ACADEMIC CALENDAR

MECHANICS II

SPRING SEMESTER 2020

http://www.phys.uconn.edu/~rozman/Courses/P3102_20S/

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The section and the page numbers below refer to the following editions of the course textbook: B. Lautrup, *Physics of Continuous Matter, Exotic and Everyday Phenomena in the Macroscopic World* , 2nd ed., CRC Press 2011

MONDAY	WEDNESDAY
Jan 20th **MLK Day – No classes**	Jan 22nd **Lecture 1** Course logistics. Introduction to dimensional analysis.
Jan 27th **Lecture 2** Stress. Divergence theorem. Ch. 6.2–6.4, pp. 99–105.	Jan 29th **Lecture 3** Mechanical equilibrium. Cauchy's equations. Homework 1 assigned: due 2/5/2020
Feb 3rd **Lecture 4** Strain. Ch. 7.1–7.2, pp.109–115.	Feb 5th **Lecture 5** Physical meaning of the strain tensor. Ch. 7.3, pp.116–118. Homework 2 assigned: due 2/12/2020
Feb 10th **Lecture 6** Hooke's law. Ch. 8.1–8.2, pp. 125–130.	Feb 12th **Lecture 7** Hooke's law, II. Basic elastostatics. Homework 3 assigned: due 2/19/2020
Feb 17th **Lecture 8** Basic elastostatics, II. Ch. 9.1–9.2, pp. 140–145.	Feb 19th **Lecture 9** Basic elastostatics, III.
Feb 24th **Lecture 10** Basic elastostatics, IV. Radial deformation of a spherical body. Ch. 9.5, pp. 153–156.	Feb 26th **Midterm I**
Mar 2nd **Lecture 11** Bending a beam. Euler-Bernoulli law. Ch. 9.3, pp. 146–149.	Mar 4th **Lecture 12** Large deflections of beams. Ch. 10.3, pp. 169-171. Homework 4 assigned: due 3/11/2020

Monday	Wednesday
Mar 9th **Lecture 13** Fluid dynamics: Conservation of mass. Ch. 12.3, pp. 194–197.	Mar 11th **Lecture 14** Review
Mar 16th **Spring recess – No classes**	Mar 18th **Spring recess – No classes**
Mar 23rd **Lecture 15** Continuum dynamics: Ch. 12.4, pp. 198–199.	Mar 25th **Lecture 16** Ideal Flow: Euler equation. Ch. 13.1, pp. 207–211; Bernoulli's theorem. Ch. 13.2, pp. 210–214.
Mar 30th **Midterm II**	Apr 1st **Lecture 17** Potential flow. Intertial collaps of a cavity. Ch. 13.4, pp. 218–220;
Apr 6th **Lecture 18** Potential flow: flow around a cylinder. Ch. 13.5, pp. 220–223;	Apr 8th **Lecture 19** Potential flow: lift and drag; D'Alembert's paradox. Ch. 13.5, pp. 220–223;
Apr 13th **Lecture 20** Viscosity. Ch. 14.1, pp. 228-229. Navier-Stokes equations. Ch. 14.3, pp. 234–236. Homework 5 assigned: due 4/20/2020	Apr 15th **Lecture 21** Navier-Stokes equations. Ch. 14.3, pp. 234–236.
Apr 20th **Lecture 22** Classification of flows. The Reynolds number. Similarity. Ch. 14.4, pp. 237–239. Homework 6 assigned: due 4/27/2020	Apr 22nd **Lecture 23** Gravity driven flow. Laminar pipe flow. Ch 15.2–15.3, pp. 242–246.
Apr 27th **Midterm III**	Apr 29th **Lecture 24**
May 4th **Week of Finals**	May 6th **Week of Finals**