Physics 494  
Current Topics module  
Spring 2015

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Office Hours:  
Monday 3:30-5:00pm in 112 NSCI  
Wednesday 11:30-1:30pm in 112 NSCI

Semester schedule (calendar)

Homework

Link to Auroral Forecast at the GI

This syllabus is located at: http://ffden-2.phys.uaf.edu/494_spring_2015.html

Course Syllabus

Course Content: Current topics deals with current developments in Physics. We will be guided by the interest of the students plus Physics newsworths events. You will be given exposure to critical reading of Physics articles.

This course is likely to cover the following topics among others:

Plasmas  
Cosmology  
High Energy  

Prerequisites: Algebra, trigonometry and calculus will be used a little bit. Plus a bit of differential equations and a little PDEs. Reading skills will be used extensively.

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: 1:00pm MWF in 204 NSCI. 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: There will be approximately one homework/reading assignment per week. The assignment will be given out (and posted on the web and in the hall in front of my office) on Wednesdays and will be due in on the following Friday in class. You are encouraged to work with others. These assignments help me assess your understanding of the material, and will count toward your final grade.
Late work will not be accepted.

Presentation: You will give a brief (15 min) presentation on one of the topics/papers.

Last week/final week

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

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Presentation</td>
<td>33%</td>
</tr>
<tr>
<td>Homework/reading</td>
<td>33%</td>
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<tr>
<td>Participation</td>
<td>33%</td>
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</tbody>
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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. Szuberla, Physics Department Office, room 102 NSCI.

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

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 3 April, 2015