

# CE 539 - Advanced Steel Structures



## Course Syllabus – Spring 2020

**Instructor:** Negin A. Tauberg, PhD, PE                      tauberg@usc.edu  
KAP 200

**Class Time and Location:**  
Wednesday 6:40-9:20 pm                      OHE 120

**Office Hours:** Wednesday 4:30-6:30pm and by appointment.

**Prerequisite:** Steel Design (undergraduate)

**TA:** Amin Jabini                      jabini@usc.edu

**Text:** Steel Structures Design for Lateral and Vertical Forces  
Alan Williams, Second Edition, McGraw Hill (Recommended)

**References:** AISC Steel Manual (AISC Manual of Steel Construction)  
AISC Seismic Design Manual  
Undergraduate Steel Design Book

Please check the course website to download design guides, publications, and references that will be used throughout the course. You may also download the AISC 360 *Specification*, the AISC 341 *Provisions for the Seismic Design of Structural Steel Buildings*, and the AISC *Prequalified Connections* provisions from the AISC website.

As a student, you may purchase the *AISC Manual of Steel Construction* and the *AISC Seismic Design Manual* from AISC at a significant discount. You will be provided with ordering information in class. If you choose not to purchase the Steel Manual, you will need to bring a hard copy of the steel shape design parameters and the AISC Specifications to the exams.

### Examinations:

Midterm, On-line Quizzes, and Final Exam.

### Grading:

Assignments:	30%
On-line Quizzes:	10%
Midterm:	30%
Final Exam:	30%

**Submittal Policy:** Assignment/projects must be submitted as a hardcopy and as a pdf on the course website. Whenever software is used, a copy of the model must also be uploaded to the course website. All submittals must be done in a neat and orderly fashion. Discussions, references, and annotations should be included, as appropriate.

Work submitted after the deadline is subject to a 10% penalty for every 24-hour period after the due date until the solution is posted.

## Tentative Course Outline:

This course focuses on structural steel and its properties, the design of typical steel buildings, and design and performance of steel buildings for earthquake loads.

Date	Class Subject Material and Test Schedule	References
Jan. 15	Introduction & Course Overview Review – Steel, Steel framing, Loads	Review
Jan. 22	Beam Design	Chapters 4 & 5
Jan. 29	Composite Design	Chapter 13
Feb. 5	Floor Vibrations	AISC Design Guide #11
Feb. 12	Connections Tension and Compression	Chapters 10 & 11 Chapters 9 & 6
Feb. 19	Inelastic Analysis	Chapter 8
Feb. 26	Seismic Loads	Chapter 2
March 4	Overview of Lateral Systems (LFRS)	Chapters 3 & 14
<b>March 11</b>	<b>Midterm Exam</b>	
March 18	Spring Recess	
March 25	Moment Frames (Preliminary Design) Moment Frame Connections	Chapter 14
April 1	Concentric Braced Frames (CBF)	Chapter 14
April 8	Eccentric Braced Frames (EBF)	Chapter 14
April 15	Buckling Restrained Braced Frames (BRBF)	Chapter 14
April 22	Steel Plate Shear Walls	Chapter 14
April 29	Other Structural Systems Review	Chapter 14
<b>May 6</b>	<b>Final Exam (7-9 pm)</b>	

## **Statements**

### **A. 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 TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. Website and contact information for DSP:  
[http://sait.usc.edu/academicsupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html), (213) 740-0776 (Phone), (213) 740-6948 (TDD only), (213) 740-8216 (FAX)  
[ability@usc.edu](mailto:ability@usc.edu).

### **B. 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, ([www.usc.edu/scampus](http://www.usc.edu/scampus) or <http://scampus.usc.edu>) contains the University Student Conduct Code (see University Governance, Section 11.00), while the recommended sanctions are located in Appendix A.

### **C. Emergency Preparedness/Course Continuity in a Crisis**

In case of a declared emergency if travel to campus is not feasible, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies.