

**ME C85 / CE C30: Introduction to Solid Mechanics, Professor Tony M. Keaveny
Lecture Schedule and Syllabus: Spring 2020**

Week	Topic	Reading *
1	Introduction; forces and vectors Moments and vectors	Chapter 1–2 3.1–3.6
2	Statically equivalent forces and force-couples Center of mass and distributed loads Free body diagrams	3.7–3.9 4.2, 4.5
3	Static equilibrium of rigid bodies Applications	4.1, 4.3, 4.4, 4.6 4.7–4.8
4	Trusses Frames and machines	5.1–5.4 5.5
5	Normal and shear stresses Applications	7.1–7.6 7.7–7.8
6	Hooke’s Law for elastic solids Deformation and axial loading Mid-Term #1 (on weeks 1–4); Friday 2/28 **	Chapter 8, 14.11 9.1–9.6
7	Beams and bending stresses Areal moment of inertia	11.3–11.5 6.1–6.5
8	Shear force and bending moment diagrams	11.1–11.2
9	Torsion of circular shafts Deformation and twisting	10.1–10.5
10	<i>SPRING BREAK (March 23–27)</i>	
11	Deformation and bending Mid-Term #2 (on weeks 5–8); Friday 4/3 **	16.1–16.2, 16.4–16.5
12	Transverse shear	Chapter 12
13	Superposition and combined loading Stress transformation; Mohr’s Circle	13.1–13.2 14.1–14.7
14	Design applications	Chapter 15
15	Buckling and instabilities Stress concentrations, fatigue Course summary	17.1–17.3
16	<i>Reading/Review/Recitation Week (May 4–8)</i>	
5/12	<i>Final Exam (on all lectures); 11:30 AM – 2:30 PM, location TBA</i>	

* Refer to: Hibbeler, “*Statics and Mechanics of Materials*”, 5th Edition, McGraw Hill

** Both mid-term exams are held in class during regular lecture time

Time and location:

2:00–3:00 PM MWF; 106 Stanley

Discussion sections

10:00–11:00 AM Tue; 3109 Etcheverry

1:00–2:00 PM Fri; 150 GSPP

Instructor:

Prof. Tony M. Keaveny <tonykeaveny@berkeley.edu>

Office hours in 5124 Etcheverry Hall:

Mon 4:30–5:30 PM

Tue 4:00–6:00 PM

GSI:

Tongge Wu <wutongge@berkeley.edu>

Office hours: 8:00–11:00AM Fri; 1165 Etcheverry

Required textbook:

RC Hibbeler, “*Statics and Mechanics of Materials*” 5th edition, Pearson: ISBN 9780134382593. Available at the campus bookstore. FYI we are *not* doing the *Mastering Engineering* module so do not order that or pay for it!

The latest edition of the textbook is the 5th edition, which is recommended for the course. However, you can also try to get the 4th or earlier editions, although their problems may be different or differently numbered than in the 5th edition. This is unlikely to be a big issue, but you will need to sort this out yourself since the homework problems will be assigned from the 5th edition.

Homework:

Homeworks are essential preparation for the exams, and will be assigned weekly, each Monday at 10 AM. For each assignment, the homework will be due by 10 AM on the Monday two weeks later, submitted electronically via *bCourses* in a PDF file (scanners are available in 2107 Etcheverry Hall or in Engineering Library). Detailed solutions will be posted on *bCourses* regularly for you to review. **No late homeworks will be accepted**, but one homework can be missed without penalty.

In addition to the HWs, there will be two Matlab assignments. **No late assignments will be accepted**. If you think you may not be able to submit a Matlab assignment on time, please discuss ahead of time with Professor Keaveny.

Exams:

There are two mid-term exams (in class) and one final exam (location TBA). All exams are closed book and without notes but all required formulae will be provided.

Grading system:

Homeworks	10%
Matlab Assignments	20% (10% each)
Mid-term Exams	20% (10% each)
Final Exam	50%