University of Southern California
School of Architecture
COURSE DESCRIPTION

Arch. 613, Spring 2014
Prof. Schierle

A. GENERAL
1. Course: Architecture 613, 4 units
2. Title: Structure Research
3. Class meetings: One 4 hour seminar per week
4. Student hours: 12 hours per week, including class time

B. OBJECTIVES
Develop informed intuition for structures, their response to natural forces, and integration with architectural objectives
Lectures topics and handouts are posted at *http://www.usc.edu/structures* bring handouts to class

C. SUBJECT MATTER
The study of vertical structures in response to gravity, wind, seismic, and thermal load; integration with architectural objectives, fit and synergy of form and structure. Computer aided design and analysis.

D. ASSIGNMENTS
Assigned reading, homework, term project, and presentations.

Statement for Students with Disabilities. Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to my TA) as early in the semester as possible. DPS is located in STU 301 and is open 8:30AM-5PM, Monday through Friday. The phone number for DSP is (213) 740-0776.

Statement on Academic Integrity. USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles.Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: http://www.usc.edu/dept/publications/SCAMPUS/gov/ Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: http://www.usc.edu/student-affairs/SJACS/

E. TEACHING METHODS
Weekly lectures, student presentations, assigned reading, seminar discussions, computer workshops, field trip.

F. REQUIRED TEXT: Schierle (2008) *Structure and Design,* Cognella, *http://www.cognella.com/titles/schierle/*

Resource books: AISC (1991) *Manual of Steel Construction*, American Institute of Steel Construction

Ambrose / Vergun (1991) *Design for Earthquakes*, Wiley

Arnold / Reitherman (1992) *Building Configuration and Seismic Design,* Wiley

Crawley / Dillon (1997) *Steel Buildings: Analysis and Design*, Wiley

Engel (1967) *Structure Systems*, Praeger Publishers

ICBO (2003) *International Building Code 2003*, ICBO

G. COURSE GRADE

Assignments	25%
Exercises	25%
Research project	50%
Total	100%

H. COURSE OUTLINE

1/14 Introduction of seminar and foundation design

Term project phase 1: case study issued

1/21 * Vertical structures

1/28 Term project phase 1: case study reviewed

Term project phase 2: alternate design issued

2/04 * Design for lateral forces; wind and seismic

LDG: Lateral Design Graph introduced

2/11 * *Portal Method* for moment frame design

SDG: Structure Design Graph introduced (design of moment frames, braced frames, shear walls)

Multiframe program introduced

2/18 * Moment frame design

PDG: Post Design Graph introduced (posts of wood, steel, concrete, masonry)

2/25 * Braced frame design

3/04 * Framed tube design

3/11 * Suspended high-rise

3/17-22 Spring Recess

3/24 * Shear wall and diaphragm design

4/01 * Wood structures

4/08 * Steel and Fabric structures

4/15 * Concrete and Masonry structures

4/22 Term Project Review

4/29 Structure videos

5/13 Term Project Final Review

* Topic presentations by students