

Instructor: Duncan Mahoney

Office: TTL 102

Office Hours: M-F, 10AM-1PM by appointment

Contact Info: dmahoney@usc.edu 213-743-1968

Course Description and Overview

To instruct students in advanced technical direction topics including basic engineering techniques for analysis of common structural elements used in scenery and rigging.

Learning Objectives

Through lecture, example, and much hands-on practice, students will learn mathematical techniques to analyze the forces acting on simple stage rigging systems and structural scenic elements, and then select materials appropriate for the stress levels to use in those systems and elements. Emphasis will also be placed on appropriate documentation and shop drawings for structural systems.

Recommended Preparation: Thtr 335

Required Texts: Structural design for the Stage 2nd ed., Alys Holden, Bronislaw Sammler; Stage Rigging Handbook, 3rd ed., Jay O. Glerum.

Recommended texts: The Backstage Handbook, Paul Carter; Scenery for the Theatre, Burris-Meyer, & Cole.

Grading: 50% homework assignments, 20% midterm, 30% final exam. Grading is curved based on the students currently in the class, but historical records are also considered. I expect homework and exams to be complete, with all steps shown in calculations. Just having the right answer is not sufficient; also, the wrong answer preceded by the proper steps and an unfortunate math error will get partial credit.

Homework: Homework will be assigned at every class session. It will be due at the next class session. We will work through the solution at the beginning of the next class session. If you have not at least attempted the homework, you will not be able to participate effectively and you will be wasting your time and everyone else's. **DO NOT FALL BEHIND!** If you are sick, turn in your homework at the next class session you are able to attend, but you are also responsible for contacting a classmate or the instructor to get the assignment/s for the next session/s and completing that as well. Because I will be solving the problems in class, late homework will not be accepted under other circumstances.

Bring a pen or pencil to class that is a different color than the one you used to do your homework. You will need a **calculator** that can solve powers, roots, and trigonometric functions. **Bring it to class with you.**

Weekly Schedule: (subject to change)

- Week 1: Intro to class, rigging math
Reading: Stage Rigging Handbook, Chapters 1 & 2
Handout: oblique triangle formulas
- Week 2: Rigging math
Reading: Stage Rigging Handbook, all of it, then re-read Chapters 1 & 2
Structural Design, Appendix A
- Week 3: Forces, stresses, and strains.
Reading: Structural Design, Chapters 1 & 2
- Week 4: Forces, stresses, and strains.
- Week 5: Stress Analysis for Beams
Reading; Structural Design, Chapter 3
- Week 6: Stress Analysis for Beams
- Week 7: Geometric Properties
Reading: Structural Design, Chapter 4
Handout: Midterm exam
- Week 8: Geometric Properties
- Week 9: Geometric Properties & Sawn Lumber Beam Design
Reading: Structural Design, Chapter 5
- Week 10: Sawn Lumber Beam Design
- Week 11: Sawn Lumber Beam Design & Steel Beam Design
Reading: Structural Design, Chapter 8
- Week 12: Steel Beam Design
- Week 13: Wood Column Analysis and Design
Reading: Structural Design, Chapter 6
- Week 14: Steel Column Analysis and Design.
Reading: Structural Design, Chapter 9
- Week 15: Combined loading, plywood, or truss TBD

Final Examination Date: Mon., 5/11/2020 11:00 am-1:00 pm

EXTRA-CURRICULAR COMMITMENTS AND ISPS

Should you choose to participate in any extra-curricular project, such as an Independent Student Production, the SDA administration and faculty will not make allowances or exceptions for absences in class, missed or delayed assignments, home work that is required as preparation for class, or lack of participation in class resulting from your extra-curricular involvement.

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

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 for DSP and contact information: (213) 740-0776 (Phone), (213) 740-6948 (TDD only), (213) 740-8216 (FAX) ability@usc.edu.

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. See the university’s site on Campus Safety and Emergency Preparedness.

Support Systems:

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. engemannshc.usc.edu/counseling

National Suicide Prevention Lifeline – 1 (800) 273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. engemannshc.usc.edu/rsvp

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: sarc.usc.edu

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. equity.usc.edu

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. studentaffairs.usc.edu/bias-assessment-response-support

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. dsp.usc.edu

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. studentaffairs.usc.edu/ssa

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. emergency.usc.edu

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.

Provides overall safety to USC community. dps.usc.edu