

These are the topics that you should prepare for.

1. Review all questions on the first three exams and quizzes. They will make up about 6 questions on the final.
2. Prepare the following topics on the inner product spaces. They will contribute two problems for the final exam.
 - (a) Learn how to compute the inner product (I.P.) matrix for a given basis of an abstract vector space (using the given inner product).
 - (b) Learn to diagonalize the I.P. matrix using combinations of matching row/column transformations. The final conclusion is that the I.P. matrix can be written as RDR^T where R is an upper triangular unit matrix and D is a diagonal matrix.
 - (c) Use the above calculation to decide if the quadratic form represented by a symmetric matrix is definite or indefinite (including positive, negative etc.)