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**MEMORANDUM**

**ATTENTION** Senate  
**FROM** Jon Driver, Vice-President, Academic and Provost, and Chair, SCUP  
**RE:** Faculty of Environment: Full Program Proposal for a Certificate in Environmental Literacy (SCUP 11-61)  
**DATE** January 17, 2012  
**PAGES** 1/1

At its December 21, 2011 meeting SCUP reviewed and approved the Full Program Proposal for a Certificate in Environmental Literacy within the Faculty of Environment, effective September 2012.

**Motion:**

That Senate approve and recommend to the Board of Governors the Full Program Proposal for a Certificate in Environmental Literacy within the Faculty of Environment, effective September 2012.

encl.

c: D. Knowler  
D. Burns



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

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**MEMORANDUM**

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|------------------|-----------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------|
| <b>ATTENTION</b> | Senate Committee on University Priorities                                         | <b>DATE</b>  | December 2, 2011                                                                   |
| <b>FROM</b>      | Bill Krane, Chair                                                                 | <b>PAGES</b> | 1/1                                                                                |
| <b>RE:</b>       | Senate Committee on Undergraduate Studies<br>Faculty of Environment (SCUS 11-52c) |              |  |

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Action undertaken by the Senate Committee on Undergraduate Studies at its meeting of December 1, 2011, gives rise to the following recommendation:

Motion:

That SCUP approve and recommend to Senate the Full Program Proposal for the Certificate in Environmental Literacy within the Faculty of Environment.

**The relevant documentation for review by SCUP is attached.**

## **Full Program Proposal**

### **Certificate in Environmental Literacy Faculty of Environment (FENV)**

#### **Executive Summary**

The Environmental Literacy Council states that “environmental literacy requires a fundamental understanding of the systems of the natural world, the relationships and interactions between the living and non-living environment, and the ability to deal sensibly with the problems that involve scientific evidence, uncertainty, and economic, aesthetic and ethical considerations”. The Certificate in Environmental Literacy (CEL) seeks to introduce students to physical, ecological, and social perspectives on the environment, with emphasis on the functioning of physical and ecological systems and how human activities have affected and are affected by such systems over time. The CEL will also provide students with knowledge of environmental issues as they pertain to their own field of study.

The CEL, offered through FENV, would provide a way of reaching beyond the traditional audiences served by environmental faculties and departments, which typically focus on “raising the ceiling” in environmental education – producing skilled, specialist students. In contrast, the CEL approach focuses on “raising the floor” - improving the awareness and conceptual sophistication of the non-specialist. We believe that this can bring benefits to society as a whole and will be good for SFU in terms of defining its distinct niche. We have been unable to find a similar certificate in North America, where environmental certificates tend to have a narrower focus (e.g. sustainability leadership, food systems, environmental education, etc.).

The CEL will require students to complete a total of 21 units, comprising 12 lower division units and a minimum of 9 lower and/or upper division units depending upon electives taken. These requirements include three introductory environmental courses (one physical, one ecological and one social science); one course introducing students to the complexity and interdisciplinarity of the environment issues; and a minimum of 9 units of electives chosen from one of the three elective groups: the Social and Historical Group, the Natural Science Group and the Environmental Management Group.

The resources required to mount this certificate are modest since the certificate relies upon mainly existing courses. Only one new course is required, which is being supported through the Collaborative Teaching Fellows Program funded through the office of the VP Academic.

#### **1. Credential to be Awarded**

Students will be awarded a Certificate in Environmental Literacy (CEL).

#### **2. Location of Program**

Course will be offered primarily at Burnaby campus. Some courses will be available at Harbour Centre and Surrey campuses.

### **3. Department Offering Program**

Faculty of Environment

### **4. Anticipated Start Date**

September 2012

### **5. Program Description**

#### *5.1. Aims, Goals, and Objectives*

The aim of the Certificate in Environmental Literacy is to provide students with the foundational environmental knowledge needed to participate in the democratic process related to environmental issues as well as to apply that knowledge in their chosen field.

Both the student focus group and the FENV Curriculum Committee discussed the term “environmental literacy”. It was agreed that the term “environmental literacy” has currency both within and outside of the environmental community. The Environmental Literacy Council states that “environmental literacy requires a fundamental understanding of the systems of the natural world, the relationships and interactions between the living and non-living environment, and the ability to deal sensibly with the problems that involve scientific evidence, uncertainty, and economic, aesthetic and ethical considerations”. We feel this accurately reflects the aim of the CEL.

The CEL addresses the need for undergraduate students from a broad range of disciplines to have an understanding of the complexity and interdisciplinarity of environmental issues. It seeks to introduce students to physical, ecological, and social perspectives on the environment, with emphasis on the functioning of physical and ecological systems and how human activities have affected and are affected by such systems over time. Typically, the CEL will also provide students with knowledge of environmental issues as they pertain to their own field of study.

#### *5.2. Anticipated contribution to the mandate and strategic plan of the institution*

The successful implementation of the CEL requires collaboration among diverse departments and Faculties and should enhance the coordinating role of FENV in environmental programming that was mandated in its formation. These relationships will form the basis for future interdisciplinary course and program development.

Development of environmental literacy programming is a high priority within the FENV Strategic/Academic Plan and accords with FENV’s Guiding Principles. These principles include: being a focal point for co-ordination and promotion of environmental teaching; promoting environmental literacy; developing programs that integrate environmental knowledge; and establishing interdisciplinarity and collaboration as accepted elements in environmental programming at SFU. The present certificate will be one of FENV’s collaborations with units elsewhere on campus in promoting these principles.

Development of the CEL directly supports SFU's strategic efforts. One of five SFU Values and Commitments is "We champion the liberal arts and sciences and pioneering interdisciplinary and professional programs". The 2010 Planning Framework calls for two strategies that directly relate to this initiative. One is to "Grow programs in areas of strategic importance (as defined in the SFU Academic Plan) and high student demand." The 2010 Academic Plan specifically calls for the completion of the development of planned Environment programs. The second related strategy directs SFU to "Promote our interdisciplinary focus in research and teaching by configuring programs to maximize strengths and synergies between Faculties." Development of this Certificate also supports SFU policy and commitment on sustainability teaching (G.P 38, 3.2.1).

Within the 2011 enVision discussion paper interdisciplinarity was mentioned as a value/priority that received attention. One of the objectives in that paper is to "Develop undergraduate students with the foundational writing, quantitative and research skills that promote critical thinking and inform interdisciplinary enquiry". The enVision discussion paper also identified sustainability as one of the six guiding principles for the university. This certificate addresses both sustainability and interdisciplinarity within its design.

We hope that as the CEL becomes established, individual departments will modify existing courses in order to increase the environmental content and thus be included among the CEL electives.

### *5.3. Target audience*

The CEL is designed to serve those SFU undergraduate students not enrolled in programs with an environmental focus.

### *5.4. Content and summary of requirement for graduation*

The CEL will require students to complete a total of 21 units, comprised of 12 lower division units and a minimum of 9 lower and/or upper division units depending upon electives taken. These requirements include three introductory environmental courses (one physical, one ecological and one social science); one course introducing students to the complexity and interdisciplinary of the environment issues; and a minimum of 9 units of electives chosen from one of the three elective groups.

#### **Core Requirements (12 units)**

BISC 204-3 Introduction to Ecology *or* GEOG 215-3 Biogeography  
ENV 222-3 Environmental Controversy: an interdisciplinary study of environmental issues (new)  
GEOG 102-3 World Problems in Geographic Perspective *or* REM 100-3 Global Change  
GEOG 111-3 Earth Systems

Electives (9 units) selected from one of the following groups :

- Social and Historical (Group A)
- Natural Science (Group B)
- Environmental Management (Group C)

## Social and Historical (Group A)

**ARCH 329-3** - Special Topics in Environmental Archaeology  
**ARCH 340-5** Zooarchaeology  
**ARCH 365-3** Ecological Archaeology  
**ARCH 386-3** Archaeological Resource Management  
**ARCH 390-5** Archaeobotany  
**FNST 212-3** Indigenous Perceptions of Landscape  
**FNST 332-3** Ethnobotany of British Columbia First Nations  
**FNST 403-3** Indigenous Knowledge in the Modern World  
**FNST 433-4** Indigenous Environmental Activism  
**GEOG 322-4** World Resources  
**GEOG 362-4** Geography of Urban Built Environments  
**GEOG 377-4** Environmental History  
**GEOG 385-4** Agriculture and the Environment  
**GEOG 389W-4** Nature and Society  
**HIST 377-4** Environmental History  
**HSCI 216-3** Ecological Determinants of Human Growth, Development and Health  
**HSCI 304-3** Perspectives on Environmental Health  
**HSCI 309-3** Health and the Built Environment  
**HUM 325-4** The Humanities and the Natural World  
**PHIL 328-3** Environmental Ethics  
**SA 326-4** Ecology and Social Thought  
**SA 371-4** The Environment and Society

## Natural Science (Group B)

**BISC 304-3** Animal Ecology  
**BISC 309-3** Conservation Biology  
**BISC 313-3** Environmental Toxicology  
**CHEM 191-3** Living in a Materials World: From the Stone Age to Nanoscience  
**CHEM 192-3** Chemistry in Your Home, Work, and Environment  
**CHEM 317-2** Analytical Environmental Chemistry  
**CHEM 371-3** Chemistry of the Aqueous Environment  
**CHEM 372-3** Chemistry of the Atmospheric Environment  
**EASC 104-3** Geohazards - Earth in Turmoil  
**EASC 107-3** Economic Geological Resources  
**EASC 303W-3** Environmental Geoscience  
**EASC 304-3** Hydrogeology  
**EASC 314-3** Principles of Glaciology  
**EVSC 100-3** Introduction to Environmental Science  
**GEOG 213-3** Introduction to Geomorphology  
**GEOG 214-3** Climate and Environment  
**GEOG 311-4** Hydrology  
**GEOG 312-4** Geography of Natural Hazards  
**GEOG 313-4** River Geomorphology  
**GEOG 314-4** Weather and Climate  
**GEOG 315-4** World Ecosystems  
**GEOG 316-4** Global Biogeochemistry and Water Cycles  
**GEOG 318-4** Soils in Our Environment  
**PHYS 346-3** Energy and the Environment

## Environmental Management (Group C)

**BUS 453-3** Sustainable Innovation  
**BUS 489-3** Management Practices for Sustainability  
**DEVS 201-3** Introduction to Development and Sustainability  
**DEVS 401-4** Issues Concepts and Cases in Development and Sustainability  
**ECON 260-3** Environmental Economics  
**ECON 362-4** Economics of Natural Resources  
**ECON 460-3** Seminar in Environmental Economics  
**ENV 321-3** Ecological Economics  
**GEOG 322-4** World Resources  
**GEOG 385-4** Agriculture and the Environment  
**POL 452W-4** Energy Policy  
**REM 201-3** Introduction to Sustainable Community Development  
**REM 301-4** Sustainable Community Development Theory and Practice  
**REM 321-3** Ecological Economics  
**REM 356-3** Institutional Arrangements for Sustainable Environmental Management  
**REM 445-3** Environmental Risk Assessment  
**REM 471-3** Forest Ecosystem Management  
**SCD 201-3** Introduction to Sustainable Community Development  
**SCD 301-4** Sustainable Community Development Theory and Practice

### *5.5 Delivery methods*

Core courses and electives will be offered through campus-based courses. Only REM/SCD 201-3 and REM/SCD 301-4 are offered also via distance learning.

### *5.6 Linkages between learning outcomes and curriculum design*

Learning outcomes for the CEL are:

1. Students will have an understanding of **physical and ecological systems** as they relate to environmental issues.
2. Students will have an understanding of **how human activities have affected these systems** over time.
3. Students will have an understanding of the **interplay and complexity** within and among physical, social and biological systems as they relate to environmental issues.
4. Students will gain general **disciplinary knowledge** in one general area of study (Social and Historical, Natural Science and Environmental Management) in relation to environmental issues.

These four CEL program learning outcomes guided the selection of both the required core courses and the possible electives. All courses included in the CEL focus primarily on environmental content. Their selection built upon a 2011 comprehensive survey of environmental and sustainability courses carried out by FENV and the Teaching and Learning Centre. Confirmation of environmental content and appropriateness for inclusion was achieved through consultation with all the relevant

departments across campus. All departments offering courses within the CEL have expressed their support for inclusion.

The required core courses perform different functions. BISC 204/GEOG 215 and GEOG 111 introduce students to the earth's physical and biotic systems (learning outcome 1). GEOG 102/REM 100 explore humankind's impact on these physical and biotic systems (learning outcome 2). ENV 222 engages students in exploring the complexity and interdisciplinarity of environmental issues through detailed examination of several environmental controversies (learning outcome 3).

The careful selection and organization of electives into three groups, Social and Historical, Natural Science and Environmental Management Groups, is intended to provide students with the opportunity to explore the connections between their area of study, broadly defined, and the environment (Learning Outcome 4). Selection of these courses, many of them upper division, will encourage the students to take environmental courses within their home departments. In many cases the three required elective courses can be taken from a single department within a single elective group (i.e. ARCH, BISC, CHEM, EASC, ECON, FNST, GEOG, HSCI, and REM); in other cases (i.e. BUS, HIST, SA and SCD) two departmental courses are placed in a single elective group. It is our hope that additional environmental courses from non-FENV departments will be developed and added to the CEL elective groups in the future.

While most students will be able to utilize courses within their departments, counting these towards both this certificate and their program of study, students in environmental specialist programs will not be able to receive the CEL "by accident" by simply completing the requirements of their environmental programs. Students in the following programs will be ineligible to receive the CEL:

- Environmental Science major (B.Sc.)
- Geography and Economics – environmental specialty major (B.A.)
- Geography - environmental specialty major (B.A.)
- Geography - environmental specialty honours (B.A.)

Completion of core requirements could provide students with up to 6 units towards their WQB requirements (GEOG 102 B-SS; GEOG 111 B-Sci, REM 100 B-SS) making it more attractive to students. We intend to apply for B-Sci/SS status for ENV 222.

### ***5.7 Distinctive characteristics***

Environmental Literacy provides a way of reaching beyond the traditional audiences served by environmental faculties and departments, which typically focus on "raising the ceiling" in environmental education – producing skilled, specialist students. In contrast, the CEL approach focuses on "raising the floor" - improving the awareness and conceptual sophistication of the non-specialist. We believe that this can bring benefits to society as a whole and will be good for SFU in terms of defining its distinct niche. We have been unable to find a similar certificate in North America, where environmental certificates tend to have a narrower focus (e.g. sustainability leadership, food systems, environmental education, etc.).

In terms of design, the CEL, rather than concentrating on a particular academic field, engages students in the study of environmental issues through several lenses and departments. The ENV 222 required core course will draw upon environmental knowledge gained in core and elective courses and will explore environmental issues in their complexity and interdisciplinarity.



### ***5.8 Anticipated completion time***

Completion of the CEL will take the same time as Certificate degrees in other units and programs. For example, it will be possible to complete the Certificate as a part of 3 to 4 semesters of full time study.

### ***5.9 Enrollment plan for the length of the program***

The CEL will be open to all undergraduates registered and in good academic standing at SFU who are not in environmental specialist programs. Should the Senate approve the full program proposal, CEL details will be provided to faculty and departmental advisors and publicized through the FENV website and other SFU media. Information on the CEL will also be distributed through student organizations such as SFU PIRG, Sustainable SFU and student unions.

In order to facilitate timely completion of the CEL, core courses will typically be offered twice per year, although current plans are for ENV 222 to be offered annually. And since each elective group contains more than 20 courses, students should be able to complete elective requirements in a timely manner.

### ***5.10 Policies on student evaluation***

As per general regulations of the University and the Faculty of Environment.

### ***5.11 Policies on faculty appointments (minimum qualifications)***

Existing regular faculty will typically teach all courses. In some instances, qualified sessional instructors may teach courses.

### ***5.12 Policies on program assessment***

The Certificate in Environmental Literacy will be governed and managed by FENV, in conformity with faculty and university regulations. A steering committee, administered by a FENV Associate Dean and made up of FENV representatives and appropriate representation from other faculties, will meet once each year to discuss curriculum-related matters and supervision of this certificate.

FENV will evaluate the CEL after 2 years in terms of students receiving the CEL “accidentally” as a result of satisfying the requirements of FENV majors and minors.

### ***5.13 Level of support and recognition from other post-secondary institutions***

As per SFU’s transfer credit procedures, students may transfer appropriate units from BC colleges and universities into this program. There is no applicable regulatory or professional body that requires accreditation of this program.

### ***5.14 Evidence of student interest***

In the coming decades society will increasingly need to address critically important issues involving environment and sustainability. These issues are often described as “the most important challenge of our time”. Our graduates, as members of society, will play an important role in our response to these issues. This Certificate will support students in obtaining the knowledge they need to make informed decisions.

Recent SFU data indicate that SFU undergraduate students understand this need. In the 2009 Undergraduate Student Survey, students were asked, “If you were to start your SFU studies over again, how interested would you be in enrolling in courses or programs focusing on environmental awareness?” Of the 5,804 respondents, 975 students indicated that they would “very interested” (16.8%) and 1884 students stated that they would be “somewhat interested” (32.5%).

During the period 2005-2010, between 17 and 23 Sustainable Community Development Certificates were awarded annually at SFU. Depending on the year, this FENV certificate ranked as the third, fourth, or fifth most popular certificate on campus. Its relative success provides some additional evidence of student interest in the area of environment and sustainability.

In October 2011, FENV and the student organization Sustainable SFU co-sponsored two CEL student focus groups. Twenty-two students from 11 different SFU units reviewed a draft version of the CEL FPP and provided input that was used in modifying the proposal. There was unanimous support for the certificate.

We anticipate that there will be substantial student interest in the proposed certificate at SFU, with an estimated 15 to 20 students enrolling in the first year and increasing to annual graduation of 25 students or more.

### ***5.15 Resources***

No additional resources are necessary in delivering the elective courses for the Certificate since these are presently being offered. The list of electives is sufficiently large so that no single course or department will be overburdened with new registrants. Consultation with participating departments provided support for inclusion of these courses. If the CEL attracts substantial student numbers, additional sections of core required courses might be needed.

Only one new course is required for the CEL. ENV 222 was developed in 2011 and is being piloted in January 2012. The Collaborative Teaching Fellow Program funded its development and will support instruction for the next 3 years. The course was designed to be team taught, reducing the burden on individual faculty members. Additionally, the framework and curriculum has been designed in order to facilitate and take advantage of a change in faculty teaching the course.

Administratively the CEL will be supported through FENV’s Dean’s Office. Presently 1.5 positions are engaged in student advising, scheduling, and other administrative tasks in support of non-departmentalized programs (i.e. B.Sc. Environmental Science, Development and Sustainability Minor and Certificate in Sustainable Community Development). Additionally, the FENV Curriculum and Academic Planning Manager will be responsible for curricular modifications of the program

including supporting the CEL Steering Committee. No additional funds will be required for CEL administration.

*Faculty teaching:*

List of faculty members who will be teaching

In addition to the many faculty members who teach CEL electives, core courses can be taught by the following faculty:

Owen Hertzman, Senior Lecturer, Geography  
Duncan Knowler, Associate Professor, Resource & Environmental Management  
Karen Kohfeld, Assistant Professor, Resource & Environmental Management  
Meg Krawchuk, Assistant Professor, Geography  
Lance Lesack, Professor, Geography and Biological Sciences  
Vance Williams, Associate Professor, Chemistry  
David Zandvliet, Associate Professor, Education

### *5.16 Related Programs*

This program will be unique within British Columbia. Although, several credentials at SFU and at other universities in BC offer broad interdisciplinary environmental content, this is the only program of which we are aware that targets non-specialists.

Several units at SFU offer programs with an environmental focus at the undergraduate level. Among them:

Biological Sciences major - Ecology, Evolution and Conservation Stream  
Development and Sustainability minor  
Earth Sciences major - environmental geoscience stream  
Environmental Science major  
Environmental Toxicology minor  
Geography - environmental specialty major  
Physical Geography major  
Sustainable Community Development certificate

Some of both the required core courses and electives will be common to the CEL and one or more of these programs. We anticipate that the CEL will serve as a gateway into these programs.

## **6. Contact Persons**

Duncan Knowler, Associate Dean, FENV, 778-782-8827, [djk@sfu.ca](mailto:djk@sfu.ca)  
Dan Burns, Manager, Curriculum and Planning, FENV, 778-782-9225, [dburns@sfu.ca](mailto:dburns@sfu.ca)

## **Appendices**

CEL Calendar Description  
CEL Course Descriptions  
CEL Notice of Intent

# Certificate in Environmental Literacy

*Faculty of Environment, Simon Fraser University Calendar 2012 Fall*

The CEL addresses the need for undergraduate students from a broad range of disciplines to have a basic understanding of the complexity and interdisciplinarity of environmental issues. It seeks to introduce students to physical, ecological, and social perspectives on the environment, with emphasis on the functioning of physical and ecological systems and how human activities have affected and are affected by such systems over time. Typically, the CEL will also provide students with knowledge of environmental issues as they pertain to their own field of study.

The CEL will require students to complete a total of 21 units, comprised of 12 lower division units and a minimum of 9 lower and/or upper division units depending upon electives taken. These requirements include three introductory environmental courses (one physical, one ecological and one social science); one course introducing students to the complexity and interdisciplinarity of the environment issues; and a minimum of 9 units of electives chosen from one of the three elective groups.

Earned units may be applied the student's 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.

Students in the following environmental specialty programs will be ineligible to receive the CEL:

- Environmental Science major (B.Sc.)
- Geography and Economics – environmental specialty major (B.A.)
- Geography - environmental specialty major (B.A.)
- Geography - environmental specialty honours (B.A.)

## Program Requirements

Students complete at least 21 units, of which 12 units are required core courses and the remaining nine units are selected from the one of the electives groups.

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

### Core Courses

Students complete a minimum of 21 units, including all of

- BISC 204-3 Introduction to Ecology **or** GEOG 215-3 Biogeography
- ENV 222-3 Environmental Controversy: : an interdisciplinary study of environmental issues
- GEOG 102-3 World Problems in Geographic Perspective **or** REM 100-3 Global Change
- GEOG 111-3 Earth Systems

## Elective Groups

Students complete a minimum of 9 units from **one** of the groups of electives

### Social and Historical (Group A)

**ARCH 329-3** - Special Topics in Environmental Archaeology

**ARCH 340-5** Zooarchaeology

**ARCH 365-3** Ecological Archaeology

**ARCH 386-3** Archaeological Resource Management

**ARCH 390-5** Archaeobotany

**FNST 212-3** Indigenous Perceptions of Landscape

**FNST 332-3** Ethnobotany of British Columbia First Nations

**FNST 403-3** Indigenous Knowledge in the Modern World

**FNST 433-4** Indigenous Environmental Activism

**GEOG 322-4** World Resources

**GEOG 362-4** Geography of Urban Built Environments

**GEOG 377-4** Environmental History

**GEOG 385-4** Agriculture and the Environment

**GEOG 389W-4** Nature and Society

**HIST 377-4** Environmental History

**HSCI 216-3** Ecological Determinants of Human Growth, Development and Health

**HSCI 304-3** Perspectives on Environmental Health

**HSCI 309-3** Health and the Built Environment

**HUM 325-4** The Humanities and the Natural World

**PHIL 328-3** Environmental Ethics

**SA 326-4** Ecology and Social Thought

**SA 371-4** The Environment and Society

### Natural Science (Group B)

**BISC 304-3** Animal Ecology

**BISC 309-3** Conservation Biology

**BISC 313-3** Environmental Toxicology

**CHEM 191-3** Living in a Materials World: From the Stone Age to Nanoscience

**CHEM 192-3** Chemistry in Your Home, Work, and Environment

**CHEM 317-2** Analytical Environmental Chemistry

**CHEM 371-3** Chemistry of the Aqueous Environment

**CHEM 372-3** Chemistry of the Atmospheric Environment

**EASC 104-3** Geohazards - Earth in Turmoil

**EASC 107-3** Economic Geological Resources

**EASC 303W-3** Environmental Geoscience

**EASC 304-3** Hydrogeology

**EASC 314-3** Principles of Glaciology

**EVSC 100-3** Introduction to Environmental Science

**GEOG 213-3** Introduction to Geomorphology

**GEOG 214-3** Climate and Environment

**GEOG 311-4** Hydrology

**GEOG 312-4** Geography of Natural Hazards

**GEOG 313-4** River Geomorphology

**GEOG 314-4** Weather and Climate

**GEOG 315-4** World Ecosystems  
**GEOG 316-4** Global Biogeochemistry and Water Cycles  
**GEOG 318-4** Soils in Our Environment  
**PHYS 346-3** Energy and the Environment

**Environmental Management (Group C)**

**BUS 453-3** Sustainable Innovation  
**BUS 489-3** Management Practices for Sustainability  
**DEVS 201-3** Introduction to Development and Sustainability  
**DEVS 401-4** Issues Concepts and Cases in Development and Sustainability  
**ECON 260-3** Environmental Economics  
**ECON 362-4** Economics of Natural Resources  
**ECON 460-3** Seminar in Environmental Economics  
**ENV 321-3** Ecological Economics  
**GEOG 322-4** World Resources  
**GEOG 385-4** Agriculture and the Environment  
**POL 452W-4** Energy Policy  
**REM 201-3** Introduction to Sustainable Community Development  
**REM 301-4** Sustainable Community Development Theory and Practice  
**REM 321-3** Ecological Economics  
**REM 356-3** Institutional Arrangements for Sustainable Environmental Management  
**REM 445-3** Environmental Risk Assessment  
**REM 471-3** Forest Ecosystem Management  
**SCD 201-3** Introduction to Sustainable Community Development  
**SCD 301-4** Sustainable Community Development Theory and Practice

**NOTICE OF INTENT**  
**Certificate in Environmental Literacy**  
**Faculty of Environment, Simon Fraser University**  
**April 19, 2011**

**Executive Summary**

Responsible citizenship and good social choices about environmental issues necessitate a minimum level of environmental literacy among the general population. While SFU has significant strengths in programs for those who choose to specialize in environment related disciplines, there is a critical need for coherent environmental programming for non-environment majors.. However, many individual courses exist at SFU that could support a goal of broad-based environmental literacy if students were given an opportunity to fit them into their program. The proposed Certificate in Environmental Literacy (ELC) will address this need. The ELC will require completion of two introductory environmental courses and one integrative course addressing environmental issues from an interdisciplinary, problem-based perspective. Additionally, students will complete 6 units of environmental social science/humanities courses and 6 units of natural environmental science courses, selected from a broad, inclusive range of options which allows the student to relate the environment theme to their overall educational interests. With the exception of the integrative course, all other courses are presently being taught on a regular basis. Introducing the ELC is consistent with the SFU 2010 Academic Plan, the Faculty of Environment (FENV) mandate and Strategic/Academic Plan and the SFU Policy on Sustainability.

**Credential to be awarded:**  
**Certificate in Environmental Literacy**

**Location of program:**  
**SFU Burnaby Campus**

**Faculty offering the new degree program:**  
**Faculty of Environment**

**Anticipated program start date:**  
**September 2012**

**Description of the proposed program:**

**Aims and Objectives**

Our intention is to address the need for graduates from a broad range of disciplines to possess basic knowledge of natural and social science/humanities perspectives on the environmental. Students completing the Certificate will understand environmental issues through the lenses of several disciplines. The interdisciplinary ENV course will complement this process by fostering an understanding of the complexities within/between systems.

**Anticipated Contribution to Sustainability of SFU and the Faculty of Environment Strategic Plan**

The development and successful implementation of the ELC requires collaboration among Faculties/departments and should contribute to the coordinating role of FENV in environmental programming as mandated in its formation. These relationships will form the basis for future interdisciplinary course and program development.

4/7/11 2:37 PM

x



Development of environmental literacy programming is a high priority within the FENV Strategic/Academic Plan and accords with FENV's Guiding Principles; these principles include: being a focal point for co-ordination and promotion of environmental teaching, promoting environmental literacy, developing programs that integrate environmental knowledge, and establishing interdisciplinarity and collaboration as accepted elements in environmental programming at SFU. This certificate will be a cornerstone of the FENV's ability to partner with units outside the Faculty in promoting these principles.

Development of the ELC directly supports SFU's strategic efforts. One of five SFU Values and Commitments is "We champion the liberal arts and sciences and pioneering interdisciplinary and professional programs". The 2010 Planning Framework calls for two strategies that directly relate to this initiative. One is to "Grow programs in areas of strategic importance (as defined in the SFU Academic Plan) and high student demand." The 2010 Academic Plan specifically calls for the completion of the development of planned Environment programs. The second related planning strategy directs SFU to "Promote our interdisciplinary focus in research and teaching by configuring programs to maximize strengths and synergies between Faculties." Development of this Certificate also supports SFU policy and commitment on sustainability teaching (G.P 38, 3.2.1).

### Target Audience

The ELC is designed to serve SFU undergraduate students who are not specializing in environmentally themed areas.

### Content and Summary of Requirements for Graduation

The ELC will require students to complete a total of 21 units, primarily at the lower division. These requirements include two introductory environmental courses (one natural science and one social science/humanities), one required lower division ENV course introducing students to the interdisciplinary study of the environment, and 12 units of environmental electives; 6 in social sciences/humanities and 6 in natural sciences.

#### Core Requirements (9 units)

- One course with a natural science approach to the environment.
- One course with a social science/humanities approach to the environment.
- ENV 2xx-3 Interdisciplinary Perspectives on the Environment (new course with a prerequisite of both courses listed above)

ENV 2xx-3 would serve as a core course for the ELC, it is also envisioned as a broader service course to meet general demand at SFU for learning opportunities related to interdisciplinary thinking on the environment. We anticipate that this course will also serve other FENV programming in the future.

#### Elective Requirements (12 units at the upper/lower division)

- 6 units from a list of environmental social science and humanities courses (Group A)
- 6 units from a list of environmental natural science courses (Group B).

### Delivery Methods

Core and electives courses will be offered using face-to-face modality.

### Linkages between the learning outcomes and the curriculum

ELC program learning outcomes will be developed and will guide both the selection of core courses and electives as well as the course design/outcomes of the ENV 2xx-3 interdisciplinary core course. The introductory core courses will provide a basic foundation for understanding a broad range of environmental problems facing society. The balance between natural science and social science/humanities electives will provide students with knowledge of human and natural systems that affect and are affected by the environment. The core ENV 2xx-3 course will guide students in integrating knowledge from multiple perspectives in dealing with environmental challenges.

### Distinctive characteristics

Rather than concentrating on a particular academic field, the Certificate requires that students take courses in both natural and social sciences/humanities. The required integrative ENV 2xx-3 course will encourage interdisciplinary thinking and understanding of complex economic, ecological and social systems. This course will include differing disciplinary perspectives on the environment, problem-based learning and analysis of case studies. The course may be co-taught using several experts from different Faculties, ideally from complementary environmental fields.

### Anticipated Completion Time in Semesters

Completion of the ELC will take the same time as Certificate degrees in other units and programs. For example, it will be possible to complete the Certificate as a part of 3 - 4 semesters of full time study.

### Enrolment plan for the length of the program

The ELC will be open to all undergraduates registered and in good academic standing at SFU who are not in specialist environmental programs (e.g. EVSC). After development and Senate approval of the full program proposal, ELC details will be provided to Faculty/Department Academic Advisors and publicized through the Faculty website and other SFU media.

### Student Evaluation

As per general regulations of the University and the Faculty of Environment.

### Program Assessment

The Environmental Literacy Certificate will be governed and managed by the Faculty of Environment, in conformity with Faculty and University regulations. A sub-committee of the Faculty of Environment Curriculum Committee will meet at least once each year to discuss curriculum-related matters and supervision of this certificate.

### Level of Support and Recognition from other Post-Secondary Institutions

As per SFU's transfer credit procedures, students may transfer appropriate units from BC colleges and universities into this program. There is no applicable regulatory or professional body that requires accreditation of this program.

#### Evidence of Student Interest and Labour Market Demand

In the next decades society will increasingly need to address critically important issues involving environment, sustainability and climate change. These issues are often described as "the most important challenge of our time". Our graduates, as members of society, will play an important role in our response to these issues. This Certificate will support students in obtaining the knowledge they need to make informed decisions. Recent SFU data indicate that SFU undergraduate students understand this need. In the 2009 Undergraduate Student Survey, students were asked, "If you were to start your SFU studies over again, how interested would you be in enrolling in courses or programs focusing on environmental awareness?". Of the 5,804 respondents, 49.3% indicated that they would "very interested" (16.8% 975 students) or "somewhat interested" (32.5%, 1884 students).

#### Summary of Resources Required and Available to Implement the Program

No additional resources are necessary in delivering the elective courses for the Certificate since these are presently being offered. Efforts will be made to ensure a sufficiently large list of electives so that no single course or department is overburdened with new registrants. One new integrative ENV course will need to be developed and taught. These faculty resources initially will be funded as course buyouts or secondments using funds presently available to FENV. These have been approved by the Dean for this purpose. Longer-term resources and funding requirements will need to be determined. No other program or resources will be reduced as a result of implementing the ELC.

#### Related programs at SFU or other British Columbia post-secondary institutions

This program will be unique within British Columbia. Several credentials at SFU and at other universities in BC offer broad interdisciplinary content. However, unlike the proposed certificate, these credentials are Minors and are comprised of primarily upper division courses. This is the only program of which we are aware that targets non-specialists. FENV itself offers a Minor in Geography, while UVic offers a Minor in Human Dimensions of Climate Change and UNBC offers Minors in Environmental Studies and Global Environmental Change. UBC's Minor in Environment and Society, like this proposed ELC, requires a balance of natural sciences and social sciences/humanities.

#### List of faculty members who will be teaching

This has not been determined but may include:

Ken Lertzman, Professor in REM

Mark Roseland, Professor in REM

Alex Clapp, Associate Professor in Geography

Duncan Knowler, Associate Professor in REM

Robert Anderson, Professor in Communications

plus various other faculty in the FENV and other Faculties, depending on final course selections.

#### **Proposed Program Contact Person:**

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