# Physics 116A

**Days and Times:** Tu-Th 11:40AM-01:15PM
**Location :** Stevenson College Room: 175

**Instructor:** Sriram Shastry, sriram@physics.ucsc.edu, office ISB: 214, 459-5849

**Course Website:** The url of the website is

http://physics.ucsc.edu/~sriram/116A/

The login and password will be given in class.

**Office Hour:** Wed. 10:00-11:00 AM. Other times by appointment.
An extra hour on Monday 12th February 10AM to 11AM.
An extra hour will be announced before the final examination.

**Required Textbook:**

We will use "Mathematical Methods in the Physical Sciences" by Mary Boas (Edition 3). The same book is used for further courses in this series 116B and 116 C.

Some other books are on reserve in the library. I will give their titles in class, alternately you can enquire at the library counter. Several online websites also provide useful problems with solutions. An example is

http://exampleproblems.com/wiki/index.php/Main Page

## Syllabus:

Infinite series, topics in linear algebra including vector spaces, matrices and determinants, systems of linear equations, eigenvalue problems and matrix diagonalization, tensor algebra, and ordinary differential equations.

The content is (roughly) the contents of Boas's Chapters 1-11

**TA:** Michael Arciniaga, michael.arciniaga@gmail.com
**Office hour of TA:** Fri. 12:30pm-1.30pm, ISB 235

**Discussion Sections:** There are two discussion sections.
Timings: Mon. 10.40AM-11:40AM and Wed. 1.20 pm - 2.20 pm
Location: Thimann 391

**Tutorial Service:**
A tutorial service for this class is being provided for class by Learning Support Services. The tutorial service website is http://www2.ucsc.edu/lss/tutorial_services.shtml

**Recording of the lectures:**
The lectures will be recorded and can be viewed at http://webcast.ucsc.edu

**Grading and Examination schedule:**

Your performance in the class will be decided on the basis of the midterm, final and homework assignments as follows:

| | | |
|---|---|---|
| Midterm (Feb 13th in class) | : | 30% |
| Final (March 20th 8AM to 11 AM) | : | 50% |
| Homework | : | 20% |

The midterm and final will be closed book exams. You are allowed one page of handwritten notes if you wish. A good performance on the final examination is necessary in order to get a passing grade.

## Homework

There will be nine homework assignments. These will be handed out each Thursday and due back the following Thursday. It is very important to work hard on the homework problems. You don't really understand a topic until you are able to solve problems in it. The way to learn how to

solve problems is through practice. You are encouraged to discuss the homework problems with other students. You are also encouraged to attend the discussion section and office hours for additional help, either with problems or bookwork.

To get credit for your homework and exams, *you must show your working*. Simply writing down the answer will not do.

**Homework and Exam solutions:**

The homework is due on Thursdays and the solutions of the required problems (only) will be posted on the website after the due date. There will be also optional problems for practice, which you should do for learning the material thoroughly.

The solution of the exam will also be on the website. The url of the website is given above. It is

http://physics.ucsc.edu/~sriram/116A/

**Examination and homework code:**

Please follow the honor code in examinations- do not copy and do not allow others to copy from you. For other work, collaborate and discuss but do the homework separately.

**Cellphones and laptops in Class**

Turn off your cell phones in class. They are highly disruptive. Laptops used for calculations are OK, but not so if you use them for email/messaging. Offenders are easily spotted and should expect unpleasant consequences.

**Class code and questions in class:**

Questions in class liven up the experience and are very important. I welcome them.

Having said that, in order to protect a creative environment for learning, it will be best if we follow a protocol that is respectful of each other and also the class. The instructor is often working with a continuous set of themes, and breaking that continuity can be distracting for all concerned- including other students.

Feel free to ask questions in order to clarify ideas, problems, definitions etc that are being ***currently*** (or very recently) discussed by the instructor. Make sure that your question is reasonable, or fair, before asking it.

An example of a reasonable or fair question is to ask for an illustration of something that has been just introduced, or ask for illustrating an abstract definition that has been given. You may of course point out algebraic errors if you see them on the board, usually there will be plenty of those.

An example of an unreasonable or unfair question is to ask for the definition of some term that was taught in a lecture that you missed, or never learnt although it is part of the pre-requisites. It is also unfair to ask for clarification from something that was taught a while ago, say 15 minutes ago. As long as you are making sure that your question is not forcing a break in continuity, it should be fine.