

Math 2275 Final Exam Info Sheet

The purpose of this handout is to help you study by listing the concepts, definitions, and results you will need to know for the final exam.

Final Exam Information. The final exam will be on **Wednesday, April 19, 2006** in **AT 1001**. You will **not** be allowed to bring in any notes, use the text book, or use a calculator. **Bring your STUDENT ID.**

Material Covered. The exam will be cumulative; thus, it will cover all the material discussed in class about Chapters 5-7 of the textbook.

Exam Format. The exam will be out of 80 points. Of these 80 points, 35 points will be on Chapter 7, and the remaining 45 points will be divided between Chapters 5 and 6.

Please use your review sheets for Chapter 5 and 6 to study for these parts (copies of these sheets can be found on the class web page). I have given a breakdown of what you will need to know from each section of Chapter 7.

Section 7.1. Know the following terms: symmetric, orthogonally diagonalizable, spectral decomposition. Know Theorem 1, 2, and 3. Know how to orthogonally diagonalize a matrix. Read Example 2 and 3 carefully.

Section 7.2. Know the terms: quadratic form, matrix of the quadratic form, cross-product term, change of variable, positive definite, negative definite, indefinite, positive semidefinite, negative semidefinite. Know how to do problems like Example 3, and Example 4. Know the Principal Axes Theorem, and know how to use Theorem 5 to classify quadratic forms.

Section 7.3. The most important result of this section is Theorem 6, and its generalization Theorem 8. Be able to do problems like Example 3, and Example 5. You do not need to understand Example 6.

Section 7.4. Know the terms: singular values, singular value decomposition, left singular vectors, right singular vectors. The main result of this section is Theorem 10. In particular, you should know how to find the singular value decomposition of a matrix. Use Example 3 and Example 4 as your models. Ignore Examples 5, 7, and 8. Know the Theorem at bottom of page 479.

Note. I will be out of town March 31-April 3 and April 7-10. Except for these days, I will be in my office. Please feel free to stop by my office (RB 2015), send me an email (avantuy1@sleet.lakeheadu.ca), or phone (343-8228) to ask me a question about the material.

Good luck, and have a good summer! Adam