



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	氣候變遷科學基礎			學年/學期 Academic Year/Semester	113/1			
課程名稱(英文) Course Name in English	Fundamentals of Climate Change Science							
科目代碼 Course Code	GC_67710	系級 Department & Year	校核心	開課單位 Course-Offering Department	通識教育中心			
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	2.0/2.0					
授課教師 Instructor	/張世杰							
先修課程 Prerequisite								

課程描述 Course Description

This course is aiming in providing students from different fields with fundamental knowledge of climate change, including:

- Phenomena of climate change
- Causes of climate change
- Interactions of climate change and ecosystems
- Mitigation and adaptation

For each of the above topics, diverse material will be given in the classes, including lectures, demonstration of research equipments, and documentary movies.

課程目標 Course Objectives

Global climate change is one of the main threats to human beings and Earth's ecosystems in the 21st century. This course is aiming in providing students from different fields with the fundamental sciences of climate change, the impacts of and adaptation to climate change.

(校)核心能力 Learning Outcomes		課程目標與校核心能力相關性 Correlation between Course Objectives and Basic Learning Outcomes
A	自主學習與創新思考 Autonomous Learning and Creative Thinking	<input type="radio"/>
B	康健身心 Physical Fitness and Mental Balance	<input type="radio"/>
C	互動、溝通與解決問題 Interactive Communication and Problem Solving	<input checked="" type="radio"/>
D	情藝美感 Artistic Feeling and Aesthetic Perception	<input type="radio"/>
E	文化素養與尊重差異 Cultural Literacy and Respect for Differences	<input checked="" type="radio"/>
F	在地關懷與公民責任 Local Commitment and Civic Responsibility	<input checked="" type="radio"/>

圖示說明 Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

授課進度表 Teaching Schedule & Content

週次 Week	內容 Subject/Topics	備註 Remarks
1	2024/09/09 Course introduction	

2	2024/09/16 Phenomena of climate change (I) Can We Cool the Planet? Full Documentary I NOVA PBS (https://www.youtube.com/watch?v=PeYJTluQ5tM&t=24s)	
3	2024/09/23 Phenomena of climate change (II) - The changing air temperature	
4	2024/09/30 Phenomena of climate change (III) - The changing hydrological system	
5	2024/10/07 Students' presentation: Environmental change of my country	
6	2024/10/14 Causes of climate change (I) - Anthropogenic greenhouse gas emissions	
7	2024/10/21 Causes of climate change (II) - Other radiative forcings	
8	2024/10/28 Causes of climate change (III) - Positive and negative feedbacks in the global climate system	
9	2024/11/04 Interaction of climate change and ecosystems (I) - Global carbon budget and its relation to climate system	
10	2024/11/11 Midterm Exam	
11	2024/11/18 Interaction of climate change and ecosystems (II) - Field excursion to DNDF flux research site/FLSF solar farm (09:00 -13:00, 4 hours)	
12	2024/11/25 Break - Hand in the report of field excursion	
13	2024/12/02 Interaction of climate change and ecosystems (III) - Challenges in predicting forest carbon sink	
14	2024/12/09 Mitigation and adaptation (I) - Pathways towards 2050 net-zero	
15	2024/12/16 Mitigation and adaptation (II) - Afforestation or solar farming? A case discussion in Taiwan	
16	2024/12/23 Mitigation and adaptation (III) - Nationally Determined Contribution (NDC): presented by students from different countries (1)	
17	2024/12/30 Mitigation and adaptation (IV) - Nationally Determined Contribution (NDC): presented by students from different countries (2)	
18	2025/01/06 - Hand in the final report - Optional discussion	

教 學 策 略 Teaching Strategies

課堂講授 Lecture

分組討論 Group Discussion

參觀實習 Field Trip

其他Miscellaneous:

教 學 創 新 自 評 Teaching Self-Evaluation

創新教學 (Innovative Teaching)

問題導向學習 (PBL)

團體合作學習 (TBL)

解決導向學習 (SBL)

翻轉教室 Flipped Classroom

磨課師 Moocs

社會責任 (Social Responsibility)

在地實踐 Community Practice

產學合作 Industry-Academia Cooperation

跨域合作 (Transdisciplinary Projects)

跨界教學 Transdisciplinary Teaching

跨院系教學 Inter-collegiate Teaching

業師合授 Courses Co-taught with Industry Practitioners

其它 other:

學期成績計算及多元評量方式 Grading & Assessments

配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	
平時成績(含出缺席) General Performance (Attendance Record)	20%								Participation and discussion
期中考成績 Midterm Exam	40%	✓							
期末考成績 Final Exam	40%			✓	✓				
作業成績 Homework and/or Assignments									
其他 Miscellaneous (_____)									

評量方式補充說明
Grading & Assessments Supplemental instructions

教科書與參考書目 (書名、作者、書局、代理商、說明)
Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

課程教材網址(含線上教學資訊, 教師個人網址請列位於本校內之網址)
Teaching Aids & Teacher's Website (Including online teaching information.
Personal website can be listed here.)

其他補充說明 (Supplemental instructions)