SP352 HW #1

Policy that applies to ALL homework assignments in SP352

I recommend you form study groups that meet in the PI room or other convenient location. You are encouraged to work with other students in the course and need not attribute legitimate help received from them in doing homework. You may also freely receive legitimate help from me or any other faculty member you like. The following paragraphs explain what constitutes "legitimate" help.

You may freely use the textbook *Mathematical Methods for Scientists and Engineers* by D.A. McQuarrie, all of the handouts, and any materials posted to the course website. Please clear all other written or electronic materials used in doing homework with me. In particular, you are not to use other internet sources (such as wikipedia or google) unless the problem specifically asks you to do so. You are not to consult any old solutions prepared by me or Profs. Cimpoiasu or Tankersley.

Calculators are strongly discouraged and they will not be allowed on tests. Software programs such as Mathematica, WolframAlpha (on the web), and Excel are used for specific exercises and problems in the course and are loaded onto the classroom and PI room computers. I encourage you to load Mathematica onto your own computers also.

The general principle is that you need to personally master all problems. Make sure that when you get help from others, you are not merely copying from them or otherwise relying overly heavily on them. Get guidance not solutions. Check your final answers against those independently obtained by another classmate, to guard against careless algebra mistakes.

VS = "Introduction to Linear Vector Spaces" handout

VSWUP = Warmup Exercises on pages 49 to 51

VS = regular problems on pages 51 to 61

due Tuesday 15 January by 1200:

(a) VSWUP #2—Give a definition and then prove the answer for each of the 4 sets of vectors.

(b) VSWUP #8—In part *c*, express the inner products in terms of A_x, A_y, and the four dot products of unit vectors given in part *a*.

(c) VS #16—Looks long but is pretty simple and is very useful in QM.

(d) VS #18—Hint: Use your mathematical definition from problem (a) above and take the inner product of it with each of the vectors in turn. Note that the inner product of any vector with the zero vector equals zero.