Partial list of topics covered for PHYS 110 Exams

Anything in the book or lectures/labs is also considered fair game.

Standard expectations for results on exams:

- Put final answers in the boxes (if one is provided).
- *Numerical* results typically include units (e.g., $t = 2.22$ s or $\Delta x = 1.234$ m).
- Algbraic results typically do NOT include units.
- If the rest of the problem is an algebraic result, leave constants (e.g., g) in algebraic form.
- Compress numerical factors to a three sig fig decimal number *in the numerator* (e.g., $\frac{2\pi kx}{3r} = 2.09\frac{kx}{r}$).
- Simplify answers or risk losing points.
- Avoid intermediate rounding!
- Round final answers to three sig figs *unless otherwise noted*.
- Optional: use 4 sig figs if the 1st digit of a result is 1.

Chapter 1:

- Scientific vs Engineering Notation
- SI prefixes
- Identifying the proper number of sig figs
- Performing mathematical operations while tracking the number of sig figs
- Putting units on answers
- Math review
- Solving problems algebraically
- Understand when to put units on an answer (and when not to do so)
- Dimensional analysis

Chapter 3:

- Coordinate Systems
- Changing vectors between Cartesian and polar forms
- Creating unit vectors from a given arbitrary vector
- Performing dot and cross products
- Determine the angle between two given vectors with a dot product
- Practice with both 2D and 3D vector word problems
- Know the definitions of position, displacement, and distance. These words are used in Chapter 3 problems.

TIP: I plan to put vector stuff on EVERY EXAM.
Might as well study the crap out of it BEFORE test 1.

Chapter 2:

- 1D motion definitions
- 1D motion word problems
- 1D motion graphing
- 1D multi-stage problems (e.g., cop & speeder or deer in headlights)

Chapter 4:

- 2D motion
- Standard projectile word problems
- Non-standard projectiles (a_x is non-zero)
- Relative motion

Chapter 5:

- Forces
- Newton's laws
- Free Body Diagrams
- Shortcuts & algebra tricks for force problems

Chapter 6:

- Friction included in force problems
- Circular motion force problems (ask me just before the exam if I plan to drop this part)