

## **Physics 250 – Physics Journal Workshop Course Information Spring 2007**

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**Time and Location:** Tuesday, 5:15 pm, Room 204 Physics Building

### **Course Description and Grading**

This course is intended to introduce students to some of the current topical areas in physics that are at the forefront of theoretical and/or experimental research. We will touch on areas such as Black Holes, Gravitational Waves, Cosmology, Dark Energy, Subatomic particles, Gravitational Waves, Quantum computing, Global Warming, etc.

As there are no pre-requisites for this course, it is expected that some of the content will not be familiar to you, and you will have to make some effort to understand them using online or library resources. Class time will be devoted to discussing the articles and answering some of the more difficult portions of the articles. So, I fully expect you will learn some modern physics in reading these articles. A second, and very important goal of this course is to develop your skills in reading scientific literature, and distilling the most important points. Also, I hope to develop your ability for critical-thinking. That is, when reading an article, what information is firmly established, and which information is speculative. My last goal for this course is to provide an environment that fosters your confidence in participating and leading a discussion on scientific issues with your peers. Effective communication is a very important skill to develop in college, and employers will expect that you can communicate effectively in the workplace. You should be therefore be prepared to actively participate, and even lead a discussion. I may call on you on any class to lead some portion of the discussion.

The format of the course will consist of weekly readings and a group discussion about areas of current scientific research. A short (1 page or less) summary of what you learned from the reading will be due at the beginning of each class. This summary should be typed using your favorite word processor. You are encouraged to seek alternate information sources that may help you understand the readings. Your final grade will be based on your write-ups and on participation in the group discussions. For your writeups, you should clearly indicate what you learned from the reading, and indicate things that were not so clear. The latter can be used as discussion points in class.

The linked resources are intended to be primary reading. If, in the course of your reading, you come across terms that you do not understand, you should make every effort to understand them. Usually, this is easy as searching for the phrase or term(s) in Google

( [www.google.com](http://www.google.com) ). You may have to sift through a few links to find an explanation at an appropriate level. Also, see online sites mentioned below.

### Periodicals:

Periodicals are available in SciTech or online, through the library website, <http://library.syr.edu>

Scientific American, Discover: These are popular journals, intended for a general-education audience. They provide good introductions to a number of topics, but the selection of topics is not very comprehensive (they write on what they think will sell)

Physics Today: This is intended for professional physicists, but is useful for seeing what is going on in physics. All members of the American Physical Society receive this periodical. Highly recommended for browsing.

Science, Nature: These are two major interdisciplinary science journals. They are the most up-to-date in their coverage. Each week, they contain latest news about physics and research articles. Most of the content is outside physics, which is useful for seeing connections among the sciences.

### Web Resources

There are a number of great web resources for nice articles, jobs, statistics for physics majors, etc.

<http://www.physlink.com/>: nice website with latest news in physics & astronomy

<http://focus.aps.org> : highlights of latest physics news

<http://hyperphysics.phy-astr.gsu.edu/hbase/hframe.html> : great place to learn about various physics topics using trees to organize the topics.

<http://www.physicscentral.com/>: from APS, people, news, links...

Exploratorium: <http://www.exploratorium.edu/index.html>

Physics2000: <http://www.colorado.edu/physics/2000/index.pl>

<http://physicsweb.org>: Excellent resources, physics jobs, news and nice resources. For nice articles, see <http://physicsweb.org/bestof/>

<http://www.compadre.org> : student-oriented site with discussions about physics, jobs, etc

<http://www.aps.org/jobs> : jobs in physics

<http://www.aip.org/statistics> : a great deal of statistics on physics majors, careers, trends by women, minorities, PhDs, etc

<http://www.physicsgre.com> : contains resources for the physics GRE

[www.gradschoolshopper.com](http://www.gradschoolshopper.com) : information about graduate programs

<http://www.fearofphysics.com/> : website with nice animations of various physics effects