IB Physics II

**Teaching Requirement**

**As a part of this advanced course in Physics, I want you to spend 3 hours involved with teaching for each semester. The rationale behind this is that I personally feel (as does almost any teacher I have talked to) that I really learned Physics when I started teaching it. To learn something, you must know one path to the truth, to teach, each path a student might take.**

For 1.5 hours of your teaching requirement you must:

1. Come help at an after-school physics party. If no one comes in I might have you work on a specific task such as web page maintenance. I will make a master sign up sheet for the parties.

For the remaining 1.5 hours you can do the following:

1. Do a topic presentation to the class. This can be also used toward your speech requirements, assuming you want to graduate. I have a handout that further explains this.

2. Do part or all of a Tutorial for the physics Web page on the Wiki. See the list and sign up for this. The directions are at the physics website off of the tutorial page. You could also do a tutorial related to your research.

3. Tutor a first year Physics student for 1.5 hours. Have that person talk to me in person or write me a note about your tutelage. I will have a sign up sheet for this where you can leave contact information

4. Come in for physics parties. (1.5% a pop)

5. Teach a science lesson in some other setting (Elementary school, camp, Sunday school …). I have ideas; you need to arrange with the teacher. Talk to me.

6. Help with Skill Set finals, or the Extravaganza, or have do something extra for Oaks park, like run a camera or LabQuest

For extra credit (up to 3% additional on your grade), you may also do any of the above, or either of the following:

1. Build a demonstration apparatus that we don't have yet. I have books on this stuff. Negotiate this with me.

2. Create an Interactive Physics simulation of a concept we use in class (first or second year). Negotiate this with me.

3. Make a video tutorial on some topic.

**Teaching - Topic Presentations**

**If you do not want to do this alone, you may make two presentations with a partner. These usually will be sections from the book which you will need to cover, coming up with examples, demonstrations if possible, and whiteboard problems for the class to try out. This is what I expect from you and your grade will reflect how well you live up to these expectations:**

**Organization:** - **The student follows a clearly organized and well thought out lesson plan.**

Your lesson should follow a clearly organized plan. You must make lesson plans. (usually 2-4 pages of your notes) I will collect these when you have finished your lesson. I put examples, formulas, example problems, whiteboard problems, and stories in my notes. I break the subject down into small logical pieces and explain each with examples or demos. If you have the book open in front of you, with few exceptions, I will know you have no lesson plans.

**Examples:** - **The student is able to think up and explain examples for each new concept or phenomenon in their lesson.**

Think up examples of how your new concepts apply to the class. Tell a story that relates to the subject. Demonstrate the phenomenon, or if that's not possible, do a mock demo. (i.e. mousetraps and ping pong balls instead of Nuclear Fission)

**Example Problems:** - **The student has a set of well thought out and challenging whiteboard problems.**

Come up with one or two problems that you will work for the class. If there is a formula to apply, or new application of an old formula, then write whiteboard problems for the class to try. Double check your answers - I will help if you want. I have templates for some of the presentations you will need to make

**A typical lesson looks like:**

1. Explain what your agenda is (what you will be teaching them) - brief

2. Explain how it fits with what we already know. - brief

3. Explain the key concepts and give examples. Do demonstrations.

4. Show us any relevant formulas using the symbols from the Higher Level data packet as well as the symbols from the book. Label the symbols in the formula and give the units.

5. Do an example using each formula.

6. Ask for questions and answer them.

7. Go to whiteboards.

- you don't have to be typical, just effective and timely.