Info sheet for the final

Standard disclaimer: The following represents a sincere attempt to help you prepare for our exam. It is not guaranteed to be perfect. There might well be minor errors or (especially) omissions. These will not, however, absolve you of the responsibility to be fully prepared for the exam. If you suspect a problem with this review sheet, please bring it to my attention.

Format: The exam will take place Thursday, May 7 from 8-10 AM in Hayes-Healy 229. There will be no take home portion.

The basic format of the exam is likely to be similar to the (in class portion of the) midterm and final from last semester—a section of statements, a section of true false (or maybe just requests for examples of various things), and then several partial credit problems. My main interest is to know how well you've mastered the basics of linear algebra and ordinary differential equations over the last year. Of course, I'm as likely as not to include a ringer or two at the end of the exam.

Content: Broadly speaking, I plan to ask questions about the material from last semester's course and about ODEs. This excludes practically everything I covered after I finished talking about ODEs (fields, quotient spaces, decomposition of vector spaces into invariant subspaces), and the theory of normal and self-adjoint operators on inner product spaces.

The review sheets for this semester's midterm and last semester's midterm and final should serve to jog your memory fairly well about older material. Note that you can get the older review sheets off of last semester's webpage, which is still accessible from this semester's page.

Concerning the little bit of ODEs material covered since the midterm, you should know the following: how the exponential of a matrix is defined and how to compute it; how to solve homogeneous and inhomogeneous linear systems $\mathbf{y}' = A\mathbf{y} + \mathbf{b}(t)$ of ODEs with constant coefficient matrix A; how a constant coefficient two-dimensional linear system is related to a plane vector field.