Course Title:	Ecology: The Science of Environmental Issues
Course Code:	CLD9017
No. of Credits/Term:	3 credits per term
Mode of Tuition:	Sectional
Class Contact Hours:	3 hours/week split into two 1.5 hour classes
Category in Major Prog.:	Science, Technology and Society
Prerequisite:	Not applicable
Co-requisite:	Not applicable
Exclusion:	Not applicable
Exemption Requirements:	Not applicable

Brief Course Description

Climate change, extinction, air pollution, deforestation, pollution, invasive species, energy, and water supply are all environmental issues facing us today and in the future. If citizens and leaders are going to make wise decisions about these and other issues related to the environment, sustainable development, and global citizenship then it will be necessary for them to have a strong understanding of the science behind the issues.

Aims

The goal of this course is to introduce students to the scientific approach, the methods (both experimental and theoretical) that environmental scientists use to learn about the world, and the principles of ecology that underlie environmental issues. This course will examine the complexity of current environmental issues and efforts at sustainable development.

In particular, this course will focus on how the field of ecology can inform discussions about the UN Sustainable Development goal of Responsible Consumption and Production. After an introduction to the main principles of the field of ecology the class will select an issue/issues or issues for closer consideration (for example, sustainable palm oil production in SE Asian rainforests, sustainable consumption of seafood in Hong Kong, etc.)

Intended Learning Outcomes

Upon completion of this course, a fully-engaged student will be able to:

1. Describe and apply the approaches and methods that environmental scientists use to learn about their field. Discuss the strengths and weaknesses of these scientific approaches as a way of learning about environmental issues.
2. Identify, describe, and apply basic concepts in ecology at the individual, population, community, and ecosystem levels.
3. Identify, describe and apply the ecological concepts that underlie environmental issues and how these issues affect human societies.
4. Identify, and be able to communicate about (both orally and in writing) current ecological, environmental, and sustainability issues.
5. Present, both in writing and orally, information about current ecological, environmental, and sustainability issues to a general audience and engage in debate about these issues.

Indicative Content

Scientific Approaches Used in Ecology and Environmental Sciences

- alternative facts/fake news

Natural Selection

- pesticide/antibiotic resistance

Population Biology. Exponential and Logistic Growth

- human population growth

Community Ecology. Interspecific interactions

- loss of biodiversity

- disruption of ecosystem function

Ecosystem Ecology. Energy flow and nutrient cycling

- water and air pollution

- soil erosion/depletion

- global climate change

Sustainability Goals

- responsible consumption and production

Teaching Method:

Lectures, videos, class discussions and debates, in-class activities, flipped classroom

Measurement of Learning Outcomes:

Quizzes/worksheets: Quizzes, either in class or take home, will assess student learning of concepts through questions that involve short answers, problem solving, graphic, drawing diagrams, or other written assignments. (Learning Outcomes 1, 2, 3, 4)

Written Assignments: Short, 1 page, assignments in which students discuss how an understanding of ecological concepts can inform sustainability issues or reflect on issues related to sustainability. (Learning Outcomes 1, 2, 3, 4, 5).

Formal Debates/Simulations. Students will debate issues related to sustainable consumption and production (Learning Outcomes 3, 4, 5)

Final Paper: Students will write a paper over an issue in ecology or an environmental issue aimed at a general audience (Learning Outcomes 1, 2, 3, 4, 5)

Writing and English Proficiency: Students writing ability and proficiency in written English will be assess in written assignments as well as in written portions of quizzes and exams as well as on the poster presentation.

Students will be provided rubrics for all assignments.

Assessment:

Quizzes/Worksheets/Homework	30%
Written Assignments (short)	20%
Take-home Midterm Exam,	20%
Formal debates/simulations	10%
Final Paper	20%

Learning Outcome	Assessment Method			
	Quizzes and Worksheets	Short Written Assignments	Formal Debates/Simulations	Final Paper
Describe and apply the approaches and methods that environmental scientists use to learn about the field.	X	X		
Identify, describe, and apply basic concepts in ecology at the individual population, community, and ecosystem levels	X	X		
Identify, describe, and apply the ecological concepts that underlie environmental issues and how these issues affect human societies	X	X	X	X
Identify, and be able to communicate about current ecological, environmental, and sustainability issues	X	X	X	X
Present information about current ecological, environmental, and sustainability issues to a general audience and engage in debate		X	X	X

Required Readings:

There is no required textbook for this course. I will assign readings from a variety of sources throughout the semester on the course moodle.

"Students shall be aware of the University regulations about dishonest practice in course work and the possible consequences as stipulated in the Regulations Governing University Examinations."