

Arch 594 SIM: Building Energy Simulation

Spring 2025

Instructor: Associate Professor Rick Strand, Ph.D.

Class Schedule: Thursdays 11:00AM-1:50PM

Objectives

- Energy Simulation Concepts
- EnergyPlus Program
- EnergyPlus Related Tools
- Effective Use of Simulation

Description

In the US, buildings consume roughly 40% of all energy and this percentage continues to rise annually. Forward thinking architectural firms are now using energy simulation during the design process to drastically reduce building energy consumption during the design phase. This course will focus on learning one energy simulation program (EnergyPlus via the OpenStudio interface) and how to use it effectively to model building energy performance. Final projects will involve modeling a studio project or an existing building.

Format

This course meets once a week and will be run as a hybrid course to maximize learning opportunities. Some seminar lectures and most workshop demonstrations will be recorded for asynchronous/repeated viewing. Synchronous sessions during class will be held in-person with a concurrent on-line session running to allow students to either be present in the classroom or via Zoom for completion of assignments. The benefit of this strategy is that students can watch the background material at their leisure and then work on assignments during class time. As a result, most class periods will feel more like a help session than a lecture to help minimize the time required to complete the course assignments.

Requirements

- Graduate student or seniors who have taken Arch 434
- Laptop running recent version of Windows or Windows emulation software. As a Mac user, Prof. Strand will do as much as possible to make this course Mac OS friendly.