

## **URPL 590 – Planning for Resilience to Natural Hazards**

University of Wisconsin – Madison  
Department of Urban and Regional Planning  
Spring 2016

### **Instructors**

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Mondays, 1:00 – 3:30pm  
Lectures: 208 Old Music Hall  
Labs: 109 Old Music Hall  
Office Hours: After class or by appointment. Please note that Prof. Göçmen has additional office hours Wednesdays, 1–2 pm.

Enrollment limit – 18 students

### **Course Summary**

Many sources have documented a steady increase in the occurrence of natural disasters, as well as an even larger increase in associated economic losses and people impacted. What have we learned from disasters such as Hurricane Katrina and Superstorm Sandy? Why do some communities bounce back quicker from disasters than others? What can be done to increase resilience to natural hazards? This course will explore the theoretical underpinnings for hazard mitigation and disaster recovery, as well as planning approaches to increase resilience to natural hazards. The central case study will be how New Orleans has recovered from Hurricane Katrina and whether it is a more resilient city as a result. Students will evaluate decision tools that promote hazards resilience and prepare a case study using multimedia technologies to explore how local planners are using data, tools, methods, and policies to help make their communities more resilient.

### **Learning / Course Objectives**

This course intends to give students a theoretical background and practical approaches to planning to increase community resilience to natural hazards. At the end of the course, the students are expected to have the following knowledge, skills, and values:

Planning knowledge: As an outcome of the course, students will learn the cycle of activities that surround planning and responding to natural disasters. They will also learn

the principles of building community resilience to natural hazards and various planning approaches to address natural hazards. In addition, students will learn the institutional context within which natural hazard mitigation and recovery planning occurs.

Planning skills: As an outcome of this course, students will gain the ability to find, evaluate, and use decision tools to address natural hazards. They will also gain the ability to analyze and communicate a community approach to building resilience to natural hazards through a multimedia case study. In addition, students will further their written, oral, and graphic communication skills.

Planning values and ethics: As an outcome of this course, students will develop an understanding of how to create sustainable futures and an appreciation of equity concerns in planning.

### **Course Requirements and Format**

We will meet once a week and our meetings will primarily be in a seminar format. For a seminar format to be successful, full participation of all members is required. Thus, the students are expected to attend all the sessions, be prepared to discuss assigned material, show respect for and interest in the opinions of others, and meaningfully contribute to our discussions. We will discuss assigned readings, but you are encouraged to do further research, suggest other readings, and bring other material to class. We will also have virtual meetings with experts in the field of planning for natural hazards. The students are expected to complete four assignments, a literature reflection paper, a blog post on 100 Resilient Cities, an evaluation of a resilience decision tool, and a case study on resilience. Details about each requirement will be available later in the term.

Class material will be available on Box. Please check regularly. Also, if you miss class, please find out (from fellow classmates) what you missed.

### **Grading and Evaluation**

The students will be evaluated on the above four types of activities and their grades will be based on the following: course participation - 10%; literature reflection - 20%; 100 Resilient Cities exercise – 15%, evaluation of a decision support tool – 15%, and resilience case study - 40%.

Final grades are assigned based on the following scale: 93-100 – **A**; 88-92 – **AB**; 83-87 – **B**; 78-82 – **BC**; 70-77 – **C**, 60-69 – **D**; and 0-59 – **F**.

Please note that:

- The participation grade will involve both the quality and quantity of your participation and attendance. Attending all classes but not speaking up will result in the loss of many points.

- Late submissions will be penalized by one point each day that it is late; no late assignments will be accepted after they have been graded and returned to students.
- The case study is due May 11<sup>th</sup>; please note that no late submissions will be accepted.

### **Academic Integrity**

We expect high academic integrity from each student. It is assumed that students are familiar with the policies, definitions, and procedures regarding academic misconduct, as specified in UWS 14. Details of the policies, including your rights and responsibilities can be found at:

<http://www.wisc.edu/students/saja/misconduct/UWS14.html> Under the policies regarding academic misconduct, an instructor has discretion as to which penalties will be imposed in the case of academic misconduct. We reserve the right to assign a failing grade to a particular assignment, report the incidence to the Student Advocacy and Judicial Affairs office within the Dean of Students Office, or impose other penalties.

Please remember that using another person's ideas, words, or research and presenting it as one's own by not properly crediting the originator (including the Web) and cheating are two common acts of academic misconduct.

### **Civility in the Classroom**

It is a requirement of this class that you respect your classmates, instructors, and our guests and that you not engage in non-class e-activities (e.g., checking and responding to e-mail, texting, checking Facebook and Twitter) during our meetings. Engagement in non-class e-activities is a disruption for your instructor and other presenters, and is an impediment to your processing and retaining class-related information. We reserve the right to ask you to leave the classroom and give a penalty on your participation grade if you engage in non-class e-activities.

### **Special Accommodations**

If you have a disability or conflict with our course schedule that we need to be aware of, please notify us and, if necessary, provide proof of it within the first two weeks of class.

### **Course Schedule**

#### Week 1 – January 25

Introductions, review of syllabus, and Extreme Event Game

## Week 2 – February 1

### Introduction to Natural Hazards and Disasters

#### Readings:

- Randolph, J. (2012). *Environmental Land Use Planning and Management* (2nd ed.). Washington, DC: Island Press. [Chapter 13 - Natural Hazard Mitigation and Community Resilience, pp. 443-486]
- Lindell, M. K., Tierney, K. J., & R. W. Perry. (2001). *Facing the Unexpected: Disaster Preparedness and Response in the United States*. Joseph Henry Press. [Chapter 1 – Conceptualizing Disasters and Their Impacts, pp. 1-26]
- Vale, L. J., & T. J. Campanella. (2005). *The resilient city: How modern cities recover from disaster*. Oxford University Press. [Conclusion – Axioms of Resilience, pp. 335-355]
- Cutter, S. L., Boruff, B. J., & W. L. Shirley (2003). Social Vulnerability to Environmental Hazards. *Social Science Quarterly*. 84 (2): 242–261. [focus on indicators]

## Week 3 – February 8

### Introduction to Resilience

#### Readings:

- Cutter, S. L., Barnes, L., Berry, M., Burton, C., Evans, E., Tate, E., & J. Webb. (2008). A place-based model for understanding community resilience to natural disasters. *Global environmental change*, 18(4), 598-606.
- Klein, R. J., Nicholls, R. J., & F. Thomalla. (2003). Resilience to natural hazards: How useful is this concept? *Global Environmental Change Part B: Environmental Hazards*, 5(1), 35-45.
- Vale, L. J. (2014). The politics of resilient cities: whose resilience and whose city? *Building Research & Information*. 42 (2), 191-201.
- Committee on Increasing National Resilience to Hazards and Disasters, Committee on Science, Engineering, and Public Policy, & The National Academies. (2012). *Disaster Resilience: A National Imperative*. National Academies Press. [Chapter 5 - Building Local Capacity and Accelerating Progress: Resilience from the Bottom Up, pp. 117-152]
- Godschalk, D. R. (2003). Urban hazard mitigation: creating resilient cities. *Natural hazards review*, 2003

## Week 4 – February 15

### Planning for Resilience to Natural Hazards

#### Readings:

- Godschalk, D. R., Kasier, E. J. & P. R. Berke. (1998). Integrating Hazard Mitigation and Local Land Use Planning in *Cooperating with Nature: Confronting Natural Hazards with Land-Use Planning for Sustainable Communities*. Burby, R. J. (Ed.). Washington, D.C.: Joseph Henry Press. pp. 85-118.
- Oshansky, R. B. & J. D. Kartez. (1998). Managing Land Use to Build Resilience in *Cooperating with Nature: Confronting Natural Hazards with Land-Use Planning for Sustainable Communities*. Burby, R. J. (Ed.). Washington, D.C.: Joseph Henry Press. pp. 167-202.
- Berke, P. R. & T. J. Campanella. (2006). Planning for Postdisaster Resiliency. *The ANNALS of the American Academy of Political and Social Science*, March 2006 vol. 604 no. 1 192-207
- Berke, P., Newman, G., Lee, J., Combs, T., Kolosna, C., & D. Salvesen. (2015). Evaluation of Networks of Plans and Vulnerability to Hazards and Climate Change: A Resilience Scorecard. *Journal of the American Planning Association*, 81(4), 287-302.
- Lyles, L. W., Berke, P., & G. Smith. (2014). Do planners matter? Examining factors driving incorporation of land use approaches into hazard mitigation plans. *Journal of environmental planning and management*, 57(5), 792-811.
- The 2014 special edition of the Journal of the American Planning Association (volume 80, issue 4) on natural hazard mitigation has several articles that will be of interest.

## Week 5 – February 22

### Planning for Resilience to Natural Hazards: Initiatives of the American Planning Association, the Association of State Floodplain Managers, and the Rockefeller Foundation

#### Web Resources:

Hazards Planning Center, American Planning Association

<https://www.planning.org/nationalcenters/hazards/>

A “No Adverse Impact” Approach to Managing Hazards, Association of State Floodplain Managers

<http://www.floods.org/index.asp?menuid=349> (Background)

<http://www.floods.org/index.asp?menuid=460> (Publications)

<http://www.floods.org/index.asp?menuid=432> (Case Studies)

100 Resilient Cities Initiative, Rockefeller Foundation

<http://www.100resilientcities.org/>

Week 6 – February 29 (meet in Goodnight Hall, Room 215, 1975 Willow Dr.)

Planning for New Orleans after Hurricane Katrina

*A webinar with a panel of speakers with a focus on rebuilding after Hurricane Katrina.*

Webinar speakers:

- Robert W. Becker, FAICP, Chief Executive Officer, New Orleans City Park
- Tim Jackson, AICP, Owner, Tim Jackson Consulting, LLC and Chair, New Orleans City Planning Commission, 2001-9

Readings:

- Burby, R. J. (2006). Hurricane Katrina and the paradoxes of government disaster policy: Bringing about wise governmental decisions for hazardous areas. *The Annals of the American Academy of Political and Social Science*, 604(1), 171-191.
- Olshansky, R., Johnson L., Horne, J. and B. Nee. (2008). Longer View: Planning for the Rebuilding of New Orleans, *Journal of the American Planning Association*, 74:3, 273-287.
- Campanella, R. (2015). A Katrina Lexicon. *Places Journal*. July 2015.  
(<https://placesjournal.org/article/a-katrina-lexicon/>)
- Barry, J. (2015). Is New Orleans safe? *The New York Times*. 1 August 2015.

Supplemental Literature:

- Burkett, V., D. Zilkoski, and D. Hart. (2003). Sea-Level Rise and Subsidence: Implications for Flooding in New Orleans. *U.S. Geological Survey Subsidence Interest Group Conference, Proceedings for the Technical Meeting*. November 27-29, 2001, Galveston Island, Texas. USGS Water Resources Division, Open File Report Series. pp. 63-70.
- Houck, O. (2006). Can we save New Orleans? *Tulane Environmental Law Journal*, 19 (1): 1-68.
- Campanella, R. (2008). *Bienville's dilemma: a historical geography of New Orleans*. Lafayette: Center for Louisiana Studies, University of Louisiana at Lafayette.
- Olshansky, R. B., & Johnson, L. (2010). *Clear as mud: Planning for the rebuilding of New Orleans*. American Planning Association.
- Liu, Amy, and Allison Plyer. (2010). *The New Orleans Index at Five*. Washington: Brookings Institution and Greater New Orleans Community Data Center.
- Eggers, D. (2012). *Zeitoun*. Ernst Klett Sprachen.

Web Resource:

New Orleans Plan Database

<http://nolaplans.com/>

Due: Assignment #1 - Literature Reflection Paper

Week 7 – March 7 (meet in Goodnight Hall, Room 215, 1975 Willow Dr.)

Planning for Resilience along the Gulf Coast

*A webinar with a panel of speakers with a focus on current planning efforts to improve resilience in New Orleans and the Gulf Coast.*

Webinar speakers:

- Terri Wilkinson, AICP, Director, Jefferson Parish Planning Department
- Michelle Gonzalez, Director, Jefferson Parish Floodplain Management & Hazard Mitigation
- Tracie Sempier, Coastal Storms Outreach Coordinator, Mississippi-Alabama Sea Grant Consortium
- Ramiro Diaz, Architectural Designer, Waggoner & Ball Architects, New Orleans

Readings:

- Sempier, T.T., Swann, D. L., Emmer, R., Sempier, S. H. & M. Schneider. (2010). *Coastal Community Resilience Index: A Community Self-Assessment*. MASGP-08-014.
- City of New Orleans. (2015). *Resilient New Orleans: Strategic actions to shape our future city*.

Tools: Dutch Dialogs, Coastal Community Resilience Index

Week 8 – March 14 (meet in Goodnight Hall, Room 215, 1975 Willow Dr.)

Challenges to Recovery Planning

Webinar speaker:

- N. Emel Ganapati, Associate Professor of Public Administration, Florida International University

Readings:

- Ganapati, N. E., & A. Mukherji. (2013). Out of Sync: World Bank Funding for Housing Recovery, Postdisaster Planning, and Participation. *Natural Hazards Review*, 15(1): 58-73.
- Olshansky, R. B., Hopkins, L. D., & L. A. Johnson. (2012). Disaster and recovery: Processes compressed in time. *Natural Hazards Review*. 13: 173-178.

Due: Assignment #2 -100 Resilient Cities Blogpost

Week 9 – March 21

Spring Break - No Class

### Week 10 – March 28

#### Decision Support Tools to Improve Resilience to Natural Hazards

##### Readings:

- Rozum, J. (2013). *Tools for Coastal Climate Adaptation Planning: A guide for selecting tools to assist with ecosystem-based climate planning*. NatureServe.
- Watermolen, D. (2008). *Internet and GIS Tools for Environmental Management: The Wisconsin DNR Program*. Wisconsin Department of Natural Resources. PUB-SS-1059 2009.

### Week 11 – April 4

#### The Great Lakes Coastal Resilience Planning Guide as a Framework for Resilience Case Studies

##### Guest speaker:

- Jeff Stone, Project Manager, Association of State Floodplain Managers

##### Tool:

Great Lakes Coastal Resilience Planning Guide

<http://greatlakesresilience.org/>

### Week 12 – April 11

#### Addressing Natural Hazards in Wisconsin

##### Guest speaker:

- Katie Sommers, Disaster Response & Recovery Planner and/or Roxanne Gray, Mitigation Section Supervisor, Wisconsin Emergency Management

##### Reading:

- Wisconsin Emergency Management. (2011). *State of Wisconsin Hazard Mitigation Plan*.

Due: Assignment #3 - Resilience Decision Tool Evaluation

### Week 13 – April 18

#### Tackling Barriers to Green Infrastructure

##### Guest speaker:

- Julia Noordyk, Coastal Storms Outreach Specialist, University of Wisconsin Sea Grant Institute

##### Tool:

Tackling Barriers to Green Infrastructure: An Audit of Municipal Codes and Ordinances



Week 14 – April 25

Building a Disaster Resilient University

Guest speaker:

- Tom McClintock, Land Information and Computer Graphics Facility, University of Wisconsin-Madison

Tool:

HAZUS-MH

<https://www.fema.gov/hazus>

Week 15 – May 2

Resilience Case Study Practice Presentations

Due: Assignment #4 - Resilience Case Study (final draft)

Exam Period - Wednesday, May 11, 5:05pm

Resilience Case Study Public Presentations

Due: Assignment #4 - Resilience Case Study (final)

*Revised – March 2, 2016*