

SYLLABUS

SUMA K4130: Sustainable Cities

Fall 2017 – Wednesdays, 4:10 – 6:00 PM

Instructor information

Jit Bajpai

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Class Location: TBD

Office Hours: by appointment

Curriculum and Grading Assistant (Office Hours to be announced):

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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.

Course Objectives

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

- Identify and support the good practices in green and efficient urban development and planning;
- Review policies and foster technologies used to promote energy efficiency and reduced GHG emissions from buildings and transportation;
- Review policies and foster technologies necessary to ensure healthy water and sanitation services;
- Examine policies and foster technologies necessary for the effective collection, disposable, and possible re-use of waste and in promoting circular economy;

- Approaches to climate change adaptation & mitigation measures undertaken by cities; and
- Examine, track, and analyze sustainability metrics and indicators for urban centers

Course Structure and Schedule details

PART A: SUSTAINABLE CITIES – AN INTRODUCTION

Week 1 (Sept. 6): Linking Sustainability Concept and Cities

Required Readings:

- Sean Fox: Urbanization as a Global Historic Process: Theory & Evidence from Sub-Saharan Africa, *Population & Development Review*, 38(2), Page 285-310, June, 2012
<http://onlinelibrary.wiley.com/doi/10.1111/j.1728-4457.2012.00493.x/pdf>
- 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>

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.

Class Exercise: 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. 13): Urban Development and Economics

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

- Luis M.A. Battencourt, "The kind of problem a city is". Santa Fe Institute, 2013
<http://www.santafe.edu/media/workingpapers/13-03-008.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>
- 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
<http://www.sppa.udel.edu/sites/suapp.udel.edu/files/The%20Importance%20of%20Death%20and%20Life%20Final.pdf>

Recommended Readings:

- Bajpai, Jitendra N., "Building a foundation for smart Indian cities", published in "Insight", a *Journal of Indian School of Business*, Hyderabad, April 2015.
- Arthur O'Sullivan, "Urban Economics", Seventh Edition, Chapters 1, 6 & 7, McGraw Hill, 2009

Week 3 (Sept. 20): Sustainability Indicators & Low Carbon Cities: A Road Map

Required Readings:

- Portney, Kent E., "Taking Sustainable Cities Seriously: Economic Development, the Environment, and Quality of Life in American Cities", Cambridge, "Chapter 2: Measuring the Seriousness of Sustainable Cities", MIT Press, 2013
- Dixon Tim, Enmes M, Hunt M & Lannoa S, "Urban Retrofitting for Sustainability: Mapping the Transition to 2050, Part II Chapter 11: "Pathway to decarbonizing urban system", Earthscan from Routledge, London, NY, 2014

Recommended Readings:

- Skea J. and S. Nishioka, "Policies and Practices for a Low Carbon Society", National Institute for Environmental Studies, Editorial 2006.
- <http://www.earthscan.co.uk/portals/0/files/sample%20Chapters/9781844075942.pdf>
- World Bank, City GHG Emissions per Capita Table, 2010.
http://siteresources.worldbank.org/INTUWM/Resources/GHG_Index_Mar_9_2011.pdf
- C40 Cities, "Climate Action in Megacities, Cities baseline and opportunities", Executive Summary, Pages 1-12, Arup Report, 2011.
<http://www.c40citieslive.squarespace.com/storage/ARUP%20C40%20Baseline%20Report.pdf>

Class Exercise: Participants will be divided into six sector specific groups. Each group will review in advance the website of Office of Sustainability & Environment, Seattle, and the progress Report of the sector assigned to them (e.g., Building & energy, Land use & transport, etc.). Based on the review each group will present (not more than three slides) their group's assessment of the city performance in meeting the planned sustainability goals and targets of the sector.

<http://www.seattle.gov/environment/moving-the-needle>

PART B: DIMENSIONS OF URBAN SUSTAINABILITY

Week 4 (Sept. 27): Environment, Poverty & Social Sustainability

Required Readings:

- 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.
- 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>

Recommended Reading:

- Perlman Janice E., Sheehan Molly O'Meara, "Fighting Poverty & Environmental Justice in Cities", 2007 State of the World: Our Urban Future, Chapter 9, World Watch Institute.
http://www.megacitiesproject.org/pdf/SOW_07_chapter_9.pdf

Review the summary of two case studies: Innovation in Housing for the Poor: Cemex

<http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&ved=0CElQFjAD&url=h>

http://3A%2F%2Fisites.harvard.edu%2Ffs%2Fdocs%2Ficb.topic1098216.files%2FCEMEX.pptx&ei=MrtZU-4Ae2gyQHo14GIBw&usg=AFQjCNGnoqov_zTp-mfdtBNTbG_6J0LmxA&sig2=DKkh78QUjpkVSZ1zV9ilw&bvm=bv.65397613,d.aWc

SEWA: Empowerment through mobilization of poor woman on a large scale
(<http://info.worldbank.org/etools/docs/reducingpoverty/case/79/fullcase/India%20SEWA%20Full%20Case.pdf>)

Week 5 (Oct. 4): Sustainable Urban Spatial Structure

GUEST SPEAKER: Alain Bertaud, Former Lead Urban Specialist, World Bank and Senior Research Scholar, Marron Institute, NYU



Required Readings:

- Bertaud Alain, "Clearing the air in Atlanta: Transit or Smart Growth or Conventional Economics", Journal of Urban Economics 54, 2003
- Bertaud Alain: "Cities as labor markets", Working Paper #2, NYU, Feb. 19, 2014.
<http://marroninstitute.nyu.edu/content/working-papers/cities-as-labor-markets>
- Echenique M. H., Hargreaves A.H., Michel G. and Namdeo A., "Growing Cities Sustainably", Journal of American Planning Association, 78:2, Pages 121-137, 2012
<http://www.tandfonline.com/doi/pdf/10.1080/01944363.2012.666731>

Recommended Readings:

- Transport Research Board, "Driving and the Built Environment: The Effect of Compact Development on Motorized Travel, Energy Use, and CO2 emissions", Summary, Special Report 298, Washington, D.C., 2009,
http://www.nap.edu/openbook.php?record_id=12747

Week 6 (Oct. 11): Urban Travel Mobility

Required Readings: (Select two of the following three)

- Bajpai, Jitendra N., "Emerging Vehicle Technologies and the Search for Urban Mobility Solutions", Journal of Urban, Planning & Transport Research, Vol. 4, 2016, Issue 1
<http://www.tandfonline.com/eprint/rmWFcyHMerxiadEquKhA/full>
- Suzuki H, Cervero R., Luchi K., "Transforming Cities with Transit", Pages 1-21, World Bank, 2012 http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/01/09/000425962_20130109153314/Rendered/PDF/NonAsciiFileName0.pdf
- Ewing Reid, Cervero R., "Travel and the Built Environment", Journal of American Planning Association, May 11, 2010
<http://reconnectingamerica.org/assets/Uploads/travelbuiltenvironment20100511.pdf>

Recommended Reading:

- Dixon Tim, Enmes M, Hunt M & Lannoa S, “Urban Retrofitting for Sustainability: Mapping the Transition to 2050, Part II Chapter 7: Urban design & the retrofit agenda”, Earthscan from Routledge, London, NY, 2014
- US. EPA, “Green Communities”, <http://www.epa.gov/greenkit/index.htm>

Class Exercise: Students will watch the “Ted talk” and review one of the following four case studies prior to the class. The class will discuss the lessons of each case study and its effectiveness in promoting sustainable transport strategy.

- Ted talk by the Mayor of Bagota: Why buses represent democracy in action
https://www.ted.com/talks/enrique_penalosa_why_buses_represent_democracy_in_action
- Lam, S.H. and Toan T.D., “Land Transport Policy and Public Transit in Singapore”, Transportation 33(2): 171-188, 2006
<http://www.springerlink.com/content/q5r8g4211x38664h/fulltext.pdf>
- ESMAP, Bagota, Columbia, Bus Rapid Transit for Urban Transport, Nov. 2009
<http://www.esmap.org/esmap/node/660>
- ESMAP, Cairo - Arab Republic of Egypt, Taxi Scraping & Recycling Project, 2010
http://www.esmap.org/esmap/sites/esmap.org/files/CS_Cairo_Taxi_Scraping_and_Recycling_062910.pdf
- Schaller Bruce, “New York City Congestion Pricing Experience and Implications for Road Pricing Experience in US”, NY City DOT, Transport Policy 17, 2010
http://www.nyc.gov/html/dot/downloads/pdf/schaller_paper_2010trb.pdf

Mid-term assignment to be issued on Oct. 12th and submitted by 22nd Oct.

Week 7 (Oct. 18): Urban Energy Infrastructure and Energy Efficiency

GUEST SPEAKER: Prof. Vijay Modi, Mechanical Engineering & Earth Institute, Columbia University



Required Readings:

- 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>
- Dixon Tim, Enmes M, Hunt M & Lannoa S, “Urban Retrofitting for Sustainability: Mapping the transition to 2050, Part II Chapter 9: “The smart grid & the interface between energy, ICT and the city”, and Chapter 10: “Solar energy in urban retrofit”, Earthscan from Routledge, London, NY, 2014
- Feng Liu, Anke S. Mayer, John F. Hogan, “Mainstreaming the Building Energy Efficiency Codes in Developing Countries: Global Experience and Lessons from Early Adopters”, Executive Summary, The World Bank Working Paper 204, ESMAP, 2010

http://www.esmap.org/esmap/sites/esmap.org/files/WP_204_GBL_Mainstreaming%20Building%20Energy%20Efficiency%20Codes%20in%20Developing%20Countries_Overview_1.pdf

Recommended Reading:

- MIT Design Advisor: Building Energy Simulator
<http://designadvisor.mit.edu/design/>

Week 8 (Oct. 25): Mid-term Case Study Review & Smart Technologies and City Governance

- Mid-term case study Q& A discussion

GUEST SPEAKER: Carrie Denning, Chief of Staff, Sidewalk LaBS,
New York



Week 9 (Nov. 1): Solid Waste & Circular Economy

Required Readings: (Any two)

- Dixon Tim, Enmes M, Hunt M & Lannoa S, Chapter 14: “Re-engineering the city for sustainable solid waste resource management”, Earthscan from Routledge, London, NY, 2014
- Hoornweg Daniel, Bhada-Tata Perinaz, “What a Waste: A Global Review of Solid Waste Management”, Chapter 7: “Waste and the Environment”, Pages 25-31, World Bank, Urban series 68135, March 2012
http://www.wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2012/07/25/000333037_20120725004131/Rendered/PDF/681350WP0REVISOat0a0Waste20120Final.pdf
- Hahn N., Martin S. & Zils M., Remaking the Industrial Economy, McKinsey Quarterly, Feb 2014.
<http://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/remaking-the-industrial-economy?cid=other-eml-alt-mkq-mck-oth-1706&hlkid=aac432d689374252afaddb8720eb3dff&hctky=10079840&hdpid=3e1aad42-b h>

Week 10 (Nov. 8): Urban Water & Sanitation

GUEST SPEAKER: Prof. Upmanu Lall, Director of Waster Center,
Earth Institute & Professor of Earth & Environmental Engineering,
Civil Engineering and Engineering Mechanics, Columbia University



Required Readings:

- Dixon Tim, Enmes M, Hunt M & Lannoa S, “Urban Retrofitting for Sustainability: Mapping the Transition to 2050, Part III Chapter 13: “Retrofitting sustainable integrated water management at household, building & urban scales”.
- Vision 2020: New York City Comprehensive Waterfront Plan, Chapter 3: “Goal 4- Improve Water Quality”.
http://www.nyc.gov/html/dcp/pdf/cwp/vision2020_nyc_cwp.pdf

Recommended Reading:

- California Water Action Plan, Draft Action Plan for Public Review, 2014
http://resources.ca.gov/docs/Final_Water_Action_Plan.pdf

Week 11 (Nov. 15): 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.

- **Hammarby Sjostad**, Stockholm, Sweden, 2007
<http://www.aeg7.com/assets/publications/hammarby%20sjostad.pdf>
<http://www.hammarbysjostad.se/inenglish/pdf/Grontmij%20Report%20eng.pdf>
- **Melbourne**, Australia
<http://www.melbourne.vic.gov.au/Sustainability/Pages/Overview.aspx>
<http://www.melbourne.vic.gov.au>
<http://www.melbourne.vic.gov.au/1200buildings/Pages/Home.aspx>
<http://smartblocks.com.au/>
- **Rotterdam**: Program on Sustainability & Climate Change, 2011
http://www.rotterdamclimateinitiative.nl/documents/Rotterdam%20Sustainability%20Programme_20102014_herdruk.pdf
- **City of London 2010**, Delivering London's Energy Future: The Mayor's Draft Climate Change Mitigation & Energy Strategy for Consultation with London Assembly and Functional Bodies, February, 2010
http://legacy.london.gov.uk/mayor/priorities/docs/Climate_change_mitigation_energy_strategy.pdf
- **Copenhagen**: Solution for Sustainable City
http://www.danishwaterforum.dk/activities/Water_and_green_growth/Copenhagen_Solutions.pdf
http://kk.sites.itera.dk/apps/kk_pub2/pdf/1353_58936BnEKE.pdf
Climate plan:
<https://stateofgreen.com/files/download/411>
Adaptation plan
<https://stateofgreen.com/files/download/1039>
- **Rio-de-Janeiro**
<http://documents.worldbank.org/curated/en/2012/06/178933303/rio-de-janeiro-low-carbon-city-development-program-program-document-rio-de-janeiro-low-carbon-city-development-program-program-document>
<http://riotimesonline.com/brazil-news/rio-politics/eco-friendly-homes-for-rio-favelas/#>
<http://www.cidadeolimpica.com.br/en/projetos/morar-carioca-2/>
<http://rioonwatch.org/?p=8136>
https://www.brookings.edu/2016/08/12/aligning-olympic-ambitions-with-urban-access-concerns-in-rio-and-beyond/?utm_campaign=Brookings+Brief&utm_source=hs_email&utm_medium=email&utm_content=32954467

Thanksgiving holiday Nov. 22-24

Week 12 (Nov. 29): Analysis of GHG Emissions and Energy Efficiency

Required Readings:

- 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>
- C40, ICLEI, WRI, “Global Protocol for Community Scale GHG Emissions”, Executive Summary, June 2012.
http://www.iclei.org/fileadmin/user_upload/ICLEI_WS/Documents/Climate/GPC_12-8-14_1_.pdf
- New York City Govt., Inventory of New York City Greenhouse Gas Emissions, Appendix A to D (pages 39- 46), Nov.2014.
http://www1.nyc.gov/assets/sustainability/downloads/pdf/publications/NYC_GHG_Inventory_2014.pdf

Recommended Readings:

- UNFCCC, “CDM Methodology Booklet”, Nov. 2010
http://cdm.unfccc.int/methodologies/documentation/meth_booklet.pdf - IV
- Class Demo. ESMAP, TRACE a tool for Rapid Assessment of City Energy, 2010.
http://www.esmap.org/esmap/sites/esmap.org/files/TRACE_2_PAGER_2011.pdf

Week 13 (Dec. 6): Climate Change & Cities

Required Readings:

- The World Bank, Urban Risk Assessment – An Approach for Understanding Climate & Disaster Risk in Cities, 2012, Chapter 1 & 2: Pages 5-33.
<http://elibrary.worldbank.org/content/book/9780821389621>
- EU Commission, adapting infrastructure to climate change, Staff working document, SWD 137, Brussels, 2013, Pages 1-27.
http://ec.europa.eu/clima/policies/adaptation/what/docs/swd_2013_137_en.pdf

Recommended Readings:

- 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>
- The World Bank, “Cities and Climate Change: Responding to an Urban Agenda”, 2011.
<http://siteresources.worldbank.org/INTUWM/Resources/340232-1205330656272/CitiesandClimateChange.pdf>
- ICLEI, “Preparing for Climate Change – A Guidebook for Local, Regional and State Governments”, 2007
http://www.iclei.org/fileadmin/user_upload/documents/Global/Programs/CCP/Adaptation/ICLEI-Guidebook-Adaptation.pdf

Method of Grading and Evaluation

1. Attendance (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.

2. Reading Responses (10% of Final Grade)

Each week, students will post brief "Reading Responses" between 250-300 words to the Course works Discussion page by 11 a.m. one day before the class. These posts 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 will not be individual grades, but an overall grade will be assigned based on timely submission and completeness of the responses.

3. First Group Presentation: 5%

Each student will be randomly assigned to one of the study groups to review the progress report of a city's sustainability indicators. Working as a group, students will prepare a 5 to 7-minute PowerPoint presentation on the group assessment of the progress made in meeting the goals and targets of each area.

4. Midterm Examination: 25%

The midterm examination will be to prepare around 10-15 pages long (double-spaced, Times New Roman 12-point font) paper responding to the questions on an assigned case study. The midterm examination will be due at the start of class on the assigned date.

5. Group Project/Presentation: 20%

Each student will be randomly assigned to one of 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 in the case study.

6. 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 are due on the dates/times identified. One letter grade will be deducted from any assignment submitted after the due date/time. Assignments not received by the time of final grades will receive zero points for the assignment.

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."

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, these readings are required and should be read prior to the appropriate session. 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:

- Protney, 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 & Lannoa S, "Urban Retrofitting for Sustainability: Mapping the transition to 2050", Earthscan from Routledge, London, NY, 2014

Suggested Additional Readings:

- Jenks Mike, Jones Colin, "Dimensions of the Sustainable City", SpringerLink, 2010 (available as an e-book at the Columbia University Library).
- Stephen Coyle, "Sustainable and Resilient Communities", John Wiley & Sons Inc., 2011
- Heinberg Richard & Lerch Daniel, "The Post Carbon Reader", Watershed Media, 2010
- Hailstorm, D., Jeppsson U., and Kärrman, E. 2000. "Assessment Methodologies for Urban Infrastructure." *Environmental Impact Assessment Review* 20(3): 311-321.
- Cynthia Rosenzweig, William D. Solecki, Stephen A. Hammer & Shagun Mehrotra, "Climate Change and Cities", Cambridge University Press, 2011
- Jonathan Dickinson, "Inventory of New York City Greenhouse Gas Emissions", April, 2007 <http://books.google.com/books?hl=en&lr=&id=c2OLIYNxETMC&oi=fnd&pg=PA5&dq=Inventory+of+New+York+City+Greenhouse+gas+emmissions&ots=kD4HC3zsDb&sig=iWWvXtk8RX-ExXjpQfC9kyawhpQ#v=onepage&q&f=false>
- World Bank, "China Low Carbon Cities Book", Chapter 1.3: Low Carbon Cities in China: Characteristics, Roadmap and Indicators, Sept. 2011

- Ted Talk by Norman Foster on Green Agenda
http://www.ted.com/talks/norman_foster_s_green_agenda.html
- Ted Talk by William McDonough on Cradle to Cradle Design
http://www.ted.com/talks/william_mcdonough_on_cradle_to_cradle_design.html

Senseable

<http://senseable.mit.edu/livesingapore/visualizations.html>

Office real estate worldwide:

<http://www.cushmanwakefield.com/en/research-and-insight/>

CBD employment data:

<http://www.demographia.com/dbx-intlcbd.htm>

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.

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>