ARCHITECTURAL STRUCTURES I
Syllabus

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Lecture 9:00-10:00 MF  
Recitation 9:00-10:00 or 10:00-11:00 W  
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CATALOG DESCRIPTION
This course covers the basic principles of architectural structures, including the influence of geometric, sectional, and material properties related to flexure and shear in beam and framed systems; vector mechanics with application to analysis of trusses, catenaries, and arches; diagrammatic analysis of beams for bending moment, shear, and deflection as well as the study of structural framing systems for vertical and lateral loads.

OBJECTIVES
Students are introduced to the fundamentals of statics and mechanics, as well as the behavior of structural materials and simple elements and systems subjected to gravity and lateral loads. Diagramming of force distribution in beams as well as topics of stress, strain and stability are covered. Through classroom demonstrations as well as physical construction and testing, aspects of strength and stability of structural systems are examined.

ORGANIZATION
The course is lecture based, and the concepts and procedures are taught in this context with additional classroom and homework problems solved by the students. Weekly recitations provide opportunity for small hands-on projects as well as opportunity for more student-instructor interaction in the smaller groups. A group design and construction project (load testing a bridge) offers a chance to test out concepts covered in the class. Computer facilities, including software, are available for supporting computations. A course web site is used to post all lectures, homework problems, as well as other information for the class (http://www.umich.edu/~arch314).

EVALUATION
Evaluation is based on an accumulated total number of points. Points are earned based on performance in all course activities – 3 tests, in class quizzes, homework problems, recitation exercises and the bridge project.

HOMEWORK PROBLEMS
A set of online problems covering the primary aspects of the course is given to each student. Each student has a unique set of problems to solve. Students submit solutions to an online program for scoring.

TEXT
The recommended text is Statics and Strength of Materials for Architecture and Building Construction by B. Onouye and K. Kane (any version). A course pack along with other resource material is on the course website.  
http://www.structures1.tcaup.umich.edu/recitation