

SUMAK4130 Sustainable Cities

(Draft: Schedule and guest speakers may change)

Fall 2023-24

Instructor: Jit N. Bajpai

Class Meeting: Tuesday, 4:10 – 6:00 PM

Class Location: Room: 304 Hamilton Hall

Office Hours: On-line or in person meeting on request

1. Course Overview

For the first time in history over half the world's population lives in urban areas. Today there are over 400 cities of more than a million residents compared to 12 cities in 1900. By 2050 the share of the world's urban population is expected to reach 70 percent, and most growth will occur in the developing world. As urban population growth continues, urban centers face the problems of aging infrastructure, economic growth, changing climate, congestion, pollution, and demands of inhabitants to enhance their quality of life. Cities consume 75 percent of world's energy and produce almost 80 percent of global GHG emissions. In response many cities are striving to be a low carbon city while sustaining healthy economic and social life. But addressing the new urban agenda requires a new model of cooperation across sectors and all tiers of government to redirect the urban economic development into paths that are restorative. The purpose of this course is to prepare its students to understand, analyze, and develop policies and procedures to address the sustainability issues being faced by urban centers of developed and developing world, their decision-makers and inhabitants.

2. Course Objectives

Students in the course are assumed to have had no previous in-depth exposure to sustainable urban development. By the end of the course, students will have learned to develop strategies and related actions to enhance sustainability of cities covering the following areas:

- Sustainability enhancing practices in urban development management;
- Emerging policies, practices and technologies that promote efficient and low carbon delivery of urban services including transportation, energy, waste, water and sanitation;
- Approach to manage climate change risks and related adaptation actions; and
- Practices of sustainability management adopted by global cities.

3. Course Content

Week 1 (Sept. 5): Course Overview and Introduction to Urban Sustainability

- Course Overview
- Why adopt sustainability principals for cities?

Required Readings:

Campbell Scott, "Green Cities, Growing Cities & Just Cities: Urban Planning & the Contradictions of Sustainable Development", *Journal of American Planning Association* 62:3, 296-312, 1996

<http://www.tandfonline.com/doi/pdf/10.1080/01944369608975696>

World Bank, "Thriving: Making cities green, resilient and inclusive. Introduction chapter, 2022.

<https://openknowledge.worldbank.org/entities/publication/7d290fa9-da18-53b6-a1a4-be6f7421d937>

Recommended Readings:

William E. Rees, "Achieving Sustainability: Reform or Transformation?" Journal of Planning Literature, Vol. 9, No.4, May 1995, pp-343-361.

<http://jpl.sagepub.com/content/9/4/343.full.pdf+html>

Portney, Kent E., "Taking Sustainable Cities Seriously: Economic Development, the Environment, and Quality of Life in American Cities", Cambridge, "Chapter 1: The Conceptual Foundations of Sustainable Cities: Sustainability, Sustainable Economic Development, and Sustainable Communities", MIT Press, 2013.

Prior to the class besides the required reading response students will complete the estimation of their carbon footprints:

Participants will complete in advance the personal **ecological footprint** estimate using the online calculator and determine the potential for reduced resource usage.

<http://www.carbonfootprint.com/calculator.aspx>

Week 2 (Sept. 12): Urban Land Management

- Why cities take different forms of development?
- What are key determinants of land uses and their distribution within a city?
- Why housing becomes unaffordable for many in cities?

Required Readings: (First and one of the remaining two)

Luis M.A. Bettencourt, "The kind of problem a city is". Santa Fe Institute, 2013

<https://www.santafe.edu/research/results/working-papers/the-kind-of-problem-a-cityis>

Anthony Flint, "The state of local zoning: Reforming a century-old approach to Land use", Lincoln Institute, Jan. 2023.

<https://www.lincolnst.edu/sites/default/files/pubfiles/state-of-local-zoning-lla230105.pdf>

Bret Clark, "Ebenezer Howard and Marriage of Town & Country: An Introduction to Howard's Garden Cities of Tomorrow", Organization & Environment, Sage, 2003

<http://oae.sagepub.com/content/16/1/87.full.pdf+html>

Recommended Readings:

Mathias Wendt, "The Importance of Death and Life of American Cities by Jane Jacobs to Profession of Urban Planning", New Visions for Urban Affairs, Volume 1, Spring 2009
<https://cpb-us-w2.wpmucdn.com/sites.udel.edu/dist/a/7158/files/2018/01/theimportance-of-death-and-life-of-great-american-cities-1961-by-jane-jacobs-to-theprofession-of-urban-planning-t7jm1p.pdf>

Arthur O'Sullivan, "Urban Economics", Seventh Edition, Chapters 1, 6 &7, McGraw Hill, 2009
<https://clio.columbia.edu/catalog/SCSB-8710612>

Week 3 (Sept. 19): Urban Growth Management

- How land development strategies and transport interactions shape urban economy, inclusiveness and environment?
- What kind of barriers and uncertainties urban growth management strategies may encounter during implementation?

Case Study 1 - Urban growth management strategy in Portland Metro Area

Based on a review of the following documents and/or outside resources each student will summarize his/her responses to the following questions in a brief note (three written pages excluding tables and figures):

- **Economic Sustainability:**
 - What is the level and nature of economic growth anticipated within the metro area?
 - Are the planned growth expectations realistic?
- **Land Development:**
 - How Portland metro area plan aims to accommodate population and employment growth?
 - Are the proposed actions feasible considering the past performance and policies related to UGB (urban growth boundary), densification, environment, and transit-oriented-development (TOD)?
- **Social Implications:**
 - What are the benefits and drawbacks for Portland residents' quality of life with respect to the implementation of actions proposed under the economic and land development strategies of the Plan?

References:

2018 Urban Growth Report - Metro (regional body) assessment

<https://www.oregonmetro.gov/urban-growth-report>

The Nature of 2040 – Regional Plan for managing growth (Metro, 1995)

https://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1033&context=oscdl_metro

Socio-economic data trend:

<http://www.oregonmetro.gov/index.cfm/go/by.web/id=24905>

2015-20 Strategic Plan of Portland city (1-10 page)

<http://prosperportland.us/wp-content/uploads/2016/04/PDC-Strategic-Plan.pdf>

Recommended:

Look for Forgotten Triangle video (5.35 min.) on

<http://msop.lincolnst.edu/city/cleveland>

Week 4 (Sept. 26): Inclusive Urban Development

- How cities define, measure and address social sustainability?
- Can environmental sustainability address social sustainability in cities?
- How land development policies and non-government actors enhance affordable living and inclusiveness of cities?

Required Reading: (Select one of the following three readings for response write up)

Portney, Kent E., "Taking Sustainable Cities Seriously: Economic Development, the Environment, and Quality of Life in American Cities", Cambridge, Chapter 6: Is Sustainable City a More Egalitarian Place? Sustainable Communities, Environmental Equity, and Social Justice, MIT Press, 2003.

The Urban Institute, Keeping the neighborhood affordable: A handbook of housing strategy for gentrifying areas.

<https://www.urban.org/sites/default/files/publication/50796/411295-Keeping-the-Neighborhood-Affordable.PDF>

Bertaud Alain, "Affordability: Household's income, regulations and Land supply", Part I, Working Paper #38, Dec. 2016.

https://marroninstitute.nyu.edu/uploads/content/Affordability_Part_I_AB.pdf

(Each student will review one of the four short case studies shown below and submit his/her responses to the following questions in less than two pages)

- What are the unique features of the case study business model?
- How the program was or can be scaled up?
- Is the program replicable?

Bajpai, J.N., Halusan B. and Murray S., Building Affordable Neighborhood in Kigali (Rwanda): A framework for incremental development and low income house building. (Case study in the "File" section of the coursework).

ODI, Community driven development in the slums: Thailand's Experience
<https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9669.pdf>

Waldman-Brown A. & Flatter G. C., Scaling Sanergy: Growing a Promising Sanitation Startup, MIT Management and Legatum, Boston, May 2018. https://legatum.mit.edu/wp-content/uploads/2018/07/Sanergy-Case-Study_6.29.2018.docx.pdf

SEWA: Self-employed woman association. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_policy/documents/publication/wcms_234890.pdf

Recommended Reading:

Jenks Mike, Jones Colin, "Dimensions of the Sustainable City", Chapter 5: Social Acceptability, SpringerLink, 2010 (e-book in library)
<https://clio.columbia.edu/quicksearch?q=Dimensions+of+sustainable+cities&commit=Search>

Project for Public Spaces, A Playbook for inclusive place making – Community Process, May 31, 2019
<https://www.pps.org/article/a-playbook-for-inclusive-placemaking-community-process>

Week 5 (Oct. 3): Urban Travel Management

- What major factors influence travel behavior and demand?
- How to reduce transport linked GHG emissions?
- What are emerging technologies, practices and policies that affect choice of modal options and reduce use and ownership of vehicles?

Required Reading: (Review one of the following three articles and then prepare a one-page write-up highlighting the take away lessons)

McKinsey & Co.: "Infrastructure technologies - Challenges and solutions for smart mobility in urban areas", March 2023.
[https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/infrastructure-technologies-challenges-and-solutions-for-smart-mobility-in-urban-areas?stcr=DDF9E1E7453949269FB32D67AFAD9818&cid=other-eml-alt-mip-mck&hlkid=7be95e007c46490d8b04fe70ea1db4bc&hctky=10079840&hdpid=a5eca2cf-04c0-476b-8f26-6502b5f2a9a4#/#/](https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/infrastructure-technologies-challenges-and-solutions-for-smart-mobility-in-urban-areas?stcr=DDF9E1E7453949269FB32D67AFAD9818&cid=other-eml-alt-mip-mck&hlkid=7be95e007c46490d8b04fe70ea1db4bc&hctky=10079840&hdpid=a5eca2cf-04c0-476b-8f26-6502b5f2a9a4#/)

McKinsey & Co.: "Power to Move: Accelerating the electric transport transition in Sub-Saharan Africa", Feb. 2022.
<https://www.mckinsey.com/~media/mckinsey/industries/automotive%20and%20assembly/our%20insights/power%20to%20move%20accelerating%20the%20electric%20tra>

[nsport%20transition%20in%20sub%20saharan%20africa/accelerating-the-electric-transport-transition-in-sub-saharan-africa_final2.pdf](https://documents.worldbank.org/curated/en/947211468162273111/pdf/Main-report.pdf)

Suzuki H, Cervero R., Luchi K., “Transforming Cities with Transit”, Pages 1-21, World Bank, 2012.

<http://documents.worldbank.org/curated/en/947211468162273111/pdf/Main-report.pdf>

Case study 2: Portland transportation strategy for sustainable mobility

Based on a review of the following documents and/or outside sources each student will summarize his/her responses to the following questions in a brief note (max three written pages excluding tables and figures):

- Identify specific targets related to sustaining mobility, reducing emissions and promoting sustainable transport mode mix.
- Based on available data from RTP, City, climate plan and Tri-Met assess the implications of expanding transit services, bikeways and pedestrian infrastructure in reducing congestion and meeting climate goals (emission targets) while promoting planned development targets?
- Examine the risks or barriers which need to be managed by Metro, State and its counties in achieving the performance targets of land, transport and carbon emissions by 2035-40? Consider factors such as funding, public acceptance and policy constraints.

References:

Metro, 2014 Regional Transport Plan (RTP) (relevant sections are: executive summary, 1.5, 1.7, 1.8, 1.9, 2.2, 2.3, 3.3, 3.7, 4.2.1, 4.3.1, 4.3.5, 4.3.6, 4.3.7, 4.3.9 & 4.3.10)
<https://www.oregonmetro.gov/sites/default/files/2015/05/29/RTP-2014-final.PDF>

Climate Action Plan 2015: Summary (review Introduction and urban form and transportation sections only) <https://www.portland.gov/bps/climate-action/documents/2015-climate-action-plan-summary/download>

Climate Action Plan 2015: Progress Report 2020 (review progress made in urban form and transportation sectors) <https://www.portland.gov/bps/climate-action/documents/2015-climate-action-plan-final-progress-report-2020/download>

Metro Emerging Trend Study 2022, Executive Summary:
<https://www.oregonmetro.gov/sites/default/files/2022/06/22/2023-RTP-emerging-transportation-trends-fact-sheet-20220602.pdf>

Regional Mobility Policy Update, 2022 (Two pages)

<https://www.oregonmetro.gov/sites/default/files/2022/12/08/Regional-mobility-policy-fact-sheet-Fall-2022.pdf>

Tri-Met Transit Ridership Trend. <http://trimet.org/about/performance.htm#1>

Oregon state: Urban Mobility strategy 2022:

<https://www.oregon.gov/odot/UMO/Documents/urban-mobility-strategy-2022-02-08.pdf> & Summary: <https://www.oregon.gov/odot/UMO/Documents/urban-mobility-strategy-executive-summary.pdf>

Week 6 (Oct 10): Mid-term Review and Guest Speaker (*Alain Bertaud*, Author of the book “Order without Design”, former Lead Urban Specialist of the World Bank and presently, Research Scholar at the Marron Institute of Urban Management, NYU, New York) and **Carrie Denning Jackson**, Director of Innovation at Jamestown LP.

Week 7 (Oct. 17): Energy Efficiency and Net Zero Path: Electricity & Buildings

- How cities are nurturing energy efficiency and net zero path in their building sector using a mix of policies, incentives and technologies?

Required Reading:

“Renewable Energy Policies for Cities: Buildings”, 2021.

https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/May/IRENA_Policies_for_Cities_Buildings_2021.pdf

Case Study 3: Portland energy efficiency strategy

Students will review the given references and/or outside resources to prepare a brief paper (Max. three pages) addressing the following questions:

1. What are key policies, incentives and technologies that aim to de-carbonize energy sources used by the Portland city and Oregon state?
2. What measures (e.g., codes, technologies, fiscal support and subsidies, technical assistance) Portland and Oregon state have adopted to promote energy efficiency in the building sector?
3. How Portland city and its metro counties are nurturing their net zero path and managing climate justice objectives?
4. What are major barriers and opportunities to accelerate building efficiency and de-carbonization actions (review the status of available finances, awareness level, proposed regulations and adopted technologies etc.)?

Sources:

Oregon state coal and renewable energy plan (three pages) -

[Department of Environmental Quality : Oregon Clean Energy Targets : Action on Climate Change : State of Oregon](#)

<https://assets.ctfassets.net/416ywc1laqmd/3hppSni5fv3XjUUQBNcviB/1d4570020e03a8c9f23f029922d8c63b/oregon-clean-electricity-plan-summary.pdf>

Oregon State Energy Code & Built Environment -

<https://www.oregon.gov/energy/energy-oregon/Pages/Energy-Code.aspx>

Portland City: Energy efficiency & Net zero path -

<https://www.portland.gov/bps/scg/scg-dashboard/energy-efficiency> (please open net zero link cited in the text and Renewable Energy in the SCG Dashboard in the right for additional information)

<https://www.oregon.gov/energy/Data-and-Reports/Documents/BER-Chapter-6-Energy-Efficiency.pdf>

Portland city: Climate and Health Standards Policy for Buildings -

<https://www.portland.gov/bps/climate-action/building-standards>

<https://efiles.portlandoregon.gov/record/15008595>

Portland: Closing the racial justice gap through building policy -

<https://www.portland.gov/bps/climate-action/building-standards/documents/c40-buildings-case-study-portland/download>

Energy Trust 2021 performance (Results and Executive summary; if interested read up to Page 26) : <https://energytrust.org/wp-content/uploads/2022/04/2021-Annual-Report.pdf>

Energy Trust strategic plan (18 pages): https://www.energytrust.org/wp-content/uploads/2019/11/2020-2024_StrategicPlanGuide_Final.pdf

Week 8 (Oct. 24): Analysis of GHG Emissions and Energy Efficiency

- What is the internationally accepted protocol for measuring GHG emissions in cities?
- How a municipality could develop an energy efficiency and related emission reduction plan for services provided to city residents?

Required Readings: First and one of the remaining three from the following

C40, ICLEI, WRI, “Global Protocol for Community Scale GHG Emissions”, Executive Summary, June 2012.

<https://ghgprotocol.org/greenhouse-gas-protocol-accounting-reporting-standard-cities>

City Climate Intelligence: Leveraging local GHG data for climate solutions.

<https://storymaps.arcgis.com/stories/a5a111ee0fbe4599acd5c70657620a9c>

World Bank, “The Low Carbon City Development Program (LCCDP) Guidebook, A Systems Approach to Low Carbon Development in Cities”, Executive Summary (Pg. 8 -15) and Emission Inventory (Pg. 46-48), 2014

<https://openknowledge.worldbank.org/bitstream/handle/10986/21731/946950WP00PUBL0gram0Guidebook0FINAL.pdf?sequence=1>

NYC Household consumption based emission inventory, prepared in Feb. 2023 by Ecodata Lab,: <https://climate.cityofnewyork.us/wp-content/uploads/2023/04/NYC-Household-Consumption-GHG-Emissions-Inventory.pdf>

NYC GHG Inventories, 2023, <https://climate.cityofnewyork.us/initiatives/nyc-greenhouse-gas-inventories/>

Watch a **video** prior to the class:

How to calculate GHG emissions, <https://www.youtube.com/watch?v=zq5wTjvLgnY>

Recommended Readings:

Arup, C40 and University of Leeds, The Future of Urban Consumption in a 1.5 C world, Methodology Report, June 2019. https://c40-production-images.s3.amazonaws.com/other_uploads/images/2257_2Method_Report_Final_2019-06-13.original.pdf?1560879858

UNFCCC, “CDM Methodology Booklet”, Nov. 2010
http://cdm.unfccc.int/methodologies/documentation/meth_booklet.pdf#IV

Week 9 (Oct. 31): Case Studies – Student Presentations

Each of the six case study groups will prepare in advance a brief presentation (10 minutes or 5-6 slides) on their respective case study lessons for the class. The presentation should highlight the key features of sustainability actions, their effectiveness and potential for replication. After the group presentations each group will be given five minutes to answer a question given to them in the class.

1. **Hammarby Sjostad**, Stockholm, Sweden

<http://www.aeg7.com/assets/publications/hammarby%20sjostad.pdf>
http://large.stanford.edu/courses/2014/ph240/montgomery2/docs/HS_miljo_bok_eng_ny.pdf
https://www.itdp.org/wp-content/uploads/2014/07/20.-092211_ITDP_NED_Hammarby.pdf
<http://www.hammarbysjostad.se/hammarby-sjostad/hammarby-sjostad/?lang=en>

2. **Paris Climate Action Plan:**

[https://cdn.locomotive.works/sites/5ab410c8a2f42204838f797e/content_entry5ae2f905a2f4220ae645f026/5af7316614ad660b652531de/files/Paris - Paris Climate Action Plan.pdf](https://cdn.locomotive.works/sites/5ab410c8a2f42204838f797e/content_entry5ae2f905a2f4220ae645f026/5af7316614ad660b652531de/files/Paris_-_Paris_Climate_Action_Plan.pdf)

Resilient Strategy:

https://resilientcitiesnetwork.org/downloadable_resources/Network/Paris-Resilience-Strategy-English.pdf

3. **London Environment Strategy:**

https://www.london.gov.uk/sites/default/files/london_environment_strategy_0.pdf

4. **Copenhagen:** Copenhagen 2025 Climate Plan:
https://kk.sites.itera.dk/apps/kk_pub2/index.asp?mode=detalje&id=2062
 Copenhagen Climate Adaptation plan 2025:
https://en.klimatilpasning.dk/media/568851/copenhagen_adaption_plan.pdf
5. **Resilient Chennai Strategy: Kaleidoscope, my city through my eyes**
<https://resilientchennai.com/strategy/>
6. **Tokyo Sustainability Action 2023:**
<https://www.metro.tokyo.lg.jp/english/about/sustainable/index.html>

Nov. 7th is academic holiday

Week 10 (Nov. 14): Urban Water & Sanitation

Guest Speaker: Prof. Upmanu Lall, Director of Water Center, Earth Institute & Professor of Earth & Environmental Engineering, Civil Engineering and Engineering Mechanics, Columbia University

- How to balance supply, demand and quality of urban water?
- What are effective practices, technologies and policies for urban water management?
- What are re-use and eco-friendly strategies in urban settings?

Required Readings (first and one of the remaining two for pre-class write up submission):

Marlow David R. et. (Oct. 2013): Towards sustainable urban water management: A critical reassessment, Science Direct, Water Research#7, Elsevier.

<https://www.sciencedirect.com/science/article/abs/pii/S0043135413008208>

Leig Nancy G, & Lee H., (Feb. 2019): Sustainable and Resilient Urban Water Systems: The Role of Decentralization and Planning, Sustainability, MDPI.

<https://www.mdpi.com/2071-1050/11/3/918>

PlanNYC Getting Sustainability Done, April 2023, Chapters on “Flooding” (page 38) and “Waterways” (Page 86). <https://s-media.nyc.gov/agencies/mocej/PlaNYC-2023-Full-Report.pdf>

Recommended Reading:

McCormick Kathleen. Grow with the flow: How planners in two western cities are integrating water and land use, Lincoln Institute, Nov. 27, 2018.

<https://www.lincolnst.edu/publications/articles/grow-flow>

California Water Action Plan, Draft Action Plan for Public Review, 2014

http://resources.ca.gov/docs/Final_Water_Action_Plan.pdf

Week 11 (Nov. 21): Urban Energy Planning & Solutions

Guest Speaker: Prof. Vijay Modi, Mechanical Engineering & Earth Institute, Columbia University

- What are major barriers to decarbonizing energy generation in NY state?

- How a city should leverage financing incentives and technological solutions to promote sustainable urban energy systems?

Required Readings (Any two):

Mckinsey & Co., July, 2019, The Global relevance of New York State’s clean power targets.

<https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/the-global-relevance-of-new-york-states-clean-power-targets>

PlanNYC Getting Sustainability Done, April 2023, Chapter on “Clean & Reliable Energy”, Pages 64-74. <https://s-media.nyc.gov/agencies/mocej/PlaNYC-2023-Full-Report.pdf>

Clarisa Diaz, July 7, 2020, The push to turn NYC’s polluting peaker plants into publicly-owned solar power

<https://gothamist.com/news/the-push-to-turn-nycs-polluting-peaker-plants-into-publicly-owned-solar-power>

Watch a video prior to the class:

California’s Renewable Energy Problem:

<https://www.youtube.com/watch?v=h5cm7HOAqZY>

Recommended Reading:

New York City Govt., One NY: The plan for a strong and just city, Pages 168-170 & 174-175 <http://www.nyc.gov/html/onenyc/downloads/pdf/publications/OneNYC.pdf>

IEA (2013), Transition to Sustainable Buildings, Strategies and Opportunities for 2050, Chapters 3, 4, 5, and 6.

<https://www.oecd-ilibrary.org/docserver/9789264202955-en.pdf?expires=1570118500&id=id&accname=ocid177456&checksum=CD3C9963F3995368CE2E06318431EC39>

Final exam assignment will be released on 20th Nov. with final submission dead line on 30th Nov, 10 PM

Thanksgiving holiday Nov. 22-24

Week 12 (Nov. 28): Solid Waste & Circular Economy

- What factors influence urban waste generation?
- What are effective practices and technologies of waste management?
- How the paradigm of circular economy may help cities in reusing and reducing waste?

Required Readings: (One of the following two papers for pre-class read responses)

Kaza S., Yao L., Bhada-Tata P. & Woerden F. V., What a Waste 2.0, Chapter 5: Financing and cost recovery for waste management system, and Chapter 6: Waste and Society, World Bank, 2018

<https://openknowledge.worldbank.org/bitstream/handle/10986/30317/211329ov.pdf?sequence=11&isAllowed=y>

Hahn N., Martin S. & Zils M., “Remaking the Industrial Economy”, McKinsey Quarterly, Feb 2014. <https://www.mckinsey.com/business-functions/sustainability/our-insights/remaking-the-industrial-economy>

One of the following two case studies for pre-class class write-up submission

World Bank, 2018, Municipal Waste Management, European Union Case Study, Pages 85-108

<https://openknowledge.worldbank.org/bitstream/handle/10986/30434/130055-WP-P162603-WasteManagement-PUBLIC.pdf?sequence=1&isAllowed=y>

World Bank, 2018, Municipal Waste Management, Japan Case Study, Pages 109-132

<https://openknowledge.worldbank.org/bitstream/handle/10986/30434/130055-WP-P162603-WasteManagement-PUBLIC.pdf?sequence=1&isAllowed=y>

Final Exam submission: 30th Nov., 10PM

Week 13 (Dec. 4): Climate Change & Cities

- How to identify and manage climate risks?
- What are emerging approaches to adaptation planning and financing?

Required Readings: Any two of the following readings

Urban Land Institute, A Guide to Assessing Climate Change Risks. <http://uli.org/wp-content/uploads/ULI-Documents/ULI-A-Guide-for-AssessingClimate-Change-Risk-final.pdf>

C40 & McKinsey Sustainability (July 2021), Focused Adaptation, Pages 10-23, <https://www.mckinsey.com/~media/mckinsey/business%20functions/sustainability/our%20insights/how%20cities%20can%20adapt%20to%20climate%20change/focused-adaptation-a-strategic-approach-to-climate-adaptation-in-cities-vf.pdf?shouldIndex=false>

UN Habitat: Guiding Principles for City Climate Action Planning <http://e-lib.iclei.org/wp-content/uploads/2016/02/Guiding-Principles-for-City-ClimateAction-Planning.pdf>

Recommended Readings:

NYC, Mayor's Office of Recovery and Resiliency, Climate Resiliency Design Guidelines, 2019.

https://www1.nyc.gov/assets/orr/pdf/NYC_Climate_Resiliency_Design_Guidelines_v3-0.pdf

New York City Govt., One NY: The plan for a strong and just city, Vision 4: Our Resilient City, Pages 214-251, 2015

<http://www.nyc.gov/html/onenyc/downloads/pdf/publications/OneNYC.pdf>

4. Method of Grading and Evaluation

Attendance & Class participation (10% of Final Grade)

Attendance is mandatory for each class session. If you have to miss class for any reason, you must notify the professor by e-mail before the start of the class session. Each unexcused absence will negatively impact your overall grade in the class. Two or more unexcused absence could result in failure to pass the course.

Reading Responses (15% of Final Grade)

Each week, students will post brief "Reading Responses" between 250-300 words to the Coursework by 11:00 am the one day before class. The submissions will be succinct responses to that week's reading assignments, identifying at least 2 key themes of the reading and suggesting one area for further class discussion. Reading responses (18 reading response assignments) will not be individual grades, but an overall grade will be assigned based on timely submission and completeness of the responses.

Case Studies: 30%

Based on each case study review students will prepare three-page write-up (double-spaced, Times New Roman 12-point font) addressing the assigned questions. There will be three such case study submissions.

Group Case Study Presentation: 15%

Each student will be randomly assigned to one of the five or six case study groups. Working as a group, students will prepare a 5 to 7- minute PowerPoint presentation responding to the questions outlined for the case study.

Final Examination: 30%

The final examination will be a 10-page (double-spaced, Times New Roman 12-point font) paper. The final examination will be due by e-mail on an assigned date.

Grading Policies:

The following identifies how points awarded to individual assignments translate into letter grades for the course:

A= 93-100, A-= 90-92, B+=87-89, B= 84-86, B-=80-83, C+=77-79, C=74-76, C-=70-73, D=66-69, F= 65 or fewer

Late Assignment Policy:

Assignments (e.g., case study group memo., mid-term paper, group presentation slides and final exam paper) are due on the dates/times identified. For each assignment one letter grade will be deducted per day of delay in submission. Pre-read assignments not received by the time of final grades will receive zero points.

Incompletes:

As outlined in the School's grading and academic starts policy, "A grade of 'I' (incomplete) is a temporary grade indicating failure to complete assigned work. The mark is given only upon the request of the student and at the discretion of the instructor. The student and faculty member must sign a completed 'Request for Grade of Incomplete Form' before the final class session. The 'I' must be removed within one year after the end of the semester in which the student received the grade. Students seeking an extension of this time limit must have the approval of the instruction and successfully petition of the director of their program. If no petition is made, or if the petition is unsuccessful; the grade is changed to an N-Permanent Incomplete- which remains on the student's permanent record."

5. Textbooks and Course Readings

Chapters from a variety of different textbooks and journal articles will be used throughout this course. All texts can be found either electronically or have been placed on reserve in the University library system. Unless otherwise noted, the *required readings* must be read and a short note (one page) as described above must be submitted one day prior to the class. Some readings are identified as *recommended* (i.e., you are not required to read them), but they contain information that may be useful as you complete your course assignments.

Text Books:

- Portney, Kent, "Taking Sustainable Cities Seriously: Economic Development, the Environment, and Quality of Life in American Cities", Cambridge, MIT Press, 2003.
- Dixon Tim, Enmes M, Hunt M & Lanno S, "Urban Retrofitting for Sustainability: Mapping the transition to 2050", Earthscan from Routledge, London, NY, 2014

6. Policies

Academic Integrity

The School of Professional Studies does not tolerate cheating and/or plagiarism in any form. Those students who violate the Code of Academic and Professional Conduct will be subject to the Dean's Disciplinary Procedures. The Code of Academic and Professional Conduct can be viewed online at: <http://ce.columbia.edu/node/217>

Please familiarize yourself with the proper methods of citation and attribution. The School provides some useful resources online; we strongly encourage you to familiarize yourself with these various styles before conducting your research.

Violations of the Code of Academic and Professional Conduct will be reported to the Associate Dean for Student Affairs.

Names/Pronouns – You deserve to be addressed in a manner that reflects your identity. You are welcome to tell me your pronoun(s) and/or name (if different from University records) at any time, either in person or via email.

Discrimination – We embrace the diversity of gender, gender identity & expression, sex, sexual orientation, race, ethnicity, national origin, age, religion, disability status, family status, socioeconomic background, and other visible and non-visible identities. Columbia University does not tolerate unlawful discrimination, discriminatory harassment, sexual assault, domestic violence, dating violence, stalking, or sexual exploitation and all such conduct is forbidden by Columbia University Policy.

Duty to Report – You deserve a University community free from discrimination, harassment, and gender-based misconduct including sexual harassment, sexual assault, domestic and dating violence, stalking, and sexual exploitation. It is therefore University policy to require Columbia faculty and staff to report to EOAA any instance or allegation of prohibited conduct involving any undergraduate or any graduate student that is disclosed to, observed by, or otherwise known to that employee. This requirement to report is in place to help ensure that students are provided appropriate resources and to allow the University to mitigate harm to our community.

Confidential Resources - There are confidential resources on campus who do not have a Duty to Report, including:

- Sexual Violence Response & Rape Crisis/Anti-Violence Support Center (SVR)
- Ombudsman Office
- Medical Services
- University Counseling and Psychological Services
- University Pastoral Counseling
- Columbia Office of Disability Services

University employees working in a confidential capacity will not report information shared with them.

Inclusion - In the M.S. in Sustainability Management program, faculty and staff are committed to the creation and maintenance of “inclusive learning” spaces – classrooms and other places of learning where you will be treated with respect and dignity, and where all individuals are provided equitable opportunity to participate, contribute, and succeed.

In our Sustainability Management K4100 classroom, all students are welcome regardless of race/ethnicity, gender identities, gender expressions, sexual orientation, socio-economic status, age, disabilities, religion, regional background, Veteran status, citizenship status, nationality and other diverse identities that we each bring to class.

Accessibility Statement

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: <http://health.columbia.edu/services/ods/support>

I want you to succeed in this course. Contact disability@columbia.edu for learning accommodations