

Resilience Theory in Urban Planning & Design

Instructor: Liao Kuei-Hsien, Ph.D., Associate Professor

Meeting time: Thursday 15:10-18:00

Meeting room: 629, College of Public Affairs

INTRODUCTION

Originated in ecology, resilience theory has received great attention in recent years in the discipline of urban planning and design. While resilience has become an increasingly popular term, it is also prone to misuse and abuse, similar to what has occurred to ‘sustainability’. The application of the notion of resilience to urban planning and design could bring a new perspective to advance the discipline, but it requires a solid understanding of resilience theory itself in the first place. The purpose of this course is to help build up such an understanding. In this course, we will first explore the original notion of resilience in ecology, and subsequently we will examine its evolution and application to other fields relevant to urban planning and design. While resilience has been discussed with regards to various facets, this course focuses on the resilience to environmental—rather than socio-economic—changes, and more specifically, on the resilience of society to natural hazards. We will explore how the concept of resilience provides an alternative paradigm for managing environmental changes. In this new paradigm, cities are viewed as complex adaptive, social-ecological systems, where humans and inherent environment changes are tightly interacting with each other. This course takes a seminar format, where students are required to read and synthesize academic journal papers and are expected to actively engage in class discussion.

OBJECTIVES

After taking this course, students are expected to:

1. gain an in-depth understanding of resilience theory and articulate what it involves
2. be able to identify the different conceptualization and interpretations of resilience
3. articulate how resilience can be applied to the management of a specific type of environmental change
4. enhance the ability of English reading and speaking.

GENERAL COURSE POLICY

1. Students are expected to attend all classes. Be punctual to respect the instructor and your classmates. ***Do not come to the class if you are late for more than 10 minutes*** unless a justifiable reason can be provided.
2. The success of this seminar course depends on the active participation of each student, and hence the full engagement in class is required.
3. The cell phone or laptop can only be used in class as a dictionary.
4. Check emails at least once a day to avoid missing important announcements about this course.

LANGUAGE-RELATED POLICY

1. This course is conducted fully in English, although occasionally the instructor might translate difficult vocabularies and concepts into Mandarin to facilitate learning.
2. If you don't understand the instructor, never hesitate to ask the instructor to slow down or explain.
3. There is no such thing as “shame” in class. Don't be afraid of speaking “broken English”.
4. No one should laugh at anyone's English, including the accent, grammar, and pronunciation.
5. The instructor might correct your grammar, pronunciation, and/or vocabulary; or help finish a sentence that you are struggling with to help improve your English. Try not to feel embarrassed or offended. You learn when your mistakes are pointed out.

6. Understandable or communicable English does not necessarily require a great amount of vocabularies. If you don't know the exact English vocabulary for a certain thing or concept, try your best to use the limited English you know to describe it.
7. If you've tried hard but still can't precisely express what's in your mind in English, it is fine to ask the instructor for help in Mandarin.

TENTATIVE SCHEDULE

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| Mar 05 | | Course introduction |
| Mar 12 | Subject Literature | <p>[Theory] New paradigm in ecology & Holling's original notion of resilience</p> <ul style="list-style-type: none"> • Pickett STA, Parker VT, Fiedler P. 1992. The new paradigm in ecology: Implications for conservation biology above the species level. Page 65-88 in Fiedler PL, Jain SK, editors. <i>Conservation Biology: The Theory and Practice of Nature Conservation, Preservation and Management</i>. Chapman & Hall, Inc., New York. • Holling CS. 1973. Resilience and stability of ecological systems. <i>Annual Reviews of Ecology and Systematics</i> 4: 1-23. |
| Mar 19 | Subject Literature | <p>[Theory] Resilience & Paradigm shift</p> <ul style="list-style-type: none"> • Holling CS. 1996. Engineering resilience versus ecological resilience. Page 31-42 in Schulze PC, editor. <i>Engineering within Ecological Constraints</i>. National Academy Press, Washington, DC. • Holling CS, Meffe GK. 1996. Command and control and the pathology of natural resource management. <i>Conservation Biology</i> 10(2): 328-337. |
| Mar 26 | Subject Literature | <p>[Theory] Social-ecological systems & Social-ecological resilience</p> <ul style="list-style-type: none"> • Folke C. 2006. Resilience: The emergence of a perspective for social-ecological systems analyses. <i>Global Environmental Change</i> 16: 253-267. |
| Apr 02 | | Children's Day |
| Apr 09 | Subject Literature | <p>[Theory] Adaptability & Transformability</p> <ul style="list-style-type: none"> • Walker B, Holling CS, Carpenter SR, Kinzig A. 2004. Resilience, adaptability and transformability in social-ecological systems. <i>Ecology and Society</i> 9(2): 5. • Folke C, Carpenter SR, Walker B, Scheffer M, Chapin T, Rockstrom J. 2010. Resilience thinking: Integrating resilience, adaptability and transformability. <i>Ecology and Society</i> 15(4): 20. |
| Apr 16 | Subject Literature | <p>[Theory] Thresholds and regime shifts</p> <ul style="list-style-type: none"> • Folke C, Carpenter S, Walker B, Scheffer M, Elmqvist T, Gunderson L, Holling CS. 2004. Regime shifts, resilience, and biodiversity in ecosystem management. <i>Annual Reviews of Ecology and Systematics</i> 35: 557-581. |
| Apr 23 | | Case study proposal |
| Apr 30 | | Reading week |
| May 07 | Subject Literature | <p>[Application] Resilience in urban planning and design</p> <ul style="list-style-type: none"> • Wu J, W T. 2013. Ecological resilience as a foundation for urban design and sustainability. Page 211-229 in Pickett STA, Cadenasso ML, McGrath B, editors. <i>Resilience in Ecology and Urban Design: Linking Theory and Practice and Urban Design</i>. Springer, New York. |
| May 14 | Subject Literature | <p>[Application] Urban resilience</p> <ul style="list-style-type: none"> • Ahern J. 2011. From fail-safe to safe-fail: sustainability and resilience in the new urban world. <i>Landscape and Urban Planning</i> 100: 341-343. • Meerow S, Newell JP, Stults M. 2016. Defining urban resilience: A review. <i>Landscape and urban Planning</i> 147: 38-49. |
| May 21 | | Case study proposal |

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| May 28 | Subject Literature | <p>[Application] Social resilience</p> <ul style="list-style-type: none"> • Adger WN. 2000. Social and ecological resilience: are they related? <i>Progress in Human Geography</i> 24: 347-364. • Keck M, Sakdapolrak P. 2013. What is social resilience? Lessons learned and ways forward. <i>Erdkunde</i> 67(1): 5-19 |
| Jun 04 | Subject Literature | <p>[Application] Hazard resilience</p> <ul style="list-style-type: none"> • Cutter SL, Barnes L, Berry M, Burton C, Evans E, Tate E, Webb J. 2008. A place-based model for understanding community resilience to natural disasters. <i>Global Environmental Change</i> 18: 598-606. |
| Jun 11 | Subject Literature | <p>[Application] Flood resilience</p> <ul style="list-style-type: none"> • Liao K-H, Le TA, Nguyen KV. 2016. Urban design principles for flood resilience: Learning from the ecological wisdom of living with floods in the Vietnamese Mekong Delta. <i>Landscape and Urban Planning</i> 155: 69-78. • McClymont K, Morrison D, Beevers L, Carmen E. 2019. Flood resilience: a systematic review. <i>Journal of Environmental Planning and Management</i>. |
| June 18 | | <p>Case study presentation & Concluding discussion</p> |

ASSESSMENT SCHEME

30% Literature summary & questions

To facilitate class discussion, each student is required to present a summary of, along with questions arising from, at least one of the papers required to read for the week. The summary should include—but not limited to—the aim of the paper, the structure/organization of the paper, key concepts and/or keywords, research methodology (if applicable), as well as your reflection on the paper. The summary and questions should be printed out on A4 papers to disseminate to the class.

50% Case study

Each student should choose a particular system and discuss its resilience to a particular environmental change. Students should start to think about and plan for the case study as early as possible in the semester. On April 23, each student should present the proposal of the case study. The proposal should include the analytical framework, with which the resilience of the system in question is analyzed. A second presentation on the case study proposal is scheduled to be on May 21 to make sure that there is progress. The final deliverable of the case study is a 25-minute PowerPoint presentation to be carried out on June 18. No written paper is required.

20% Class participation

Since this is a seminar course, class participation is a must. Class participation is in the form of active involvement in discussion, including raising questions, answering questions, and responding to others' comments.