Tips for Succeeding in this (or any) Physics Course

1. Read the textbook on a regular basis. Don't just skim it for equations, but read the words and try to comprehend their meaning. The textbook contains a plethora of wisdom. Ignoring it is like shooting yourself in the foot just before running a marathon... not a good idea. You might get away with it if you are a pretty strong runner, but why handicap yourself?

2. Form a study group. Meet with your group at least once per week (more than once is better) to discuss difficult concepts and problems. Be patient with one another; help each other out.

3. Start homework early. Work on it in increments. Give yourself plenty of time to think and discuss with others.

4. Optimize your studying environment. Find a quiet place with low traffic and fewer chances of being interrupted. Eliminate distractions, turn off TV and music, close laptop, set aside tablet, etc.

5. Build up your attention span. Try to focus on one thing at a time. Set a timer for 10 minutes and avoid checking email or surfing the web until the timer goes off. Build up to 40 (or even 60) minute study sessions without interruption. (This is closely related to the previous item.)

6. Go to office hours. Discuss homework problems or anything that doesn't make perfect sense with your professor. Bring prepared questions.

7. Review your work. Make sure you understand any mistakes you make. Learn from your mistakes. Read, comprehend, and internalize any feedback or written comments you receive on returned work.

8. Don't be afraid to make mistakes. When discussing or working with others (both in and out of class), don't be afraid to ask or say something that you think is stupid. In class, don't be afraid to give wrong answers. Making mistakes is not only normal, it is crucial to the learning process. Don't let the fear of being wrong paralyze your growth.

9. Use outside help as an aid, not as a crutch. Getting outside help is fine, but make sure that after receiving the help, you understand the problem completely for yourself. Make sure you understand how to do each and every homework problem from beginning to end, on your own.

10. Pay attention to details. Be careful with your notation. Don't confuse vectors and components, or components and magnitudes. Keep track of units. Understand the meaning and placement of all minus signs, or all symbols for that matter. Being sloppy with such things usually leads to a lot of frustration and wasted time. Paying attention to details does take time and effort, but the pain it helps you avoid makes it worthwhile.

11. Practice your algebra skills. Avoid plugging numbers in until the very end of a calculation. Before plugging in numbers, check that your final expression makes sense. Is it dimensionally correct? Is it possible for any denominator to vanish, and if so, is that expected? Is it possible for any numerator to vanish, and if so, is that expected? Check if other limits give you what you would expect.

12. Think/discuss before solving problems. Take a second to classify each problem before starting to solve it. Ask yourself which main principles apply to the problem. Discuss with a friend how to approach the problem before starting to solve. Once you have carefully thought out, or discussed, which approach you think is best, then execute your plan. If your plan fails, re-asses the situation and try another approach.