Information about the First Hour exam for Math 114-001 and Math 114-002

Mechanics of the exam:

(1) There will be a review session from 7 p.m. to 9 p.m. the evening of Monday, Oct. 6, in room A8 of DRL labs.

(2) The exam will be on Wednesday, Oct. 8, in our usual room, DRL A1, at the usual time (11:00 am - noon for section 001, 1 p.m. - 2 p.m. for section 002). The two sections of the course will have different exams of equal difficulty. The exam for each section will be 45 minutes long to give us time to collect the exams before everyone must leave for their next class.

(3) **Important:** You can (and should) bring one handwritten one-sided page of notes to the exam, but no books or calculators. On this page, write down any formulas or notes which you think may help. See the next section for advice on how to prepare for the exam. Remember - no typed or photoreduced notes; only handwritten notes are allowed.

(4) There will be 10 multiple choice questions on the exam. To receive credit for a problem you will have to mark the correct answer **and** show plausible work leading to this answer. There will be no partial credit.

(5) The exam will have a final page which you should first tear off and then use to record your answers so that you can check these against the correct ones which will be posted on the course web page.

Scope of the exam and advice on how to prepare for it:

(1) The exam will cover the material in chapters 10 and 13 and the first part of chapter 14.4 up to (but not including) the discussion of components of acceleration in chapter 14.4.

(2) The main topics in chapter 10 were modeling, direction fields and Euler’s method, separable equations, linear equations and predator-prey systems. The applications of O.D.E.’s we discussed in chapter 10 were to growth models, Newton’s law of cooling, orthogonal trajectories, mixing problems, electric circuits, spring systems and predator prey models.

(3) The main topics in chapter 13 were vectors, dot products, cross products, equations of lines and planes, cylinders and quadric surfaces. The main applications we discussed were work, torque, angular momentum, finding the intersection of lines and planes, and the computation of various other geometric quantities coming from configurations of lines and planes.

(4) In chapter 14.4 we discussed position, velocity and acceleration along with Newton’s force law.
(5) I would recommend trying to become comfortable with how to do all the core homework problems on the syllabus for the above sections. If you don’t have time for all of these, I will make some specific recommendations below.

(a) In section 10.1, do problems 9 and 11 on page 607.
(b) In section 10.2, do problems 3-6 on page 635.
(c) In section 10.3, do problems 11, 19, 29, 39 and 41 on pages 622 - 623.
(d) In section 10.4, do problems 1 and 7 on pages 634 and 635.
(e) In section 10.5, do problems 5 and 29 on pages 642 and 643.
(f) In section 10.6, do problems 1 and 3 on pages 648 and 649.
(g) In section 13.1, do problem 17 on page 805.
(h) In section 13.2, do problems 4, 17, 34, 45 on pages 813 - 814.
(i) In section 13.3, do problems 1, 11, 15, 25, 41, 47, 49 on pages 820 - 822.
(j) In section 13.4, do problems 3, 9, 17, 33, 39 on page 829.
(k) In section 13.5, do problems 1, 7, 23, 45, 51 on pages 838 - 839.
(l) In section 13.6, do problems 1, 7, 29, 41, 45 on pages 846 - 847.
(m) In section 14.4, do problems 3, 11, 15, 21 on pages 882 - 883.