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SUMA K4030: Hungry City Workshop

Fulfills Graduation Requirement: Physical Dimensions of Sustainability Management

The city has historically served to gather and leverage what the hinterland has produced: urban crafts guilds added value to raw materials, crops and piecework were monetized, knowledge was assembled and disseminated in cities. Within sustainability studies, cities are often cited for the efficiency of their transportation, housing and supply or refuse infrastructures, but the nature of their relationship to their hinterlands in a globalized world may be underplayed. Nothing – whether a living creature or a settlement – can have a metabolic rate of zero. This course will look to the knowledge base of urban metabolism to ask questions about how cities supply and off-load their metabolic processes. We will also engage with experts in food supply, public health, water, energy and other basic components of urban metabolism.

Each year, this course will choose a different city as a case study. In Fall, 2013, the case study city is Los Angeles. The first half of the semester will be spent understanding the premises of urban metabolism, and how they apply historically and currently to Los Angeles' relationship with its hinterland. In the second half of the semester, students will present original research on their cities of origin. The goal will be to assess the relationship between the historically developed urban form, its metabolic rate and potential measures to improve the way it draws resources and discharges wastes. We will engage the problem of finding appropriate metrics that can quantify the city/hinterland interaction in a way that supports the development of alternate infrastructure and sustainable practices, from the bottom up and the top down.

Work in this course will involve considerable amounts of reading, writing and in-class discussion. There will also be short collaborative research-based presentations. To support your work on these presentations, we will also spend time on developing skills for the visual communication of analytic and quantitative information. Finally, each student will develop a 15 minute final briefing, supported by a formal research document, on the city of her or his origin. Lectures and in-class exercises will provide you with the specialized knowledge you will need to complete your work, but you will be asked to learn actively through interpolation, research and visual representation.

By the end of this course, you should be able to:

- Define the primary concepts of urban metabolism;
- Understand the interplay between metrics and quantification in evaluating urban systems and supporting sustainable practices;
- Describe the primary urban systems (food supply, water supply, energy, waste, transportation), their interrelations and their quantification;
- Use creatively tools of urban analysis;
- Use visual communication methods to define and address problems, and to convey complex proposals.

Required Course Work and Evaluation:

- You **must** keep a dossier or file of your work for the entire semester, including notes on readings, class notes, in-class presentations by peers, annotated research, brainstorming, diagrams, etc. Co-authored work must be accurately attributed. In addition with the other requirements noted below, this dossier will be submitted and used to judge your individual effort in the course. *individual 15% of grade.*

- Class attendance and participation in the question and answer period after each lecture is expected. *individual 10% of grade.*
- Several key readings will be assigned; reading guides to frame central questions will be provided. You are asked to post initial written comments on Courseworks at least one day prior to class to prepare the conversation. You will be evaluated on your preparation of the readings and in-class contributions. You will choose one reading for a longer, written response. *individual 20% of grade*
- Hungry City analysis exercises: Each week for the first half of the semester, you will be assigned a mini-research and analysis exercise. You will be asked to find data, analyze the data and depict your findings in visual form on each of the primary urban systems of Los Angeles. *collaborative 15% of grade*
- Term research project and presentation: Using our analyses of Los Angeles as your template, you will create a research database for the city in which you grew up. You will unearth information on its history, its infrastructure, its changing relationship to its hinterland and its current resource and waste flows. You will present this information using visual communication techniques and lead the class in discussion of your findings. In addition, to your in-class presentation, you will submit back-up documentation in the form of an illustrated written report. *individual 40% of grade*

Grading Overview:

The work this semester is divided among discussion, reading responses, group research and independent research and analysis. I will offer feedback on your work during class and on submitted assignments. A “dossier” submission, which will be submitted at the end of the class, is your opportunity to offer cumulative evidence of your work’s quality and breadth. You will also run a portion of one class, based upon your research, and submit back-up documentation based upon that class session.

The criteria for grading will value deep, open-minded engagement with the course material. I expect active class participation, evidence of solid preparation and willingness to invest your own expertise in group work. You may email me or visit office hours for concerns and clarifications. The work submitted should be graphically clear and free of careless errors. Your class session should evidence:

- research (15% of grade) – show knowledge of subject literature; explain historical development of city and current urban infrastructure management trends
- analysis (20%) – draw meaningful conclusions from your research, strategize what information is vital and how to make it adequate to your evolving thesis
- synthesis/mission statement (20%) – based on research and analysis, identify an hypothesis about the city’s resource inputs and outputs; develop back-up on the historical, political, logistical, etc givens that support or challenge your hypothesis
- in-class preparation and presentation (25%) – verbal and visual presentation including original diagrams; prepare readings for your colleagues prior to your presentation; lead discussion
- creativity/integrative thinking (20%) – qualitative evaluation of the framing and resolution of the problems you identify

Evaluations for all submissions will include both comments and letter grades so that students can improve their performance over the semester. However, final work may not be redone and resubmitted to a new grade. Requests for extensions will only be granted if made in advance and warranted by extenuating circumstances (sickness, personal or family matters, etc). Failure to submit an assignment will result in an F for that portion of the grade. Plagiarism is an academic offense that will result in automatic failure for the course.

Course Format and Assignments:

This course will be run as a hybrid lecture/seminar. For the first half of the semester, I will be lecturing and assigning readings for response. You will be doing weekly assignments for

submission. We will also have invited guest speakers whose research addresses specific aspects of our case study city, Los Angeles, and the field of urban metabolism.

In the latter portion of the semester, you will be called upon to design a portion of the class time for your peers. You should identify and prepare readings; present a concise, provocative look at the city of your origin that culminates in a set of hypotheses about its current and future metabolism; and lead peer discussion of your findings. You will submit documentation of this work to me for grading.

As masters students from a broad spectrum of disciplines, group discussions offer you the chance to leverage your colleagues' expertise in a creative, open way. This is an academic setting – there are neither clients nor finite “deliverables.” Use your presentations to show what you know but also to ask pertinent questions and to spur discussion.

All readings will be made available to you. Please be sure that you have a paper or digital copy for reference during class. Reading guides (posted on courseworks) will help to structure our discussions, but you should take initiative to prepare questions and comments independently.

Schedule:

Part I: Principles of Urban Metabolism

Week 1:

Lecture: Why Not Net Zero? Principles of Urban Metabolism and the Expanding Hinterland

Week 2:

Lecture: Urban Resource Streams: Food, Water, Waste, Energy, Circulation
Lab: Urban Systems Analysis

Week 3:

Readings: Excerpts from *The Evolution of Great World Cities: Urban Wealth and Economic Growth*, by Christopher Kennedy. Toronto, Ontario, Canada: University of Toronto Press, 2011, 224 pp., ISBN 9781442611528.

Lab: Urban Morphology and Infrastructure

Week 4:

Readings: Excerpts from *Sustainable Urban Metabolism*, by Paulo Ferrão and John Fernandez. MIT Press (forthcoming or authors' galleys, with permission)

Lab: Diagramming Urban Systems

Part II: Los Angeles

Week 5:

Lecture: Nature/Culture: An Overview of Urban Systems in Los Angeles

Reading: Excerpts from *The Control of Nature*, by John McPhee and *The Very Hungry City* by Austin Troy

Assignment: Begin research on Hungry City Workshop presentation; Weekly exercise

Week 6:

Guest Lecture: Traffic, Transportation and Los Angeles Freeways

Readings: Excerpts from *Dead Cities Dead Cities* by Mike Davis and *Los Angeles: The Architecture of Four Ecologies* by Raynor Banham

Assignment: Ongoing research for Hungry City Workshop presentation; Weekly exercise

Week 7:

Lecture: Los Angeles and California Agriculture
Screening: Excerpts from *Central Valley* by James Benning
Readings: Excerpts from *Filmic Landscape Mapping* by Fred Trunniger
Assignment: Ongoing research for Hungry City Workshop presentation; Weekly exercise

Week 8:

Guest Lecture: Urban Morphology and Urban Metabolism in Los Angeles
Readings: tba
Assignment: Ongoing research for Hungry City Workshop presentation; Weekly exercise

Week 9:

Lecture: Los Angeles Waste and the Ever-expanding Hinterland
Readings: *Sustainability and Waste Management in Los Angeles* by Susan Thornloe and Keith Weitz
Assignment: Ongoing research for Hungry City Workshop presentation; Weekly exercise

Part III: Hungry City Workshop

Week 10:

Guest Lecture: John Fernandez, MIT Department of Architecture
Lab: Student presentation overview and critique
Assignment: Submission of summary pages of research presentation for collation in research overview booklet

Week 11:

Presentations: Student presentations and commentary
Readings: As specified by students

Week 12:

Presentations: Student presentations and commentary
Readings: As specified by students

Week 13:

Presentations: Student presentations and commentary
Readings: As specified by students

Closing Panel

Week 14: Closing discussion of comparative themes and topics (preparation rubric will be provided; guest discussants tba)