

# Classical Mechanics

PHYS 100A

Spring 2008

TFR 9:10-10:30

## Instructor Information

Name : Richard Noel Fell  
E-Mail : fell@brandeis.edu  
Office : 311  
Office Hours : By appointment

## Textbooks

*Classical Mechanics* by Douglas Gregory

Others that are more advanced, particularly mathematically, but are terrific are

*Mechanics* by Florian Scheck, fourth edition

*Classical Dynamics, a Contemporary Approach* by Jose and Saletan, first edition

## Course content

This course extends your knowledge of classical mechanics. After a review of the basics of Newtonian mechanics, we move on to more advanced topics such as projectile motion taking into account air resistance, central forces, orbits, physics in non-inertial frames, calculus of variations, generalized coordinates, Lagrange's Equations, Hamiltonian dynamics and rigid body motion.

Some of the material for the Lagrange and Hamiltonian formulation of mechanics will be based upon the books by Scheck and Jose and Saletan.

## Homework assignments

There will be weekly homework sets which will be graded and count 50% of the final grade.

## Numerical Software

Some of the problems will require the use of a computer algebra program. I suggest Mathematica since it is available to all students and has become the

de facto standard.

## **Exams**

There will be one midterm exam and a final exam. These may be in class exams or take home exams. Each exam will count 25% toward the final grade.