

CURRICULUM GUIDE: OFFICIAL COURSE OUTLINE

Course Code	BIOL 105	Course Title	Biological Concepts in Sustainability			
Credit Value	4	Department	Mathematics and Science			
No. of weeks	14	Hrs. per week	<i>Lecture</i>	<i>Tutorial</i>	<i>Laboratory</i>	<i>Total</i>
			3	0	3	6
Course Description	<p>This course uses a biological perspective to analyze environmental problems and uses the framework of sustainability to address possible remedies and solutions for environmental issues.</p> <p>Students will analyse the dimensions and ramifications of sustainable strategies to overcome current global issues through the study of relevant biological science topics. This course provides students with a foundation for future study by exploring both quantitative and qualitative methods used to investigate biological sustainability as well as theoretical perspectives.</p> <p>By focusing on current issues and case studies from around the world this course will help prepare global citizens to engage in policy debates on environmental issues.</p>					
Prerequisite(s)	ENGL 098					
Initial Articulation Targets	<i>UBC</i>	<i>SFU</i>	<i>UVic</i>	<i>UNBC</i>	<i>TRU</i>	
	GEOG_V 1st (3)	EVSC 100 (3)	BIOL 1XX (1.5)	NREM 101 (3)	BIOL 1XXXX (3)	
	For updated information on the transferability of this course, please consult the BC Transfer Guide, www.bctransferguide.ca					
Learning Outcomes	<p>Upon successful completion of this course, the student will be able to:</p> <ul style="list-style-type: none"> • Compare and evaluate local, regional and global sustainability practices. • Evaluate sustainability challenges, and practice sustainability strategies through performing lab activities, field trips, case studies and by conducting a research project. • Analyze the challenges of sustainability through biological sciences perspectives. • Evaluate the role of scientific perspectives in ecosystem analysis and management and compare multiple perspectives and factors that go beyond science, including the impact of social, economic and political factors. 					
Content	<p>Core topics – all of the following will be covered:</p> <ul style="list-style-type: none"> • Environmental worldviews; history of the environmental movement • Ecosystems; energy principles • Human population dynamics; patterns of resource use, environmental issues, and environmental ethics • Interaction between soil and the carbon cycle • Environmental literacy and basic soil concepts, the role of soil in food and energy security, processes of soil erosion and conservation strategies, and the interdependence of soil and 					



	<p>water resources; strategies for sustaining our soil resources: interactions at the local, national, and global scales</p> <ul style="list-style-type: none">• Wastewater and sustainability• Storm Water and sustainability• Water Conservation• Energy Conservation• Construction, Renovation and sustainability• Hazardous and Toxic Substances• Waste management• Assessing Environmental Impact• Global Ecosystems and Climate• Environmental Policy and Planning• Sustainable Health Care, the Sustainability of Canada's Healthcare System• Principles and practices necessary to understand practical concerns of sustainable food systems• Agri-food systems from perspectives such as environmental stewardship, food self-reliance, ethics, health, and nutrition <p>Additional topics may also be covered, at the discretion of the instructor.</p> <p>Labs:</p> <ul style="list-style-type: none">• Scientific Method, Effect of Acids on Seeds & Flowers• Measurement of P, N, K, pH in Soil• Soil and Pond Water Microbiology and Microscopy• Water Treatment and Filtration• Air Particulates• Water Hardness Analysis• Green Energy• Kinder Morgan
Methods of Instruction	Lectures, demonstrations, small group discussions, case study analysis, concept mapping, internet research, and field trips.
Required Textbook(s)	The following textbook(s) is/are required, or approved equivalent(s). Freeman, B. (2018). Environmental science: A Canadian perspective. Dalhousie University.
Required Equipment and Technology	Students are required to have a computer with internet access. The following resources are provided by the College: <ul style="list-style-type: none">• Office 365• Student email
Homework Hours	At minimum, students can expect one hour of homework for every hour of instructional time.



	<i>Component</i>	<i>% Value</i>	
Evaluation	Quizzes and assignments	10-15%	
	Laboratory experiments and activities	15-20%	
	• Weight divided over 8 labs		
	Comprehensive laboratory exam	15-20%	
	Midterm exam	15-20%	
Comprehensive final exam	30-35%		
Completion Requirements	The minimum grade to pass this course is D (50%). Unless otherwise stated, a minimum grade of C- (55%) is required for this course to fulfil a prerequisite.		
Course Designer(s)	Mitra Panahi, Ph.D. Biology Instructor, Alexander College	Consultant(s), <i>if applicable</i>	Carol Pollock, Ph.D., Professor Emerita, University of British Columbia
Dean's Approval	Barbara Moon, Ph.D. Dean of Arts and Sciences, Alexander College	Dean's Approval Date	February 14, 2018
Curriculum Committee Approval Date	February 14, 2018	First Term Offered	Fall 2018
Last Review Date	September 1, 2024	Next Review Date	September 1, 2029
Revision History	February 14, 2023. Minor revisions and updates to grading ranges, textbook, topics covered by Mitra Panahi. September 1, 2024 – Laboratory assessments revised by Kelly Cheung.		