

# **Built Environment: Community Design for Health and Sustainability**

**Duke University  
Nicholas School of the Environment**

**Professor:** Mozhgon Rajaei, PhD, MPH  
**Office:** Environment Hall 3102 (Box 90328)  
**Telephone:** (919) 681-1898  
**Email:** mozhgon.rajaee@duke.edu  
**Office hours:** TBD  
**Course:** ENVIRON  
**Course times:** TBD  
**Classroom:** TBD

## **Course description**

This course examines the environmental and public health impacts of the built environments where people live, work, play, worship, and learn, and the transportation systems connecting them. This includes how neighborhoods, cities, and regions impact environmental sustainability and health, particularly major public health challenges around air quality, climate change, obesity, walkability, chronic disease, mental health, health disparities, and injuries. Students will translate scientific evidence into designing and developing interventions for more sustainable and healthy communities. The course will focus on the impacts and design of urban environments and social equity.

## **Learning outcomes**

1. Critically evaluate and examine issues in the built environment that have an impact on the environment and public health at global and local levels
2. Describe past policies and practices and their influence on community design, environmental sustainability, and health
3. Identify tools and best practices that promote healthier, more sustainable communities
4. Explain how structural social forces have resulted in disparate environmental amenities and disamenities in marginalized neighborhoods
5. Integrate current evidence of health and environmental impacts with information and perspectives from other courses and/or personal experiences
6. Apply lessons from planning and public health research to current and future problems related to the built environment

## **Required readings**

Speck, Jeff (2012). *Walkable City: How Downtown Can Save America, One Step at a Time*. North Point Press, NY.

There will be other required readings, provided through Sakai. These will be from research articles, news articles, organizational reports, and podcasts. Additional readings may be assigned throughout the semester, and provided at least two weeks in advance of assigned discussion dates. For some class topics, optional readings will be provided for further information on specific areas. These will be clearly identified as “optional” readings in the syllabus.

## **Academic integrity**

All members of the academic community at the Nicholas School of the Environment and the larger Duke University are expected to practice and uphold standards of academic integrity and honesty. This includes plagiarism, cheating, unauthorized collaboration, fabrication, falsification of records or

official documents, intentional misuse of equipment or materials, and aiding and abetting the perpetration of such acts. Any misrepresentation of students' work is cheating (i.e., claiming credit for ideas or work that students did not do and seeking a grade from that work). The preparation of reports, papers, and for examinations must represent each student's own efforts. Reference sources should be clearly indicated. The use of assistance from other students or aids of any kind during a written examination, except when the use of aids such as electronic devices, books, or notes has been approved by the professor, is a violation of the academic conduct standard expected in this course.

The Duke University policy on academic conduct will be strictly followed with no exceptions. See the webpage on [Academic Dishonesty](#) for more information. Any students not upholding academic integrity standards **will receive a zero on the assessment or the overall course grade.**

## Course format and expectations

The format of the course is a combination of lectures, discussions, and in-class exercises based on the readings, other media sources, and the instructor's own experiences and research. Attendance and *active* participation in class discussions is expected for all classes.

## Classroom expectations

Students registered or taking courses in the Nicholas School of the Environment are expected to behave with professional conduct. Courtesy, honesty, and respect should be shown by students to faculty members, guest lecturers, administrative support staff, community partners, and fellow students. Similarly, students should expect faculty to treat them fairly, showing respect for their ideas and opinions, and striving to help them achieve maximum benefits from their experience. Some topics will be sensitive by nature, and all students are expected to be inclusive to differing ideas and opinions. Students are encouraged to exchange ideas and to integrate personal experiences into the class.

## Emails

Emails directed to Dr. Rajaei should at least **include "ENVIRON790" in the subject line.** Most emails will be responded to within 48 hours, but note that Dr. Rajaei may be slower to respond on weekends and evenings.

## Electronics

All communication and musical devices (cell phones, iPods, tablets, etc.) are to be **silenced** during class. While laptop computers are permitted, students are encouraged to take notes by hand when possible. Any engagement in distracting or inappropriate browsing during class is prohibited. Students are **not permitted to take photos of lecture slides** in class, unless permission is explicitly granted.

## Attendance and evaluation

This class will have a considerable amount of discussion. Your attendance, engagement, and active participation is important—and part of your participation grade. Students are expected to arrive for class on time and to refrain from disturbing the flow of the class through conversation or distracting behavior. Attendance will be recorded at each class. A student who misses the majority of class will be marked absent accordingly.

Students with emergency situations need to notify the professor promptly **in advance or no later** than the day of the class (through email and/or voicemail) if they are unable to be present. If an absence is *not excused* on a presentation day, a grade of 0 will be recorded. It is the responsibility of the student to request opportunities to complete missed assignments or other course requirements in a timely manner. Students are responsible for all material covered in classes that they miss, even when their absences are excused.

The University add/drop policy will be explicitly followed. It is the student's responsibility to be aware of the University deadline dates for dropping the course.

### Student accommodations

Students with disabilities who may require special accommodations should make an appointment with the campus [Student Disability Access Office](#) (919-668-1267). Students should also bring their needs to the professor's attention as soon as possible (*before or during the first two weeks of classes*) and provide the "Letter of Accommodations" if needed.

For activities such as athletic competitions, where schedules are known prior to the start of a term, students must provide a written schedule showing days they expect to miss classes to their professor *before or during the first two weeks of classes*. Students who expect to miss classes, examinations, or other assignments through their religious observance shall be provided with a reasonable alternative opportunity to complete such academic responsibilities. It is the obligation of students to provide faculty with reasonable notice of the dates of religious holidays on which they will be absent.

### Evaluation

All components of the course requirements are mandatory and must be passed and completed. Failure to pass **each** required individual course component may result in failing the overall course.

Unless prior arrangements have been made, ten percent (10%) of an assignment grade will be subtracted per day for late assignments or papers after the due date. All assignments must be completed within **five** (5) days (including weekends) of the due date. The main components to the grade are described below.

The overall final grade you earn in this class will be based on five (5) key components:

- |                               |            |
|-------------------------------|------------|
| 1. Participation (10%)        | 30 points  |
| 2. Reflections (20%)          | 60 points  |
| 3. Policy briefing note (30%) | 90 points  |
| 4. Neighborhood case (40%)    | 120 points |

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Total possible points (100%)	300 points
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### Assessments

#### Participation (10%; 30 points total)

All students are expected to attend class, having read all assigned readings. It is expected that all students will actively participate—contribute to meaningful, critical discussions, not just listening—in class discussions and activities. You may have up to 4 missed classes without any penalty (i.e., losing any points). If you do not share during the class period, you are expected to use the Sakai discussion forum instead for full participation points.

It is important that the tone of the class remain one of respect and care for each other. Each student's contribution to creating such an environment will also be considered in the class participation grade.

#### Reflections (20%; 60 points total)

Students will submit three reflections throughout the semester (20 points each). These will be submitted through Sakai on their respective due dates. Each reflection should be approximately 500-600 words. The reflections should cover students' reaction and reflection on the topics covered *in relation to the communities they have experienced*. Reflections will be graded on coherency, application to a community, and critical examination.

### Policy briefing note (30%; 60 points total)

A policy briefing note can be used by decision-makers to quickly review the background and concerns of a specific issue. Each student will prepare a policy briefing note on an issue of their choice that addresses a built environment issue as it relates to human health and/or environmental sustainability. The policy briefing note should be written for local or regional (state, provincial) government decision-makers, and should be specific to a community. These are not advocacy or opinion pieces; they should present a balanced perspective and critically examine the issue.

The policy briefing note should be 1,000-1,250 words, not including references or title page. Further guidance and a rubric will be provided.

### Neighborhood case study (40%; 120 points)

Students will form groups of 2-3 to select a real-life neighborhood case study. Each group will analyze their neighborhood to identify elements of the built environment that: promote/discourage physical activity, make the neighborhood safe/unsafe, inviting/hostile, and promote/discourage sustainability and conservation practices. Groups should also identify planning tools or policies that are being used or could be used to influence healthy/unhealthy and sustainable/unsustainable behaviors.

The neighborhood case study project will include three components:

- (1) Proposal (5%; 15 points): A proposal of 350-500 words detailing the group neighborhood selection
- (2) Case study report (23.3%; 70 points): The report should be no more than 3,000 words and detail the elements in the selected neighborhood's built environment that influence health and sustainability. Tables, charts, lists, references, and graphics/images may be included, but should not be included in the word count.
- (3) Presentation (11.7%; 35 points): Each group will deliver a 25-minute presentation to provide an overview of the neighborhood, findings, and recommendations. All groups members should participate approximately equally in the presentation (not just the preparation). Students are expected to answer questions and lead discussion for 5-10 minutes after their presentation.

Further details of each component and grading rubrics will be provided separately and discussed in class.

### **Guidelines for written assignments**

The final paper and other written assignments should be uploaded to Sakai on the day that they are due. The paper should be in Word format, in Arial 11-point font, *single*-spaced, with 1-inch margins.

All formal writing assignments that require citations should be written in APA style. Please refer to [www.apastyle.org](http://www.apastyle.org) or <https://owl.english.purdue.edu/owl/resource/560/01/> for more information and guidance.

## Course plan

The class schedule below is a guide of class dates, topic material, readings, and exams. To allow for creativity and flexibility, the syllabus will be somewhat dynamic and may change to include additional readings. These will be communicated at least two weeks in advance in class & online.

Week	Date	Topics and assignments	Readings
1	Jan 9	Introduction and overview	Syllabus
2	Jan 14	Connecting planning, public health, and sustainability:	Sloane (2006). From congestion to urban sprawl: Planning and health in historical context.
	Jan 16	Assessing behavior & design in the built environment	Speck (2012). <i>Walkable City</i> , p. 1-11 (prologue and general theory of walkability) Maiden et al. (2017). A comprehensive scoring system to measure healthy community design in land use plans and regulations. <i>Preventive Medicine</i> .
3	Jan 21	<b>No classes – MLK, Jr. day</b>	-
	Jan 23	Zoning, planning, and segregation	TBD
4	Jan 28	Social determinants of health	TBD
	Jan 30	Active transit, emissions, and obesity	Speck (2012). <i>Walkable City</i> , p. 13-50 (Why Walkability) Lovasi et al. (2009). Built environment and obesity in disadvantaged populations. Hankey et al. (2012). Health impacts of the built environment: Within-urban variability in physical inactivity, air pollution, and ischemic heart disease mortality. <i>EHP</i> .
5	Feb 4	Walkability, parking, & Complete Streets <a href="#">Due Feb. 3, 11:59pm: Reflection 1</a>	Speck (2012). <i>Walkable City</i> , p. 67-104, 105-139 (The Useful Walk & Step 1-cars and Step 3-parking) Glazier et al. (2014). Density, destinations, or both? A comparison of measures of walkability in relation to transportation behaviors, obesity and diabetes in Toronto, Canada. Jensen et al. (2017). Walkability, complete streets, and gender: Who benefits most? <i>Health &amp; Place</i> .
	Feb 6	Housing, gentrification, slums, and zoning Case: Singapore	Speck (2012). <i>Walkable City</i> , p. 105-113 (Step 2-mixing)
6	Feb 11	Transit options <a href="#">Due Feb 10, 11:59pm: Neighborhood case study group proposal</a>	Speck (2012). <i>Walkable City</i> , p. 139-159 (Step 4-Transit)
	Feb 13	Food environments and access	TBD
7	Feb 18	Injuries and safety Disability, accessibility, and Universal Design	Speck (2012). <i>Walkable City</i> , p. 161-209 (The Safe Walk & Step 5-pedestrians and Step 6-bikes) Botticello et al. (2014). Disability and the built environment: An investigation of community and neighborhood land uses and participation for physically impaired adults. <i>Annals of Epidemiology</i> .
	Feb 20	Mental health and green space	Speck (2012). <i>Walkable City</i> , p. 210-251 (The Comfortable Walk & Step 7-spaces, Step 8-trees, and Step 9-inviting spaces) Melis et al. (2015). The effects of the urban environment on mental health: A cohort study in a large northern Italian city.

8	Feb 25	Water quality and conservation Low-impact development <a href="#">Due Feb. 24, 11:59pm: Reflection 2</a>	Ahiablame et al (2012). Effectiveness of low impact development practices: Literature review and suggestions for future research. <i>Water Air Soil Pollution</i> .
	Feb 27	Wildlife corridors TBD	Naidoo et al. (2018). Evaluating the effectiveness of local- and regional-scale wildlife corridors using quantitative metrics of functional connectivity. <i>Biological Conservation</i> .
9	Mar 4	Climate change, natural disasters, and emergency preparedness <a href="#">Due Mar 3, 11:59pm: Policy briefing note</a>	Watts et al. (2015). Health and climate change: Policy responses to protect public health. Barua et al. (2014). Climate change and poverty: Building resilience of rural mountain communities in South Sikkim, Eastern Himalaya, India. <i>Reg. Environ Change</i> .
	Mar 6	Health impact assessments	Ulmer et al. (2015). Application of an evidence-based tool to evaluate health impacts of changes to the built environment.
10	Mar 11	<b>No classes – Spring break</b>	-
	Mar 13		
11	Mar 18	Creating sustainable communities, biomimicry <a href="#">Due Mar. 17, 11:59pm: Neighborhood case study group report</a>	Speck (2012). <i>Walkable City</i> , p. 253-261 (Step 10-prioritization)
	Mar 20	Smart Growth, neighborhood LEED, and new urbanism	Zuniga-Teran et al. (2016). Designing health communities: A walkability analysis of LEED-ND. <i>Frontiers of Architectural Research</i> .
12	Mar 25	Health equity, environmental justice, and gentrification	TBD
	Mar 27	Green buildings, LEED, and design	TBD
13	Apr 1	Smart grids and energy infrastructure redevelopment	Raju & Prasad (2014). Energy conservation through smart grid technologies. <i>Research J of Engineering and Tech</i> .
	Apr 3	<a href="#">Student neighborhood case studies</a>	-
14	Apr 8	<a href="#">Student neighborhood case studies</a>	-
	Apr 10	<a href="#">Student neighborhood case studies</a>	-
15	Apr 15	<a href="#">Student neighborhood case studies</a>	-
	Apr 17	Future development and resiliency <a href="#">Due Apr 17, 11:59pm: Reflection 3</a>	Kehagia (2017). Transforming small towns by remedial street design. <i>Transportation Research Procedia</i> .