

URBAN ENVIRONMENTAL SUSTAINABILITY
SPRING 2020 M 2:30–5:00 PM

Instructor: Dr. David M. Iwaniec
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Course Description

Welcome to Urban Environmental Sustainability! This course is designed to increase your understanding of systems dynamics, cascading effects, and scale, and to develop expertise in transdisciplinary research to address urban environmental sustainability challenges. Urban possibilities and challenges are analyzed using a systems approach. Interdisciplinary and transdisciplinary aspects are integrated through a social-ecological-technological systems perspective. Linkages between (and perspectives from) research and practice are emphasized throughout the course.

Learning Outcomes and Goals

Urban Environmental Sustainability is primarily designed to acquaint you with primary sources that address theory, research, and practice to:

- Increase your understanding of the major challenges of urban environmental sustainability at local, regional, national, and global scales
- Deepen your understanding of the connections among social, ecological, and technological systems
- Develop your understanding of the theories and approaches to conducting transdisciplinary (TD) research to confront sustainability issues
- Bring you into contact with a variety of sometimes contradictory perspectives on the same problem and solution
- Provide you with opportunities to practice and improve your communication, presentation, teamwork, and critical thinking skills

By the end of the course, you should be able to do the following:

- Discuss and explain the basic arguments, assumptions, and premises of dominant contemporary approaches to urban sustainability
- Identify and discuss the role of management, decision-making, and planning in urban systems
- Compare, contrast, and critically evaluate approaches, both in general and in relation to a substantive area of research
- Write and present a scholarly research paper or full research proposal and gain experience in peer review

Format

We will meet once per week with most classes consisting of discussions, lectures, and individual and team activities. Students will be required to actively participate. Lectures that include presentation material will be posted on iCollege after the classes. During the semester, we will have student-led Intellectual Issues discussions in which small teams will summarize concepts from previous classes and lead a discussion on current topics and primary literature in the field. Other class periods may include guest seminars and field studies.

Readings

There are no required course materials to purchase. All readings for this course will be provided on iCollege.

Special Needs

Students who wish to request accommodation for a disability may do so by registering with the Office of Disability Services. Students may only be accommodated upon issuance by the Office of Disability Services of

a signed Accommodation Plan and are responsible for providing a copy of that plan to instructors of all classes in which accommodations are sought.

Students with special needs should then make an appointment with me during the first week of class to discuss any accommodations that need to be made.

Academic Honesty

The policy on academic honesty is published in the Student Code of Conduct and the Student Handbook. All GSU students are responsible for abiding by its tenets. Lack of knowledge of this policy is not an acceptable defense to any charge of academic dishonesty.

EVALUATION AND ASSESSMENT

Course Requirements

Students are responsible for all assignments, even if they are absent. Late assignments, failure to complete the readings assigned for class discussion, and lack of preparedness for in-class discussions and presentations will jeopardize your successful completion of this course.

iCollege is an essential resource for this class. Students must be diligent in checking it for announcements.

Attendance Policy

You are required to attend every class and arrive on time. More than two absences will justify a grade reduction. Attendance and lateness policies will be enforced as of the first day of classes for all registered students. If registered during the add/drop period, you are responsible for any missed assignments, readings, or other coursework. Significant lateness will be considered as an absence for the day. Late work will be accepted at a penalty of 50% of the assignment grade.

Grading

All assignments will need to reflect professional standards of analysis, ethics, presentation, writing, and timeliness. Grades will be awarded based on the following:

Participation and Discussion 20%
Short Assignments 20%
TD Research Project: Full Proposal 40%
TD Research Project: Policy Brief 20%

A+ (97-*)	B+ (89-87)	C+ (79-77)	D (69-60)
A (96-90)	B (86-80)	C (76-70)	F (59-*)

Participation and Discussion

Class participation is a vital part of class and includes: keeping up with reading, contributing meaningfully to class discussions, active participation in group work. You are required to complete all assigned readings before class. We will discuss the readings in class, and part of your grade will be determined by your participation and contributions to those discussions. You must come prepared to every class with at least one thought-provoking question from the readings for discussion, and a readiness to actively contribute to in-class discussions and activities. Discussion questions may be collected.

You will be assigned individually, or to small teams, to lead an Intellectual Issues discussion, including a presentation to synthesize the concepts and lead discussion or activities on the assigned topic.

Short Assignments

You will have short assignments of in-class essays, at the beginning of some classes, and post-class assignments associated with discussion topics, field studies, or guest seminars. These short assignments will help you synthesize readings, apply new concepts, identify areas where you need further discussion/clarification, and gauge your reaction to course material.

TD Research Project

The TD project is designed to allow you to showcase what you have learned and how your scientific, transdisciplinary, and critical reasoning skills have advanced as a result of this course. This will entail three core products which will be developed throughout the semester: 1) full research proposal, 2) evidence-based policy brief of the research, and 3) class presentation and peer review.

Class Calendar / Course Schedule
Jan 13th Urban Environmental Sustainability: Introduction, history, and defining

- Childers et al. (2014) Advancing urban sustainability theory and actions challenges and opportunities. *Landscape and Urban Planning* 125:320-328
- Hackmann H, Moser SC, St. Clair AL (2014) The social heart of global environmental change. *Nat Clim Chang* 4:653
- Kates RW, Clark WC, Corell R, et al., (2001) Environment and development. *Sustainability science. Science* 292:641–642

Jan 20th MLK (No Classes)
Jan 27th Social-Ecological-Technological Systems

- Redman, C & Miller T (2015) The Technosphere and Earth Stewardship. In: *Earth Stewardship: Linking ecology & ethics in theory and practice*
- Ramaswami, A. et al. (2012) A Social-Ecological-Infrastructural Systems Framework for Interdisciplinary Study of Sustainable City Systems. 16:801-813
- McPhearson et al. (2016) Advancing urban ecology towards a science of cities. *Bioscience* 66:198–212

Feb 3rd Transdisciplinary research: Frameworks concepts and approaches

- Jahn T, Bergmann M, Keil F (2012) Transdisciplinarity: Between mainstreaming and marginalization. *Ecol Econ* 79:1–10
- Meerow S, Stults M (2016) Comparing Conceptualizations of Urban Climate Resilience in Theory and Practice. *Sustain Sci Pract Policy* 8:701
- Nevens F, Frantzeskaki N, Gorissen L, Loorbach D (2013) Urban Transition Labs: Co-creating transformative action for sustainable cities. *J Clean Prod* 50:111–122

Feb 10th Bridging and contrasting resilience and sustainability

- Pincetl, S (2012) Nature, urban development and sustainability - What new elements are needed for a more comprehensive understanding? *Cities* 29:S32-S37
- Redman CL (2014) Should Sustainability and Resilience Be Combined or Remain Distinct Pursuits? *Ecol Soc* 19:art37
- Schoon M (2014) Applying resilience thinking: Seven principles for building resilience in social-ecological systems. Stockholm Resilience Centre

*** TD working topic and questions ***

Feb 17th Complex systems and urban change

- Grimm NB, Faeth SH, Golubiewski NE, et al., (2008) Global Change and the Ecology of Cities. *Science* 756:756–760
- Pickett STA, Boone CG, McGrath BP, et al., (2013) Ecological science and transformation to the sustainable city. *Cities* 32:1–11
- Rotmans J, Loorbach D (2009) Complexity and Transition Management. *J Ind Ecol* 13:184–196

Feb 24th Health, justice, and environmentalism

- Jenerette GD (2018) Ecological contributions to human health in cities. *Landsc Ecol*. doi: 10.1007/s10980-018-0708-y

- Bai X, Brondizio ES, Bullard RD, et al., (2018) Urban Environments and Environmentalisms. In: Rethinking Environmentalism: Linking Justice, Sustainability, and Diversity. Strüngmann Forum Reports
- Martinez-Alier J, Anguelovski I, Bond P, et al., (2014) Between activism and science: grassroots concepts for sustainability coined by Environmental Justice Organizations. *Journal of Political Ecology* 21:19

Mar 2nd Institutional settings, decision-making, planning, and governance in cities

- Munoz-Erickson TA, Campbell LK, Childers DL, et al., (2016) Demystifying governance and its role for transitions in urban social-ecological systems. *Ecosphere* 7:e01564-11
- Frantzeskaki, N, Tilie N (2014). The dynamics of urban ecosystem governance in Rotterdam, The Netherlands. *Ambio* 43:542-555
- Arnstein SR (1969) A Ladder of Citizen Participation. *J Am Plann Assoc* 35:216-224
*** TD abstract & preliminary literature review ***

Mar 9th Assessing urban sustainability and resilience

- Boyko, CT et al., (2012) Benchmarking sustainability in cities: the role of indicators and future scenarios. *Global Env Change* 22:245-254
- Sellberg, MM, et al. (2015) Resilience assessment: a useful approach to navigate urban sustainability challenges. *Ecology and Society* 20(1)
- City of Atlanta (2017) Resilient Atlanta: Actions to Build an Equitable Future

Mar 16th Spring Break (No Classes)

Mar 23th Urbanization and the Global South

- McHale MR, Bunn DN, Pickett STA, Twine W. (2013) Urban Ecology in a Developing World: How Advanced Socio-Ecological Theory Needs Africa. 1-31
- Muñoz-Erickson TA (2014) Multiple pathways to sustainability in the city: the case of San Juan, Puerto Rico. *Ecol Soc*
- Nagendra H (2018) The global south is rich in sustainability lessons that students deserve to hear. *Nature* 557:485-488

Mar 30th Intellectual Issues in Urban Environmental Sustainability I (topics TBD in-class)

Apr 6th Intellectual Issues in Urban Environmental Sustainability II (topics TBD in-class)

Apr 13th Interventions: vulnerability, adaptation, transformation

- Abson DJ, Fischer J, Leventon J, et al., (2017) Leverage points for sustainability transformation. *Ambio* 46:30-39
- Eakin H, Muñoz-Erickson TA, Lemos MC (2018) Critical lines of action for vulnerability and resilience research and practice: Lessons from the 2017 hurricane season. *J of Extr Even* 05:1850015
- Wolfram M, Borgström S, Farrelly M (2019) Urban transformative capacity: From concept to practice. *Ambio* 48:437-448

Apr 20th Visions, imaginaries, and the future of cities

- McPhearson T, Iwaniec DM, Bai X (2016) Positive visions for guiding urban transformations toward sustainable futures. *Current Opinion in Environmental Sustainability* 22:33-40
- Bai X, van der Leeuw S, O'Brien K, et al., (2016) Plausible and desirable futures in the Anthropocene: A new research agenda. *Glob Environ Change* 39:351-362

Apr 27th Research presentations

*** TD Research Proposals & Policy Briefs ***

The course syllabus provides a general plan for the course; deviations may be necessary. Please regularly check for updates on iCollege. Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State. Upon completing the course, please take the time to fill out the online course evaluation.

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