

Master of Science in Sustainability Management

SUMA PS6110 Sustainability and Urban Form

MW 4:10pm-6:00pm

3 Credits

[Area 3, Area 4]

Instructor: Allison Bridges, Ph.D. | alb2303@columbia.edu
Office Hours: Monday and Wednesday afternoon (3-4pm), or by appointment
Response Policy: Response to emails within 24 hours

Facilitator/Teaching Assistant:

Office Hours:

Response Policy:

Course Overview

As the world's population continues to shift towards urban areas, the need for innovative approaches to urban land management and infrastructure redevelopment becomes more pressing than ever before. With over 4.5 billion people living in cities, the transformation of industrial districts into bustling commercial zones and the revitalization of obsolete urban areas are critical to meeting the demands of the 21st century.

However, achieving sustainability goals requires progress not only in meeting environmental targets but also in ensuring equity and resiliency, often through unconventional financial arrangements and partnerships. Despite the numerous challenges involved in bringing sustainability projects to fruition, success is possible through creative problem-solving and strategic planning. This course explores the most pressing sustainability issues confronting contemporary cities and delves into the challenges of bringing sustainability projects from conception to completion.

Using a case-study format, this course analyzes redevelopment projects in three key areas: (1) the various policy incentives and approaches to driving sustainable urban renewal, (2) the stakeholders in the planning and implementation process, and (3) the impact on the social fabric of the community. By the end of the course, students will have the skills necessary to analyze urban form from an environmental and social standpoint as well as an understanding of the key components of the redevelopment process. Students will gain familiarity with a variety of redevelopment partnership arrangements as well as implementation strategies. These skills are applicable across a range of professional contexts including project design and management within municipal departments, private and non-profit organizations, multilateral organizations, and development finance institutions.

This course fulfills curriculum requirements in Content Area 3: Physical Dimensions of Sustainability or Area 4: Public Policy. The course explores human-environment linkages in urban areas through the lens of environmental planning to highlight the critical importance of urban redevelopment in the sustainability transition.

The class is enriched with practitioner lectures and site visits that offer students the opportunity to gain valuable insight into the redevelopment process. Students participate in the course using the [Canvas](#) (CourseWorks) learning management system. Support in accessing or navigating the course Canvas site is available from the [CUSPS Helpdesk](#).

Learning Objectives

L-1: Evaluate urban redevelopment projects across environmental, economic, and social outcomes

L-2: Analyze redevelopment policies and incentives in relation to development goals and the impact on land use

L-3: Critique redevelopment partnerships in terms of inclusivity, financial arrangements, and land rights

- L-4: Evaluate data in relation to the political and social challenges of implementation
- L-5: Collect and evaluate both primary and secondary urban data
- L-6: Interpret data from Geographic Information Systems (GIS)
- L-7: Distinguish between common analysis techniques used in urban planning
- L-8: Apply visual communication methods and professional communication skills to effectively convey spatial and social aspects of redevelopment projects

Readings

Required

Alexiou, J. (2015). Chapter 10: Superfund Me! (1981-2010). (pp. 329-356). In: Gowanus: Brooklyn's Curious Canal. New York: NYU Press.

Biden-Harris Administration recommends \$562 million investment to make communities resilient to climate impacts as part of Investing in America agenda <https://www.noaa.gov/news-release/noaa-bil-investments-2023>

Corner, J. (2016). The Ecological Imagination: Life in the City and the Public Realm. In: Nature and Cities: The Ecological Imperative in Urban Design and Planning. Lincoln Institute of Land Policy.

Foster, S., Leichenko, R., Nguyen, K.H... (2019). New York City Panel on Climate Change 2019 Report Chapter 6: Community-Based Assessments of Adaptation and Equity. <https://nyaspubs.onlinelibrary.wiley.com/doi/10.1111/nyas.14009>

Halle D. & Tiso, E. (2014). Chapter 7: The Hudson Yards: Rezoning of 2004-2009 and Beyond: The City's Uniform Land-Use Review Process, Inclusionary Zoning for Affordable Housing, Tax Increment Financing and the Number 7 Subway Extension, and the Culture Shed (280-324). In: New York's New Edge: Contemporary Art, the High Line, and Urban Megaprojects on the Far West Side. University of Chicago Press.

Jamestown Sustainability and Social Responsibility Report. (2020). <https://www.jamestownlp.com/uploads/documents/Jamestown-Sustainability-Report-2020-d.pdf>

Nesbitt, L., M.J. Meitner, C. Girling, S.R.J. Sheppard, Y. Lu. (2019). Who has access to urban vegetation? A spatial analysis of distributional green equity in 10 US cities, Landscape and Urban Planning, 181, p. 51-79.

New York State Department of Environmental Conservation. (2014). Cleanup Action to Begin at Brownfield Site, 365 Bond. <http://www.dec.ny.gov/data/der/factsheet/c224174cubegins.pdf>

OneNYC 2050: Building a Strong and Fair City. Familiarize yourself with the general goals of the plan.

"Opinion: 421-a Deadline Threatens the Promise of Gowanus Rezoning." (2023). Michelle de la Uz and Rachel Fee.

Patton, C., Sawicki, D., & Clark, J. (2016). Basic Methods of Policy Analysis and Planning, 3rd Edition. Chapter 1 (all) and Chapter 2 (pages 40-55 only)

Public Housing Preservation Trust. <https://www.nyc.gov/site/nycha/about/public-housing-preservation-trust.page>

Redefining Resilience, Center for Resilient Cities and Landscapes, 2020. https://crcl.columbia.edu/sites/default/files/content/docs/CRCL_Update_2021_web.pdf

Rewilding the planet: An archipelago constructed of sand and mud is bringing new life to a dead lake but can this bold experiment have a lasting impact? (2023). https://www.nature.com/immersive/d41586-023-01370-w/index.html?utm_source=Nature+Briefing&utm_campaign=8b15a3be52-briefing-dy-20230427&utm_medium=email&utm_term=0_c9dfd39373-8b15a3be52-43633113

Rosenzweig, C. and Solecki, W. (2019). New York City Panel on Climate Change 2019 Report, Chapter 1: Introduction. <https://nyaspubs.onlinelibrary.wiley.com/doi/10.1111/nyas.14004>

Recommended

Anguelovski, I., Shi, L., Chu, E., Gallagher, D., Goh, K., Lamb, Z., ... Teicher, H. (2016). Equity Impacts of Urban Land Use Planning for Climate Adaptation: Critical Perspectives from the Global North and South. *Journal of Planning Education and Research*, 36(3), 333–348. <https://doi.org/10.1177/0739456X16645166>

Curran, W. and Hamilton, T. (2019). Chapter 4: Reworking Newtown Creek. In Krueger, R., Freytag, T., & Mössner, S. (Eds.) (2019). *Adventures in Sustainable Urbanism*. SUNY Press.

Fishman, R. (1982). Urban Utopias in the Twentieth Century: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier. (23-50). In: Fainstein, S. & DeFilippis, J. eds. 2016. *Readings in Planning Theory*. 3rd edition. John Wiley & Sons.

Gowanus Neighborhood Plan: Racial Equity Report on Housing and Opportunity (2021)

Ndubisi, F. (2017). Adaptation and Regeneration: A Pathway to New Urban Places. In: *Nature and Cities: The Ecological Imperative in Urban Design and Planning*. Lincoln Institute of Land Policy.

Strom E. (2018). Brownfield Redevelopment: Recycling the Urban Environment. In: Brinkmann R., Garren S. (eds) *The Palgrave Handbook of Sustainability*. Palgrave Macmillan

Assignments and Assessments

Speaker Questions and Discussion Leaders (Individual Grade - L1, L3, L4)

- Students are required to reflect on the case studies and weekly materials and to prepare 1-2 questions for each guest lecturer. The questions should be posted to the Discussion section by 8:00pm the day before the guest lecture.
- Two or more students will volunteer to facilitate the Q&A each time a guest lecturer joins the class. These students are responsible for reviewing class questions, promoting active participation and engagement among classmates, encouraging the sharing of thoughts and ideas, and providing opportunities for collaborative learning.

Mid-term Policy Memo (3-5 pages) (Individual Grade - L2, L6)

The policy memo should be an evaluation of an urban redevelopment policy or incentive. The evaluation can address any municipal policy or incentive. More than a summary of readings, the memo should synthesize concepts introduced in class to evaluate the selected policy and the targeted geographic area. Further guidelines will be provided the first day of class. The memo will be submitted via Canvas by midnight on the day due.

Final Project Proposal (2 pages) (Group Grade - L1, L4, L7)

Students will work in groups of 3-4 people to develop a 2-page proposal for a final case study or design project. The proposal should clearly outline the case background and research plan (original research and/or secondary data sources). Examples of appropriate case studies will be covered weekly in class. The proposal should include a bibliography of data sources, project context, and project outcomes (generally 10-20 sources). The final project can take the form of a 10-15 page written case study (using the template provided) or an interactive online format such as ArcGIS StoryMaps. Please indicate the project format and submit one proposal per group via Canvas by midnight on the day due.

Final Project (10-15 pages) (Group Grade - L1, L2, L3, L5, L8)

The final project is an analysis of or a proposal for an urban redevelopment or adaptive reuse project. Groups of 3-4 students will prepare the project according to a template provided or in a multi-media format. The case study template organizes the case study by: (1) type of redevelopment (brownfield, adaptive reuse, megaproject, etc), (2) time period and relevant policies, (3) motivation for the redevelopment or problem addressed, (4) design strategy, (5) implementation challenges and solutions, and (6) outcome. The people and partnerships driving the project should be highlighted. Special attention should be given to environmental and equity impacts (short term and long term). Each group should submit their final case study in their chosen format via Canvas by midnight on the day due.

Final Case Study Presentation (15 minutes) (Group Grade - L8)

Groups will prepare a 15-minute presentation on their final projects. Presentations will be followed by 5 minutes of Q & A.

Grading

The final grade will be calculated as described below:

FINAL GRADING SCALE

Grade	Percentage
A+	98–100 %
A	93–97.9 %
A-	90–92.9 %
B+	87–89.9 %
B	83–86.9 %
B-	80–82.9 %
C+	77–79.9 %
C	73–76.9 %
C-	70–72.9 %
D	60–69.9 %
F	59.9% and below

The policy memo, case study proposal, final case study project, and presentation will be evaluated on a 100 point scale using a grading rubric that will be provided. Class participation will be evaluated on a 10 point scale (where 10 = 100, 9 = 90, etc.) and Speaker Questions & Discussions Facilitation will be evaluated on a 15 point scale. After weighting and combining the scores on the 100 point scale, a final score will be translated to a letter grade. The final

score will be calculated based on the following components:

Assignment/Assessment	% Weight	Individual or Group/Team Grade
Participation <ul style="list-style-type: none"> Students are expected to attend all sessions and contribute to class discussions. 	10%	Individual
Speaker Questions & Discussion Facilitation <ul style="list-style-type: none"> Students are required to co-lead at least one discussion with a guest speaker and participate in group discussions. Discussion leaders are asked to review questions from the class and consolidate questions posted to the discussion board by classmates. 	15%	Individual
Policy Memo <ul style="list-style-type: none"> The 3-5 page policy memo will be graded on understanding of key urban planning concepts, appropriate use of supporting data, and quality of writing. 	20%	Individual
Final Case Study Proposal <ul style="list-style-type: none"> Student groups will submit a 2 page proposal for the final case study that clearly outlines the case background, relevance, and research plan (original research and/or secondary data sources). 	10%	Group
Final Case Study <ul style="list-style-type: none"> Grading rubric will be provided on the first day of class. 	30%	Group
Final Case Study Presentation <ul style="list-style-type: none"> Presentation will be graded on completion, organization, clarity, and quality of visuals or other media. 	15%	Group

Course Schedule/Course Calendar

Date	Topics and Activities	Readings (due on this day)	Assignments (due on this date)
7/1	Course Introduction and Overview of Environmental Planning and Urban Redevelopment <ul style="list-style-type: none"> Overview, introduction to case studies and speakers, and course expectations Historical context of sustainable urban planning The ecological urbanism movement 	Fishman, R. (1982). Urban Utopias in the Twentieth Century: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier. (23-50). In: Fainstein, S. & DeFilippis, J. eds. 2016. Readings in Planning Theory. 3rd edition. John Wiley & Sons. Watch video of ecological urbanist Kongjian Yu, https://www.youtube.com/watc	Complete Introductory Survey

	<ul style="list-style-type: none"> Trends and views of urban land use, regenerative design, and redevelopment policy 	<p>h?time_continue=267&v=U37gst79pGc&feature=emb_logo</p> <p>Virtually explore the New York City High Line Park, https://www.thehighline.org/</p>	
7/3	<p>Urban Land Use: Redevelopment Data and Urban Spatial Analysis</p> <ul style="list-style-type: none"> How does data impact the way we imagine new urban form? How do policy makers and planners interact with data today? Large data sets and new technologies help us understand cities in new ways. 	<p>Corner, J. (2016). The Ecological Imagination: Life in the City and the Public Realm. In: Nature and Cities: The Ecological Imperative in Urban Design and Planning. Lincoln Institute of Land Policy.</p> <p>Nesbitt, L., M.J. Meitner, C. Girling, S.R.J. Sheppard, Y. Lu. (2019). Who has access to urban vegetation? A spatial analysis of distributional green equity in 10 US cities, Landscape and Urban Planning, 181, p. 51-79.</p> <p>Example data visualizations will be provided in class.</p>	
7/8	<p>Environmental Policy and the Built Environment</p>	<p>Patton, C., Sawicki, D., & Clark, J. (2016). Basic Methods of Policy Analysis and Planning, 3rd Edition. Chapter 1 (all) and Chapter 2 (pages 40-55 only)</p> <p>OneNYC 2050: Building a Strong and Fair City. Familiarize yourself with the general goals of the plan.</p> <p>Halle D. & Tiso, E. (2014). Chapter 7: The Hudson Yards: Rezoning of 2004-2009 and Beyond: The City's Uniform Land-Use Review Process, Inclusionary Zoning for Affordable Housing, Tax Increment Financing and the Number 7 Subway Extension, and the Culture Shed (280-324). In: New York's New Edge: Contemporary Art, the High Line, and Urban Megaprojects on the Far West</p>	

		Side. University of Chicago Press.	
7/10	Redevelopment, Resiliency, & Ecological Design	<p>Biden-Harris Administration recommends \$562 million investment to make communities resilient to climate impacts as part of Investing in America agenda https://www.noaa.gov/news-release/noaa-bil-investments-2023</p> <p>Redefining Resilience, Center for Resilient Cities and Landscapes, 2020. https://crcl.columbia.edu/sites/default/files/content/docs/CRCL_Update_2021_web.pdf</p> <p>Rosenzweig, C. and Solecki, W. (2019). New York City Panel on Climate Change 2019 Report, Chapter 1: Introduction. https://nyaspubs.onlinelibrary.wiley.com/doi/10.1111/nyas.14004</p> <p>NYC Flood Maps. https://www1.nyc.gov/site/floodmaps/index.page</p> <p>NYC Hazard Mitigation Projects. https://maps.nyc.gov/resiliency/</p> <p><i>Recommended:</i> Anguelovski, I., Shi, L., Chu, E., Gallagher, D., Goh, K., Lamb, Z., ... Teicher, H. (2016). Equity Impacts of Urban Land Use Planning for Climate Adaptation: Critical Perspectives from the Global North and South. <i>Journal of Planning Education and Research</i>, 36(3), 333–348. https://doi.org/10.1177/0739456X16645166</p>	<p><i>Guest Speaker:</i></p> <p>Thaddeus Pawlowski, Managing Director, Center for Resilient Cities and Landscapes; Research Scholar; and Adjunct Associate Professor, Founder of Partners in Public Design</p> <p>Speaker questions posted to discussion board by 8pm, 7/9</p>
7/15	Green Building & Adaptive Reuse <ul style="list-style-type: none"> • Focus on environmental, social and governance 	Jamestown Sustainability and Social Responsibility Report. (2020). https://www.jamestownlp.com/	<p><i>Guest Speakers:</i></p>

	<p>(ESG) initiatives in adaptive reuse projects</p> <ul style="list-style-type: none"> • Discussion of the rise of the mass timber industry and the connection between the commercial real estate industry and timberland management. 	<p>uploads/documents/Jamestown-Sustainability-Report-2020-d.pdf</p> <p>Seedlings to Solutions. https://www.seedlingstosolutions.org/</p> <p>Rewilding the planet: An archipelago constructed of sand and mud is bringing new life to a dead lake but can this bold experiment have a lasting impact? (2023). https://www.nature.com/immersive/d41586-023-01370-w/index.html?utm_source=Nature+Briefing&utm_campaign=8b15a3be52-briefing-dy-20230427&utm_medium=email&utm_term=0_c9dfd39373-8b15a3be52-43633113</p> <p><i>Recommended:</i> Ndubisi, F. (2017). Adaptation and Regeneration: A Pathway to New Urban Places. In: Nature and Cities: The Ecological Imperative in Urban Design and Planning. Lincoln Institute of Land Policy.</p>	<p>Troy Harris, Managing Director, Timberland and Innovative Wood Products, Jamestown Becca Timms, Director of ESG, Jamestown</p> <p>Speaker questions posted to discussion board by 8pm, 7/14</p> <p>Policy Memo due 7/14 (midnight).</p>
7/17	<p>Redevelopment and Environmental Justice</p> <p>Walking Tour of Gowanus Canal</p> <ul style="list-style-type: none"> • Discussion of redevelopment projects in terms of social objectives and the intended and unintended social outcomes • Brownfield redevelopment 	<p>Review the work of the Gowanus Canal Conservancy. https://gowanuscanalconservancy.org/</p> <p>Foster, S., Leichenko, R., Nguyen, K.H....(2019). New York City Panel on Climate Change 2019 Report Chapter 6: Community-Based Assessments of Adaptation and Equity. https://nyaspubs.onlinelibrary.wiley.com/doi/10.1111/nyas.14009</p> <p>Review the Gowanus Lowlands, Master Plan</p> <p><i>Recommended:</i></p>	<p><i>Guest Speakers:</i></p> <p>Andrea Parker, Executive Director, Gowanus Canal Conservancy</p> <p>Jennifer Kepler, Education Program Manager, Gowanus Canal Conservancy</p> <p>Speaker questions posted to discussion board by 8pm, 7/16</p>

		<p>Alexiou, J. (2015). Chapter 10: Superfund Me! (1981-2010). (pp. 329-356). In: Gowanus: Brooklyn's Curious Canal. New York: NYU Press.</p> <p>New York State Department of Environmental Conservation. (2014). Cleanup Action to Begin at Brownfield Site, 365 Bond. http://www.dec.ny.gov/data/der/factsheet/c224174cubegins.pdf</p>	
7/22	Case Study: Tibbets Brook		<p><i>Guest Speaker:</i></p> <p>Amy Motzny, Section Lead, Climate & Equity at NYC Department of Environmental Protection</p> <p>Speaker questions posted to discussion board by 8pm, 7/21</p> <p>Final Case Study Proposal due by 7/21 (midnight).</p>
7/24	Walking Tour of Javits Center & Green Roof		
7/29	<p>Walking Tour of Newtown Creek:</p> <p>Newtown Creek Wastewater Resource Recovery Facility</p> <p>Newtown Creek Nature Walk with Kingsland Wildflowers</p>	<p>Wastewater Treatment: Discover how NYC's wastewater is collected, treated, and transformed into resources https://storymaps.arcgis.com/stories/bd74a08de41c494ab2357beb4d4d133a</p> <p>Kingsland Wildflowers Green Roof & Community Space http://www.kingslandwildflowers.com/</p> <p>Newtown Creek Alliance https://www.newtowncreekalliance.org/</p>	<p>Speaker questions posted to discussion board by 8pm, 7/28</p>
7/31	Housing Equity and Redevelopment	<p>Public Housing Preservation Trust. https://www.nyc.gov/site/nycha/about/public-housing-preservation-trust.page</p> <p>"Opinion: 421-a Deadline Threatens the Promise of</p>	<p><i>Guest Speaker:</i></p> <p>Karen Blondel, Harvard Loeb Fellow 2022, Founder and Executive Director, Public Housing Civic Association</p>

		Gowanus Rezoning." (2023). Michelle de la Uz and Rachel Fee. <i>Recommended:</i> Gowanus Neighborhood Plan: Racial Equity Report on Housing and Opportunity (2021)	Speaker questions posted to discussion board by 8pm, 7/30
8/5	Case Study Presentations		Presentations Due
8/7	Case Study Presentations		Presentations Due Final Case Studies Due by 8/9 (midnight)

Course Policies

Participation and Attendance

You are expected to do all assigned readings, attend all class sessions, and engage with others in online discussions. Your participation will require that you answer questions, defend your point of view, and challenge the point of view of others. If you need to miss a class for any reason, please discuss the absence with me in advance.

Late work

There will be no credit granted to any written assignment that is not submitted on the due date noted in the course syllabus without advance notice and permission from the instructor.

Citation & Submission

All written assignments must use a consistent citation format, cite sources, and be submitted to the course website (not via email).

School and University Policies and Resources

Copyright Policy

Please note—Due to copyright restrictions, online access to this material is limited to instructors and students currently registered for this course. Please be advised that by clicking the link to the electronic materials in this course, you have read and accept the following:

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted materials. Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement.

Academic Integrity

Columbia University expects its students to act with honesty and propriety at all times and to respect the rights of others. It is fundamental University policy that academic dishonesty in any guise or personal conduct of any sort that disrupts the life of the University or denigrates or endangers members of the University community is unacceptable and will be dealt with severely. It is essential to the academic integrity and vitality of this community that individuals do their own work and properly acknowledge the circumstances, ideas, sources, and assistance upon which that work is based. Academic honesty in class assignments and exams is expected of all students at all times.

SPS holds each member of its community responsible for understanding and abiding by the SPS Academic Integrity and Community Standards posted at <https://sps.columbia.edu/students/student-support/academic-integrity-community-standards>. You are required to read these standards within the first few days of class. Ignorance of the School's policy concerning academic dishonesty shall not be a defense in any disciplinary proceedings.

Diversity Statement

It is our intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as a resource, strength and benefit. It is our intent to present materials and activities that are respectful of diversity: gender identity, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion, and culture.

Accessibility

Columbia is committed to providing equal access to qualified students with documented disabilities. A student's disability status and reasonable accommodations are individually determined based upon disability documentation and related information gathered through the intake process. For more information regarding this service, please visit the University's Health Services website: <https://health.columbia.edu/content/disability-services>.

Class Recordings

All or portions of the class may be recorded at the discretion of the Instructor to support your learning. At any point, the Instructor has the right to discontinue the recording if it is deemed to be obstructive to the learning process.

If the recording is posted, it is confidential and it is prohibited to share the recording outside of the class.

SPS Academic Resources

The Division of Student Affairs provides students with academic counseling and support services such as online tutoring and career coaching: <https://sps.columbia.edu/students/student-support/student-support-resources>.

Columbia University Information Technology

[Columbia University Information Technology](#) (CUIT) provides Columbia University students, faculty and staff with central computing and communications services. Students, faculty and staff may access [University-provided and discounted software downloads](#).

Columbia University Library

[Columbia's extensive library system](#) ranks in the top five academic libraries in the nation, with many of its services and resources available online.

The Writing Center

The Writing Center provides writing support to undergraduate and graduate students through one-on-one

consultations and workshops. They provide support at every stage of your writing, from brainstorming to final drafts. If you would like writing support, please visit the following site to learn about services offered and steps for scheduling an appointment. This resource is open to Columbia graduate students at no additional charge. Visit <http://www.college.columbia.edu/core/uwp/writing-center>.

Career Design Lab

The Career Design Lab supports current students and alumni with individualized career coaching including career assessment, resume & cover letter writing, agile internship job search strategy, personal branding, interview skills, career transitions, salary negotiations, and much more. Wherever you are in your career journey, the Career Design Lab team is here to support you. Link to <https://careerdesignlab.sps.columbia.edu/>