Simon Fraser University
STARS Reporting: AC 2 Learning Outcomes Credit
Last Updated: November 7, 2018

Credit Rationale:
This credit recognizes institutions with sustainability learning outcomes associated with program degrees and/or courses of study.

Definition:
Sustainability learning outcomes do not necessarily have to use the term "sustainability", learning outcomes must collectively address sustainability as an integrated concept having social, economic, and environmental dimensions for a program's graduates to count.

For example, learning outcomes that cover systems thinking, interdisciplinary capacities, social responsibility and the understanding of the carrying capacity of ecosystems would count.

General Notes:
SFU does not have institutional or division level learning outcomes pertaining to sustainability.
SFU does, however, require all students admitted to an undergraduate degree to complete a minimum of 36 units of courses designated as writing, quantitative, or breadth, with a grade of C- or better to receive the WQB credits requirement.

Writing Requirements - Courses with a "W" designation will assist students to learn the course content through the process of writing intensive assignments. These courses will help students to improve their writing abilities and overall communication skills and will teach students to write in the genres of their disciplines.

Quantitative Requirements - Courses with "Q" designation will assist students to develop quantitative (numerical, geometric) or formal (deductive, probabilistic) reasoning, and to develop skills in practical problem solving, critical evaluation, or analysis.

Breadth Requirements - Courses with "B" designation will expose students to concepts and ideas from a range of disciplines and perspectives outside of their programs.

Program Level Learning Outcomes:

The following SFU programs were identified as possessing sustainability related learning outcomes (educational goals) as articulated by the Faculty and/or as required for professional program accreditation.

Faculty of Environment

- Bachelor of Environment (Global Environmental Systems Major, Resource and Environmental Management Major, and Joint Sustainable Business Major)
  Bachelor of Environment majors are interdisciplinary, containing required and elective courses that are directly related to environment and sustainability. Educational goals for these programs include:

  - Earth Systems- earth processes including earth history, landforms, soils, atmosphere, hydrosphere and cryosphere, and their roles and interrelationships in ecosystems and climate.
  - Ecology - diversity and relationships of microorganisms, plants, and animals, and the abiotic and biotic factors that influence the distribution and development of ecosystems and their potential impacts on human health and livelihood.
  - Biology- basic biochemical and physiological mechanisms of human and other living organisms.
  - Human role in nature - the interaction of humans, natural resources and the biophysical environment in the past, present and future. Human cultural development, landscapes, livelihoods and industries.
  - Social and built environments - human settlements, urban structure, and sociospatial organization; the interaction of the built environment with health, housing, transportation, and public policy.
  - Stewardship and governance - normative ethical theories and their application to the natural environment and the obligations that humans bear with respect to it. Ecosystem services, externalities, and environmental policy, science and values
  - The global scale- global environmental change and its causes and effects, such as population growth, the ecological footprint, human health and social organization and technology as they affect landscapes, ecosystems and food supply. The cumulative effects of urbanization, energy, raw materials and climate change.
  - Complexity and decision-making - BEnv majors address the complexity of environmental systems, their potential social and biophysical impacts at various temporal and spatial scales, and their communication and resolution in environmental decision-making
  - Sustainability- Students will have knowledge and appreciation of the various concepts of sustainability and sustainable futures. Students will be familiar with sustainability strategies at multiple spatial, temporal and comparative scales.

- Master of Science in Ecological Restoration
  The goals of the program are to provide students with the knowledge and skills to:
  - Critically assess degraded ecosystems within different scales and locations (local to international) and identify primary causal factors contributing to the declining state of target ecosystems.
  - Design a restoration prescription (unique to the target site and project goals) by integrating ecological principles (theoretical) and physical processes with applied restoration techniques and approaches.
  - Develop and initiate detailed monitoring programs needed to assess the success of restoration programs and to identify approaches to guide the restoration process.
  - Adapt and modify the restoration approach as deemed appropriate based on monitoring results within an adaptive management framework.

- Establish strong scientifically-based approaches (research skills) to enhance "reliable knowledge" (reduce uncertainties) in the field of restoration ecology (the scientific foundation of ecological restoration).
- Act as a team leader and engage in respectful community engagement and planning of ecological restoration projects.
- Operate with a historically informed and policy sensitive understanding of the cultural practices and protocols of First Nations peoples.
- Communicate effectively with all levels internal and external to their organization as required to successfully initiate and conduct restoration programs.
- Develop and apply project management guidelines for each stage of a restoration project.
- Display and encourage behaviour and comportment that reflects integrity, responsibility, and the values and ethics of professional restoration practitioners.

Beedie School of Business

- Bachelor of Business Administration (BBA)
  Beedie School of Business is Association to Advance Collegiate Schools of Business AACSB accredited school and as part of the AACSB accreditation requirement, Beedie's Bachelor's degree program must adhere to the following learning experiences:

  - Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society
  - **Social responsibility, including sustainability, diversity and ethical behavior and approaches to management**
  - Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution
  - Group and individual behaviors in organizations and society

  Program outcomes include:
  - Global Perspective: Recognize the need to adapt business practices to the opportunities and challenges of an evolving global environment
  - Ethical Perspective: Demonstrate ability to recognize and identify ethical conflicts, apply ethical reasoning and assess response options relative to the needs and interests of relevant stakeholders to address issues in a business context
  - Critical Thinking: Identify, evaluate, analyze, interpret and apply information to address problems and make reasoned decisions in a business context
  - Core Business Knowledge: Apply business discipline knowledge in an integrative manner to business problems

  - Disciplinary Business Knowledge: Demonstrate the understanding and ability to apply professional standards, theory, and research to address business problems within specific concentrations

- MBA (Full-Time)
  Summer semester of the Full-Time MBA program tackles the topic of sustainability. Learning outcomes include:
  - apply lifecycle and systems thinking
  - identify the most material environmental and social issues for a given organization and communicate the strategic implications of those issues for the business
  - understand how to help organizations to embed sustainability into their governance, operations and supply chains
  - assess the sustainability performance of a given company and compare its sustainability performance to its peers
  - interact with others to improve sustainability practices within an organization or industry
  - determine how to incorporate sustainability into a career trajectory.

- MBA (Part-Time)
  Summer semester curriculum includes sustainability with the following learning outcomes:
  - The tools and resources available to help businesses deliver on current environmental and social commitments
  - How businesses can improve their sustainability performance

- Management of Technology MBA
  - Students learn how to navigate the moral issues and debates raised by direct participants and stakeholders in the high-tech economy. Topics include, character-building practices, moral stages in the high-tech career, corporate social responsibility and the role of reputational capital. Product lifecycle is explored as a special topic in the summer semester.

- Executive MBA
  - Ethics: Examine the relevance and importance of the highly topical subject of business ethics, with attention devoted to corporate social responsibility, professional ethics and reputational capital.
  - Indigenous Business and Communities: students explore matters involved when businesses are operating or intend to operate in the traditional territories of First Nations or other Indigenous Peoples. Cases where Indigenous relations were significant factors in the success or failure of businesses or major projects will be examined, and a sense of potential challenges and opportunities with regard to Indigenous business engagement will be explored.

  - Corporate responsibility: encompasses the social, ecological and economic responsibilities of organizations. Learn and integrative approach to topics such as philosophies of corporate social responsibility and environmental sustainability, sustainable business models, corporate transparency and reporting, and responsible leadership.

- EMBA in Indigenous Business & Leadership
  - The program themes are developed within the framework of Indigenous rights to self-governance in political and economic matters:
    - Entrepreneurship and business development
    - Building capacity of people and organizations
    - Sustainable, cultural and environmental stewardship
    - Principled leadership and governance
  - Summer semester topic specifically focuses on sustainability
- Americas MBA for Executives
  - Ethics and corporate social responsibility: understand the rational and concept supporting "triple bottom line" approach to measuring the firm's results, and gain insight into the challenges and approaches to mobilizing for change and interacting with stakeholders to develop sustainable business practices

- PhD Program
  - Acquire relevant interdisciplinary knowledge: all of our graduates will have a deep, interdisciplinary knowledge of the Faculty's research areas – globalization and emerging markets, knowledge, innovation and technology, society, environment and governance, and capital and risk management

- Certificate in Corporate Environmental and Social Sustainability
  - Systems-based approach: understand systems dynamics and apply systems thinking to decision making
  - Multidisciplinary thinking: apply knowledge from the physical and social sciences to analyze and improve business processes
  - Management fundamentals: articulate the business case for sustainability, interpret external factors and translate them internally to create business value
  - Communication: distill complex social and environmental information into relevant and impactful recommendations for business managers, frame sustainability issues in a way that is relevant for people working in a variety of organizational roles
  - Leadership and Interpersonal: understand the human element of sustainability by developing capacity for empathy and appreciation of diversity, develop capacities to lead organizations through transformative processes that foster sustainability

Faculty of Applied Sciences (https://www.sfu.ca/fas/schools-and-departments.html)

The School of Engineering Science and the School of Mechatronic Systems Engineering at SFU are both accredited by the Canadian Engineering Accreditation Board. All graduates from these two schools are considered to satisfy the requirements of this STARS credit. Specifically, they are:

- Bachelor of Applied Science – Engineering Science Major
- Bachelor of Applied Science – Mechatronic System Engineering Major
- Master of Engineering (MEng)
- Master of Applied Science (MASc) – Engineering Science
- Doctor of Philosophy – Engineering Science
- Masters of Applied Science (MASc) – Mechatronic System Engineering
- Doctor of Philosophy – Mechatronic System Engineering
- Professional Master's in Engineering (MEng) in Mechatronic Product Realization

Students graduating from these programs are exposed to a number of graduate attributes of which graduate attributes 8, 9 and 10 relate to sustainability. These are:

  - Professionalism: An understanding of the roles and responsibilities of the professional engineer in society, especially the primary role of protection of the public and the public interest.
  - Impact of engineering on society and the environment: An ability to analyze societal and environmental aspects of engineering activities. Such ability includes an understanding of the interactions that engineering has with the economic, health, safety, legal, and cultural aspects of society, the uncertainties in the prediction of such interactions; and the concepts of sustainable design and development and environmental stewardship.
  - Ethics and equity: An ability to apply professional ethics, accountability, and equity.

Faculty of Health Sciences

SFU's Faculty of Health Sciences offers one of Canada's most comprehensive and integrated programs and has a strong reputation for producing world-class innovative research and both its undergraduate and graduate program is accredited by the Council on Education for Public Health.

- Bachelor of Arts in Health Sciences and Bachelor of Science in Health Sciences
  - Draw on multiple disciplines and research traditions to identify and explain the social, behavioural, and biological determinants of health, wellness, and disease in communities and populations
  - Understand that health is an outcome of factors that occur on many levels, ranging from the social and cultural context to cellular and intracellular processes
  - Understand and be able to apply the core principles of health promotion and disease prevention to specific health problems in the community
  - Social, environmental, behavioural, and biological determinants of health
- Master in Public Health (Environmental & Occupational Health stream only)

- knowledge about the health status of populations, inequities in health, the determinants of health and illness, strategies for health promotion, disease and injury prevention, and health protection
- Effective practice entails the ability to identify and justify program and policy options, design public health programs, identify and work with institutional and community partners, and to communicate effectively with diverse stakeholders
- an ability to assess critically how various aspects or markers of social location affect health outcomes, access to health care, and program design and implementation; and an ability to think critically at a systems level, recognizing the interrelationships among and between factors that affect the health of populations.
- understanding the interdependencies of health systems, ranging from the tertiary services characteristic of health care to institutions that promote and protect health through policy, regulation, surveillance, and community-level programming.

Faculty of Education

- Equity Studies in Education MA, MEd
  - Critical social justice, anti-racism education, critical indigenous education, critical race feminisms, critical literacies, queer/ LGBT studies, human rights education, whiteness studies, globalization, postcolonial and neocolonial thought

Course Level Learning Outcomes:

- Bachelor of Science (BSc) - Earth Sciences Major, Earth Sciences Honours and Earth Sciences Minor (Faculty of Science)
  - All undergraduates of this program are required to take EASC 209W Environmental Geoscience as a requirement to graduate from this program.
- Graduate Certificate Development and Sustainability
  - Students must complete SD 801 - Issues, Concepts & Cases in Development and Sustainability
- Undergraduate Minor Development and Sustainability
  - Students must complete SD 281 – Sustainable Communicates, Sustainable World
- Undergraduate Certificate Sustainable Development
  - Students must complete SD 281 – Sustainable Communicates, Sustainable World
- Masters in Resource Management (MRM)
  - Students must complete REM 631: Earth Systems and Global Change in Environmental Management
- Masters in Resource Management Planning
  - Students must complete REM 631: Earth Systems and Global Change in Environmental Management
- Master in Public Health (Global Health stream)
  - Students must complete HSCI 845: Environmental Health
- Master in Public Health (Population Health stream)
  - Students must complete HSCI 845: Environmental Health

- Master in Public Health (Social Inequities stream)
    - Students must complete HSCI 845: Environmental Health
- Faculty of Educations Environmental Education Minor
    - Students must complete – EDUC 452: Environmental Education