

From the Ground Up

Course Overview

For decades American cities have experimented with ways to remake themselves in response to climate change. These efforts, often driven by grassroots activism, offer valuable lessons for transforming the places we live. This course will focus on the unique ways in which U.S. cities are working to mitigate and adapt to climate change while creating equitable and livable communities in the process. Four main themes and twelve case studies show how U.S. cities are reclaiming their streets from cars, restoring watersheds, growing forests, and adapting shorelines to improve people's lives while addressing our changing climate. Students will have the opportunity to examine how they can take action in their daily lives and careers to support efforts in their own communities for emboldening solutions.

Required Text

Sant, Alison. 2022. *From the Ground Up: Local Efforts to Create Resilient Cities*. Washington, DC: Island Press. 304 pp. ISBN-13: 978-1610918961

Course Learning Objectives

This course will prepare students to understand:

1. The impacts of climate change on cities and the ways in which cities are mitigating and adapting to them.
2. The relationship between systemic racism and discriminatory policies in the United States and the resulting vulnerability of communities of color and low-income communities to climate impacts.
3. Opportunities to create effective community-based planning processes that address systemic inequities and guide climate investments toward new strategies.
4. Best practices for creating inclusive communities that make cities just, resilient, and more livable.

Resources

- From the Ground Up website
A collection of author presentations, resources, videos,

and organizations featured in the book.

fromthegroundupbook.info

Course Schedule

Week	Subject	Reading	Media:
Week 1	Reimagining Our Cities	Preface xiii-xvi, Introduction Reimaging Our Cities pp.1-5, Part 1: Reclaim the Streets pp.7-11, Tamika Buter, “Building Inclusive Cities from the Ground Up” pp. 65-67, Part 2: Tear up the Concrete pp. 69-72, , Mami Hara, “Green Infrastructure Lessons from US Cities” pp 117-119, Part 3: Plant the City pp.121-124, Part 4: Adapt the Shoreline pp. 171-173, Kristina Hill, “Adapting Urban Districts to Sea Level Rise by Mimicking Natural Processes, Conclusion pp. 231-233	Climate One: Rebuilding For Climate: Successful City Strategies (excerpt 1:38-17:35) podcast
Week 2	Reclaim the Streets: Places by People, San Francisco	Chapter 1: Places by People, San Francisco pp.12-31	Creating Streets for People in the Tenderloin (TRT: 1:07) webinar
Week 3	Reclaim the Streets: Safe Streets for Everyone, Minneapolis	Chapter 2: Safe Streets for Everyone, Minneapolis pp. 32-46	Creating Transportation Equity From the Ground Up (TRT 1:50) webinar
Week 4	Reclaim the Streets: Making the City Accessible, New York	Chapter 3: Making the City Accessible, New York pp. 47-64	Streets for Everyone (TRT 1:04) webinar
Week 5	Tear up the Concrete:	Chapter 4: Living with Water, New Orleans pp.73-90	Living With Water (TRT 58:53)

Week	Subject	Reading	Media:
	Living with Water, New Orleans		webinar
Week 6	Tear up the Concrete: Watershed Planning, Portland	Chapter 5: Watershed Planning, Portland pp. 91-106	
Week 7	Tear up the Concrete: Green Spaces for All, Philadelphia	Chapter 6: Green Spaces for All, Philadelphia pp. 107-116	
Week 8	Plant the City: Canopy Cover in the City of Trees, Washington, DC	Chapter 7: Canopy Cover in the City of Trees, Washington, DC pp.125-140	
Week 9	Plant the City: From Street Trees to Natural Areas, New York City	Chapter 8: From Street Trees to Natural Areas, New York City pp.141-154	
Week 10	Plant the City: The Forest in the City, Baltimore	Chapter 9: The Forest in the City, Baltimore pp.155-169	
Week 11	Adapt the Shoreline: Restoring Nature and Building Equity, San Francisco	Chapter 10: Restoring Nature and Building Equity, San Francisco pp.174-193	Nature-Based Efforts to Create Resilient Cities (TRT 1:02) webinar
Week 12	Adapt the Shoreline: Growing One Billion Oysters	Chapter 11: Growing One Billion Oysters, New York City pp.194-210	
Week 13	Adapt the Shoreline: Moving Away from the Coast, Louisiana	Chapter 12: Moving Away from the Coast, Louisiana pp.211-225	

Field Trips

Week	Subject
Week 2-4	Ride local bike-share, take transit, or walk/roll along the single busiest route in the city. Meet with local transportation activists and city officials to understand how this corridor fits into plans for the entire transportation network. What places are served and where are there transit deserts?
Week 5-7	Find the lowest lying place in your region. Walk/roll along a significant tributary to this area to experience the watershed. Meet with public utilities officials to understand your areas response to flooding, green infrastructure investments and plans for future flooding. Research expected future rainfall events over 5, 10, 20 years.
Week 8-10	Partner with advocacy organizations in your area that are working to plant trees. Talk with them about where their work focuses and how it is addressing any inequities in tree canopy cover. Volunteer with them during class time or over a weekend to plant trees.
Week 11-13	Take a trip to a local body of water. Kayak a nearby shoreline, river, or lake. Meet with local scientists/naturalists to understand the impact of sea level rise and storms on the shoreline and how restoration efforts are helping to provide natural buffers.

Assignments

Due	Subject
Week 4: Assignment 1	Bike, Walk, Roll, or Transit (3 weeks)
Week 7: Assignment 2	Map Your Watershed
Week 10: Assignment 3	Measure your Urban Tree Canopy
Week 13: Assignment 4	Make Flooding Visible

Assignment Descriptions

These assignments will provide hands-on experience with the themes and research focused on in *From the Ground Up*. Once complete, please post your class work using the hashtag #FromTheGroundUpBook so others can learn from your efforts.

Assignment 1: Bike, Walk, Roll, or Transit

Together, the world's cities are responsible for 75 percent of global carbon emissions. The choices you make about how to move in your daily life impact climate change. Use this assignment to introduce yourself to modes of transportation in your area. This two-part assignment will help you to assess your local streets and make a proposal for how they should be used.

Part 1:

Walk, roll, bike or take transit every day for one week and log your mode and mileage. (Strava may be a helpful tool in recording your routes). Calculate your carbon emissions using a carbon calculator. How do your totals for the week compare with using a gas- or diesel-powered automobile? Use [Walk Score](#) to determine how well your neighborhood is served by local services. Write a report or create a short video detailing your findings with a map of your routes, total mileage, carbon comparison, and Walk Score. Present your findings to the class.

Part 2:

Referring to New York City's [25x25 plan](#) and [Park\(ing\) Day](#) for inspiration, work in teams to develop a plan for a block familiar to members of your team. It could be the block they live on, a block near your school campus, or a block you all tend to go to. Choose a block you are passionate about transforming. How much of the street would you reclaim from the car? What would you insert into this space? How do you hope it will be used? Create a visual plan for the block through drawings or a short video and present it to the class. If the timing is right, create a version of your project for the annual Park(ing) Day.

Deliverables:

- Report or video detailing research
- Collaborative project, created with images or video, proposing the redesign of a block or Park(ing) Day installation

Assignment 2: Explore Your Watershed

Flooding occurs in the lowest lying areas of cities. Areas that were once wetlands, marshes, and stream beds are the first to be overwhelmed in extreme storms. Use this assignment to better understand your local watershed. Use the EPA's ["How's My Waterway?"](#) mapping tool to understand the watershed boundaries of where you live. Referencing a topographic map (for example, the terrain layer in Google Maps), find the highest and lowest lying place closest to where you live. Add existing green infrastructure (bioswales, street trees, rain gardens, permeable paving) within a ½ mile of this site to your survey. Research past flooding events recorded in local newspapers and overlay proposed green infrastructure sites (if applicable). Examine historical maps such as those from the [David Rumsey](#) collection on Google Earth to find past wetlands, streams, and riverbeds as an additional layer. Using your map, walk, bike or paddle a route through your watershed. This could be from the highest to lowest point, along a historic creek or open river. You could also visit sites of past flooding. Record your observations along the way. Do you see evidence of filled creeks, exposed groundwater in construction sites, signs of flooding, thriving plants with roots down to hidden sources of water? Are rivers and creeks free flowing? Do they have areas to flood during heavy storms? Do these urban waterways

provide habitat for plants and animals? Create a one-page addition to a class field guide describing your observations. Combine all field guide pages to create a collective book.

Deliverables:

- Map existing and proposed green infrastructure, historic waterways, and opportunities.
- Create a field guide page with a route and descriptions of points of observations.
- Work with your class to compile a collective watershed field guide.

Assignment 3: Measure your Urban Tree Canopy

As climate change raises temperatures, the urban heat-island effect is intensifying them in cities. During the day, it can be approximately 7°F hotter in urban areas than their surrounding rural regions. In addition, as heat is trapped by buildings, roadways, and other hardscaping, temperatures can increase by as much as 22° at night, making it hard for cities to cool down. One solution is to plant more trees. By taking advantage of streets and sidewalks, which often account for the most significant public space in cities, we can plant 40% tree canopy cover in urban neighborhoods, tipping the scale to effectively cool our city blocks. Use this assignment to better understand the urban tree canopy in your city.

Begin by consulting Google Satellite maps and American Forest's [Tree Equity Score](#). As a class, determine the areas of your city that have the most urban tree canopy cover and the least. Using [Vivek Shandas' study](#) as a model, break the class into two groups to survey these two areas. Each group should travel to these neighborhoods and fan out to measure street temperatures over multiple blocks. Report your findings to the group and construct a heat map of the classes' measurements.

Deliverables:

- Work with your classmates to collect temperature measurements and create a heat map of two neighborhoods with the greatest and least tree canopy coverage.

Assignment 4: Make Flooding Visible

Today, millions are at risk from rising sea levels and severe storms. Use this assignment to research the low-lying parts of your town or city and make them visible. In 2007, Artist Eve Mosher created the project [HighWaterLine](#) chalking 70 miles of Manhattan and Brooklyn that were below 10 feet of sea

level rise. Her project was predictive of the flooding that later impacted those areas in hurricane Sandy in 2012.

Using her work as a model, work with your classmates to identify and mark a high-risk flood zone in your area. Use Climate Central's [Surging Seas Risk Zone Map](#) and [FEMA Flood Maps](#) as references. Make a short class video recording your research and interventions.

Deliverables:

- Create an intervention chalking the high-water mark in an area of your city.
- As a class, create a video recording your research and interventions.