Physics 472Z
Special Topics in Physics module
Spring 2017

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Office Hours:
Monday 4:00-5:00pm in 112 NSCI
Wednesday 2:30-3:30pm in 112 NSCI

Semester schedule (calendar)

Presentation Schedule (new)

Link to Auroral Forecast at the GI

Links to Web info (to help with your project)

possible Template for Web Project

This syllabus is located at: http://ffden-2.phys.uaf.edu/472Z_spring_2017.html

Course Syllabus

Course Content: Special topics will deal with "hot" new results in physics. The topics will be student driven. We will learn to critically read cutting edge physics papers.

This course will cover the following topics among others:

The hot current physics such as: gravity waves,...

Critical reading: What's important in a paper and what's not

Synopsizing the main points in a paper

Prerequisites: Interest in physics. Some Algebra, trigonometry and calculus will likely be used.

Materials Needed:
Interesting papers

Text:

Calculators: No calculators may be used during exams. Otherwise, buy yourself a nice one. A basic, simple

scientific calculator with trigonometric, exponential, and logarithmic functions is all that you need.

**Lectures:** Feb. 20 - March 29 1:00pm MWF in 207 Reich. The lectures supplement but do not substitute for the reading. Lectures will cover the major topics, emphasizing and discussing the important points. They are not sessions to regurgitate material already written in the text. Your personal participation is important.

**Homework:** Weekly reading

**Project:** Project will be a synopsis of an important current paper written in "science news" format, presented to class and "webbed". More details will be given in class.

**Deadlines:**
Friday the 3rd of March - topic chosen
Wednesday the 29th - Web page due
Monday and Wednesday the 27th and 29th of March - written reports due and (10min) presentations???(might change)

Report be written in the format of a physics "news" report in Physics Today or Nature or .... It should not be longer then half a page or so but must be clearly written and make the main points. Presentation should summarize the same things.

**Hour Exams:** None

**Grading:** The course grade will consist of the following components (though I reserve the right to make grade adjustments based on performance trends):

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Reading</td>
<td>30%</td>
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<tr>
<td>Project</td>
<td>40%</td>
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<tr>
<td>Participation</td>
<td>30%</td>
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I grade on a curve however to satisfy university requirements, above 95% will be at least an A, above 85% will be at least a B above 75% will be at least a C, above 65% will be at least a D (in most cases the actual curve is significantly lower!).

**Contacting Me:** I have office hours as listed above. You can drop by at other times if I'm not busy, or make an appointment. I am (almost) never available before class.

**Special Needs:** The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. We will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities.

**Plagiarism etc:** Plagiarism and cheating are matters of serious concern for students and academic institutions. This is true in this class as well. The UAF Honor Code (or Student Code of Conduct) defines academic standards expected at the University of Alaska Fairbanks which will be followed in this class. (Taken from the UAF plagiarism web site, which has many links with good information about this topic)

**Complaints and Concerns:** You are always welcome to talk to me about anything, however, if you have a non-subject matter question or concern that cannot be resolved by me, contact the department chair, Dr. Wackerbauer, Physics Department Office, room 102 NSCI.

**Alternate References:** To see the same topics explained differently, try the following:

read papers
Here is a good web site on how to study physics which might be of interest and use: How to study physics

**General Advice:** Physics is not something you read and memorize, rather it is something you learn how to do. Try the following study procedure:

1. Read the chapter prior to lecture, so that you will know what it's about.
2. Listen carefully to the lecture and take notes.
3. This is crucial: *Do not go back and read and re-read* the chapter until you "understand it." Rather, start working problems, going back through the chapter to clarify points as they come up. I suggest you try to answer all "Checkpoint" problems in the text and the questions at the end of the chapter. If you understand these, you've probably understood the salient points of the chapter.
4. Think! Don't simply try to fit the problems into the form of another problem, think through the problem first.
5. **Interesting Physics computer demos**

Last updated 25 March, 2017