An historic milestone was achieved in 2007 when the global population living in cities and towns reached the 50 per cent mark, making urban centres the dominant habitat for humankind. The rapidly increasing dominance of cities places the process of urbanization among the most significant global social trends of the 21st century. <From: Population Dynamics in the Post-2015 Development, Report of the Global Thematic Consultation on Population Dynamics, UNFPA, UNDESA, UN-HABITAT, IOM 2013>

What are the pressing concerns cities need to address as they meet the demands of increasing population growth and the effects of global climate change? How are cities managing their natural resources, developing infrastructure and designing networks to meet these demands? How are natural resources and urban infrastructure linked in planning for urban development and demographic shifts, and are the resources and infrastructure equitably distributed? What role will cities play in steering the direction of the global eco-system?

Oslo and Stockholm, two cities taking part in international dialog around equitable and sustainable urban futures, will be our lens for exploring these topics and will be the site of our projects that engage the public in these issues. Our studio will consider the pressures on city futures that demand creative responses to limited resources, increased density, and sustainable growth in an increasingly urban world. How are New York City, Oslo, and Stockholm addressing growth in their current plans? What are the relationships between the local resources of different urban environments and global flows of materials? This semester, your challenge is to envision new urban futures through design.
Stockholm and Oslo are both the sites of international dialog and leadership around climate change. From the first UN conference on the climate in Sweden in 1972 to the recent Oslo Principles on global climate obligations presented in March 2015 that were the precursor to the Paris UN Climate Change Conference in November 2015, these cities (and countries) have not only hosted dialogs, but have been leaders in implementing aggressive goals toward sustainable approaches to urbanization. For example:

- Oslo is planning to be car free by 2019 and is investing heavily in bicycle lanes and public transit
- Norway intends to cut the country’s greenhouse gas emissions to zero by 2030
- Stockholm has experimented with large-scale sustainable urban districts in the city
- Sweden has pledged to become the world’s first fossil fuel-free nation by the end of the century

Oslo and Stockholm, like New York City, are coastal cities with unique infrastructure needs and concerns. While their urban densities and populations differ, what are local lessons for urban growth and waterfront infrastructure development that can be applicable to other global cities? All three of these cities are part of the C40 Cities, already participating in a network of cities working to facilitate dialogue and solutions around climate change.

Global Concerns

Urban ecologists see cities as complex, hybrid ecosystems of social and ecological dynamics. Quoting Marina Alberti, “cities are the most visible signature of the Anthropocene” (the current era in which human activity is acknowledged as having significant, if not dominant, impact on the planetary systems). Alberti suggests that these complex and hybrid ecosystems have the potential for resilience – the ability to adapt – due to their diversity in organisms, in social structures, and in activities within them. Can we can find opportunities for design innovation and the engagement of the public around these issues?

It’s abundantly clear that the local decisions regarding resource management have global implications - these may only be noticed or acknowledged after they are physically displaced through environmental and/or human patterns and systems of movement. Sweden and Norway may be leaders in addressing climate change, but it’s also true that the effects of climate change have already displaced populations and created mass migrations. This international crisis, with large groups in transit, is one of the topics considered in the Oslo Triennale.
Cities, housing the majority of the global population, are valued for their density and positive impact on sustainable growth, yet cities also require an extensive infrastructure beyond their borders for food and other necessary resources. The infrastructure that moves people and products around cities also connects to larger infrastructure systems throughout the region. Are we accounting for these spaces beyond our cities when we talk about an urbanized world? It’s been noted by urban theorists such as Neil Brenner, Parag Khanna, and others that connectivity is creating a new geography, with cities at the heart of global shifts in power. What’s connected, and what isn’t connected, by the infrastructure of this network?

New digital technologies are transforming our cities. Sharing economies have evolved through trust-based digital networks, altering housing options and urban mobility. Sensing technologies are allowing us to monitor and get live updates of both infrastructure systems and natural resources to inform our navigation through and experiences of our cities. Driverless cars will impact patterns of movement and the spatial needs for mobile systems – perhaps realigning space to pedestrians and bicycles in dense urban cores.

These issues are just a few that have global impacts – they are some of the topics our studio can explore this semester. While urbanization has contributed much to the problems of sustainability, this studio looks to the opportunities that can arise from the density of industry and creativity that is located in cities. It expects you to imagine and design for new forms of public engagement with the issues around resources that are necessary for urban development and growth.

Urban areas are hot spots that drive environmental change at multiple scales. Material demands of production and human consumption alter land use and cover, biodiversity, and hydrosystems locally to regionally, and urban waste discharge affects local to global biogeochemical cycles and climate. Cities themselves present both the problems and solutions to sustainability challenges of an increasingly urbanized world. <From: Global Change and the Ecology of Cities, by Nancy B. Grimm, et al. Science 319, 756 (2008)>
Oslo is currently hosting the 2016 Oslo Architecture Triennale, titled After Belonging, which investigates how we live today within the global circulation of people and objects and information. Architects and designers are exploring how our built environment shapes this circulation and informs how we “belong” anywhere. Projects are looking at borders and edges, the circulation of people and goods, and intervening in the configuration of urban residences. Current and former B+C|A faculty and GSAPP faculty are involved in this Triennale, and we’ll be meeting with them throughout the semester and seeing their work in the exhibitions while in Oslo.

Research

The studio will research the natural resources, and the built infrastructure that distributes and provides access to those resources, that are significant to the planning and growth of New York City, Oslo, and/or Stockholm. Students will connect their research on resources and infrastructure with pressing social issues impacting urban life as they expand on their work over the semester. This advanced studio is an opportunity for students to develop their own research interests in support of the overall themes of the studio.

Architectural Design III provides an opportunity to look at the role of architecture and design in a parallel global context. After your previous three years of study in NYC, we will experience how the architecture and urban development of two other cities has evolved around their natural, built, and cultural resources. Designing projects for these cities is an opportunity to research and innovate in a new context, to consider relationships between local and global conditions, and to look into some of the urgent challenges facing cities in general.

Research prior to travel:
Background research on New York City, Oslo, and Stockholm
Intense study, documentation, and representation of a specific resource or infrastructure (in pairs)
Development of a small scale interactive experience/environment for public engagement (in pairs or combined groups)
Talks with faculty involved in the Oslo Triennale and architects working in Oslo

Research in Oslo and Stockholm (approximately November 5 - November 13):
Research of selected sites
Presentation with local architects
Guided tour of Oslo Design Triennale
Tours of architecture and planning offices, city design agencies and officials, urban infrastructure, buildings, architecture schools, etc.

Research after travel:
Final design projects for a site in Oslo (preference is for collaborative teams of any size, may be reorganized from preliminary teams, may be individual projects)

Continued research in the Spring (optional):
Interested students can propose independent research projects to edit and document the coursework as a publication.

This is an advanced elective design studio offered to seniors who have completed Architectural Design I, some of you may have completed Design II. It is expected that students interested in taking this course will develop their own research agenda based on the overall course content. This travel studio is the seventh in which students in this course have traveled internationally to cities where they can engage first hand in contemporary global issues.
During your studies in New York City for the past three years, you have become familiar with the urban infrastructure and have proposed designs for local sites. Architectural Design III is an opportunity to look at the role of architecture and design in a parallel global context. We will research how Nordic cities, Oslo and Stockholm, have utilized their natural resources and developed urban infrastructure. In Project 1, you will research the resources, and the infrastructure that distributes those resources, that have been critical to the development of New York City and Oslo, then, in Project 2, design a public place of action, education, provocation, and engagement with contemporary issues around these resources. After our trip to Norway and Sweden, you will further develop this into an expanded program and project.
Project 1.1  NYC and its Resources
Assigned: Wednesday, September 7
Due: Wednesday, September 14

With a partner, select a resource important to any aspect of the infrastructure and development of NYC and study its relationship to local and global networks. Ideally, this resource will have a parallel with a resource important to the development of Oslo. Utilize existing documentation as a starting point for developing your own diagrams and information about your resource. You will need to work quickly and decisively to uncover and explore your resource. The goals for the documentation is to understand the resource and infrastructure at multiple scales – zoomed out, at the scale of the city, and zoomed in, at the scale of the body. The general history and timeline is for a broad overview of its role in the development of the city.

Documentation:
1) Time line of the general history of the resource and the development of its infrastructure in New York City; especially in relationship to urban growth and political, social, and/or economic forces that affect its use.
2) Case study/examples of at least two unique interfaces between people and the resource in NYC; documentation of these interfaces through drawings and/or photos
3) Map(s) of your resource in New York City; consider the complete cycle from source, to distribution, to the disposal and/or reuse of the by-products

Presentation Requirements:
11”x17” sheets, landscape format
With your partner, simultaneously study a resource that is important to any aspect of the infrastructure of Oslo – this should be the same resource or one related to the resource you are looking at for NYC. Document the presence of that resource in Oslo through maps, diagrams, images, and other visual methods. Consider its relationship to local growth and global networks. Note: We will also visit Stockholm, so there may be a reason that you want to focus on both Oslo and Stockholm, but Project 2, Part 1 (the project before we travel) will be sited in Oslo, and the assumption is that your final project (Project 2, Part 2) will be designed for Oslo as well.

Presentation Requirements:
11”x17” sheets, landscape format

Ongoing research
Throughout the first weeks of this studio, everyone will work together to develop a digital reference and manual of materials on Oslo (and Stockholm). Organize this research by resource or other topics. These materials can be: maps, articles, movies, books, etc.

Local>Global>Local Final Presentation: Wednesday, September 28
11”x17” sheets – landscape format

Note: Quantity and organization of pages to be discussed (we will be bringing our research materials and projects to Oslo for a review there, so we need to plan accordingly)
Barnard and Columbia Colleges Architecture Department

Fall 2016 ARCH UN3211 Architectural Design III: Resources for an Urban World
Oslo, Norway and Stockholm, Sweden

Instructor: Karen Fairbanks; kfairbanks@barnard.edu; 500N The Diana; office hours M 2:00-3:30, W 3-4:30
Teaching Assistant: Jil Bentz; jb3983@columbia.edu
Special Research Assistant: Britt Johnson, BC’11, GSAPP’16

Resources (in progress)

Books and Articles

People, Firms, Schools, Institutions
Azita Raji, American Ambassador to Sweden, https://se.usembassy.gov/our-relationship/ambassador/, https://twitter.com/usambraji,
Space Group, Oslo, http://spacegroup.no/
Transborder Studio, Oslo, http://transborderstudio.com/
Juan Herreros – Chair Professor at ETSAM in Madrid and Professor at GSAPP, his firm in Madrid is designing Munch Museum in Olso, http://estudioherreross.com/en/project/museo-munch-2/, http://www.arpajournal.net/efficiency-as-design/
Leah Meisterlin – Assistant Professor of Urban Planning, GSAPP, and team member of Cher, selected “Intervention Strategy” for Oslo Architecture Triennale, http://oslotriennale.no/en/home-sharing-copenhagen
AHO - Oslo School of Architecture and Design, https://aho.no/en

Links
Connectivity Atlas, University of Wisconsin and Dr. Parag Khanna, https://atlas.developmentseed.org/
C40 Cities, http://www.c40.org/
UN Habitat, http://unhabitat.org/about-us/
Spatial Information Design Lab, GSAPP http://www.spatialinformationdesignlab.org/projects
Center for an Urban Future, https://nycfuture.org/
MoMA PS1, Young Architects Program, http://momaps1.org/yap/
Student Learning Objectives:

Students in Architectural Design III should be able, at an advanced level, to:

1. Visually communicate architectural concepts and design intent using discipline-specific techniques including:
   - orthographic projections (plans, elevations, sections),
   - paraline projections (axonometrics, isometrics),
   - physical models using various techniques and materials,
   - multiple media and/or combined representational strategies
2. Verbally communicate architectural research methods and spatial concepts
3. Demonstrate an understanding of precedent and site analysis
4. Demonstrate an understanding of design method as a step-by-step, iterative and incremental process of research, synthesis and feedback
5. Demonstrate an understanding of design thinking as responsive to and shaper of social and cultural context
6. Demonstrate the ability to work independently and collaboratively
7. Demonstrate an understanding of the historical and theoretical contexts for architectural representational conventions
8. Utilize both analog and digital techniques in the design process
9. Demonstrate an understanding of program, use and activity
10. Demonstrate an understanding of material and fabrication
11. Utilize a range of analog and digital techniques in the design process
12. Develop a research project with independently articulated design objectives.

Format: The course is based on the studio method, in which students are expected to work independently to develop their thinking and making, under specific challenges, criticisms and provocations of a critic. Class time will be divided into individual dialogues or critiques (desk crits) between student and critic, open discussions, student presentations, and/or informal lectures. Presentations of work will be public – either informal (pin-up) or formal (review with guest critics). In both, students are required to intelligently (visually and verbally) present their work in order to instigate a discussion about the ideas in their work.

Prerequisites: This is an advanced elective course for students in their senior year majoring in Architecture. Students must have completed Architectural Design I. Admission to the course is selective and based on portfolio submitted to the Department.

Requirements: Attendance is mandatory at all scheduled classes. Students are encouraged to work in studio, and to review one another’s work together. Studio is held Monday and Wednesday beginning promptly at 9:00am. Any student arriving after 9:20am will be considered ‘late’. Arrivals after 10am will be considered ‘absent from class’. All absences must be reported to your critic. The only excused absences are those for health or crisis. Unexcused absences will reduce your course grade, as will late arrivals or early departures from class. Three consecutive absences or four non-consecutive absences will mean that you have dropped the course, whether or not you have filed the appropriate ‘drop’ form. Three non-consecutive absences from class will result in a grade reduction by one-half (1/2) of one letter grade. You may not leave class early or after a desk crit unless you have received specific permission from your critic.
for the purpose of research or site visit or class related work. Please use the hours you spend in class productively; you are not simply waiting for you critic to see you.

Travel: This studio has a special foreign travel component. Students will travel to Norway and Sweden in November, and are advised to consult all their instructors in advance to clear any classes they will miss. Students are responsible to make sure their passports are current, and, if they need visas for Europe, to take care of this independently. This travel coincides with the US Elections and the University’s Election Day Holiday. If you are able to vote in US elections, please exercise that right and request an absentee ballot.

Grading: Each project will be graded with a letter grade and a verbal or written evaluation. Your work will be evaluated by the following criteria:
(1) idea/concept;
(2) conceptual development and design process;
(3) final execution/presentation.
Project 1 will count for 25% of your final grade.
Project 2 will count for 75% of your final grade.

Room Rules and Security:
1. You must provide your own lock for the locker.
2. Room 404 should remain locked at all times. This is for you and your belongings’ safety (things have been stolen before). Security will let you in the room 24hours a day as needed.
3. Use the spray hood in the model building room for spray paint or fixative.
4. No stools should leave the room.
5. Students with disabilities and who may need disability-related classroom accommodations are encouraged to make an appointment to see their critic as soon as possible.
6. Headphones must be used when listening to music.
7. You are responsible for keeping your desk and your storage area clean and organized. If you are using an empty desk adjacent to your assigned seat, it is also your responsibility to keep this area free of debris.
8. 100% of the work surface of your desk space should be covered with 3-ply chipboard or vinyl board cover.