Physics 200A **Theoretical Mechanics** **Fall 2013**

Texts and References

Required:

i.) *Mechanics*; L.D. Landau and E.M. Lifshitz: classic but terse test; has a "just the facts" style

ii.) *Theoretical Mechanics of Particles and Continuua*; A. Fetter and D. Walecka: easier, good problems, good sections on continuua

References:

i.) *Classical Mechanics*; H. Goldstein: good on formalism and structure of mechanics

ii.) *Mathematical Methods of Classical Mechanics*; V.I. Arnold: advanced mathematical treatment of mechanics

iii.) *Chaos and Integrability in Nonlinear Dynamics*; M. Tabor: basic and nonlinear dynamics; broad coverage

iv.) *Regular and Chaotic Dynamics*; A. Lichtenberg and M. Lieberman: nonlinear Hamiltonian particle dynamics

v.) *A Treatise on the Analytical Dynamics of Particles and Rigid Bodies*; E.T. Whittaker: old classic-try the problems!

vi.) *Introduction to Dynamics*; I.C. Percival and D. Richards: nice little book on advanced Hamiltonian mechanics

vii.) *Principles of Optics*; M. Born and E. Wolf: good treatment of geometrical optics

viii.) *Fluid Mechanics*; L.D. Landau and E.M. Lifshitz: classic text on fluids

ix.) *Fluid Mechanics-A Short Course for Physicists*; Gregory Falkovich: elegant short text with interesting treatment of selected topics

x.) *Waves in Fluids*; J. Lighthill: fluid waves and wave dynamics

xi.) *Theory of Elasticity*; L.D. Landau, E.M. Lifshitz: good basic book on elasticity

xii.) *Newton's "Principia" for the Common Reader*; S. Chandrasekhar: remarkable study of Newtonian mechanics

xiii.) *Emmy Noether's Wonderful Theorem*; D.W. Neuenschwander: a study of symmetry-accessible but broad coverage

Amusement Reading:

The Theoretical Minimum; L. Susskind and G. Hrabovsky: unusual and non-trivial popular book on the theory of mechanics based upon Susskind's Adult Education classes at Stanford