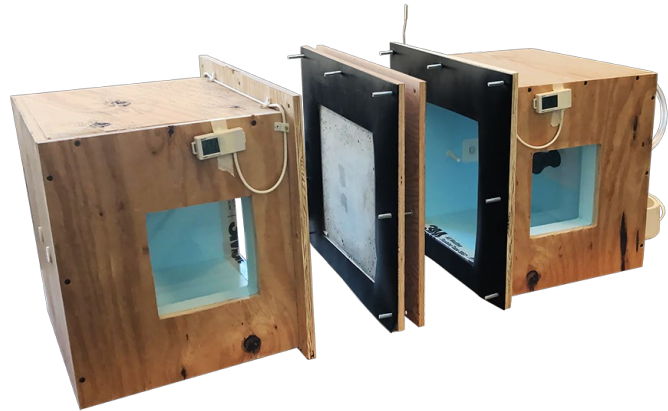


# BUILD, TEST, ITERATE, REPEAT

## Course Announcement ARCH 4050/6306, Spring 2020

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**Prerequisite:** ARCH 4302 or Equivalent



### Course Description:

Often *design* and *building science* are considered separate fields with entirely different languages. Designers explore ideas through sketches, models, and renderings yet principles of building science are communicated through complicated models and equations. By combining students from across the UNCC campus, this interdisciplinary course strives to bridge the gap between design and hard science. Students will explore ways to understand, visualize and *communicate* basic thermodynamic phenomena in physical and tangible ways.

Working either independently or in small teams (depending on shared interest), students will design, build, and conduct physical experiments to explore ideas found in nature, science, architecture, or any combination of the three. Students will write about their processes and findings using the conventional scientific method. The intent of these experiments is to identify and articulate *phenomena*, not to quantify specific heat and mass transfer values. This will be a making-intensive course; however, no previous construction or fabrication experience is required. **The course is open to students of all disciplines with a basic understanding of thermodynamic principles in buildings & materials.**

### Course Features:

- Thermodynamics in buildings (review)
- Work in the woodshop
- Digital fabrication (3d printer, CNC)
- Electronics design (Arduino)
- Data management (Excel)
- Data representation (graphics, animations, videos)

### Potential Research Topics:

- Heat and thermal transfer
- Evaporative cooling
- Heat island effect
- Thermal properties of [new] materials
- Insulative qualities of air (air bubbles, still/moving air)
- Dynamic insulation
- Phase change materials