

Course Outline
Physics 451/551
Classical Mechanics

Meeting Times: Tuesdays-Thursdays, 7:10-8:25 pm, Oceanography Bldg. 0303 (Perhaps move to CAS 0117 (Center for Accelerator Science Conference Room, 1027 W 47th St.)

Texts: A. L. Fetter and J. D. Walecka, *Theoretical Mechanics of Particles and Continua*, Dover Books; V. I. Arnold, *Mathematical Methods of Classical Mechanics*, Graduate Texts in Mathematics 60, Springer Books

Supplementary Resource Texts: H. Goldstien, *Classical Mechanics*, 3rd Edition, Springer, L. Landau and E. Lifshitz, *Mechanics*, 3rd Edition, Pergamon Press

Grading: Homework Problems 35%; Mid-term Examination 25%; Final Examination 40%

Office Hours: 15:00-17:00 Thursdays, CAS 107

Course Content

1. Small Oscillation Theory
2. Rigid Bodies
3. Differential Forms
4. Symplectic Manifolds
5. Hamiltonian Systems
6. Canonical Formalism
7. Strings
8. Membranes
9. Sound Waves
10. Heat Conduction
11. Non-linear Evolution