Exam Review for PHY 100 Fall 2013

- Exams will be timed and it is up to you how you divide your time between the 'lecture' and 'lab' questions.
- For each chapter:

  1. In so far as we have used the material for other chapters and problems. It has things like units in it which we have not directly addressed in class, but you should still be proficient with. Specifically you should be *extremely* comfortable with vectors. On the lecture portion of the exam I will forgive an extra sig fig here of there. *For the lab portion of the exam you should calculate sig figs exactly where relevant.*
  2. All material except Theory of Special Relativity.
  3. All material.
  4. All material except inertial/non-inertial frames of reference.
  5. All material except rolling friction and 'forces in nature'.
  6. All material except: 'Walking and Circular Motion', 'Black Holes' and 'Weightlessness'.
  7. All material except: You will have to calculate the work by variable forces such as springs, but I won't require you to know the material as it is derived in 7.4: 'Work Done by a Varying Force'. I did cover 7.8: Power, but not equation 7.18.
  8. All material except: 8.5 Impulse and 8.8 rocket motion. For elastic collisions you need to understand the more general elastic collision equations that you derived on the HW (i.e. these supersede equations 8.11, 8.12 in the textbook) - I won't require you to reproduce the derivation itself, but you should understand the assumptions that went into it.
  9. All material.
  10. All material except power in rotation motion (though you still need work in rotational motion), and no precession (latter half of 10.7).
  11. Sections: 2, 3 , 4 (everything in this section but not Circle of reference).
  12. Sections 1-6, 8.
  13. Sections 1, 2, 3, 5, 6.
  14. Sections 1, 2, 4, (5 we did in lab to some extent, so it could appear on the lab portion, but not the lecture portion of the exam)
  15. Sections: Everything except: triple point, critical point, and section 3. Also understand the equipartition theorem ($U = \frac{nRfT}{2}$)and degrees of freedom (for a monatomic and diatomic ideal gas) that I lectured on.
  16. Sections 1, 2, 5, 7,

- I would recommending studying in the following order:

  1. Practice exam
  2. HW problems

3. In class examples
4. textbook examples
5. Conceptual questions and multiple choice questions at the back of the chapter - these are good because they are quick and test your knowledge and have answers in the back of the book for some.
6. If you are still looking for stuff to do, start picking out random problems from the textbook that are similar to HW problems.

- For the lab portion of the exam I would recommend reviewing:

1. Goals of/what happened in experiments.
2. Standard form.
3. Standard deviation.
4. How to estimate uncertainty.
5. Random and systematic error.
6. How to understand and compare plots and draw your own plots.

- When you go to study keep in mind studying for physics is like exercising. You need to exercise to get stronger and you need to do physics problems to get stronger with physics. Reading about physics can give you help getting started clarifying concepts, but eventually you have to struggle with, and do problems. Similarly with exercise, you can read about proper form and how the rules of a game like soccer, but eventually you have to go out and train and exercise.