



1. General Information

Course Subject	IIMT
Course Number	3644
Course Title	Data Analytics for Sustainability and Climate Assessment
Academic Years	2026-2027
Grading Method	Letter

2. Instructors

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4. Course Description

Course Description	This course equips students with practical competencies in interpreting, analysing, and leveraging sustainability and climate-related data for informed business decision-making. The curriculum focuses on developing robust data literacy, enabling students to critically assess ESG datasets, understand analytical methodologies, and apply insights to corporate sustainability challenges. Students will engage with real-world sustainability and climate datasets and analytical frameworks commonly used by financial institutions, investors, regulators, and corporations navigating the rapidly evolving ISSB, TCFD and the GHG Protocol disclosure landscape. The course bridges academic rigour with industry practice, preparing students to become deployers of sustainability analytics across diverse professional contexts. Students that finish the course will be prepared to sit the EFFAS Climate Risk Analyst (ECRA) programme, a professional certification in climate risk competence for finance and risk managers. Programming/Database Skills: The course is designed to be non-coding focused, emphasizing data interpretation and analytical thinking.
Prerequisites	Any one of the following course(s): • IIMT1640 Probability and statistics for business or equivalent • IIMT2601 Management information systems • IIMT2641 Introduction to business analytics • STRA1702 Sustainability 101: Introduction Course for Sustainable Development

5. Course Objectives

1. The course aims to provide students with a practical understanding of how sustainability and climate-related data inform real-world decision-making among investors, financial institutions, regulators, and corporations.

In response to strong student and employer demand for applied data skills in sustainability and climate work, this course hopes to provide students with an integrated approach that combines analytics, climate and environmental datasets and decision-support methods used in practice.

Students will learn how to translate physical and transition climate science into quantitative risk models and financially material analysis, and to integrate those insights into governance, capital planning and fiduciary decision making.

The course will track the syllabus of the EFFAS Climate Risk Analyst (ECRA) professional certification, and will prepare students to sit the international ECRA examination for those who are interested in being accredited.

While the course matches students who are interested in finance and risk management, it is also relevant to students who are interested in insurance, pensions and banking as sustainability analytics and climate risks are inter-disciplinary topics that are required in today's environment.

6. Faculty Learning Goals

Goal 1: Acquisition and internalization of knowledge of the programme discipline

Goal 2: Application and integration of knowledge

Goal 3: Inculcating professionalism

Goal 4: Developing global outlook

Goal 5: Mastering communication skills

Goal 6: Cultivating leadership

7. Course Learning Outcomes

Course Teaching and Learning Activities	Aligned Faculty Learning Goals					
	1	2	3	4	5	6
CLO1. Clean, visualise, and analyse environmental, climate, and socioeconomic datasets	✓	✓	✓	✓		
CLO2. Identify and model climate-related risks, including asset vulnerability and exposure	✓	✓	✓			
CLO3. Integrate quantitative outputs into decision-support workflows for sustainability planning		✓	✓			✓
CLO4. Communicate sustainability and climate analytics findings clearly to technical and non-technical audiences		✓	✓		✓	
CLO5. Apply sustainability and climate analytics to real-world problems through a team-based project using external or institutional data		✓	✓	✓	✓	✓

8. Course Teaching and Learning Activities

Course Teaching and Learning Activities #	Expected Study Hours	Study Load (% of study)
T&L1. Lectures and Guest Speakers	33	26.2

8. Course Teaching and Learning Activities		
T&L2. Reading and preparation	20	15.9
T&L3. Quiz	20	15.9
T&L4. Assignment	20	15.9
T&L5. Final Case Study	33	26.1
	Total: 126	Total: 100

9. Assessment Methods			
Assessment Methods	Description	Weight %	Aligned Course Learning Outcomes
A1. Attendance/ Participation—Interactive Lectures	Attendance and participation in in-class activities.	15%	1,2,3,4
A2. In-class Test /Assessment	In-class multiple choice test to assess students' understanding of physical and transition climate risks, scenario analysis and exposure mapping	30%	1,2,3
A3. Project (Group)— Case Study	Group ProjectGroup Case Study and analysis of a climate risk case covering physical and transition risks, scenarios/time horizons, and required data inputs	25%	1,2,3,4,5
A4. Project (Individual)— Report	Individual written case study building on the group project, providing a deeper assessment of selected risks, assumptions, uncertainty, and proposed quantification approaches	30%	1,2,3,4,5

Assessment Rubrics	
A1. Attendance/ Participation—Interactive Lectures	
A+,A,A-	Attend nearly all classes. Actively engage in class discussions. Deliver arguments in a highly logical and insightful manner
B+,B,B-	Regularly attend class. Frequently participate in class discussions. Deliver arguments in a logical and structured manner.
C+,C,C-	Regularly attend class. Participate in class discussions. Deliver the argument in a generally logical way.
D+,D	Seldom attend class. Occasionally participate in class discussions. Arguments show effort but lack depth or clarity.
F	Minimal or no attendance. Rarely or never participate in class discussions. Fails to deliver coherent arguments.
A2. In-class Test	

Assessment Rubrics	
/Assessment	
A+,A,A-	The student is able to apply all the methods learned in the course to new, unexpected situations, independently and in a novel manner that goes beyond expectation of a good student. Student has achieved an impressive mastery of course content.
B+,B,B-	The student is able to apply the methods learned in the course, but only under partial guidance. Student has achieved a basic mastery of course content, and thus meets expectations
C+,C,C-	The student understands conceptually most of the methods learned, but cannot apply them all, even under guidance. Performance is that of an average student and content knowledge is that of a novice, which is below expectations.
D+,D	The student has shown some effort but has a highly limited understanding of course content. Performance and content knowledge are poor which is well below expectations.
F	The student has shown little effort or understanding toward course content. Performance and content knowledge are completely unacceptable.
A3. Project (Group)— Case Study	
A+,A,A-	The student is able to apply all the methods learned in the course to new, unexpected situations, independently and in a novel manner that goes beyond expectation of a good student. Student has achieved an impressive mastery of course content.
B+,B,B-	The student is able to apply the methods learned in the course, but only under partial guidance. Student has achieved a basic mastery of course content, and thus meets expectations
C+,C,C-	The student understands conceptually most of the methods learned, but cannot apply them all, even under guidance. Performance is that of an average student and content knowledge is that of a novice, which is below expectations.
D+,D	The student has shown some effort but has a highly limited understanding of course content. Performance and content knowledge are poor which is well below expectations.
F	The student has shown little effort or understanding toward course content. Performance and content knowledge are completely unacceptable.
A4. Project (Individual)— Report	
A+,A,A-	The student is able to apply all the methods learned in the course to new, unexpected situations, independently and in a novel manner that goes beyond expectation of a good student. Student has achieved an impressive mastery of course content.
B+,B,B-	The student is able to apply the methods learned in the course, but only under partial guidance. Student has achieved a basic mastery of course content, and thus meets expectations
C+,C,C-	The student understands conceptually most of the methods learned, but cannot apply them all, even under guidance. Performance is that of an average student and content knowledge is that of a novice, which is below expectations.
D+,D	The student has shown some effort but has a highly limited understanding of course content. Performance and content knowledge are poor which is well below expectations.
F	The student has shown little effort or understanding toward course content. Performance and content knowledge are completely unacceptable.

10. Course Grade Descriptors

A+,A,A-	Demonstrate superior ability to fulfill learning outcomes and make strong contributions in class and group activities
B+,B,B-	Demonstrate strong ability to fulfil learning outcomes, apply the knowledge effectively and make solid contributions in class and group activities
C+,C,C-	Make adequate contributions in class and group activities, and demonstrate mastery of the subject, but show gaps in understanding, or inconsistent application of the learning outcomes to practical examples
D+,D	Demonstrate evidence of familiarity with ESG topics, and effort to contribute in class or group activities
F	Demonstrate limited evidence of basic familiarity with the subject and limited effort to contribute in class or group activities

11. Course Content and Tentative Teaching Schedule

Topic/ Session	Content
1	The Science of Climate Change Examine the scientific basis of climate change, its global impacts, and the concepts of mitigation and adaptation, drawing on key IPCC findings.
2	Climate Policy, Regulation, and Reporting Standards Analyse the formation of global climate policy under the UNFCCC and Paris Agreement, and its implementation through regional and national legislation, alongside evolving corporate disclosure standards (including ISSB/TCFD and relevant GHG Protocol concepts).
3	Identifying and Modelling Climate Risk Introduce climate scenarios and key techniques for identifying, modelling, and analysing the impacts of physical and transition risks.
4	Quantifying the Financial Impact of Climate Risk Translate climate risks into financial terms by quantifying their impact, and understand the methods for communicating these risks and uncertainties in corporate financial statements and reports.
5	Climate-Related Opportunities Evaluate financial and strategic opportunities arising from the climate transition, including the role of new technologies, business models, and organizational initiatives.
6	Sustainability Data Analytics Part 1: ESG ESG Risk and Controversy List, Sustainability Risk Quantification, ESG Ratings and Performance, Use of ESG data for Stewardship and Engagement, Stewardship Tracker
7	Sustainability Data Analytics Part 2: Climate and Carbon Carbon Intensity and Portfolio Decarbonization, Physical Climate Risk VaR, Scenario Analysis and Transition Planning, Data for SDG alignment
8	Sustainability Data Analytics Part 3: Formulating Quant Investment Strategy with ESG Data Building Company Research Template with ESG data, ESG risk management by EU SFDR PAI, Backtesting of ESG data across Asia Pacific (country and sector)
9	Corporate Climate Strategy: Net Zero and Adaptation Assess the components of effective corporate climate strategies, including credible Net Zero roadmaps, and robust plans for climate adaptation and risk transfer.
10	Economic Effects and Financial Stability Assess the broader economic consequences of climate change and the implications for systemic risk and overall financial stability.
11	Instruments of Sustainable and Climate Finance

11. Course Content and Tentative Teaching Schedule

	Explore sustainable finance, including green, social, and sustainability-linked finance. Emphasize the importance and impact of sustainable finance practices towards supporting climate mitigation and adaptation objectives.
12	Climate Risk Analytics Across Asset Classes Apply climate risk analysis across selected asset classes, including equity, credit, private equity, and real estate, with an introduction to portfolio decarbonisation and measuring financed GHG emissions.
13	Building ESG Risk Portal for Fund Managers, Asset Owners (e.g. Pensions), Banks and Insurers

12. Required/Recommended Readings & Online Materials

Reading	1. World Meteorological Organization (WMO). (2024) "State of the Global Climate 2023" Available at: https://wmo.int/publication-series/state-of-the-global-climate-2023 2. Task Force on Climate-related Financial Disclosures (TCFD). (2017) "Recommendations of the Task Force on Climate-related Financial Disclosures" Available at: https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf 3. Transition Plan Taskforce (TPT). (2023) "The TPT Disclosure Framework" Available at: https://transitiontaskforce.net/disclosure-framework/ 4. Smithers, R.J., Gardner, A. & Dworak, T. (2023) "Assessing climate change risks and vulnerabilities (climate risk assessment). A DIY Manual" European Environment Agency. Available at: https://www.eea.europa.eu/publications/assessing-climate-change-risks-and-vulnerabilities-nowavailable 5. United Nations Framework Convention on Climate Change (UNFCCC). (2015) "The Paris Agreement" Available at: https://unfccc.int/sites/default/files/english_paris_agreement.pdf 6. United Nations Environment Programme (UNEP). (2023) "Emissions Gap Report 2023: Broken Record – Temperatures hit new highs, yet world fails to cut emissions (again)" Available at: https://www.unep.org/resources/emissions-gap-report-2023 7. International Renewable Energy Agency (IRENA). (2023) "World Energy Transitions Outlook 2023: 1.5°C Pathway" Available at: https://www.irena.org/Publications/2023/Jun/World-Energy-TransitionsOutlook-2023
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13. Means / Processes for Student feedback on Course

	Conducting mid-term survey in addition to SETL around the end of the semester
✓	Online response via Moodle site
	Others

14. Course Policy

Late Submission Policy

Given that the due dates of the homework and the project are announced in the course schedule well in advance and students are given sufficient time to complete the assignments, late submission is strongly discouraged and heavily penalized,

- Late submission received within 2 hours after the due time will receive 90% credit;
- Late submission received during 2-48 hours after the due time will receive 70% credit;
- Late submission received after the first 48 hours past the due time but before the graded assignment is returned to class will receive 50% credit;
- No submission will be accepted after the graded assignment is returned to class.

This late submission policy applies to all students regardless of any reason or excuse.

Academic Dishonesty

We adhere to the HKU Business School's guidelines on academic conduct. Any form of academic dishonesty will be dealt with according to university policy. For more information, visit [HKU Plagiarism](#).

Communication and Official Correspondence

All course materials, including announcements, grades, lecture notes, assignments, and schedule updates, will be available on Moodle. Students are expected to regularly check the class website. Official correspondence will be conducted via email, sent to the students' HKU email addresses. It is the responsibility of each student to keep their HKU email account active and to check it regularly. If you prefer using a personal email account, ensure your HKU emails are forwarded to it and check that they are not marked as spam.