Math 152 Course Outline

Section 202 Winter 2013
Instructor: Jose Gonzalez

Week #1: (Jan 3) Vectors and coordinate representation; vector length, dot product, projection.

Week #2: (Jan 8 & 10) Determinants; cross product; lines and planes in 2D and 3D and planes in 3D.

Week #3: (Jan 15 & 17) Geometry of solutions of linear systems; linear dependence and independence; solving linear systems.

Week #4: (Jan 22 & 24) Solving linear systems (cont.); echelon form and rank; homogeneous equations.

Week #5: (Jan 29 & 31) Resistor networks; review.

Week #6: (Feb 5 & 7) matrix multiplication; linear transformations; rotations, projections and reflections in 2D; **Midterm Test #1** (February 7).

Week #7: (Feb 12 & 14) Matrix representation and composition of linear transformations; random walks; transpose.

Spring Break (Feb 18-22)

Week #8: (Feb 26 & 28) Matrix inverse; matrix representation of resistor network problems; determinants.

Week #9: (Mar 5 & 7) Determinants (cont.); complex numbers; complex linear systems.

Week #10: (Mar 12 & 14) Eigenvalues and eigenvectors; review.

Week #11: (Mar 19 & 21) **Midterm Test #2** (March 19); powers of a matrix; application of eigen-analysis to random walks.

Week #12: (Mar 26 & 28) Application of vector DEs to electrical networks; vector differential equations.

Week #13: (Apr 2 & 4) Review.

Final Exam (Date to be announced. Exam Dates: April 10-24)