplines leading to a bachelor of arts degree.~~

~~Courses used toward the upper division Latin American studies requirements may not be used as part of the international studies requirements, or vice versa. Any lower division course that counts toward the separate requirements for Latin American studies and international studies may count towards both.~~

~~During the last year of the joint major program, students complete LAS 498 to complete a capstone project which is written according to the standards of their disciplinary joint major, and will generally be of approximately 6,000-8,000 words.~~

~~Students will satisfy the prerequisites of all required lower and upper division courses, and should consult regularly with the program advisor regarding course selection.~~

~~Program Requirements~~

~~Students complete 120 units, as specified below.~~

~~Archaeology Requirements~~

~~Students complete 20 units in archaeology in the 300 and 400 division.~~

2. ARCHAEOLOGY MAJOR PROGRAM

*Department of Archaeology | Faculty of Environment
Simon Fraser University Calendar 2011-2012 (Effective January 2012)*

Program Requirements

Students complete 120 units, as specified below.

Upper division archaeology courses are divided into the following groups

Group I – Core Courses

- ARCH 372-5 Material Culture Analysis

- ARCH 471W-5 Archaeological Theory

Group II – Environmental Archaeology Courses

- ARCH 329-3 Special Topics in Environmental Archaeology
- ARCH 340-5 Zooarchaeology
- ARCH 365-3 Ecological Archaeology
- ARCH 383-3 Molecular Bioarchaeology
- ARCH 386-3 Archaeological Resource Management
- ARCH 390-5 Archaeobotany
- ARCH 438-5 Geoarchaeology

Group III – Biological Anthropology Courses

- ~~ARCH 339-3 Special Topics in Biological Anthropology~~
- ARCH 344-3 Primate Behavior
- ARCH 373-5 Human Osteology
- ARCH 385-5 Paleoanthropology
- ARCH 432-5 Advanced Physical Anthropology
- ARCH 442-5 Forensic Anthropology
- ARCH 452-5 Introduction to Paleopathology

Group IV – Topical Courses

- ARCH 301-3 Ancient Visual Art
- ARCH 321-3 Select Regions in World Archaeology I
- ARCH 331-3 Select Regions in World Archaeology II
- ARCH 332-3 Special Topics in Archaeology I
- ARCH 333-3 Special Topics in Archaeology II
- ARCH 335-5 Special Laboratory Topics in Archaeology
- ARCH 348-5 Archaeological Conservation
- ARCH 349-5 Management of Archaeological Collections
- ARCH 376-5 Quantitative Methods in Archaeology
- ARCH 377-5 Historical Archaeology
- ARCH 378-3 Pacific Northwest North America
- ARCH 434-3 Archaeological Field Methods
- ARCH 485-5 Lithic Technology

Lower Division Requirements

Students must complete each of:

- ARCH 131-3 Human Origins
- ARCH 201-3 Introduction to Archaeology
- ARCH 272-3 Archaeology of the Old World
- ARCH 273-3 Archaeology of the New World

Students must complete two of:

- BISC 102-4 General Biology
- ~~EVSC 200-3 Introduction to Environmental Science~~
- FNST 101-3 The Cultures, Languages and Origins of Canada's First Peoples
- GEOG 111-3 Earth Systems
- GEOG 255-3 Geographical Information Science I
- REM 100-3 Global Change
- SA 101-4 Introduction to Anthropology

Upper Division Requirements

Students must complete at least 32 upper division archaeology units, which must include:

- Both Group-I Courses (ARCH 372 and ARCH 471W)

- At least one Group II Course
- At least one Group III Course
- At least two Group IV Courses of which one must be ARCH 321, ARCH 331 or ARCH 378

Recommended Courses

The following courses are recommended.

- ARCH 376 (required for Honors, recommended for majors and students intending to do post graduate work in Archaeology).
- BISC 102 (recommended for majors and honors where a focus will be in Biological Anthropology courses)
- GEOG 111 (recommended for majors and honors where a focus will be in Environmental Archaeology courses)
- SA 101 (recommended for majors, honors and students intending to do post graduate work in Archaeology)
- STAT 101, STAT 201 or STAT 203 (prerequisite for ARCH 376)

3. ARCHAEOLOGY CRM CERTIFICATE

*Department of Archaeology | Faculty of Environment
Simon Fraser University Calendar 2011 Fall*

This program ~~will~~ prepares archaeology students for part-time or full-time employment in the cultural resource management sector, which is the biggest employer of archaeologists in British Columbia. The program offers a package of courses, including the Archaeology Field School, to provide practical knowledge, skills, and experiences needed in the field of cultural resource management or other career directions.

The curriculum consists of archaeology courses, and others drawn from First Nations studies, geography, and sociology/anthropology. Earned units may be applied to ~~the archaeology~~ major or minor programs, and to a bachelor's degree. However, units earned in the certificate cannot be applied to another Simon Fraser University certificate or diploma.

Program Requirements

Students complete at least 30 units, of which 24 ~~unit~~ are required core courses and the remaining six units are selected from the electives list.

Students are responsible for meeting the prerequisite requirements for courses used toward the certificate.

Core Courses

Students complete a minimum of 23 units, including all of

- ARCH 372-5 Material Culture Analysis
- ARCH 378-3 Pacific Northwest North America*
- ARCH 386-3 Archaeological Resource Management

and a minimum of ~~40~~ units of archaeology field school courses**

and one of

- FNST 301-3 Issues in Applied First Nations Studies Research
- FNST 401-3 Aboriginal Rights and Government Relations
- FNST 403-3 Indigenous Knowledge in the Modern World

***or comparable regional course subject to departmental approval**

****field school courses must include essential skills in survey, mapping, testing, excavation, and other such standard activities. Credit from other archaeological field schools must be departmentally approved.**

Optional Courses

Students complete at least two courses (six units) from the following

- **ARCH 373-5 Human Osteology**
- **ARCH 377-5 Historical Archaeology †‡**
- **ARCH 340-5 Zooarchaeology**
- **ARCH 348-5 Archaeological Conservation**
- **ARCH 390-5 Archaeobotany**
- **ARCH 438-5 Geoarchaeology**
- **ARCH 480-5 Directed Laboratory/Library/Field Research †**
- **ARCH 485-5 Lithic Technology**
- **FNST 201-3 Canadian Aboriginal Peoples' Perspectives on History**
- **FNST 301-3 Issues in Applied First Nations Studies Research**
- **FNST 322-3 Special Topics in First Nations Studies †**
- **FNST 332-3 Ethnobotany of BC First Nations**
- **FNST 401-3 Aboriginal Rights and Government Relations**
- **FNST 403-3 Indigenous Knowledge in the Modern World**
- **GEOG 253-3 Aerial Photographic Interpretation**
- **GEOG 255-3 Geographical Information Science I**
- **GEOG 313-4 River Geomorphology**
- **GEOG 353-4 Remote Sensing**
- **GEOG 355-4 Geographical Information Science II**
- **GEOG 445-4 Resource Planning**
- **SA 486-4 Aboriginal Peoples and British Columbia: Advanced Seminar (A)**

†when topic is applicable (e.g., applied archaeology; archaeological legislation; ethics in archaeology; first nations issues in archaeology)

TO (Proposed Program)

1. ARCHAEOLOGY MAJOR PROGRAM

*Department of Archaeology | Faculty of Environment
Simon Fraser University Calendar 2011-2012*

Program Requirements

Students complete 120 units, as specified below.

Upper division archaeology courses are divided into the following groups

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- ARCH 322-3 Special Topics in Biological Anthropology ALREADY IN
- ARCH 344-3 Primate Behavior
- ARCH 373-5 Human Osteology
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Students must complete each of:

- ARCH 131-3 Human Origins

- ARCH 201-3 Introduction to Archaeology
- ARCH 272-3 Archaeology of the Old World
- ARCH 273-3 Archaeology of the New World

Students must complete two of:

- BISC 102-4 General Biology
- EVSC 100-3 Introduction to Environmental Science ADD .
- FNST 101-3 The Cultures, Languages and Origins of Canada's First Peoples
- GEOG 111-3 Earth Systems
- GEOG 255-3 Geographical Information Science I
- REM 100-3 Global Change
- SA 101-4 Introduction to Anthropology

APPLIES TO
HONOURS AS WELL.

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Students must complete at least 32 upper division archaeology units, which must include:

- Both Group I Courses (ARCH 372 and ARCH 471W)
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- SA 101 (recommended for majors, honors and students intending to do post graduate work in Archaeology)
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*Department of Archaeology | Faculty of Environment
Simon Fraser University Calendar 2011 Fall*

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The curriculum consists of archaeology courses, and others drawn from First Nations studies, geography, and sociology/anthropology. Earned units may be applied to the archaeology major or minor programs, and to a bachelor's degree. However, units earned in the certificate cannot be applied to another Simon Fraser University certificate or diploma.

Program Requirements

Students complete at least 29 units, of which 23 units are required core courses and the remaining six units are selected from the electives list. Students must complete a minimum of 12 units at Simon Fraser University.

Students are responsible for meeting the prerequisite requirements for courses used toward the certificate.

Core Courses

Students complete a minimum of 23 units, including all of

- ARCH 372-5 Material Culture Analysis
- ARCH 378-3 Pacific Northwest North America*
- ARCH 386-3 Archaeological Resource Management

and a minimum of 2 units of archaeology field school courses**

and one of

- FNST 301-3 Issues in Applied First Nations Studies Research
- FNST 401-3 Aboriginal Rights and Government Relations
- FNST 403-3 Indigenous Knowledge in the Modern World

*or comparable regional course subject to departmental approval

**field school courses must include essential skills in survey, mapping, testing, excavation, and other such standard activities. Credit from other archaeological field schools must be departmentally approved.

Optional Courses

Students complete at least two courses (six units) from the following

- ARCH 332-3 Special Topics in Archaeology I†
- ARCH 340-5 Zooarchaeology
- ARCH 348-5 Archaeological Conservation
- ARCH 373-5 Human Osteology
- ARCH 377-5 Historical Archaeology
- ARCH 390-5 Archaeobotany
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- SA 486-4 Aboriginal Peoples and British Columbia: Advanced Seminar (A)

†when topic is applicable (e.g., applied archaeology; archaeological legislation; ethics in archaeology; first nations issues in archaeology)

FACULTY OF ENVIRONMENT

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EMAIL dburns@sfu.ca

To:	Duncan Knowler, Associate Dean Chair, FENV Curriculum Committee
From:	Dan Burns Manager, Curriculum and Academic Planning
Re:	Certificate in Environmental Literacy Full Program Proposal
Date	October 18, 2011

Attached please find the proposed Full Program Proposal (FPP) for a Certificate in Environmental Literacy (CEL). The Notice of Intent for this certificate was approved by SCUS on August 4, 2011 and SCUP on September 14, 2011. The attached FPP addresses the recommendations for certificates recently approved by Senate. Also attached is a new course proposal for ENV 222, Environmental Controversy, a required course in the CEL.

The following items are included:

- New Course Proposal for ENV 222
- Proposed course description for ENV 222
- Library report for ENV 222
- Certificate in Environmental Literacy Full Program Proposal
- Proposed calendar entry for the CEL
- Course descriptions for core and elective courses in CEL
- Approved Notice of Intent

Place include these items on the agenda of the next meeting of the FEnv Curriculum Committee.

Thank you.



COURSE NUMBER Env 222-3

COURSE TITLE

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

Environmental Controversy: An interdisciplinary study of environmental issues

AND

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

Environmental Controversy

CREDITS

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

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

Through lecture, field experiences, guest presentations and group projects, students will explore the complexity within a number of key environmental controversies, exploring its scientific, social, cultural, ethical, legal and personal aspects.

PREREQUISITE

Two of the following: GEOG 102 or REM 100 and EVSC 100 or GEOG 111. Students who have received credit for ENV 399 (Environmental Controversy) can not receive credit for ENV 222-3.

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 prerequisite.

COURSES(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 new course has been developed and is being piloted to become a required core course in the Certificate in Environmental Literacy. ENV 222 will build upon the knowledge gained through the prerequisite courses, introducing students to the complexity and interdisciplinarity of controversial environmental issues through dialogues, experiential and problem-based learning and student team projects.



SCHEDULING AND ENROLLMENT INFORMATION

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

Fall 2012 and at least 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?

Ken Lertzman, Alex Clapp, David Zandvliet (Education), John Clague (Earth Sciences), Vance Williams (Chemistry)

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**

Library report status _____

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?

The Collaborative Teaching Fellow Program, funded by the VP Academic will provide support for 3 years. The course is designed to be team taught reducing the load on each faculty.

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.

Chair, Department/School Date
[Signature] Oct 18, 2011

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.

Dean or designate Date
[Signature] Nov 21, 2011

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

All faculties consulted; responses attached.

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.

Tentative Course Description Environmental Controversy

Course

Title: Environmental Controversy

Description Topics:

Through lecture, field experiences, guest presentations and group projects, students will explore the complexity within controversies, exploring its scientific, social, cultural, ethical, legal and personal aspects. In our teaching we will use experiential, issues-based, and problem-based forms of education to deeply consider three environmental controversies that we present as socio-scientific issues. Topics are examined in their scientific, social, environmental, cultural, ethical, legal, and personal contexts. The nature of socio-scientific issues;

- have a basis in science
- involve forming opinions
- deal with incomplete information due to the nature of science
- address local, national, and global dimensions of society and politics
- involve cost-benefits analyses in which risks interact with values
- involve values and ethical reasoning

Socio-scientific issues can be described as, 'ill-defined, multidisciplinary, value-laden, and constrained by missing knowledge' as opposed to more traditional issues that are based on approaches using disciplinary knowledge, are objectively oriented, engage the 'right' procedures, and often result in a single right/wrong answer. SSI is also a pedagogical strategy with clearly defined goals: it aims to stimulate and promote individual intellectual development in morality and ethics, as well as awareness of the interdependence between science and society.

Grading:

The final letter grade will be based on the following weights:

Individual assignment 50% (position paper)

Final group assignment 30% (problem 'dissection')

Seminar / Fieldtrip and Tutorial participation 20% (journal)

Information re: assignments will be discussed in the first class.

Required

Texts: n/a

Recommended Texts: n/a

**Materials/
Supplies:** n/a

**Prerequisite
/Corequisite** Two of the following: GEOG 102 or REM 100 and EVSC 100 or GEOG 111.

Notes: Mandatory participation in field experiences. The course will involve

Panel presentations, guest lectures and project-based group work.



faculty of environment

SCUS 11-52d

MEMO

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ATTENTION	Bill Krane, Chair, Senate Committee on Undergraduate Studies (SCUS)
FROM	Duncan Knowler, Chair, FENV Curriculum Committee
RE	Faculty of Environment – Areas of Concentration for the Environmental Science (EVSC) Program
DATE	November 10, 2011

The following modification to the EVSC program was approved by the FENV Curriculum Committee at its meeting of October 27, 2011 and is being forwarded to SCUS for approval and recommendation to Senate (if needed).

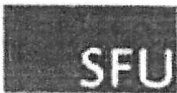
Earlier, there was an oversight in approving the newly revised EVSC program as it was not explicitly identified that transcripts of EVSC majors should show their area of concentration (stream). We are now requesting approval for the identification of area of concentration on transcripts and that SIMS be modified to record this information.

Further details are contained in the attached memo from the Director, EVSC.

Thanks kindly,

NO CALENDAR -
CHANGES REQUIRED.

Duncan Knowler
Associate Dean, FEnv



ENVIRONMENTAL SCIENCE PROGRAM

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ATTENTION D. Knowler, Chair FEnv CC
FROM L. Bendell, Director Environmental Science
Program
RE: Environmental Science areas of concentration

DATE October 11th 2011

The redeveloped Environmental Science program was approved (January 2011) and includes the following four areas of concentration;

- 1) Applied Biology
- 2) Environmental Earth Systems
- 3) Environmetrics
- 4) Water Science

An important change includes the redeveloped program consisting of four defined areas of "concentration" rather than areas of "emphasis" as in the original program.

Given this defined change, it would be of benefit both to the administration of the program in the tracking of student interest, and the student, who would be able to declare their area of concentration on their graduate degree, to have the above four concentrations listed in SIMS. This type of listing would be consistent with other units, such as Business who also have areas of concentration defined in SIMS.

Hence, the request to have the four areas of concentration established and listed in SIMS.

Regards

Leah Bendell
Director

FACULTY OF ENVIRONMENT
Department of Geography

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To:	Duncan Knowler, Associate Dean Chair, FEnv Curriculum Committee
From:	Ivor Winton Chair, Undergraduate Studies Committee, Geography
Re:	Curriculum changes, 2012/2013 calendar
Date	October 11, 2011

Attached please find proposed changes to the Geography curriculum, approved by our Undergraduate Studies Committee and then by the department as a whole at its meeting of September 29, 2011.

Would you please place these proposed changes on the agenda of the next meeting of the FEnv Curriculum Committee?

Change to existing course:

~ GEOG 389W

prerequisite change

**Senate committee on
Undergraduate studies**

COURSE CHANGE/DELETION FORM

Existing Course Number: Geog 389W-4

Existing Title: Nature and Society

Please check appropriate revision(s):

Course Number: _____ Credit Hours: _____ Title: _____

Description: _____ Prerequisite: **X** Vector: _____
(Lect/Sem/Tut/Lab)

Course deletion: _____

FROM: Prerequisite: GEOG 221 or EVSC 200 (formerly ENPL 200)

TO: Prerequisite: GEOG 221 or GEOG 241 (Students who received credit for EVSC 200 before 2011 may use it to meet the prerequisite requirement for this course.)

If Title Change, indicate:

a) Long Title for calendar/schedule: max. 100 characters, including spaces/punctuation:

b) Short Title for enrollment/transcript: max. 30 characters, including spaces/punctuation:

RATIONALE:

EVSC 200 has been deleted from the calendar. GEOG 241 makes the most suitable replacement prerequisite.

If this course replicates the content of a previously approved course to the extent that students should not receive credit for both courses, this should be noted in the prerequisite.

Effective term and year: Fall 2012



SCHOOL OF RESOURCE & ENVIRONMENTAL MANAGEMENT
FACULTY OF ENVIRONMENT

Tel: 778-782-4659
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To: Duncan Knowler, Associate Dean, Chair, FEnv Curriculum Committee
From: Sean Cox, Chair, Undergraduate Studies Committee, REM
Re: Curriculum changes, 2012-2013 calendar
Date: 18 October, 2011

ADDRESS
TASC 1, room 8405
Simon Fraser University
8888 University Drive
Burnaby BC V5A 1S6
Canada

Please find attached the proposed changes to the REM curriculum for consideration of the next meeting of the Faculty of Environment Curriculum Committee.

~~Changes to REM undergraduate curriculum:~~

~~Course addition - REM 350 - 4~~

NEW COURSE


 COURSE NUMBER REM 350-4
COURSE TITLE

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

Sustainable Energy and Materials Management
AND

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

Sustainable energy-materials
CREDITS

 Indicate number of credits for: Lecture 3 Seminar _____ Tutorial 1 Lab _____

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

Takes an interdisciplinary approach to sustainable management of society's energy and materials flows. Topics range from thermodynamics and estimates of global resources to market-based policies and governance institutions. Peak oil, renewable energy and carbon capture and storage are also discussed. The role for green consumerism in light of climate challenge are highlighted.

PREREQUISITE
45 credit hours
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**.

COURSES(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

REM has offered a graduate version of this course for 30 years. This course helps fulfill REM's commitment to offer more courses at the undergraduate level, and will attract students from a wide range of disciplines, including geography, economics, political science, environmental science and engineering.



SCHEDULING AND ENROLLMENT INFORMATION

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

2013-1 (once a 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 36

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

Mark Jaccard and Jonn Axsen

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 SFU Burnaby

Library report status Library has been consulted & confirmed that no further materials are required to offer this course

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?

The recent hiring of Jonn Axsen enables REM to offer this course. REM 350 will be taught by Mark Jaccard and Jonn Axsen will take over Mark's graduate course in energy and materials modeling.

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

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.

Chair, Department/School Date 6-oct-2011

[Signature]

Chair, Faculty Curriculum Committee Date 21-Nov-2011

- 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.

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.

*All Faculties - responses attached and
title change made to accommodate
Faculty of Business.*

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.

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REM 350-4
Sustainable Energy and Materials Management
Course Outline

Instructor: Mark Jaccard
Resource and Environmental Management

Course Objective

This course takes an interdisciplinary approach to providing students from diverse backgrounds with an understanding of:

- how human-induced flows of energy and materials are, or might become, a challenge for sustaining the earth's life-support capability and social cohesion;
- thermodynamic, technological, geological and biological options for changing the character of these flows toward greater sustainability;
- potential implications of these options from an ecological, economic and social perspective; and
- institutional arrangements, decision-making processes and policy mechanisms (local, regional, national, global) for fostering the global adoption of more sustainable technologies and behaviors.

Course Content

The course has three main components.

1. Defining and understanding the flows of energy and materials and their relation to global balances and definitions of sustainability. Includes:

- energy sources, carriers and services
- energy and material flows within and between countries
- technological and structural determinants of energy and material use
- thermodynamic, engineering and economics of energy and material efficiency
- thermodynamic definitions of sustainability
- geo-chemical definitions of sustainability
- biological definitions of sustainability (strong sustainability)
- socio-economic and hybrid definitions of sustainability (weak sustainability)
- prospects and dangers of modifying biological productivity
- prospects and dangers of modifying assimilative and recycling capability

2. Analytical techniques and concepts for goal setting with respect to energy and material sustainability. Includes:

- Ecological Footprint
- The Natural Step
- Factor 4 / Factor 10
- Technology Assessment
- Industrial metabolism
- Eco-efficiency
- Life-cycle costing
- Life-cycle assessment

3. Institutional arrangements, decision-making processes and policy mechanisms for initiating and implementing some of the key techniques and concepts. Includes:

- integrated resource planning and conservation of energy and materials
- energy and materials economics and marginal cost pricing strategies
- energy and materials regulation and project assessment
- energy and materials and social policy
- energy and materials in developing countries
- environmental tax shift strategies
- tradable permit systems within and between countries
- innovative market / regulation instruments, such as renewable portfolio standards and cradle-to-cradle corporate responsibility
- mechanisms to foster research and development
- voluntary mechanisms driven by either corporations, consumers or NGOs (green corporate strategies, ecocertification)
- designing, negotiating and implementing international energy-environment agreements

Class Format

The class format is three hours of lectures per week, plus a one hour tutorial.

Prerequisites

45 credit hours

Student Evaluation

Term paper	30%
Mid-term exam	20%
Final exam	35%
In-class participation	15%

Readings

To be determined.