A4715: Fall 2018
ReThinking BIM

Instructors:
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Time & Location:
Thursdays 7-9 pm // 115 Avery

INTRODUCTION

Our capabilities as architects today to create and leverage organized building data is continuously expanding the possibilities for designing and understanding what we build and how we can build it. At the same time, this kind of literacy is becoming even more essential as our daily lives are increasingly saturated with structured data; of which provides us with invaluable insights and feedback that alter our decisions, behaviors, and validate our ideas. This class puts forth the challenge for students to develop robust data driven methodologies and computational frameworks that intensify creative iteration and validate design solutions by utilizing various parametric design platforms to build tools and workflows for analysis, automation, simulation , optimization, representation, and so forth.

This course is intended to provide foundational knowledge of computational data-driven strategies used in the industry today. In the first half, students will utilize Revit to model an existing piece of architecture in New York City as a means to learn the basics of the tools with several lectures and tutorials that address more advanced topics. Students will then re-design their initial draft with this new toolset according to a conceptual proposal put forth at the beginning of the semester. Post midterm the class will develop more advanced parametric and data-driven design methodologies that focus on achieving a revised set of design goals through an effective interoperable workflow that utilizes Rhino/Grasshopper and its extensive component libraries.

COURSE REQUIREMENTS

- Experience with at least one 3D modeling software
- Weekly Tutorial Assignments
- Midterm Project
- Final Project
- Attendance of all lectures and help sessions

SCHEDULE

Session	Date	Topics	Assignments
1	9/06	BIM & Parametric Relationships, Project Introduction, Intro to Revit: Views, Links, Grids, Levels, Floors	Complete Tutorial Begin Part I assignment
2	9/13	Basic Revit Tools: Floors, Walls, Families, Columns.	Complete Tutorial Progress on first assignment
3	9/20	Family Creation, Custom Component, Project Proposal	Complete Tutorial Progress on Part I assignment Conceptual Proposal
4	9/27	Adaptive Components, Nesting, and Panelization	Complete Tutorial Progress on Part I assignment
5	10/4	Advanced Panelization, Data Management, Documentation, Rendering	Complete Tutorial Progress on first assignment
6	10/11	Desk Crits	Progress on first assignment
7	10/18	Intro to Interoperability, Project Introduction	**Part I due** Transition into final deliverables
8	10/25	Workflow Design, Rhino & Grasshopper, Concept Proposals Due	Complete Tutorials Progress on final deliverables
9	11/01	Help Sessions // Adv. Adaptive Components	Complete Tutorials Progress on final deliverables
10	11/08	Simulation, Analysis, and Optimization	Complete Tutorials Progress on final deliverables
11	11/15	Help Sessions // Point Clouds, Analysis and Optimization	Progress on final deliverables
12	11/29	Desk Crits	Progress on final deliverables
--	12/14		**FINAL Project Due**

ASSIGNMENTS

Throughout the semester students are expected to keep up with the course assignments with due dates as shown in the schedule. The content and dates of submissions are subject to change where deemed appropriate. Further details on each of these submissions will be discussed during lectures.

Part I

The first portion of the course will revolve around the case study of the Lever House in Manhattan. Students will be expected to independently model the building in Revit utilizing the lessons learned from the first 5 sessions of the course. Each student will be submitting images showing progress on their models as well as submitting a Revit model for the assignment due date.

Part II (Final Submission)

The final submission for this course should consist of a proposal for an adaptation/intervention of the Lever House building modeled in Part I of the semester that utilizes the knowledge acquired throughout the course. Students should work in groups of two on a single submission. Each student's contributions should be made clear throughout the course submissions. If a student feels that they are able to apply the concepts from the course on their individual studio projects, this will also be an option, but should be discussed with the instructors first.

COURSE FORUM AND SUBMISSIONS

OVERVIEW

Submissions for assignments will be handled using our Discourse Forum. All enrolled students will need to create an account in our first class.

The discussion forum will be used by the instructors to post class material and by students to submit their assignments. Students will also be encouraged to use the platform to ask questions and engage others in class related discussions.

LINK

http://forum.rethinkingbim.com

COURSE RESOURCES

These are some basic sources that may be used throughout the semester.
More detailed resources will be provided throughout the semester.

ReThinking BIM Tutorials: https://vimeo.com/user4826920
Dynamo Forum: https://forum.dynamobim.com/
Grasshopper/Rhino Forum: https://discourse.mcneel.com/c/grasshopper
Revit API Docs: http://www.revitapidocs.com/
Revit Architecture Forum: https://forums.autodesk.com/t5/revit-architecture-forum/bd-p/133
Lynda:
https://www.lynda.com/Revit-tutorials/Revit-2017-Essential-Training-Architecture-Imperial/435133-2.html