Barnard and Columbia Colleges Architecture Department

ENVIRONMENTAL VISUALIZATIONS OF NYC: Toxic Territories and Future Possibilities

Instructors: Kadambari Baxi and Karen Fairbanks; TA: Chester Dols

COURSE DESCRIPTION

This course is supported by a “Barnard Teaches: Real Place + Digital Access” Mellon Foundation grant. The partner institution is The Map Division of The New York Public Library.

The goal of this seminar + workshop course is to develop new visual representations of the impact of environmental issues on New York City. We will focus on two catastrophic events and sites: Greenpoint Oil Spill (1978), Newtown Creek; and Hurricane Sandy (2012), Lower Manhattan; and examine related toxic histories, environmental damage, impacted communities, clean-up and protection efforts and planning and design possibilities. Resourcing historical maps, on-site documentation and future design proposals, the class will explore environmental crises and their impact on the built environment and on the social, cultural and political life of the city. Based on this research, students will use digital mapping techniques, 360 video, and AR (augmented reality) technologies to create compelling experiential, spatial, analytical, critical, and reflective reconstructions of catastrophic events and remediation.

While in architectural design and discourse we learn extensively how to graphically represent space, form, structures, materials, landscapes, etc., visually communicating environmental elements and temporal phenomenon such as toxic spills, rainstorms or droughts, pollutants, extreme heat, and other such factors can be challenging. However, at the same time, there are wide-ranging examples of visual representation that can be drawn from the vast archives of architectural, art historical, geographic, and scientific documents. Both, learning visual techniques from archival materials and devising new forms of
visualizations, will be our goals. The course is structured to examine how architectural visualizations offer unique abilities to depict material realities, scientific data, urban infrastructure and socio-political forces. And how novel aesthetic forms engage debates on climate change and city futures.

We will begin the semester with research sessions at The Map Division of The New York Public Library to review a curated collection of archival maps, topographical and cartographic surveys, charts, atlases, and other visual objects. Students will work on an assignment where they analyze these objects to collect graphical techniques for representing environmental factors and data, such as: storms, droughts, flood plains and shorelines, air quality, water pollutants, toxic spills, extreme heat etc. We hope to collect wide-ranging examples of how dynamic and ephemeral elements are documented in maps and other visual surveys. These in-class sessions will lead to further individual research at the NYPL. This assignment will culminate in a collective visual dossier featuring examples of found visual techniques in the NYPL collection and students’ proposals for alternative visual methods to expand or reconfigure graphical or numerical data on selected maps.

The class will then focus on case-studies: the superfund sites at the Newtown Creek related to the Greenpoint Oil Spill and the Lower Manhattan and East River sites impacted by Hurricane Sandy. We will use maps, data, images and videos from selected resources to retroactively reconstruct environmental disasters and to speculatively reimagine future proposals that address our city and climate change. With research and spatial three-dimensional mapping, we will study the immediate physical impact of environmental issues as well as the short and long-term effects on the urban environment, policies, economics, social fabric etc. Digital reconstructions allow us to capture sites in New York as they exist today, overlay views from the past, combine geo-specific abstract data or documentary narratives, superimpose three-dimensional spatial modeling, and reimagine how these sites might transform in the future. In reconstructing these sites, we will experiment with AR and 360 Video to create multimedia panoramas, with an objective to rethink types of visualizations and exploit the distinct potential offered by these time-based and spatial media. Thus, the multimedia projects produced in the class will visually reconstruct not only what happened, but what might have led to what happened, what was the post-event response, and what is—and should be—the current thinking and strategy for dealing with similar issues today.

Course readings further examine environmental issues from four unique perspectives: mapping and urban/ecological histories; design research reports; global and planetary views; and graphic, audio-visual imaginaries. In class-reading presentations and discussions will supplement our research and projects. Additionally, dialogues with environmental experts from city, state and civic agencies, and architects and artists will bring notable work and innovative thinking on the overall class thematic.

**Prerequisites:** Students must have taken at least one architectural design studio or an equivalent multimedia production course.
ASSIGNMENTS

1. Project 1:
VISUAL DOSSIER:
Environmental Cartographies: Representing temporal and dynamic elements
Project Work Process
• Research at NYPL Map Division, select 4-6 maps.
• Document interesting examples of graphical techniques and data/content. Zoom-in and select details or portions of maps.
• Redesign 2 maps: Design alternate graphical techniques for selected data or portions of maps.
• Create page layouts for your individual entries. (A template will be given for the collective format).
Final project format: BOOK: individual entries, collective format.

2. Project 2:
MULTIMEDIA PANORAMAS:
Case Studies: Newtown Creek (Greenpoint Oil Spill) / Lower Manhattan (Hurricane Sandy)
• Historical and field research: Collect maps, images, drawings, text.
• Site documentation: Film sites using 360 videos.
• Combine 360 video footage with other types of information, data, 3D spatial revisualizations.
• Create a final project as a critical reflection on toxic histories and possible futures.
Final project: PANORAMAS: 360 Videos, augmented reality
Group projects: start as 2 student pairs, later pairs may combine to form larger groups

3. READING PRESENTATION:
See Course Bibliography, Page 4. Readings are grouped in four themes. Students will “deep-dive” into their assigned reading and work with their group members on an in-class presentation.
Reading presentation session format:
10 min: response to previous reading session + 40 min: present assigned readings + 30 min: lead a class discussion.
(Group 2 responds to Group 1; Group 3 responds to Group 2; Group 4 responds to Group 3; Group 1 responds to Group 4).

GRADING
30% Project 1: Visual Dossier
45% Project 2: Multimedia Panoramas
15% Reading Presentation
10% Participation

STUDENT LEARNING OUTCOMES
1. Visually communicate architectural concepts and research using discipline-specific techniques
2. Work independently and in collaborative groups on design research projects
3. Verbally and visually communicate architectural concepts in multiple media formats
4. Incorporate historical maps and data from local archives into design research projects on New York City sites.
5. Utilize, at an advanced level, digital visualization technology in the design process

FACULTY INFO
Kadambari Baxi: kbx@barnard.edu; Office hours: Mondays & Wednesdays: 2:00-3:00PM; Rm. 500Q The Diana Center
Karen Fairbanks: kfairbanks@barnard.edu; Office hours: Mondays 2-3:30PM; Wednesdays 2-3; Rm. 500N The Diana Center
Chester Dols (Teaching Assistant): chester.dols@gmail.com
COURSE BIBLIOGRAPHY

MAPPING AND URBAN/ECOLOGICAL HISTORIES:  

Reading Presentation: Group 1

Avery Reserves: https://clio.columbia.edu/catalog/9705598

Online: https://ebookcentral.proquest.com/lib/columbia/detail.action?docID=3339579&ppg=8 
Butler: https://clio.columbia.edu/catalog/10213852

Online: https://ebookcentral.proquest.com/lib/columbia/detail.action?docID=3387475

Avery & Butler Reserves: https://clio.columbia.edu/catalog/7142707

DESIGN RESEARCH REPORTS:  

Reading Presentation: Group 2

Online: http://structuresofcoastalresilience.org/

Online: http://www.rebuildbydesign.org/


Avery: https://clio.columbia.edu/catalog/9135144

GLOBAL AND PLANETARY VIEWS:  

Reading Presentation: Group 3

Butler: https://clio.columbia.edu/catalog/12136280


Avery Reserves: https://clio.columbia.edu/catalog/11017844

Milstein: https://clio.columbia.edu/catalog/7725983

GRAPHIC, AUDIO-VISUAL IMAGINARIES:  

Reading Presentation: Group 4

Milstein: https://clio.columbia.edu/catalog/12476469

Avery Reserves: https://clio.columbia.edu/catalog/12408640

Butler: https://clio.columbia.edu/catalog/10795479

Website: http://where-you-are.com/
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<th>Week</th>
<th>Wednesdays</th>
<th>Fridays</th>
<th>Workshops</th>
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<td>* Mandatory Sessions (Timings TBC)</td>
<td>Will be scheduled on Fridays or Weekends (TBC)</td>
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<td>Week 1</td>
<td>Jan 17&lt;br&gt;Introduction&lt;br&gt;Film Screening (excerpts):&lt;br&gt; <em>This Changes Everything</em>, Naomi Klien&lt;br&gt; <em>Air Drifts</em>, Collaborative project by Kadambari Baxi</td>
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<td>Week 2</td>
<td>Jan 24&lt;br&gt;NYPL Session 1 at The Map Division:&lt;br&gt;Review curated collection with Kate Cordes (Assistant Director) and Ian Fowler (Geospatial Librarian and Map Curator)</td>
<td>Workshop:&lt;br&gt;Adobe CS: Graphics &amp; Bookmaking</td>
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<td>Week 3</td>
<td>Jan 31&lt;br&gt;• Reading Presentation: Group 1 (80 min)&lt;br&gt; <em>MAPPING AND URBAN/ECOLOGICAL HISTORIES</em>&lt;br&gt; • Share NYPL findings for Visual Dossier (30 min)</td>
<td>* Feb 02&lt;br&gt;NYPL Session 2: Individual research:&lt;br&gt;Visual Dossier</td>
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<td>Week 4</td>
<td>Feb 07&lt;br&gt;Discussion on Superfund Sites:&lt;br&gt;Dialogue with Patrick Foster&lt;br&gt;New York State Dept. of Environmental Conservation</td>
<td>Workshop:&lt;br&gt;Visual Dossier</td>
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<td>Week 5</td>
<td>Feb 14&lt;br&gt;• Reading Presentations: Group 2 (80 min)&lt;br&gt; <em>DESIGN RESEARCH REPORTS</em>&lt;br&gt; • Share NYPL findings Visual Dossier (30 min)</td>
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<td>Week 6</td>
<td>Feb 21&lt;br&gt;PROJECT 1: VISUAL DOSSIER&lt;br&gt;Final Presentation</td>
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<td>Week 7</td>
<td>Feb 28&lt;br&gt;Discussion on Waterfronts:&lt;br&gt;Dialogue with Mary Kimball, Senior Resiliency Manager, Waterfront and Open Space Division, &lt;br&gt;NYC Dept. of City Planning</td>
<td>Workshop:&lt;br&gt;360 Video</td>
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<td>Week 8</td>
<td>Mar 07&lt;br&gt; <em>GLOBAL AND PLANETARY VIEWS</em>&lt;br&gt; • Reading Presentation: Group 3 (80 min)&lt;br&gt; • Review: Multimedia Panoramas (30 min)</td>
<td>* Mar 09&lt;br&gt;Site Visit: Newtown Creek, Meet with Newtown creek Alliance</td>
<td>Workshop:&lt;br&gt;360 Video &amp; Augmented Reality</td>
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<td>Week 9</td>
<td>Mar 14 SPRING BREAK</td>
<td>Mar 16 SPRING BREAK</td>
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<td>GRAPHIC, AUDIO-VISUAL IMAGINARIES</td>
<td>Site Visit: Lower Manhattan Meet with BIG</td>
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<td>• Review: Multimedia Panoramas (30 min)</td>
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<td>Discussion on Architectural Visualization</td>
<td>NYPL Session 3 by topic</td>
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<td>Dialogue with DESIGN EARTH, El Hadi Jazairy and Rania Ghosn, Architects (TBC)</td>
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<td>Week 12</td>
<td>Apr 04</td>
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<td>Workshop: 3D Spatial Modelling</td>
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<td>Discussion on Architectural Visualization: Project CLIMAVORE, on Food consumption, production &amp; climatic events, Daniel Fernández Pascual &amp; Alon Schwabe, Architects (TBC)</td>
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<td>Week 13</td>
<td>Apr 11</td>
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<td>Workshop: Individual project work &amp; Site documentation</td>
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<td>Week 14</td>
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<td>Workshop: Individual project work for Final project</td>
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<td>PROJECT 2: MULTIMEDIA PANORAMAS</td>
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**Recommended Events:**

**Wed, April 18, 2018**
6:30 PM – 8:00 PM
**Invisible Water, Invisible Watersheds: The Gowanus Canal as a Case Study:** Kate Orff and Eric Sanderson
Brooklyn Historical Society, 128 Pierrepont Street, Brooklyn, NY 11201
EXPANDED COURSE RESOURCES

Greenpoint Oil Spill:
- Newtown Creek Alliance: http://www.newtowncreekalliance.org/greenpoint-oil-spill/
- Riverkeeper: http://www.riverkeeper.org/campaigns/stop-polluters/newtown/
- Toxicity Map: http://clhenrick.github.io/greenpoint_williamsburg_toxicity_map/
- NYC-EDC: Gowanus Canal & Newtown Creek Study: https://www.nycedc.com/project/gowanus-canal-newtown-creek-study

Hurricane Sandy:
- Post Sandy Initiatives: http://postsandyinitiative.org/
- Rebuild by Design: Hurricane Sandy Design Competition http://www.rebuildbydesign.org/our-work/sandy-projects

General and City/State Agencies:
- New York City Planning: http://www1.nyc.gov/site/planning/plans/city-wide.page
- EPA: Climate Change: https://www.epa.gov/climatechange

Mapping:
- Book: Deep Mapping the Media City, Shannon Mattern, The University of Minnesota Press, 2015
- Website: Welikia: Beyond Manhatta, Eric Sanderson: https://welikia.org/explore/mannahatta-map/
- Website: The Decolonial Atlas: https://decolonialatlas.wordpress.com/

Multimedia/Websites:
Multimedia Project: Air Drifts, Kadambari Baxi, Janette Kim, Meg McLagan, David Schiminovich, Mark Wasiuta, 2016. (email Prof. Baxi for password to view video online).

Other Institutions and Organizations:
Columbia Center for Spatial Research: http://c4sr.columbia.edu/
COURSE POLICIES

Academic Accommodations Statement:
If you are a student with a documented disability and require academic accommodations, you must visit the Office of Disability Services (ODS) for assistance. Students requesting eligible accommodations in their courses will need to first meet with an ODS staff member for an intake meeting. Once registered, students are required to visit ODS each semester to set up new accommodations and learn how to notify faculty. Accommodations are not retroactive, so it is best to register with ODS early each semester to access your accommodations. If you are registered with ODS, please see me to schedule a meeting outside of class in which you can bring me your faculty notification letter and we can discuss your accommodations for this course. Students are not eligible to use their accommodations in this course until they have met with me. Barnard ODS is located in Milbank Hall, Room 008. Columbia ODS is located in Wien Hall, Suite 108A.

Wellness Statement:
It is important for undergraduates to recognize and identify the different pressures, burdens, and stressors you may be facing, whether personal, emotional, physical, financial, mental, or academic. We as a community urge you to make yourself--your own health, sanity, and wellness--your priority throughout this term and your career here. Sleep, exercise, and eating well can all be a part of a healthy regimen to cope with stress. Resources exist to support you in several sectors of your life, and we encourage you to make use of them. For more information about available resources:

- Barnard Students: http://barnard.edu/wellwoman
- Columbia Students: http://www.college.columbia.edu/resources Click on Health-Wellness
- Columbia GS Students: https://gs.columbia.edu/health-and-wellness
- Columbia SEAS Students: http://gradengineering.columbia.edu/campus-resources

Honor Code:
The Barnard Honor Code applies to all students in this class regardless of academic affiliation. Approved by the student body in 1912 and updated in 2016, the Code states:

_We, the students of Barnard College, resolve to uphold the honor of the College by engaging with integrity in all of our academic pursuits. We affirm that academic integrity is the honorable creation and presentation of our own work. We acknowledge that it is our responsibility to seek clarification of proper forms of collaboration and use of academic resources in all assignments or exams. We consider academic integrity to include the proper use and care for all print, electronic, or other academic resources. We will respect the rights of others to engage in pursuit of learning in order to uphold our commitment to honor. We pledge to do all that is in our power to create a spirit of honesty and honor for its own sake._

The Columbia College Honor Code and the Columbia College Faculty Statement on Academic Integrity can be viewed here:
https://www.college.columbia.edu/honorcode
https://www.college.columbia.edu/faculty/resourcesforinstructors/academicintegrity/statement

ATTENDANCE POLICY:
Attendance is mandatory at all scheduled classes on Wednesdays. Any student arriving after 4:20 PM will be considered late and will be marked absent. Field trips scheduled outside Wednesday class times are also mandatory, as noted in the schedule. Absences due to acute illness, a personal crisis (e.g. a death in the family), religious observance, or for other reasons of comparable gravity may be excused. In all such cases, students must promptly email their instructor to communicate the reason for their absence and to arrange an opportunity to review any important information they may have missed. Students who know they will miss a scheduled class due to religious holidays should email their instructor during the first week of classes with a list of dates for their anticipated absences. Unexcused absences, late arrivals, or early departures from class will reduce your course grade. Three non-consecutive absences will result in a grade reduction by one-third (1/3) of one letter grade (e.g., A- to B+). Three consecutive absences or four non-consecutive absences will adversely affect your final grade.