Study Tips for Physics

- Don't be intimidated, no matter what you've heard about a subject.
- Think positively. Problem solving is actually fun if you're in the right state of mind — consider it a challenge!
- It helps to go to lecture once in a while. It helps even more to try and stay awake and take notes.
- Read the material *before* you go to class. That way, you'll have a sense of what's to come, what's important, and what you really need to take notes on.
- Time management is part of the Physics Ferret's secret: even if you're traveling close to the speed of light, study time has a way of contracting. SO try to set up a study schedule even if you don't always stick to it.
- Learn to study many subjects at once. It rejuvenates the mind and prevents burnout in one area. Don't spend hours at a stretch on any one subject — neglecting everything else. Try using shorter stints for all your courses.
- Above all, DON'T PULL ALL NIGHTERS. Except for assuaging a guilty conscience, the Physics Ferret has discovered they are all but useless (and the next day is sheer hell).
- Use the best hours of every day to study your harder subjects. It's quality over quantity, and if you're tired, the time spent is worthless. If you're wide awake and stimulated it's *golden*.
- When studying the text, keep testing yourself. Ask questions: do I understand what's being said? Does it make sense? How has it been derived and why should I believe it?
- Science and math are like languages: you can't cram for them. They need to be absorbed slowly. Learn concepts rather than trying to memorize formulas. Formulas are simply statements of deeper, underlying ideas. If you understand the basic concept, you can usually solve any problem — provided it has a solution.
- Problem solving is *not* a spectator sport. You can spend several hours watching someone solve problems. But unless you play the game yourself, you won't learn the moves.
- Start by reading the problem very carefully.
- Take an inventory of things that are known and unknown.
- Always draw a diagram of some kind. It helps you visualize the problem.
- Rather than tackling a large problem in one shot… it usually helps to break it up into smaller, manageable pieces.
- Don't mix apples and oranges: while working on a problem be sure to keep your units straight.
- Perseverance pays: it helps to think about a problem even when you're not at your desk trying to solve it.
- Talk it over with a friend. Even if your friend doesn't have the vaguest idea about the subject, sometimes simply verbalizing a problem is enough to clarify it in your own mind.
- Try working the problem from both ends: start at the beginning and go as far as you can. Then go to the end and work backwards. Hopefully you'll be able to pull it together in the middle. Problem solving is akin to an art.

- If you get stuck and feel you can't go further, don't keep pushing! It helps to simply relax. Let the problem go, do something pleasurable and give your mind a chance to work on it by itself.
- Don't be afraid to seek help, but only once you've gone as far as you possible can. Then, all it should take are a few hints for everything to suddenly fall into line and make sense.
- When you finally get a numerical answer, see if it makes sense. Does the order of magnitude seem consistent with real life?
- Don't panic when faced with an exam. A good idea is to first read through the exam, then do the problems which you find easiest. While you're doing this, your mind will be working subconsciously on the hard ones. Look at it as a game, a way to test yourself to see how much you've actually learned.
- When you get your exam back, don't throw it away. Go back over each question and learn from your mistakes.