Building a Sustainability Pathway in Biology

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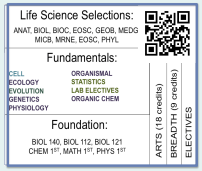
Introduction

The University of British Columbia is committed to providing its 47,000 students the opportunity to study sustainability. Achieving balanced coverage of this interdisciplinary topic requires coordination and collaboration between departments and faculties. Two foundational courses were developed and piloted (SUST 101, SCIE 120), upon which a sustainability curriculum can build. A capstone course will allow students to reflect and consolidate skills and knowledge acquired within the broader context of sustainability.

Biology Program Overview

UBC's Biology Program was recently restructured to allow students more flexibility in pursuing specific interests, such as sustainability, while working toward their BSc degree.



www.biology.ubc.ca

Project Objectives

- Develop a sustainability pathway that integrates the three pillars of sustainability and addresses key learning outcomes.
- Identify courses currently offered at UBC that support the pathway and serve as electives for the major.
- Develop an interdisciplinary capstone course.
- Develop graphics and mindmaps to assist comprehension on sustainability.
- Develop a pathway model that other programs can adopt.
- Develop an advising website and network for students pursuing a sustainability focus.

Outcomes

The primary goal of the sustainability pathway is to produce graduates with the "knowledge, skills and motivation to contribute to crucial elements of society", using student learning attributes developed by UBC as a framework for curriculum development.

UBC's USI Teaching and Learning Office and 2010 TLO Fellows (qrs.ly/ah2d5z0)

Year 4 / Year 3 / Year 1 and 2

CAPSTONE COURSE: 1 2 3 4

SUST/BIOL 4xx, 3 credits, 8 months, opportunity to reflect and build on previous experiences, interdisciplinary collaborative projects based on real-world issues, partnerships with community and industry, leadership skill development to engage and inspire others for positive action.

POTENTIAL PATHWAY ELECTIVES

- Based on their coverage of the three pillars of sustainability: Environment/Technology, Society, and Economics

1 2 3 4

qrs.ly/te2dnvx

BIOLOGY CORE

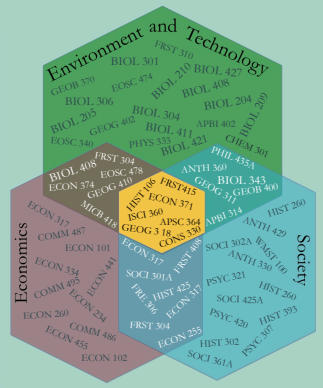
1 2 3 4

Includes courses offered in the Biology program. Additional courses to be added.

BIOL 3xx/4xx
Courses to be developed that support attributes and capstone course activities

BIOL 416
Conservation Biology

BIOL 230
Fundamentals of Ecology (program requirement)



REAL WORLD EXPERIENCE

2 3 4

SEEDS (Sustainability Ecological Environmental Development Studies)
Community Service Learning (CSL)
Co-op
UBC Farm
City Studio
BIOL 448
Go Global CSL (International Exchange)

1	**SCIE 120 (1 credits)** Sustainability Science Topics in sustainability, based on concepts introduced in first-year biology and chemistry courses.	**ASIC 220 (3 credits)** Pilot 2013. Developed by the Faculties of Science and Arts in collaboration with other faculties. Targeted for students in second year. No prerequisite.	**SUST 101 (3 credits):** Introduction to sustainability ideas and principals, models and contemporary issues. Piloted and under review.
2			
3			
4			

FOUNDATIONS IN SUSTAINABILITY

Contact: For more information about this project, please contact shona@mail.ubc.ca

Project Planning

Information Gathering:

- **UBC Sustainability Programing:** meet with individuals who have developed sustainability programming; identify challenges and lessons learned from other departments and faculties.
- **UBC Connections:** inter- and intra-faculty links and opportunities for collaborations.
- **UBC Sustainability Courses:** identify courses appropriate for sustainability pathway; collect course syllabi and learning objectives.
- **Sustainability in Biology Offerings:** survey Biology faculty about sustainability content in courses; identify core courses for pathway.
- **Survey Capstone Courses:** identify similar courses at UBC (e.g. ENVR 400) and abroad.
- **Identify Experiential Learning Opportunities:** Community Service Learning, CityStudio, Directed Studies (BIOL 448), GoGlobal, SEEDS.
- **Off-Campus Connections:** identify potential community and industry collaborators.

Pathway Structure:

- **Develop:** mission statement, pathway goals, learning objectives.
- **Graduate Attributes and Competencies:** identify key learning outcomes and map them onto pathway courses; integrate with Biology Program learning outcomes.
- **Program Organization**: consult with Sustainability in Biology (SIBs) committee, student focus groups, consult faculty members.
  Content: **Foundational** course options, **Biology Core** courses, **Elective** clusters based on sustainability coverage (3 pillars), **Real World Experiential** learning component (i.e. directed studies, internships, SEEDS, Community Service Learning), **Capstone Course**.

Undergraduate Advising:

- **Online:** develop advising tools to help students with course selection for sustainability (as well as other focus areas).
- **Approach**: students develop 4 year plan; face-to-face advising; Co-op, career, and alumni engagement.

Acknowledgements

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a place of mind
The University of British Columbia