Building upon what you learned in Arch 4/570, Building Construction, this course has two goals. The first is to teach you the basics of structural engineering. It’s most likely that you will seldom do any of these calculations as an architect, but you should be able to speak with confidence to a structural engineer. Part of that confidence comes from understanding how engineers speak, think, solve problems and view “design.” If you choose to become licensed, you will also have to pass an exam covering these topics.

The second and most important goal is to give you the knowledge and skills you need to take control of the structure in your architectural endeavors. This course along with Structures II [Sustainable Structural Design] will show you ways to harness structure so that it can be generative in your architectural design process. The relationship between structure, form, space and use can be used as a tool rather than viewing structure as simply necessary or something for an engineer to figure out.

This course will cover three major topics in preparation for Structures II:

- assembly | how structure relates to design, carrying loads and construction as well as how basic structures, such as trusses, cables, and frames, work
- statics | the math and physics engineers use to describe structures
- materials | the properties and behaviors of common building materials

A combination of weekly homework assignments, projects and in-class exercises using questions modeled after the structural division of the ARE (Architectural Registration Examination) will be used to review structural concepts introduced in lecture. Discussion sections will consist of lecture review and lab exercises.

Grades are awarded on a standard scale with the A range being assigned to the 90s, Bs in the 80s etc. Optional grading is available with a minimum pass in ARCH 462 of C- and a minimum pass in ARCH 562 of B-. The criteria for evaluation in ARCH 462 and ARCH 562 differ in accordance with distinctions between graduate and undergraduate performance expectations. Your evaluation will be based on attendance in lecture and sections, weekly homework assignments, group projects and exams.

Every student will be required to purchase an iClicker for use in lecture. They will be available for purchase at the bookstore. We will be using these in Structures I and II, and afterward the bookstore will buy them back.