

## 課程綱要 Course Syllabus

開課系所 Class/Department : Department of Real Estate and Built Environment

課程中文名稱 Title of course in Chinese : 永續發展專題

課程英文名稱 Title of course in English : Sustainable Development

授課教師 Instructor : 顧嘉安(Chia-An Ku)

應修系級 Major : Master/PhD

選修類別 Type of Credit :  必修 Required  選修 Elective

全半學年 Whole or Half Academic Year :  全學年 Whole  半學年 Half

學分 Credit(s) : 2

時數 Hour(s) : 2

教師網址 Instructor's Website :

[http://www.rebe.ntpu.edu.tw/zh\\_tw/Members/Full\\_Time\\_Faculty/%E9%A1%A7-%E5%98%89%E5%AE%89-18945341](http://www.rebe.ntpu.edu.tw/zh_tw/Members/Full_Time_Faculty/%E9%A1%A7-%E5%98%89%E5%AE%89-18945341)

先修科目 Prerequisites : N/A

教學目標 Course Objectives :

Sustainability has become a very important issue when developing land use plans for urban and rural areas. The planning for land resources is expected to not only fulfil the needs of the current generation, but also not to deprive our next generation of the rights to fulfil their own needs. In order to achieve this, researchers or practitioners have to further understand the various components and their interactions within the urban and rural areas. The ability to manage such variables within the system is also inevitably required. Therefore, one of the main objectives of this course is to enable students to develop a comprehensive and interdisciplinary mindset when facing the future challenges related to sustainable issues through both lectures and discussions. In addition, this course is also aimed to provide students with the ability to develop preliminary research thoughts regarding sustainability on the basis of ongoing research worldwide.

內容綱要 Course Outline :

This course will focus on discussions about sustainability-related research topics and methods. The main goal of this course is to provide students with the abilities to develop research ideas and projects related to sustainable development in both urban and rural areas. The potential topics of discussion may include:

1. Sustainable development in urban and rural areas.
2. Environmental change in urban and rural areas.
3. Climate change mitigation and adaptation.
4. Land use change and modelling.
5. Growth management and smart growth.
6. Sustainable and smart cities.
7. Disaster management.
8. Spatial planning at national and regional scales.
9. Environmental impact assessment.
10. Mitigation planning for natural disasters.
11. Spatial and temporal analysis for sustainable development issues.

學生核心能力權重 Student's Core Competence Index:

\*校定核心能力：八項加總為 100%，不需每項均填寫，惟至少需填一項

項目 Item	創意思考與問題解決 Creative thinking and Problem-solving	綜合統整 Comprehensive integration	溝通協調 Communication and Coordination	團隊合作 Teamwork
權重 Weight	20 %	10 %	10 %	0%
項目 Item	誠信正直 Honesty and Integrity	尊重自省 Self-Esteem and Self-reflection	多元關懷 Caring for Diversity	跨界宏觀 Interdisciplinary Vision

權 重 Weight	5 %	5 %	20 %	30 %
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\*系定核心能力及權重：(請依照系所訂定之核心能力及課程權重簡述如下)

教學進度 Teaching Schedule：

週別 Weekly Schedule	教學預定進度 Tentative teaching schedule	教學方法與教學活動(可複選) Teaching Methods and activities
Week 1	Introduction	講授 Lecture、討論 Discussion
Week 2	Definition and main concepts of sustainable development	講授 Lecture、討論 Discussion
Week 3	Sustainable development and climate change	講授 Lecture、討論 Discussion
Week 4	Land use change and sustainable development	講授 Lecture、討論 Discussion
Week 5	Urban simulation models	講授 Lecture、討論 Discussion
Week 6	Integrated assessment of sustainable issues I	講授 Lecture、討論 Discussion
Week 7	Integrated assessment of sustainable issues II	講授 Lecture、討論 Discussion
Week 8	Environmental spatial analysis	講授 Lecture、討論 Discussion
Week 9	Mid-term presentation	講授 Lecture、討論 Discussion
Week 10	Sustainable smart cities	講授 Lecture、討論 Discussion
Week 11	National planning and sustainability	講授 Lecture、討論 Discussion
Week 12	Disaster risk in urban areas	講授 Lecture、討論 Discussion
Week 13	Mitigation and adaptation strategies for disaster management	講授 Lecture、討論 Discussion
Week 14	Environmental impact assessment	講授 Lecture、討論 Discussion
Week 15	Growth management and land sustainability analysis	講授 Lecture、討論 Discussion
Week 16	Air quality, urban heat island and planning	講授 Lecture、討論 Discussion
Week 17	End-of-term discussion	講授 Lecture、討論 Discussion
Week 18	Final presentation	講授 Lecture、討論 Discussion

評量方式 Evaluation Methods：(各項成績請填百分比；合計 100%)

平時成績 Regular grades 30 %	期中成績 Mid-term grades 30 %	期末成績 Final grades 40 %
<input type="checkbox"/> 出席率 Participation <input type="checkbox"/> 數位學苑作業與討論 Digital classroom assignment and discussion <input checked="" type="checkbox"/> 課堂討論 Class discussion <input type="checkbox"/> 平時作業 Regular assignment <input type="checkbox"/> 平時考試 Regular test <input type="checkbox"/> 其他 Others：_____	<input type="checkbox"/> 期中考 Mid-term <input type="checkbox"/> 書面報告 Written report <input checked="" type="checkbox"/> 口頭報告 Oral report <input type="checkbox"/> 其他 Others：_____	<input type="checkbox"/> 期末考 Final <input checked="" type="checkbox"/> 書面報告 Written report <input checked="" type="checkbox"/> 口頭報告 Oral report <input type="checkbox"/> 其他 Others：_____

指定用書 Required Texts：Materials prepared by the instructor.

參考書目 Reference Books：

1. Mach, K., & Mastrandrea, M. (2014). Climate change 2014: impacts, adaptation, and vulnerability (Vol. 1). Cambridge, New York, NY: Cambridge University Press.
2. Pachauri, R. K., Allen, M. R., Barros, V. R., Broome, J., Cramer, W., Christ, R., ... & Dubash, N. K. (2014).

Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

3. Smit, B., & Pilifosova, O. (2003). Adaptation to climate change in the context of sustainable development and equity. *Sustainable Development*, 8(9), 9.
4. United Nations (2015) The Sustainable Development Goals.

And other research papers suggested by the instructors.

其他參考資料 Other References :

※備註：開課單位新增課程時，如無授課教師得暫以文字敘述教學進度與評量方式。