Course Title	:	ESG Fundamentals: Science, Data, and Decision-Making
Course Code	:	SCI3009
Recommended Study Year	:	Any
No. of Credits/Term	:	3
Mode of Tuition	:	Sectional
Class Contact Hours	:	3 hours per week
Category	:	Elective in Environmental and Scientific Literacy Minor/ Free Elective
Prerequisite(s)	:	CCC8013 The Process of Science
Co-requisite(s)	:	Nil
Exclusion(s)	:	Nil
Exemption Requirement(s)	:	Nil

Brief Course Description:
This course introduces the fundamentals of Environmental, Social, and Governance (ESG) and the frameworks that shape responsible practices. Students will explore the core concepts of each ESG pillar and how they inform reporting, metrics, and decision-making. Covering topics like climate science, health disparities, and carbon accounting, the course highlights how evidence-based analysis drives effective sustainability strategies. Through case studies, guest speakers, and site/field visits, students will strengthen data literacy and apply scientific principles within the ESG framework to advance a resilient and ethical future.

Aims:
This course aims to provide students with a foundational understanding of ESG principles and their applications. It seeks to demonstrate how scientific inquiry and data analysis underpin effective ESG strategies. Students will develop critical skills to evaluate ESG metrics, assess sustainability claims, and apply evidence-based reasoning to responsible practices.

Learning Outcomes (LOs):
On completion of the course, successful students will be able to:

1. Analyse the core ESG principles and components, synthesising their role in shaping responsible and sustainable practices.
2. Apply scientific evidence and data-driven analysis to ESG decision-making and sustainability strategy development.
3. Evaluate and use ESG metrics, standards, and reporting frameworks to assess organisational performance across diverse contexts.
4. Critically evaluate real-world ESG cases to integrate corporate practices, scientific data, and societal impact into actionable strategies.
5. Communicate ESG concepts and their scientific basis to diverse audiences through effective presentations and reports.

Indicative Contents:

Module 1: Foundations and Core Concepts
This module introduces the basic principles of ESG and establishes the role of science as a foundational tool. Key topics include the history and rationale for ESG, an overview of the three pillars (Environmental, Social, and Governance), and an introduction to how scientific thinking and data-driven analysis underpin the ESG framework.

Module 2: Analyzing the Three Pillars
This module provides a detailed exploration of each ESG pillar through a scientific lens. It covers the key environmental mechanisms like climate change, examines social issues such as health and

equality through data, and analyzes governance principles including ethics, compliance, and the consequences of data manipulation.

Module 3: Measurement, Integration, and Communication
This module focuses on the practical application of ESG. Students will learn about common metrics and reporting standards, the process of integrating ESG factors into decision-making, and the critical skills to communicate ESG topics effectively.

Module 4: Applications and Future Directions
This module looks at ESG in practice and emerging trends. It explores applied topics like climate action strategies, facilitated by site visits and guest lectures.

Teaching Method:
Sectional approach will be adopted. Lessons will make use of lectures, discussions and hands-on workshops (such as clothes upcycling) to ensure students acquire both knowledge and skills about ESG. Students will be exposed to site visits and field trips. Based on site/field observations and measures, combined with extensive literature reviews and case studies, students then prepare his/her individual research project.

Measurement of Learning Outcomes:

	Assessment Method			
Learning Outcome	In-class Continuous Assessments	Midterm Test	Field/Site Visit Reports	Individual Research Projects
LO1 Analyse the core ESG principles and components, synthesising their role in shaping responsible and sustainable practices.	X	X		X
LO2 Apply scientific evidence and data-driven analysis to ESG decision-making and sustainability strategy development.	X	X	X	
LO3 Evaluate and use ESG metrics, standards, and reporting frameworks to assess organisational performance across diverse contexts.	X		X	X
LO4 Critically evaluate real-world ESG cases to integrate corporate practices, scientific data, and societal impact into actionable strategies.	X	X		X
LO5 Communicate ESG concepts and their scientific basis persuasively to diverse audiences through effective presentations and reports.		X	X	X

Assessment:

In-class Continuous Assessments	15%
Midterm Test	20%
Field/Site Visit Reports (2 reports, each carries 15%)	30%
Individual Research Project	35%

In-class Continuous Assessments
In-class continuous assessments use a variety of regular assessments, such as quizzes or short questions to evaluate a student's learning.

Midterm Test
The midterm exam is designed to assess students' comprehension and application of the core concepts covered in the first half of the course. It is held around week 8 as a closed-book, in-class exam. It covers course material from lectures, readings, and continuous assessments. The format will include a combination of question types, such as multiple-choice, short answer, and essay prompts.

Field/Site Visit Report
This assignment is designed to bridge theoretical knowledge from the classroom with real-world practice. The field/site visit provides a tangible context for the course concepts, and this report is students' opportunity to document, analyze, and reflect upon that experience. Students will demonstrate their understanding not just by describing what they observed, but by applying course frameworks to interpret the field/site's observations/operations, challenges, and significance. The word count for each report is 1,500–2,000 words, excluding references, tables, and figures.

Individual Research Project
Students will select a recent ESG controversy and, drawing on an extensive literature review and data-driven analysis, critically evaluate the organization's ESG performance and provide evidence-based recommendations for sustainable practice. The Individual Research Project requires students to write a written research report, with a word count of 2,000–3,000 words, excluding references, tables, and figures.

Required/Essential Readings
- Andrew E. Dessler and Edward A. Parson (2012). *The Science and Politics of Global Climate Change*, Cambridge University Press

Recommended/Supplementary Readings
Textbooks:
- Daniel B. Botkin and Edward A. Keller (2014*). Environmental Science: Earth as a Living Planet (9th edition)*. Wiley
- Dirk Schoenmaker and Willem Schramade (2019). *Principles of Sustainable Finance*, Oxford University Press

Important Notes

1. Students are expected to spend a total of 9 hours (i.e. 3 hours of class contact and 6 hours of personal study) per week to achieve the course learning outcomes.
2. Students shall be aware of the University regulations about dishonest practice in course work, tests and examinations, and the possible consequences as stipulated in the Regulations Governing University Examinations and Course Work. In particular, plagiarism, being a kind of dishonest practice, is "the presentation of another person's work without proper acknowledgement of the source, including exact phrases, or summarised ideas, or even footnotes/citations, whether protected by copyright or not, as the student's own work". Students are required to strictly follow university regulations governing academic integrity and honesty.
3. Students are required to submit writing assignment(s) using Turnitin.
4. To enhance students' understanding of plagiarism, a mini-course "Online Tutorial on Plagiarism Awareness" is available on https://pla.ln.edu.hk/.
5. Students must adhere to the University's guidelines and practices when using Generative Artificial Intelligence (GAI) tools. The official documents "Guidelines for Using GAI Tools at Lingnan University" and "Best Practices for Ethical and Responsible Use of GAI Tools in Course Assessments" can be found here: https://www.ln.edu.hk/tlc/generative-artificial-intelligence/gai-guidelines-best-practices.