

PHY4932 Special Topic: Elasticity, F2014, BA1 206

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Elasticity is a branch of physics with many important applications. These include geology, geophysics, planetary science, mechanical engineering (MEMS, aerospace, construction), biology, medicine, etc. The mathematics of elasticity theory is extremely rich and challenging, but the predictions are testable by simple experiments. Hence, this class will feature a nearly even mix between theory and experimentation.

Textbook: Theory of Elasticity, 3rd Edition, L. D. Landau and E. M. Lifshitz

Grading: one midterm (20%), a final exam (30%), homework (20%) and lab reports (30%).

Topics include:

Strain and Stress tensors

Thermodynamics of deformation

Hooke's law

Homogeneous deformations

Deformations with change of temperature

Equations of equilibrium for isotropic bodies

Rods, Plates, Shells

Elastic Waves

Thermal Conduction in Solids

Midterm, Oct 21, 2014.

Final Exam, Thursday, December 04, 2014, 7:00 AM – 9:50 AM

**PHYSICS DEPT MISSED WORK POLICY:** *Making up missed work is permitted only for UCF-sanctioned activities and bona fide medical or family reasons. **Authentic justifying documentation must be provided in every case (in advance for UCF-sanctioned activities).** The form of the make-up will be determined by the instructor.*