SSCI 499, Comparative Sustainability Theory and Practice for Geodesign

Syllabus

Units: 2

Term Day Time: Spring 2021 – Thursdays – 9-10:50 a.m.

Location: Online

Instructor: Robert O. Vos, Ph.D., GISP
Office: AHF B57B
Regular Office Hours: Mondays and Wednesdays 10 a.m.-11 a.m. Also available by appointment via email.
Contact Info: vos@usc.edu, 213-821-1311, https://usc.zoom.us/my/vosusc

Library Help: Andy Rutkowski
Office: VKC 36B
Office Hours: Tuesdays 10 a.m. – 12 pm; Thursdays 4:30-5:30 p.m. Also available by appointment via email.

IT Help: Richard Tsung
Office: AHF 55E
Office Hours: By appointment
Contact Info: ctsung@usc.edu, 213-821-4415 (office)
Course Description

This course introduces the comparative theory and practice of sustainability and its important role in geodesign. Sustainability is among the most pressing scientific and social challenges of our time and one of the major goals for the successful practice of geodesign. In spite of official attention from the United Nations in the late 1980’s and several rounds of sustainable development goals since then, local examples of progress have not yet summed to a global equilibrium for planetary ecosystems. Global climate change, ocean degradation, deforestation, habitat loss, and species endangerment continue nearly unabated. Using sustainability theory, this course comparatively interrogates local examples to uncover what hinders efforts and discover what types of geodesign practice in which sorts of places may most rapidly bring closer the goal of a sustainable global environment.

Although much of the theory of sustainability is global, and in some sense thought to be universal, the opportunities to realize sustainability at local levels vary greatly due to divergent histories, cultures, languages, physical geographies, infrastructures, economic resources, and systems of governance. Indeed, because places can be constructed and interpreted in a myriad of ways by different people, the foregoing list is hardly exclusive of the sorts of divergences students may find when investigating specific places.

This course will largely but not exclusively focus on cities. In 2008, an important global threshold was reached, with over 50% of people living in cities. According to UN forecasts, by 2050 70% of the Earth’s growing population will be living in urban areas. Yet, as students may find with many aspects of this course, this historic global milestone elides significant local differences in the rate, timing, and general social and physical nature of urbanization.

The first four weeks of the course offer an immersion in sustainability theory and its role in geodesign. At the end of this first course module, each student will work with the instructor and classmates to choose a particular urban place in which to investigate and establish priorities for sustainable geodesign practice. Each student will choose a different place to study, and the aim is to include, across the students in the class, a wide variety of places at various scales around the world. For lectures throughout the course, the instructor will include examples from cities in the United States, but students will investigate urban places outside the United States.

The second and third modules of the course will cover geodesign practice in physical and social systems of cities. A series of exercises will be provided in homework packets for the second and third module of the course. Students will prepare the exercises before the class session in which they are indicated and will contribute to discussions based on the preparation of the exercises. The exercises will culminate in the second and third project reports at the end of the second and third modules of the course.

The course ends with a discussion of governance and scale, comparing successes and failures at regional planning and governance. The various exercises and reports will culminate in a final
story map project that will be presented at the final class session and become an important part of each student’s electronic portfolio.

This course provides the opportunity to meet and work with faculty, students and practitioners from the Netherlands multiple times throughout the semester. This will expose students to more perspectives on urban places around the world and the evolving scope and methods of geodesign practice for sustainable cities.

**Learning Objectives**

Upon successful completion of this course, a student will be able to:

- Describe and apply major elements of sustainability theory to urban places;
- Engage with the history and socio-cultural frameworks of places different from ones they are accustomed to;
- Distinguish globally applicable theory from place-specific practice;
- Set and advocate for priorities for geodesign practice;
- Evaluate and choose among geodesign methods in response to priorities for sustainability practice in geodesign; and
- Demonstrate an international awareness of the problems and solutions for sustainability with respect for the diversity of places, individual human rights, and the needs of other species.

**Prerequisite(s):** None  
**Co-Requisite(s):** None  
**Recommended:** SSCI 201: Principles of Geodesign

**Class Conduct**

*Harassment, sexual misconduct, interpersonal violence, and stalking* are not tolerated by the university. All faculty and most staff are considered Responsible Employees by the university and must forward all information they receive about these types of situations to the Title IX Coordinator. The Title IX Coordinator is responsible for assisting students with supportive accommodations, including academic accommodations, as well as investigating these incidents if the reporting student wants an investigation. The Title IX office is also responsible for coordinating supportive measures for transgender and nonbinary students such as faculty notifications, and more. If you need supportive accommodations you may contact the Title IX Coordinator directly ([titleix@usc.edu](mailto:titleix@usc.edu) or 213-821-8298) without sharing any personal information with me. If you would like to speak with a confidential counselor, Relationship and Sexual Violence Prevention Services (RSVP) provides 24/7 confidential support for students (213-740-9355 (WELL); press 0 after hours)
Required Readings and Supplementary Materials

All of the supplementary readings listed below are available online through USC Libraries or under the tab marked “Readings” on the course Blackboard.

Textbook:


Supplemental materials:

- Hutton, G., C. Chase. 2016. The knowledge base for achieving the sustainable development goal targets on water supply, sanitation and hygiene. *International Journal of Environmental Research and Public Health* 13, 536.
• Meenar, M.R. 2019. Integrating placemaking concepts into green stormwater infrastructure design in the City of Philadelphia. Environmental Practice 21(1), 4-19.


• Soltani, A., E. Sharifi. 2012. A case study of sustainable urban planning principles in Curitiba (Brazil) and their applicability in Shiraz (Iran). International Journal of Development and Sustainability 1(2), 120-134.


Description and Valuation of Assessments

This course includes a diversity of assessments that allow students to show mastery of the material in a variety of ways. The different types of assessments are described below and their point value to final grades are listed in the following Grading Breakdown section.

**Exercises**

A set of seven exercises is included in Modules 2 and 3 of the course. The “hands-on” tasks that comprise these exercises will introduce the tools of scientific inquiry and give students practical experience in implementing these tools within geodesign practice. The exercises are different from the lecture content but will be an important basis for class discussion at each class meeting during Modules 2 and 3 of the course.

**Projects**

A set of three projects is spread across the course. The first project relates to initial research on and establishing the urban place that the student will work on during the exercises in the course. The second and third projects compile and frame the work done for the exercises in a written submission to the instructor.

**Final Story Map Project**

The final project will set priorities and identify methods for geodesign practice in the urban place that a student has studied throughout the semester. The Story Map format will allow for students to use data visualizations to put forward a compelling case for geodesign work towards sustainability in a specific place. The story maps will be a basis for lively discussion at the final class session and will be a valuable part of the student’s electronic portfolio.

**Final Exam and Other Policies**

The final exam is closed book. This exam will cover content learned during lecture as well as in the course readings.

No make-up opportunities will be offered for the final exam, so mark the appropriate date on your calendar! If you have a legitimate conflict, per the USC policy on Final Exam Scheduling, speak with me as soon as possible. In addition, please note that there is no credit for late assignments.

**Grading Breakdown**

The table below shows the breakdown of the assessments and their weight in the final grade. The emphasis is on regularly completing a number of projects as well as solid performance on the final examination.
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<thead>
<tr>
<th>Assessment</th>
<th>Number</th>
<th>Points Each</th>
<th>Total Points (% of Grade)</th>
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<tbody>
<tr>
<td>Projects</td>
<td>3</td>
<td>10</td>
<td>30</td>
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<tr>
<td>Exercises</td>
<td>7</td>
<td>5</td>
<td>35</td>
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<tr>
<td>Final Story Map Project</td>
<td>1</td>
<td>15</td>
<td>15</td>
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<tr>
<td>Final Exam</td>
<td>1</td>
<td>20</td>
<td>20</td>
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<td>Totals</td>
<td>6</td>
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<td>100</td>
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### Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Readings</th>
<th>Deliverables/Due Dates</th>
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<tbody>
<tr>
<td></td>
<td>Module 1</td>
<td>Introduction to Sustainability Theory in Geodesign</td>
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<td><strong>Week 1</strong></td>
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<td></td>
<td>Brunn et al. (2016) Chapter 1</td>
<td>Hagen and Middel (2020)</td>
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<td>Soltani and Sharifi (2012)</td>
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<td><strong>Week 2</strong>*</td>
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<td>Huang et al. (2019)</td>
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<td>Brunn et al. (2016) Chapter 13</td>
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<td><strong>Week 3</strong></td>
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<td>2/4</td>
<td>Trends and Historical Overviews</td>
<td>Bettencourt et al. (2007)</td>
<td>Brunn et al. (2016) <em>Historical Perspectives</em> in Chapters 2-12</td>
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### Week 4

| 2/11 | Comparative Contexts of Practice | Webster et al. (2017)  
Gugler (2004) (individual chapter assignments TBD/TBA)  
Brunn et al. (2016) (individual chapter assignments TBD/TBA) | First Project Report |

#### Module 2 | Comparison of Physical Systems in Cities

### Week 5

| 2/18 | Landscapes: Urban Form and Urban Footprint | Angel (2011) & Also view: [http://www.atlasofurbanexpansion.org](http://www.atlasofurbanexpansion.org)  
Seto et al. (2012)  
d’Amour et al. (2017)  
Boeing (2018) | Urban Footprint Exercise |

### Week 6

World Health Organization (2016) | Environmental Health Exercise |

### Week 7

| 3/4 | Urban Climate: Heat Islands and Resilience to Climate Change | Ruddell et al. (2020)  
Temmerman et al. (2013)  
Wu and Chiang (2018) | Urban Climate Exercise |

### Week 8

| 3/11 | Water: Rivers and Coastal Zones | Nyerges et al. (2016) | River or Port Exercise |

### Week 9

| 3/18 | Biophilic Cities | Beatley (2020) | Biophilic Cities Exercise |
## Module 3 | Comparison of Social Systems in Cities

### Week 10

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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<th>Assignments</th>
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<tr>
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<td>Meenar (2019)</td>
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### Week 11

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<tr>
<th>Date</th>
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<th>Readings</th>
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<tbody>
<tr>
<td>4/1</td>
<td>Placemaking: Culture and the Built Environment</td>
<td>Brunn et al. (2016) (individual chapter assignments TBD/TBA)</td>
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<td>Meenar (2019)</td>
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<td>Dur et al. (2014)</td>
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<td>Second Project Report Due</td>
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<td>Transportation Systems Exercise</td>
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### Week 12

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<td>Housing Exercise</td>
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### Week 13

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<th>Topic</th>
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<td>Third Project Report</td>
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## Module 4 | Governance and Scale

### Week 14

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<th>Topic</th>
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<td>Neumann and Zonneveld (2018)</td>
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<td>Ross (2009) (individual chapter assignments TDD/TBA)</td>
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### Week 15

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<th>Date</th>
<th>Topic</th>
<th>Readings</th>
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<tr>
<td>4/29</td>
<td>Concluding Thoughts: How does variation in places inform sustainability theory?</td>
<td>Story Map Project Presentations</td>
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<td>Final Story Map Project Due</td>
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**Final Examination (Date and Time TBD; Location TBD; Closed Book)**
Statement on Academic Conduct and Support Systems

Academic Conduct
Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Support Systems

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call engemannshc.usc.edu/counseling
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline – 1 (800) 273-8255 – 24/7 on call www.suicidepreventionlifeline.org
Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call engemannshc.usc.edu/rsvp
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086 equity.usc.edu, titleix.usc.edu
Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic that may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support – (213) 740-2421 studentaffairs.usc.edu/bias-assessment-response-support
Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

The Office of Disability Services and Programs – (213) 740-0776 dsp.usc.edu
Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

*Student Support and Advocacy – (213) 821-4710*
studentaffairs.usc.edu/ssa
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

*Diversity at USC – (213) 740-2101*
diversity.usc.edu
Information on events, programs and training, the Provost’s Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

*USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call*
dps.usc.edu, emergency.usc.edu
Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

*USC Department of Public Safety – UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call*
dps.usc.edu
Non-emergency assistance or information.