Week 13

Monday April 24 Class 31:

**Least Squares Approximation.** We will learn what you do when $A\vec{x} = \vec{b}$ does not have a unique solution, but one wants to get “the next best thing.”

**Reading:**

Poole, Section 7.1, 7.2, 7.3

**Homework #28:** (due in Class 32)

Poole, Section 7.3: 1, 4, 9, 25, 36. EXTRA CREDIT 56.

Wednesday April 26 Class 32:

**Singular Value Decomposition.** We will look at one of the most important matrix factorizations, $A = PDQ^T$ where $P$ and $Q$ are orthogonal and $D$ is “diagonal-ish” (block diagonal).

**Reading:**

Poole, Section 7.4

**Homework #29:** (due in Class 33)

Poole, Section 7.4: 2, 5, 6, 7, 13, 45, 46, 47.

Friday April 28: Class 33

**Course Wrap-Up.** Wrapping-up the course (The **final version** of The Fundamental Theorem of Invertible Matrices!) and the beginning of Project Presentations! Project Presentations will continue on May 1 and May 3 and there is no class on May 4.