PHYSICS 301
CLASSICAL MECHANICS
(3.0 ; 3 credits)

Textbook: Mechanics: From Newton's Laws to Deterministic Chaos
By : Florian Scheck
Springer Verlag

References: Classical Mechanics By H. Goldstein and
Mathematical Methods of Classical Mechanics
By V.I. Arnol'd

Contents:

1. Constraints, Generalized Coordinates, and D'Alembert's Principle
2. Variational Principles and the Euler-Lagrange Equations
3. Geometric Aspects of Mechanics
4. Symmetries and Conservation Laws
5. The Mechanics of Rigid Bodies
6. Hamiltonian Mechanics
7. Canonical Transformations
8. Poisson Brackets
9. Hamilton – Jacobi Theory
10. Stability, Integrability and Chaos
11. Relativistic Mechanics
12. Continuous Systems

Fall 2000