MATH 401, FALL 2015

1. Material for Midterm #3:

Sections 3.1, 3.2, 3.3, 3.4, 3.5

Section 4.1

Sections 5.1, 5.2

Sections 6.1, 6.2

2. Some notions to look at:

abstract vector space, domain, range, target, linear operator, invertibility, subspace, linear combination, span, spanning set, symmetric matrix, skew-symmetric matrix, redundant vectors, linearly independent vectors, linearly dependent vectors, basis, coordinates, change of basis, column space, row space, null space, kernel, norm, unit vector, inner product, angle between vectors, dot product, eigenvalue, eigenvector, eigenspace, eigensystem, characteristic polynomial, characteristic equation, algebraic multiplicity, geometric multiplicity, defective matrix, similar matrices, diagonalizable matrices, normed space, inner product space, ball, equivalent norms, induced norm, orthogonal vector.

3. Sample problems to look at (please note that these are representative problems from the material we covered, but all problems in the above mentioned sections of the textbook could appear on the midterm):

3.1: 2, 7, 20

3.2: 2, 12, 17

3.3: 2, 11, 23

3.4: 4, 10, 15

3.5: 6, 12, 22

4.1: 1, 17, 18

5.1: 2, 4, 9, 17, 20, 22

5.2: 2, 13, 16

6.1: 2, 7, 14

6.2: 1, 5, 8, 22