THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
Approval of Undergraduate Course

Section 1: Academic Administration [1]

1.1 Catalog

a) Course to be effective from: Academic Year 2023-2024 Term Fall

b) Department Code[3]: IPO Subject Area[3]: ENVR Course Number [4]: 3005

Previous Course Code[5]:

c) Full Title[6] *(max. 100 characters)*: Environmental Sustainability: Risks and Challenges

d) Abbreviated Title[7] *(max. 30 characters)*: Environmental Sustainability

e) Course Credits[8]: (X) Fixed: 3 ( ) Range: From To

f) Catalog Description[9] *(word limit = 150)*:

Human development is fundamentally supported by natural resources. Environmental sustainability ensures the responsible consumption of these resources while maintaining their regenerations without sacrificing the needs of future generations. The course covers the general understanding of key factors contributing to the rates of non-renewable resource depletion, renewable resources recovery, and pollution generation. Emergent challenges to environmental sustainability include energy, food, land use, water resource, and novel chemicals. Risks associated with these challenges like climate change, water scarcity, and soil degradation, ecosystem health, and biodiversity loss will be assessed. These risks will become catastrophic if no proper action is taken in view of the current rate of human development. Hence, the course outlines the fundamental concepts and practices of managing environmental risks: prevention, preparedness, response, and recovery (PPRR). Fundamental risk analysis techniques will also be introduced to identify and quantify the environmental risks.

g) Grading Type[10]: (X) Letter Grades ( ) Distinction/Credit/Pass/Fail ( ) Pass/ Fail ( ) Distinction/Pass/Fail [ ] Others *(please specify):*

h) [x] Prerequisites[11]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained
SUST1000	Introduction to Sustainability

i) [ ] Corequisites[12]:

Course Code	Course Title

j) [ ] Exclusions[13]:

Course Code / Public Exam	Course Title / Exam Subject and Level / Grade attained

k) [ ] Co-listing[14]: [ ] Multi-coding[14]:

Course Code	Course Title

l) Other Enrollment Restrictions[15] (X) No ( ) Yes

[ ] Instructor's approval required

[ ] Restricted to specified student group(s)
(please specify, e.g. year and program of study):

[ ] Others *(please specify):*

m) Medium of Instruction/Materials[16]: (x) English ( ) Others, (Pls specify and provide a justification in Section 1.3): _____

n) Allow course repetition for credit[17]: (x) No ( ) Yes

1.2 Contribution of course to Programs of Study *[Check all appropriate boxes below]*

[x] Major

Program of Study	As		
BSc in Sustainable and Green Finance	[x] Required Course	[ ] Elective	[ ] Prerequisite

[ ] Minor

Program of Study	As		
	[ ] Required Course	[ ] Elective	[ ] Prerequisite

[ ] Common Core

[ ] Others (pls specify):

Program of Study	As		
	[ ] Required Course	[ ] Elective	[ ] Prerequisite

1.3 Rationale for Introducing this course and other relevant information [18]

Human development deploys extensive environmental resources. For sustainable development that future generations will not be jeopardized to their needs, the resources deployment rate should not be greater than that of the natural regeneration capability; or else, depletion of the resources. Beyond the rate of resource depletion, anthropogenic development induces a severe impact on the land-use change for agriculture for food and shelter, fossil fuel mines for energy. Not only are natural habitats destroyed, leading to biodiversity loss, the balance between the carbon sink and source is also disrupted as a result of extensive deforestation and excessive GHG emission from fossil fuel consumption; and consequentially the climate change (warming, extreme weathers, loss of glaciers, flooding, etc.). These damages to the environment can be catastrophic and irreversible if no appropriate actions are taken. Can human development or even humankind be sustainable?

Environmental sustainability becomes a crucial topic at the present time, emphasizing preserving the capability of the environment to recover itself. The understanding of Environmental Sustainability is also vital for sustainable finance and/or investments. The course will walk students through the current scenarios of the major environmental challenges (energy, land-use change, biodiversity loss, and climate change), identify the potential risks associated with these challenges. Fundamental risk analytical techniques will help students quantify these risks for better management. The Prevention, Preparedness, Response, and Recovery (PPRR) will provide students fundamental environmental management skills in maintaining environmental sustainability in supporting human development and growth. These skills are also applicable in quantifying and assessing the risks of sustainable finance or investments.

Section 2A: Learning Outcomes and Alignment *(for courses not proposed to be Common Core Courses)*

2.1 Key Course Intended Learning Outcomes *(Should not normally exceed six or eight outcomes)*

Upon completion of this course, students are expected to be able to do the following:

	Course ILOs	**Nature of the learning outcomes** *(A - Knowledge/Content Related; B - Academic Skills/Competencies; C - Others)*
1	Describe the challenges on environmental sustainability	A
2	Identify the potential environmental risks that threaten the sustainable development	A, B
3	Quantify the degree of environmental risks and assess the impacts on financial investment	A, B
4	Apply the Prevention, Preparedness, Response and Recovery (PPRR)	B
5	Develop a holistic analysis on challenges, risks, and solutions in the context of sustainable and green finance	B
6	Nurture stewardship in sustainable finance professionals/practitioners for environmental sustainability	C (attitude)
7		
8		

2.2 Contribution of Learning Outcomes to Programs of Study identified in Section 1.2

(Please also complete Section 4.1)

	Program of study 1: __ BSc in Sustainable and Green Finance_____ **Program ILOs:** Graduates from the program are expected to:	**To be achieved through these course ILOs** *(Write CILO-1, CILO-2, etc.)*
1	have a broad understanding of Sustainable and green business functions and integrate these functions to adopt an inter-disciplinary approach and formulate effective and innovative solutions to tackle complex real-world problems.	CILO1, CILO2, CILO3, CILO4
2	have an in-depth grasp of Sustainable and green finance knowledge and skills, and transfer acquired knowledge and skills to meet changes and challenges in different fields.	CILO3, CILO4, CILO5
3	engage in activities that lead to the impact of societal improvement.	CILO5, CILO6
4	make effective ESG finance decisions supported by analytical and quantitative techniques.	CILO3, CILO5
5	have the ability to create and innovate with divergent thinking.	CILO5
6	communicate effectively with people of different levels and work areas.	CILO5, CILO6
7	work independently, collaborate effectively in teams and lead a team to success.	CILO5
8	demonstrate a global outlook and function effectively in multi-cultural and international settings.	CILO5, CILO6
9	effectively use information technology and sources of information in work applications.	CILO4, CILO5
10	understand professional and ethical responsibility, and recognize the importance of a sustainable and green living society.	CILO6

Section 2B: Additional Information[2] *(for courses not proposed to be Common Core Courses)*

2.3 Planned Teaching & Learning Arrangement

	Teaching & Learning Arrangement	Weekly Scheduled Hours/ Estimated Weekly Learning Hours	Indicate which course ILOs this activity serves to achieve *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
Face-to face activities	[x] Lecture*	**3/5**	**CILO1, CILO2, CILO3, CILO4**	
	[ ] Tutorial*			
	[x] Seminar/Small-class*	**0/1**	**CILO5, CILO6**	**Project guidance/Case discussion**
	[ ] Laboratory*			
	*Does the above scheduled component(s) involve structured active learning activities? [19] ◯ No ◯ Yes *If yes, please specify for each scheduled component, the percentage and the type of active learning involved in the "Additional Information" column.*			
	[x] Others (e.g. fieldtrip, visit, etc.), *pls specify:* *Hong Kong Observatory, Daya Bay Nuclear Plant etc* _____		**CILO 6**	**Will arrange as far as possible for student's better understanding on Climate Risk, Nuclear Risk, etc**
Online activities	[ ] Online lecture videos			
	[ ] Other online learning tasks, *pls specify:* _____			
	The total learning hours of the course# is equivalent to 120 **hours** [8] *# including both scheduled instructional hours and hours for self-study activities & assessment*			

- *For course adopting a pedagogic approach other than lecture, tutorial and laboratory, please indicate the pedagogy used:*

◯ Blended learning [20] ◯ Pure online delivery [21]

◯ Experiential learning [22] ◯ Others, *pls specify:*_____

2.4 Planned Assessment Weightings

Assessment Task	Proportion of Final Grade (%)	Indicate which course ILOs this task is to assess *(Write CILO-1, CILO-2, etc.)*	Additional Information *(optional)*
[ ] In-class test			
[ ] Mid-term test			
[x] Final exam	**50%**	**CILO1, CILO2, CILO3, CILO4, CILO5**	
[ ] Written assignment			
[x] Project report	**20%**	**CILO 1, CILO2, CILO3, CILO4, CILO5, CILO6**	**Group project on environmental risks and challenges**
[x] Presentation	**10%**	**CILO 1, CILO2, CILO3, CILO4, CILO5, CILO6**	**Project presentation**
[ ] Learning portfolio			
[x] Course participation	**10%** **10%**	**CILO5, CILO6**	**In-class and project discussion** **Visit Report and Reflection**
[ ] Peer evaluation			
[ ] Others (e.g. proctored online exam, etc.), *pls specify:* _____			

2.5 Course Duration

(X) 1 term ( ) 2 terms ( ) Others, *pls specify:* _____

2.6 Planned Frequency of Offerings [Check all appropriate boxes]:

[X] Every Fall
[ ] Every Winter
[ ] Every Spring
[ ] Every Summer
[ ] No fixed pattern
[ ] Other *(pls specify):* _____

2.7 Course outline attached

( ) No (X) Yes

- **Internationalization:**

Internationalization in a course refers to course content and/or pedagogic approaches which incorporate an intercultural and international perspective. Examples may include:

- Collaboration with overseas institutions to develop and adopt international course content, or to arrange international field trip
- Insertion of international theme as part of the course
- Integrating the course content with international material as examples or case studies
- Elements to provide global diversified perspectives and/or practices around the world

Please briefly list or summarize any component(s) in the course that contributes to internationalizing the curriculum:

- Environmental and Climate challenges and risks are global in nature, cases and examples (shrinkage of polar ice extent, renewable energy, food, etc) are with highly international perspective.
- Project works facilitate students in transferring the knowledge and analytical skills from class to the studied countries not covered in the classes.

2.8 Resources

Request extra resources for teaching this course? (X) No ( ) Yes

Section 4: Development, Concurrence and Approval

4.1 Contribution to the Program Learning Outcomes

The course is confirmed by the following Major/Minor program department(s)/unit(s) as indicated in Section 1.2 that it would contribute appropriately to overall program learning outcomes.

Department/Program unit	*Position*	*Name*	*Date*
Division of Environment & Sustainability	Head of Division	Prof Alexis LAU	16-Feb-21

4.2 Approvals

Recommendation from offering department(s) and School(s)/IPO

Offering Department/Program Unit	*Position*	*Name*	*Date*
Division of Environment & Sustainability	Head of Division	Prof Alexis LAU	16-Feb-21

Recommending School/IPO	*Position*	*Name*	*Date*
Interdisciplinary Programs Office	Chair of IUSC	Prof Jimmy FUNG	19-Feb-21

Concurrence from other Schools or departments/units

School/Dept/Program Unit	*Position*	*Name*	*Date*

Attachment 1: Course Outline

Week No	Topic
1	Introduction to Environmental Challenges and Risk: Impact on Finance Investment
2	Human Thriving and Planet Boundary
3	Environmental Sustainability Challenge: Energy
4	Environmental Sustainability Challenge: Agriculture and Land Use Change
5	Environmental Sustainability Challenge: Water
6	Environmental Risk: Climate and Extreme Weather
7	Environmental Risk: Biodiversity Loss and Ecosystem Health Degradation
8	Environmental Risk: Emerging Diseases and Human Health
9	Environmental Risk Management: Prevention, Preparedness, Response and Recovery (PPRR)
10	Environmental Risk Management: Prevention, Preparedness, Response and Recovery (PPRR)
11	Fundamental Risk Analysis Techniques
12	Fundamental Risk Analysis Techniques
13	Project Presentation