

The Hong Kong University of Science and Technology

UG Course Syllabus

[Course Title] Climate Change, Big History and Sustainability

[Course Code] CIVL1190

[No. of Credits] 3 units

[Any pre-/co-requisites] None

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Course Description

Big History as an emerging interdisciplinary framework, provides a long-term perspective to see the world through reconstructing the history from the big bang all the way to the present. In such a longer time scale, overview of stars, planetary and species evolution, as well as concepts in climate change and how it is related to sustainability of the planet's environment for its current inhabitants, including humanity, will be discussed. The physical science basis, impacts, risk, mitigation and adaptation measures of climate change will also be investigated (including technical and social solutions). For local and regional vulnerabilities, such as extreme weather events, sea levels rise, storm surge and coastal flooding, will be covered. The significance of collective learning under the big history framework, both as a driver for our exponentially growing impacts, as well as for better solutions, will be highlighted.

Instructional methods include lectures, class discussions, and student-led presentations, encouraging active engagement and deeper learning.

Intended Learning Outcomes (ILOs)

By the end of this course, students should be able to:

1. Examine Climate Change observed changes, impact and risks from different perspectives.
2. Associate Climate Change and other social and environmental sustainability topics in a boarder context.
3. Explain and interconnect from the Big Bang and evolution of life to the rise of human societies and modern technological challenges.
4. Appraise Sapiens' uniqueness and accomplishments for sustainability discussion.
5. Critically assess the role of evidence, technology, and knowledge accumulation in shaping scientific and historical understanding, and reflect on the ethical and societal implications of technological developments such as Big Data and AI.

Assessment and Grading

This course will be assessed using criterion-referencing and grades will not be assigned using a curve. Detailed rubrics for each assignment are provided below, outlining the criteria used for evaluation.

Assessments

Assessment Task	Contribution to Overall Course Grade (%)	Tentative Due Date
Three in-class quizzes	15%	15/Oct/2026*
	15%	5/Nov/2026*
	20%	26/Nov/2026*
Presentation Q&A via iPRS	10%	12/Nov/2026*
Guided in-class presentation	15%	12/Nov/2026
Final poster and video presentation	25%	10/Dec/2026

* Assessment marks for individual assessed tasks will be released within two weeks of the due date.

Mapping of Course ILOs to Assessment Tasks

Assessed Task	Mapped ILOs	Explanation
Three in-class quizzes	ILO1, ILO2	The quizzes assess students' ability to explain the foundational concepts of climate change, Big History and Sapiens.
Presentation Q&A via iPRS	ILO1, ILO2, ILO3	The Q&A section after each presentation assesses students' ability to understand assigned weekly topics and its demonstration.
Guided in-class presentation	ILO1, ILO2, ILO3, ILO4	The in-class presentation and reflection assess students' ability to critically evaluate understanding on climate change, Big History and Sapiens, and analyze their higher-order thinking skills of analysis and evaluation.
Final poster and video presentation	ILO1, ILO2, ILO3, ILO4, ILO5	Final poster and video presentation assess students' ability to (1) analyze causes and consequences of societal fragmentation versus collaboration, drawing on historical patterns and contemporary challenges, (2) reflect critically on the ethical dimensions, human values, and/or practical pathways for fostering collaboration, and (3) combine and communicate a coherent, persuasive argument and a future-oriented proposal, creatively integrating visual (poster) and narrative (video) mediums.

Grading Rubrics

1. Three in-class quizzes which consist of multiple choice and short questions.
2. Presentation Q&A via iPRS: Each presentation group has to prepare 3 MC or TF questions for the class to answer. The questions set by the group will be evaluated.
3. Guided Presentation

Criteria	Exceptional	Commendable	Good	Limited	Poor
Content Knowledge (30%)	Demonstrates deep, accurate, and comprehensive understanding of the topic.	Shows strong understanding with minor gaps or inaccuracies.	Demonstrates basic understanding but lacks depth or detail.	Displays limited understanding with significant gaps or errors.	Shows little to no understanding of the topic.
Organization (20%)	Clear, logical, and seamless flow with a strong introduction and conclusion.	Well-organized with a logical flow; minor issues with transitions.	Generally organized but may lack smooth transitions or structure.	Poorly organized; ideas are disjointed or hard to follow.	No clear structure; lacks coherence and logical flow.
Communication (20%)	Speaks clearly, confidently, and articulately; uses precise and engaging language.	Speaks clearly and confidently; minor issues with tone or pacing.	Communicates adequately but may lack clarity, confidence, or polish.	Speaks unclearly or hesitantly; struggles to convey ideas.	Unclear or incoherent; difficult to understand.
Engagement & Interaction (20%)	Highly engaging; maintains audience interest and encourages interaction.	Engages the audience well; attempts interaction but could improve.	Somewhat engaging but lacks consistent audience interaction.	Limited engagement; audience interest wanes quickly.	Fails to engage the audience; no interaction attempted.
Visual Presentation (10%)	Visuals are professional, relevant, and enhance understanding and engagement.	Visuals are clear and relevant but could be more polished or impactful.	Visuals are adequate but may lack creativity or relevance.	Visuals are poorly designed, distracting, or irrelevant.	No visuals or visuals are irrelevant, confusing, or poorly executed.

4. Final poster and video – Rubric Rating Scale and Evaluation Components

Rubric Rating Scale

Score	Descriptor	Explanation
10	Excellent / Exceeds Expectations	Outstanding execution. All criteria are met with depth, clarity, and creativity.

		Demonstrates original insight, exceptional communication, and strong engagement with course ideas.
8	Commendable / Above Average	Solid work that clearly meets expectations. Well-organized, thoughtful, and well-presented with minor areas for improvement. Demonstrates strong understanding of key concepts.
6	Good / Meets Expectations	Adequate performance. Meets basic requirements but lacks depth or polish. May show some unevenness in clarity, engagement, or use of course ideas.
4	Developing / Below Expectations	Work is incomplete or underdeveloped. Key ideas are present but unclear or poorly supported. Limited engagement with the topic or course material.
2	Inadequate / Poor	Serious gaps in content, organization, or effort. Fails to address core requirements. Lacks clarity, coherence, or understanding of key concepts.

Evaluation Components

Component	Criteria	Weight
Poster – Visual Impact	Eye-catching, visually engaging	10 %
Poster – Message Clarity	Clear theme and curiosity-inducing message	15 %
Video – Storytelling	Coherent, engaging narrative and flow	25 %
Video – Insight & Analysis	Clear diagnosis of causes; systems thinking; use of course ideas	25 %
Video – Solutions & Proposals	Realistic, well-argued suggestions across sectors	15 %
Presentation & Quality	Audio/visual clarity; QR code functionality; subtitles and accessibility	10 %

Final Grade Descriptors:

Grades	Short Description	Elaboration on subject grading description
A	Excellent Performance	Demonstrates a comprehensive grasp of the course material, with outstanding performance across all three MCQ quizzes. Contributions to presentations and IPRS questions show depth and insight. The final poster and video project exhibit exceptional creativity and critical reflection, exceeding core requirements.
B	Good Performance	Shows good knowledge and understanding of the main subject matter, with strong performance in quizzes. Participates effectively in group presentations and discussions. The final project is well-structured and clearly communicated, demonstrating good engagement and collaboration.

C	Satisfactory Performance	Possesses adequate knowledge of core subject matter, though the final project may lack depth, polish, or originality in synthesis.
D	Marginal Pass	Has threshold knowledge of core subject matter, with borderline quiz performance. Contributions and the final project are underdeveloped, meeting only minimal passing standards.
F	Fail	Demonstrates insufficient understanding of the subject matter. Does not meet passing standards in multiple assessments (e.g., quizzes, project). Shows insufficient effort or engagement with course objectives.

Course AI Policy

The use of generative artificial intelligence tools is strictly forbidden during in-class quizzes.

Communication and Feedback

Assessment marks for individual assessed tasks will be communicated via Canvas within two weeks of submission. Feedback on assignments will include [specific details, e.g., strengths, areas for improvement]. Students who have further questions about the feedback including marks should consult the instructor within five working days after the feedback is received.

Resubmission Policy

Not applicable

Required Texts and Materials

- Intergovernmental Panel for Climate Change (IPCC) Sixth Assessment Report (AR6)
 - AR6 Synthesis Report: Climate Change 2023
 - AR6 Climate Change 2021: The Physical Science Basis
 - AR6 Climate Change 2022: Impacts, Adaptation, and Vulnerability
 - AR6 Climate Change 2022: Mitigation of Climate Change
- Jared Diamond
 - Collapse: How Societies Choose to Fail or Succeed (2005)
 - Upheaval: How Nations Cope with Crisis and Change (2019)
- David Christian
 - Big History: Between Nothing and Everything (2014)
- Yuval Harari
 - Sapiens: A Brief History of Humankind (2015)
 - Homo Deus: A Brief History of Tomorrow (2016)
 - 21 Lessons for the 21st Century (2018)
 - Nexus: A Brief History of Information Networks from the Stone Age to AI (2024)

Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to [Academic Integrity | HKUST – Academic Registry](#) for the University's definition of plagiarism and ways to avoid cheating and plagiarism.

[Optional] Additional Resources

- Big History Project: <https://www.oerproject.com/Big-History-Project>
- Big History Crash Course series: <https://thecrashcourse.com/topic/bighistory/>