Class Observation 1/30/24 - (Briggs) Adv. Topics

Tuesday, January 30, 2024 9:58 AM

Class is setup with three tables.

Class starts with a challenge:
Solve the system

X' =

2	0
0	-3

X

X1' = 2X1 --> Ae^2t
X2' = -3X2 --> Be^-3t

X =

Ae^2t
Be^-3t

Does a bunch of matrix manipulation to show the various ways the same thing might be represented
$Ae^{2t}\begin{pmatrix}1\\0\end{pmatrix} + Be^{-3t}\begin{pmatrix}0\\1\end{pmatrix}$

If $\boldsymbol{x} = e^{rt} * \boldsymbol{v}$ is a solution, then r is an eigenvalue of A with eigenvector v

$$x' = \begin{pmatrix}1 & 1\\4 & 1\end{pmatrix}x$$

Student working in a variety of different ways, three on the white board, one on paper, three on OneNote @ table 1
Some watching other solve. Some quiet discussion.

John, walks around getting a sense of student's pace through the problem.

Does a shared solution of the eigen value problem and then gets more specific

IVP style problem.

Brings class back together as people finish and leads through the next solution.

Style is, pay attention when I'm talking or get left behind.

A question regarding the overall representation of the system of equations. Standard example is predator/prey dynamics.

Move into time to get started on homework. Informal, somewhat social atmosphere with some students asking for more direct assistance.

Like other classes, friendly, informal atmosphere but with high level math going on. Students seem

to be tracking concepts well, getting right to work when demo problems are up on the board. Solutions on the board could be explained more or rely on students filling in the steps with minimal pacing issues.

Students clearly see connection to prior concepts, "this is like recycling last trimester's eigenvectors." Lot's of laughing - students making an analogy of math being like the marvel cinematic universe.