

The role of the computer as an integral tool for architecture is rapidly changing. When once it was simply used to create construction documents it is now used as a design aid and in some cases a consultant. This class will offer the opportunity for architects and designers to begin to understand and utilize the algorithmic process as a tool for design by way of Rhinoscript. Scripting is not considered a means to an end but rather a valuable tool used to make certain tasks less tedious and certain decisions more informed.

There are many tools currently available to achieve parametric control of a project. We are choosing Rhinoscript because of its relatively low cost and high level of resources and documentation. We also feel it is important for our students to come away from the class more comfortable with computer syntax. Learning to understand syntax is a timeless skill which will always be at the core of the algorithmic process. Additionally we feel that scripting is something that is learned overtime with a very "hands on" attitude. This is why we leave ample time between classes for independent investigation.

This seminar utilizes techniques that include both "bottom up" and "top down" design strategies, aiming to provide exposure to both theoretical and practical applications of scripting in architecture.

This class is specifically focused on dealing with populations of parametric and standardized components. All scripts and documentation will be provided in class.

At the conclusion of the seminar students will be able to read, modify and compose scripts written with Rhinoscript. Furthermore students will understand the potential of using scripting as a tool for analysis and optimization rather than simply a form generator.

## **Class Structure**

Classes will be held from 7:30 to 10 on Wednesday nights at 28 west 27<sup>th</sup> St in Manhattan at Studios GO. Each class will consist of a short lecture, guided example and work session. Scripts will be distributed in class to provide an example and basis for independent study between sessions .

## **Week 1 - Introduction**

In the first week we will introduce the idea of algorithmic design and examples of its application in optimization and formal investigations. Then we will jump right into the syntax, investigating variables, loops, conditional statements and program structure. We will then lead you through a simple iterative loop script resulting in a varying arrangement of standard elements.

## **Week 2 - Parametric elements**

This week we will quickly review the history of parametric design and how it is used in architecture by examining some examples such as the ongoing construction process being used at the Sagrada Familia by Antonio Gaudi. We will then examine a script which creates a preliminary framing plan using parametric elements.

## **Week 3 - Surfaces ,Vectors and Attractors**

Learning to manipulate and analyze a surface via automation allows for more controlled organization and parametric manipulation. This week we will use surface normal's and vectors to manipulate and then populate a surface. Attractors will be used to determine surface deformation and parametric adaptation of populated elements.

## **Week 4 – Solar Gain Study**

In the final week we will examine the power of scripting in a solar gain study. By examining the angle of exposure each component of a building skin has in relation to the sun, certain elements can be replaced by others depending on exposure or program. This methodology provides the potential for more intelligent proposals, informed decisions and comfortable environments.

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