Physics 5I

Honors section of Introduction to Physics (2 Units)

Instructor: Peter Young (office ISB 212, phone 459-4151, e-mail: peter@physics.ucsc.edu)

Place: Interdisciplinary Sciences Building 231.

Time: Wednesdays, 9:00–10:30 am.

Note: Course materials, such as homework assignments, homework solutions, and handouts will be available at my web site

http://physics.ucsc.edu/~peter/5I/

Aim of the course:
This course is an *optional* supplement to Physics 5A. It is intended for students who are (a) motivated for physics, and (b) have already done some basic physics and elementary calculus (i.e. ability to integrate and differentiate standard functions). The course will cover some more advanced topics related to those in Physics 5A.

Books
The recommended book for the course is

- **Physics for Scientists and Engineers** by D.C. Giancoli, 4th edition including modern physics.

A stimulating set of books (which no serious physics student should be without) is the *Feynman Lectures on Physics*. Volume 1 is relevant for this course.
Other books, which are available in the library, and web sites may be recommended during the course.

Topics
This is the first time this course has been offered so the subject material might be altered somewhat during the course. At present it is intended to cover

- Special Relativity.
- Relativistic Momentum and Energy.
- Planetary dynamics, slingshot effect.
- Ballistics, air resistance.
- Energy, perpetual motion machines.
- Rotational dynamics and angular momentum, Euler disk.

- Conditions for mechanical equilibrium.

Grading
Your performance in the class will be decided on the basis of homework assignments and a final exam.
You are also encouraged to attend office hours for additional help, either with problems or bookwork.

Office Hours
The time of my office hour will be decided at the first class. I am also available to see students by appointment at other times.