Differential Equations

Week 7

Monday October 6 : *Worksheet 15*

Linear System of ODEs. Yay, matrices are back. We will begin to analyze systems for ODEs which have the form $\dfrac{d\vec{x}}{dt} = A\vec{x}$. There are some very cool ideas in this chapter!

Reading:

Blanchard, 3.1

Homework #15:

Blanchard, Section 3.1: 7, 8, 14, 15.

Wednesday October 8 : *Worksheet 16*

Straight Line Solutions. Eigenvalues and eigenvectors return and are important in the case where Linear Systems of ODEs have solutions that look like straight lines.

Reading:

Blanchard, Section 3.2

Homework #16:

Blanchard, Section 3.2: 6, 11, 15, 16, 18.

Friday October 10 : *Worksheet 17*

Linear Systems with Real Eigenvalues. We'll be introduced to a new kind of equilibrium point which is neither a sink or source. It's called a saddle!

Reading:

Blanchard, Section 3.3

Homework #17:

Blanchard, Section 3.3: 3, 4, 7, 8.

Quiz:

Take-Home Quiz #4.