

MATH 566

Final Examination

Computer Programming Problem

due 13 December 2005 at 1730

Write Matlab code to implement the inverse power method, utilizing the Rayleigh Quotient shifting technique. The output of your program should be a vector containing the eigenvalues and a matrix whose columns contain an eigenvector corresponding to each eigenvalue. Make sure your code works for complex-valued matrices.

As always, read in the data from a file, where the first entry is n (we're computing eigenvalues and eigenvectors of an $n \times n$ matrix) and the rest of the entries are the rows of the matrix. To enter the complex number $2 + 3i$, you use `2+3*i`. Note that in Matlab, the default value of the variable i is the imaginary unit $\sqrt{-1}$. Thus using i as a variable in your program is fraught with peril.