ADVANCED REPRESENTATION TECHNIQUES TYPES + TIMES

LAAR 66200

August 31-December 14, 2016

Day & Room to be determined

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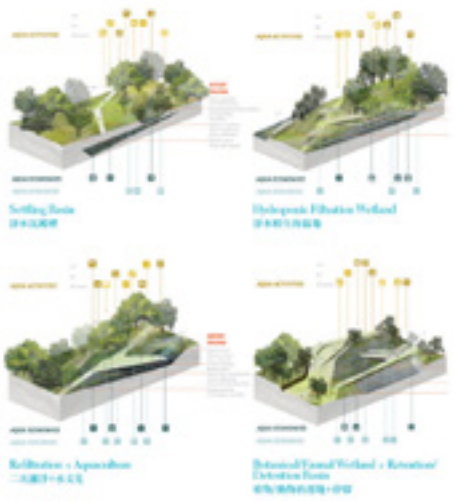

PROJECT DESCRIPTION

Advanced Representation Techniques develops the student's aptitude for working with digital media in creative and effective ways. While the class will devote time to learning the necessary techniques and skills to work with a variety of visualization software, the primary focus throughout will be three fold: 1) the creative and generative potential of digital media, 2) digital media's capability to clearly organize and distill structure, themes, and concepts from complex sets of layered information, and 3) the development of a critical eye.

Assuming familiarity with drafting and 2-D techniques of digital representation (CAD and AI), the class will focus on developing 3D and 4D design skills, with an emphasis on typological variation of form, temporal imaging of processes, and multi-scalar representations/resolution of designs and details. We will be running Rhino to develop traditional modelling skills and explore creative integration of its 3D capabilities with GIS, AutoCAD, the Adobe Suite, Excel, laser and die cutting, and various other forms of 2, 2.5, and 3D physical modeling and composite drawing. Significant time will be spent introducing 3D modeling with Rhino, with iterative exercises both reinforcing software skill acquisition as well as aiding in the conceptual representation of design variations (in time and space). The main focus of the course will be working fluently and in an integrated way amongst a wide suite of programs.

As a lab-based, technical course, it emphasizes a critical, inquisitive approach to spatial observation, digital design, and visual communication. Students will demonstrate their retention of lectures, software lessons, and site-based exercises by completing a series of cumulative, modeling assignments. By the end of the course, students will have each created refined typologies and an animation of system adaptations(s).

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Schematically speaking the course will introduce:

- the conventions associated with geographic, urban, and landscape drawings as well as engage students in precedent/visual research (maps, plans, sections, diagrams, perspectives, axonometrics)
- the appropriate workflows for creating drawings - both drafting, modeling, and rendering - between common digital software (AutoCAD, Rhino, Adobe Illustrator, Photoshop, InDesign, and AfterEffects)
- the animation, notation, and storyboarding tools to begin creatively articulating process, temporality, and creatively capturing material systems/intensities

Just as the larger landscape program focuses on the integration of anthropogenic and ecological forces, tapping New York City as an urban lab and prototypical site for socially just designs, this representation course reaches beyond the computer screen to emphasizes how space and matter are constructed: corporeally experienced, digitally crafted, and culturally communicated. Moving back and forth, in medium and types of measure/analysis, students are taught to see spatial representations not as the result of mere software packages but rather as generative arguments; translations and transformations that give presence to selective, sited, social, and material systems.

METHODOLOGY

This course is based on a lab method. In class, instruction will be provided through lectures, field and digital exercises introducing specific digital drawing programs and techniques. Students will be expected to participate in class exercises, complete readings, and, independently, complete a series of creative, graphic assignments to develop their digital representation skills. Public feedback on assignments, through peer and group critique, will occur daily. At these reviews, students will present their work both visually (in two dimensions) and verbally in order to generate a discussion of the ideas present in the work. Requirements for each of the assignments will be distributed in class and available on the website.

We will be using Google Drive and Pinterest for scheduling, information and project submissions. Please sign up for an account (free) and familiarize yourself with each.

SOFTWARE

The majority of class time will be spent at the computer, gaining competentcy in:

Rhino + GIS + After Effects (pulling from experience in CAD, Illustrator, Photoshop, InDesign, Excel)

In addition to these core tools, students will gain experience with:

laser cutting/cnc + pinterest + googledrive

All students are expected to install the core programs on their computers. (YES. THE HOURS OF THE COMPUTER LAB WILL BE INSUFFIENCT TO COMPLETE YOUR HOMEWORK. NO. THAT IS NOT AN EXCUSE.) Students are also expected to come prepared for fieldwork. A list of tools and practical recommendations will be circulated prior to course commencement.

SCHEDULE / GENERAL OVERVIEW

Phs 1:	wk1-4	Systems & Suitabilities: Intro/Integration of GIS information, analysis, & 3D terrain examination in Rhino • drawings: plans, axons, matrix, group model
Phs 2:	wk5-10	Iteration & Articulation: Integration of process, plan, sectional thinking into Rhino surface-based development and design-detailing of axonometric typologies • drawings: type axons, plan-section-component catalogs, 2-scales of physical models

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Phs 3: wk11-14 Adaptation & Animation: Rendering/Notational articulation of phasing and ecological dynamics Adobe Suite with animation in AfterEffects

- drawings: phasing timelines & alt trajectories, construction & adaptation axons rendered for focus component, animation combining ph3 elements

Final Review (wk 15+) Final Review Date & Critics: to be determined by studio schedules

GRADING BREAKDOWN

Grading for the class will be determined according to the following criteria:

PARTICIPATION & PINTEREST	10%
DRAWING ASSIGNMENTS	80%
READING SUMMARIES	10%

CLASS BY CLASS COURSE SCHEDULE (TEXTUAL LAYOUT)

INTRODUCTION

W_01 08.31

COURSE INTRODUCTION + Project Introduction
Re-presentation: Type and Temporality as Design Method
Group Project - Prompt, Collaborative & Individual Roles, Formal & Graphic Goals

GIS WORKFLOW REFRESHER - Collating information for analysis, overlays, & exchange
GIS/CAD/AI/Rhino

Assignment 1: Prep + Portfolio + Plans
Pinterest Account registration
Portfolio of Design Work (school/internship experience)
Assigned system underlay prep GIS to AI, GIS to dwg/dxf (to be elaborated in class):

- identify critical points or thresholds in relation to urban fabric and topography
- submit an AI-edited graphic of above (legibility, graphic clarity count)
- export data into dwg for Rhino use

System Underlays- Topics of Focus:

- curbs, (vacant/public) lots, building footprints, parks & greenways- PITTSBURGH/PASDA
- typical soil types (to determine subsidence/landslide potentials) - USDA/PASDA
- undermining & acid drainage in area - WPA maps & PASDA
- past infrastructural collapses, old topo & fill sites - extract from Pitt/USGS historic maps
- cso system network & overflow locations - extract/clean from ALCOSAN pdfs
- anticipated surface permeability - extract from T51 plus google tracing
- existing/historic bridge, stair, walls, & hill transit systems - extract from Pitt/USGS/PASDA
- other tbd

SYSTEMS & SUITABILITIES, 3D GIS & RHINO: THICKENED MORPHOLOGY & HYDROLOGY

W_02 09.07

TERRAIN TRANSLATIONS: Rhino Drafting Workflows (from 2D to minor 3D)
UI Orientation + basic drafting and 2D modifications in Rhino
2D to 3D projections and flattening techniques
DEM terrain modeling + 3D object-to-line options for plan, axon

Assignment 2: Exploded Axons

- DEM + terrain decal rendered - axon
- DEM + map decals - group exploded axon
- DEM + extracted topographic & specific underlay linework - exploded plan-axon

include: annotations, key as necessary to illuminate:

- system components,
- system directionality or structure (edges, patches, etc.)
- symbology for implied impact (less to more dangerous soils, " permeability)
- arch/infra issues or intervention areas (drainge/collapse areas)

W_03 09.14

FLUVIAL FEEDBACKS: GIS/Grasshopper Analysis for main/secondary surfaces (3D + analysis)
Slope, aspect, surface hydrology analysis workflows (to integrate w/ existing analysis)
Revise Axons for Suitability Argument

Assignment 2b: Revise Exploded Axons

- Revise exploded plan-axon to reflect effects of slope, aspect, hydrology
- Create composite group plan and annotated axon of hotspots
- Identify (individually for your system) typical characteristics of hotspots (for matrix)
- Sketch (individually) likely path trajectories through composite hotspots

No Class 09.21

Break in Academic Calendar
Continue to work on 2b revisions

W_04 09.28

AXON REVIEW/SYSTEM-PATH IDENTIFICATION DAY : Review Suitability + Group Decisions
Group review of seperate system hotspots and combined issues axons
Initial path trajectory decision to:

- increased neighborhood connections (vectors & programmatic potential)
- alternate ecological breaks/linkages (urban invasives/forestry & its cycles/catalysts)
- reinforce and address soil-remedial-topo hazards

Assignment 2c: Typical Trajectory Component- Matrix
On path, identify:

- Major components (straight aways, elbows, entries/exits, secondary stairs, bridges, at grade crossings, etc.) and their core programmatic variations - each to be tackled by one designer
- Use each component as a column in a group matrix (in excel and then illustrator) identify it's likely locations on your maps/axons and define, one system per row, the typical characteristics it encounters

ITERATION & ARTICULATION, CONCERNS, CHARACTERISTICS, FORM AS PROCESSES

W_05 10.05

SITE TYPE SIMPLIFICATIONS: Line-Surface Edits I
From drafting + projection to Rhino 3D line-surface manipulation (simplify & loft profile forms)
Layer Management Review for series construction
Lighting & (white) Rendering Settings for consistent component output

Assignment 3: Typical Section-Axon (Simplified, Representative site per component)

- 1/9 DEM area converted to workable surface/landscape slice
- Axons rendered (white) in Rhino and then AI: (4 versions, seperate & composite)
    - internal gis linework exported
    - 1' contours cut
    - diagrammatic sections (on two visible sides) indicating thickened issues (soil, mines, impermeability, etc. to be addressed)

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W_06 10.12

SITE TYPE DEVELOPMENT: Line-Surface Edits II (Plan as generator)

Additional Surface Construction/Modification in Rhino
Control Plane use for advanced drafting
Plan drafting to surface Workflows

Assignment 3b: Typical Section-Axon Plan Preparations

- within your workable surface/landscape slice area:
  - draft 3 path variations at path slope (add width for additional programs, look-overs, access, etc.) and saved secondary copy as plan
  - create one surface series in 3D, using line extrusions for simple walls
  - create a second series, at repose (based on soil A) using rail sweeps

W_07 10.19

SITE TYPE DEVELOPMENT: Line-Surface Edits II (Plan as generator)
Additional Surface Construction/Modification in Rhino
Group Review
Retention Decisions and Wall types

Assignment 3c: Typical Section-Axon Plan Permutations
within your workable surface/landscape slice area:

- given your path types, wall and repose areas, develope another three series of alternations using:
- the two specific retention wall profile ranges selected by the group (for coordinated formal and structural vocab)
- a mix of straight walls, retention slopes, and thinner, architectural areas of structure

W_08 10.26

DETAILED DESIGN DEVELOPMENT: Line-Surface Edits III (Section as generator)
Additional Surface Construction/Modification with editional solids editing

Assignment 3d: Section-Axon Permutations
within your workable surface/landscape slice area:

- given your mixed iteratation series (week 7):
- develop single version, zooming to detail new sections at major material changes... then using rails, extrusion, and secondary boolean tools to create a 3D articulation of form... at built in program/ furnishing level of articulation

W_09 11.02

DETAILED DESIGN DEVELOPMENT: Work Week

Assignment 3e (final): Section-Axon Permutation Family Tree
finish and refine 3d axon models (informing plans/sections), rendering and exporting linework to complete:

- a geneological chart of your variations, edited in AI/PSD and annotated based on the informating decisions
- contribute your final permutations (w8 rendered) to a revised version of the group matrix (2c)

W_10 11.09

Iteration & Articulation Projects: Review

ADAPTATION & ANIMATION, phasing timelines & alt trajectories, construction & adaptation axons rendered for focus component, animation combining ph3 elements

W_11 11.16	ANIMATE SYSTEMS: Notation & Animation I Introduction to AfterEffects Review of Notational Strategies for Phasing, Time Group Planting Pallete discussion Assignment 4a: Planting Permutations notational diagram of phasing built from choosen type variable, rendered axons
W_12 11.23	DELIBERATE DUREE: Notation & Animation II Intermediate AfterEffects Pacing, Cinematic Diagrams & Storyboards Assignment 4b: Storyboards reassemble both the notational argument and the more general process of fitting form to site performance- sketch an animation of this argument in storyboards
W_13 11.30	WORK SESSION desk crits and in-class animation
W_14 12.07	WORK SESSION desk crits and in-class animation
W_15 12.14	FINAL REVIEW: Group Proposal with Individual Elements & Adaptive Animations Final Review Date & Critics: to be determined by studio schedules

GRADING CRITERIA:
WORK WILL BE GRADED BASED ON THE FOLLOWING:

Completeness: Instructions carried out in detail

Technical Skills and Attention to Detail: Assignments executed with the appropriate method and knowledge of technique? Student shows proficiency in the various media skills?

Accuracy and Presentation: Assignments completed with precision and presented professionally?

Effort and Concept: Student iterates through multiple drafts and shows evidence of experimentation and improvement during the assignments? Concepts are clearly articulated and well developed. On a broader scale, student shows consistent effort and improvement over the course of the semester.

Incompletes: There will be no Incomplete given for a course except for a documented medical excuse at the discretion of the instructor. You are required to attend all classes and be present in the classroom during the allocated times.

Attendance and timely submission of assignments: More than two unexcused absences in a course will result in a failing grade (two absences is equal to over 13% of total class time). Due to the nature of reviews, late assignments will not be reviewed for a grade. Each student must turn in what is completed or receive a failing grade for the particular assignment.

!!! WE START ON TIME, PLEASE BE IN CLASS AND READY TO DISCUSS AT [time tbd] !!!
Students who are not in class and ready to participate at [time]:05 will be marked late. Three lates will equal an unexcused absence.

GRADING STANDARDS
CONFORMS TO CCNY 2008-2010 GRAD BULLETIN:

Grade	Explanation (refers to class performance)	Quality Points
A+	Rare, near perfect achievement	4.00
A	Exceptional	4.00
A-	Excellent	3.70
B+	High caliber	3.30
B	Satisfactory	3.00
B-	Below average	2.70
C+	Not satisfactory	2.30
C	Poor	2.00
F	Course failure	0.00

EDUCATIONAL GOALS

Spatial and Regional Representation, as the initial design representation course, initiates students into a critical awareness of spatial inhabitation, perceptual and material intensities, scalar thresholds, and digital, graphic communication.

Educational goals in this course include the development of the following list of skills and concepts:

- **Visual Literary**
- **Critical Thinking**
- **Software Facility (GIS, Rhino, AfterEffects, CCNY lab procedures)**
- **Visual communication**

LEARNING OBJECTIVES

The learning objectives of Spatial and Regional Representation are developed from the above educational goals, and include the following actions and activities through which these specific skills and concepts are conveyed to the student.

VISUAL LITERACY is developed through through analytic engagement with precedents, site circumstances, and peer work, including annotation, framing, selective editing, and group review of competition boards, site photographs and surveys, lecture samples, and daily assignments.

CRITICAL THINKING is enhanced through the development and recursive revision of both analog/digital graphics and verbal presentation to cultivate precise yet abstract thinking, thoughtful editorial choices, the intelligent establishment of visual arguments and consistent, cohesive graphic structures.

SOFTWARE FACILITY is developed through cumulative lessons and exercises, building from singular program use to a final project incorporating manual site surveys, annotated collage documentation, drafting, and renderings across AutoCAD, Adobe Illustrator, InDesign, and Photoshop, utilizing bast practices file management and standard lab printing procedures.

VISUAL COMMUNICATION is enhanced through the critical use of the tools of representation, including drawing (digital and manual) and the layout of boards, drawings, and digital presentations.

USEFUL REFERENCES

SOFTWARE (LINKS)

AutoCAD 2015 (on lab computers, install on your machines),
free educational pc version here: http://www.autodesk.com/education/free-software/autocad
free educational mac version here: http://www.autodesk.com/education/free-software/autocad-for-mac

Rhino 5 (on lab computers, install on your machines recommended, split a purchase on two machines),
https://www.rhino3d.com/download

Grasshopper (on lab computers, install on your machines recommended, free plug-in),
http://www.grasshopper3d.com/page/download-1

Adobe Suite CS6 or CC (Illustrator, Photoshop, InDesign, AfterEffect) (on lab computers),
educational versions here (subscriptions): http://www.adobe.com/creativecloud/buy/students.html

ArcMap 10.2 (on lab computers),
student versions (annual license) will be available during the semester

MATERIALS LIST

- sketchbook for notes, doodles
- a flash drive (8G or so) for incidental file transfers or maintaining space on 'the cloud' (min 1-2G for term docs)
- your smartphone for photos, informal video
- your CUNYFirst EMPLID for access to lab computer accounts
- cost of printing + model materials: 2ply cardstock, 1/8" thick cardboard (do a group order from Artist Supply or Dick Blick)
- enthusiasm

RESOURCES & READINGS

to be posted to the google drive