COLUMBIA
GSAPP

AT5 Integrated Design – Urban Scale

Spring 2018

Syllabus

1. Course Description

Integration is about problem solving collaboratively across disciplines. True collaboration requires a base level of knowledge of disciplines other than one's own in order to ask the right questions, to be open-minded to the answers, and to have the design dexterity to translate answers into built form. Architects, engineers, planners, developers, communities, and government agencies attempt to collaborate every day. Some find ingenious ways to shape cities through architectural insertions. Others just seem to fight against each other despite seemingly having the same underlying goals on what makes better cities.

Urban-scale systems can, and should, shape building form and function as much as building-scale systems. Buildings are influenced by, the flow of people, goods, water, energy, money, culture, and ideas all around them. These influences are becoming more pronounced for today's architect as architecture drives increasingly drives solutions to urban scale issues such as climate change, social inequality, public health and wellness.

This class is the second half of your experience developing proficiency with integrated design at Columbia. This time you will be dealing with larger scale systems beyond the building boundary that you do not control as directly as building scale systems. Urban-scale systems extend through the regional watershed, the local sewer shed, the city's electrical grid, local and regional transportation networks, food systems, micro and macro-economic systems, and waste management networks. Buildings may plug into these systems, or these systems may plug into a building. Either way a building doesn't work without effectively connecting to and supporting these and many other urban scale systems. Integration at building scale is formalized and structured. Integration at urban scale is less defined.

Newtown Creek Wastewater Treatment Plant, *Ennead*

A4115 Integrated Design: Urban Scale will follow a similar approach to A4114, but will begin by zooming out to study technical systems that operate outside the walls and the site of a building. Beginning at the city and regional scale we will consider the processes building users will undertake to move around the city and into the site. We will ask: can the design of a building influence how people move around a city? We will understand how the flows of water along the ground,

from the sky, and even underground may impact building design. Where does electricity, natural gas, solar insolation, wind energy, and gasoline come from and what impacts do the consumption of these energies have on the world at-large. What happens to trash after it leaves the loading dock? What is the path your food follows before it ends up on your plate?

Rebuild By Design, The BIG U, *B.I.G.*

By progressively studying urban systems at an increasingly granular scale starting with the entire city, moving down to the neighborhood, site, and immediate building perimeter, a full understanding of the interplay between a building and multiple urban system will be developed. The first few weeks of the semester will constitute a rigorous urban systems analysis stage that will be used to form the basis of conceptual building design in the second half of the class. Based on the analysis and understanding of various urban systems each team will ask and answer: What should this building be? Who should it serve? How will they get there? What is the development program? How can this building make a difference in the community? How can this building improve water and air quality? Where do water, power, gas, food, and other utilities come from? Where does stormwater, sanitary water, trash, and other waste products go when they leave the site?

The course will start with key ideas about integration at the city scale. What drives the first decisions to be made on a project? Where do the first technical constraints appear in massing, egress, structure, mechanical systems? We will explore through early lectures and assignments some fundamental ways of looking at the basic drivers for decision making and use of tools and support information to assist you in developing your future projects, including the project for this class. Through the process of understanding the macro issues surrounding the planning of a building, the functions of the building design and site planning will be better served. What techniques lead to rapid iteration around design ideas and strategies?

The class will be organized around a semester long project to develop an urban campus. As the planners of the campus, and the architects of the first buildings, you will have complete control over development of the site plan, program and systems. A team of professionals will assist you in development of the stages of the project through a series of weekly desk crits. The final deliverable for the class is a Concept Plan Book that tells the story of the building and the framework of urban systems that were used to generate and support the design.

2. Course Hours

Content	Date	Location
Lectures	Tuesdays 2-3pm	Wood Auditorium
Small Group Deskcrits	Tuesdays 3-6pm	Rooms 504, 505, 408 & 409
Reviews	Site Planning – 2/20 2-6pm SD Building – 4/17 2-6pm Plan/Building Books Due Date TBD (After Final Reviews)	Rooms 504, 505, 408 & 409
Site Visit(s)	Jan 26 Governors Island 9-11am	Governors Island (Ferry at 9am. Board Ferry at 8:45)
TA Office Hours	Monday 6-8pm	5th Floor Studio South

3. Instructors & Critics

Professor: Craig Schwitter, craig.schwitter@burohappold.com

Teaching Assistant: Eddie Palka, ejp2142@columbia.edu
Tonia Chi, tsc2135@columbia.edu

Lead Instructors: Craig Schwitter, Buro Happold craig.schwitter@burohappold.com
Scott Demel, Marvel Architects sdemel@marvelarchitects.com
Philip Palmgren, Replace Urban Studio philip@replaceurbanstudio.com
Earl Jackson, Earl Jackson Workshop earl@earljacksonworkshop.com

Technical Critics: ENVIRONMENTS
April Schneider, Level (Water Focus) april.schneider@levelinfrastructure.com
Erik Olsen, Transsolar (Energy Focus) Olsen@Transsolar.com
Adam Friedberg, Buro Happold (Water Focus) Adam.Friedberg@BuroHappold.com
Nancy Choi, Arup (Energy Focus) nancy.choi@arup.com

PLANNING:
Michael King, Buro Happold (Mobility Focus) michael.king@burohappold.com
Emily Bauer, Bjarke Ingalls Group (Planning Focus) ebau@big.dk
Matthew Carmody, AKRF (Mobility Focus) mcarmody@akrf.com
James Lima, JL Development (Planning Focus) james@jameslimadevelopment.com

Review Critics: Michelle Delk, Snohetta michelle@snohetta.com
Dana Getman, SHOP dlg@shoparc.com
Neil Kittredge, Beyer Blinder Belle nkittredge@bbbarch.com
Sean Gallagher, Diller, Scofidio, Renfro sgallagher@dsrny.com
NOTE: Other review critics may be invited to the mid term and final reviews.

Weekly desk crit review sessions will be organized with representation from 1 continuous lead critic and teams of Environmental and Planning technical critics. The technical critics will rotate every other week, so that emphasis one week will be on environmental aspects and the following week on mobility/planning aspects. Each week students will be required to develop their projects for presentation to the critic team and be ready to demonstrate work progress and be armed with questions for the visiting professionals (NOTE: Team Schedules will circulated for individual team desk crit sessions by TA's):

GROUP 1	Room #TBD	Lead	Craig Schwitter	
		ENV	WK: 2,4,8,11	Water/Energy
		PLA	WK: 3,5,10,12	Mobility/Planning

GROUP 2	Room #TBD	Lead	Scott Demel	
		ENV	WK: 2,4,8,11	Water/Energy
		PLA	WK: 3,5,10,12	Mobility/Planning

GROUP 3	Room #TBD	Lead	Philip Palmgren	
		ENV	WK: 3,5,10,12	Water/Energy
		PLA	WK: 2,4,8,11	Mobility/Planning

GROUP 4	Room #TBD	Lead	Earl Jackson	
		ENV	WK: 3,5,10,12	Water/Energy
		PLA	WK: 2,4,8,11	Mobility/Planning

4. Course Content

a. Project Workshop **Tue 3-6pm**

The focus of the class is a semester long workshop project that will require development and understanding around how urban systems interact and ultimately shape architecture. The project brief will be a research campus located at a site in New York City, which is detailed in a separate document to this syllabus.

Students will work in 4 or 5 person teams for the semester. Teams will be developed in the first week of class and before the introduction of the lead and technical critics in Week 2. Teams should consist of no more than 2 teammates from previous AT4 teams. Teams should be chosen for balance with an understanding of how teammates can contribute to the whole of the team. Teams will have to develop a name and provide bios for the lead instructors in Week 2.

Each team will develop a detailed site and building strategy approach as well as corresponding series of drawings for all systems. The first part of the semester will be dedicated to developing a broad site strategy and program with input from lead instructors and key specialist critics. The second part of the semester will focus on a building strategy, either in part or whole, that will explore the relationship between the broader urban systems shaping the project and the integration of the architectural scale product.

Weekly desk crit review sessions will be organized with representation from 1 continuous lead critic and teams of Environmental and Planning technical critics. The technical critics will rotate every other week, so that emphasis one week will be on environmental aspects and the following week on mobility/planning aspects. Each week students will be required to develop their projects for presentation to the critic team and be ready to demonstrate work progress and be armed with questions for the visiting professionals

The project is intended to be an iterative design process, refined through drawings and analysis and critic input. The final project deliverable will be a project booklet – at 11x17 format. This will document your semesters work. Examples of previous year work will be available for review on Canvas.

b. Lectures **Tue 2-3pm**

Weekly lectures will introduce key concepts and principles for use in the weekly workshops desk crits. The lectures will introduce concepts for urban scale systems including energy, water and mobility elements of planning and design appropriate to architectural strategy development. Case studies will introduce broader integration examples in built form. Specialist guest lecturers will provide insight into additional key topics that are driving architectural strategy at urban scale, such as sitewide digital connectivity and economic modeling.

c. Site Visits **Fri 9-11am**

Exposure to large scale sites influenced by broader urban systems is an important part of developing your skills as an architect. This class requires a site visits for projects currently under the planning and construction stages in the New York City region. These site visits will explore current class discussion areas and be an opportunity to share best (and not so best) planning and design practices in the field today.

Site visits will be hosted outside of class hours. Students will need to make accommodations to ensure they can attend the site visits. Attendance is mandatory and site visit reports will be required as part of the studio work. NOTE: STUDENTS MUST WEAR APPROPRIATE CLOTHING TO SITE VISITS. Thick soled shoes, long sleeved shirts, no shorts or skirts. Without appropriate attire, you will not be allowed into site or site offices.

5. Grading

In this course, every effort is made to grade impartially and to the best of our knowledge about performance. Since project development is a team effort, grades are assigned to teams. On rare occasions, individual grades may be awarded for exceptional or deficient performance within a group. Grading is based on the following criteria:

Criteria	Description	%
Technical Concept and Systems Development	– Water Systems – Energy Systems – Mobility Systems – Other urban scale and sitewide systems	20%
Integration of Systems		20%
Deliverables	– Quality of drawing deliverables – Communication of concept and design in drawing form – Level of assembly drawn – Breadth of drawings achieved in drawing set – Presentations at reviews and desk crits (equal presentation by all group required)	40%
Process & Professionalism	– Team collaboration – Attendance – Punctuality – Preparedness for weekly crits – Assignment completion – Sketches, project organization – Responsiveness to critic feedback	20%

Final grades are assessed based on the following %:

High Pass	>90%
Pass	60 – 90%
Low Pass	50 – 60%
Fail	<50%

6. Policies

- If you require an accommodation for a disability, please let me know as soon as possible. Some aspects of the course may be modified to facilitate your participation and progress.
- All students are held to the academic policies of the University.
- Plagiarism is knowingly presenting another person's ideas, findings, images or written work as one's own by copying or reproducing without acknowledgment of the sources. It is intellectual theft that violates basic academic standards. In order to uphold an equal evaluation for all work submitted cases of plagiarism will be reviewed by the individual faculty member and/or the Dean. Punitive measures will range from failure of an assignment to expulsion from the University.

- Students who miss deadlines due to valid extenuating circumstances may submit the required work at a later date, as agreed upon with the instructor. University regulations limit such circumstances to serious personal illness and death in the immediate family. Unexcused late projects will not be accepted, incomplete projects will be evaluated in relation to their degree of completion, and a student will be allowed to present such work only with instructor approval. Lectures and demonstrations cannot be repeated. There is no excuse for late submittals, late attendance at reviews or pin ups, due to printer or computer problems. You have to organize your output ahead of time or find other resources outside the college to complete your work on time. Late work will be accepted only at the discretion of the instructors and is subject to a 5% grade deduction for every 24 hours past the deadline.
- The final course evaluations are important to the quality of instruction. Please take the necessary time to critically and constructively evaluate the course as well as the instructor's quality of instruction and guidance in relation to your own participation in the course, engagement in the subject matter as well as your interaction with your peers and your instructor.

7. References

a. Reference Texts

The class does not have a textbook and will not require weekly readings. The following articles are posted on courseworks:

Stan Allen, Infrastructural Urbanism
NYC planning reference documents

The following texts are recommended for review by students and as a starting point for further research:

Jeffrey Tumlin, *Sustainable Transportation Planning*, Wiley, 2012
Bry Sarte, *Sustainable Infrastructure*, John Wiley and Sons, 2010
Hillary Brown, *Next Generation Infrastructure*, Island Press, 2013
Jeff Speck, *Walkable City,* North Point Press, 2013
David Gissen, *Territory: Architecture Beyond Environment*, Wiley AD Series, 2010.
Claire Weisz and Jesse Keenan, *Blue Dunes – Climate Change by Design*, Columbia Univ. Press, 2016
Moshen Mostavi (ed), *Ecological Urbanism*, Lars Muller, 2013.
Anthony Townsend, *Smart Cities*, W.W. Norten and Co, 2013

b. Previous AT5 Student Projects

Examples of student project submissions for site and building strategy planning are available on canvas. These materials are distributed for the sole purpose of reference material for A4115 and should be treated with discretion.

c. Professional Reports

Examples of professional reports for site and building strategy planning are available on canvas. These materials are distributed for the sole purpose of reference material for A4115 and should be treated with discretion.