PASS
PEER ASSISTED STUDY SESSIONS

FACIL: Neil Douglas
EMAIL: neildouglas@cmail.carleton.ca
COURSE: ECOR 2606

WEEK: 7
OFFICE: CSAS, 4th Floor MacOdrum Library
OFFICE HOURS: Fridays 3:00 pm to 4:00 pm

Opener (5 mins)

- Welcome back! Any good stories from over Reading Week?
- Core concepts we will cover today:
  - Solving series of linear equations using MATLAB
  - Solving series of linear equations using Gaussian Elimination

Activity 1 - Solving series of linear equations using MATLAB (25 mins)

Use the space provided to put the following series of linear equations in the form of Ax=b and write the MATLAB code needed to solve for x in each.

(i) After setting up the following in the form Ax=b, solve in MATLAB by making use of A^-1.

5x1 + x2 +4x3 = 32

2x1 + 5x2 – 8x3 = 17

x1 – 10x3 = -5

(ii) After setting up the following in the form Ax=b, solve in MATLAB by making use of inv(A).

7 + 6x1 – 5x2 = 0

x1 + 5x3 – 16 – 2x2 = -28

6x1 + 3x2 + 4x3 = 29

(iii) After setting up the following in the form Ax=b, solve in MATLAB using left division (which is the recommended method).

x1 + x4 = 7

x1 – 2x2 – 2x3 = -4

5x2 + x3 + 2x2 + x4 = 18

2x1 – x3 = 9

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Think about it!

Does the following represent a valid series of linear equations?

$$\begin{bmatrix}1 & 2 & 4\\5 & 6 & 9\\3 & 2 & 1\end{bmatrix}\begin{bmatrix}x1\\x2\end{bmatrix}=\begin{bmatrix}3\\5\\9\end{bmatrix}$$

Activity 2 - Solving series of linear equations using Gaussian Elimination (30mins)

(a) Use the space below to solve the series of linear equations in Activity 1 – (ii) using Gaussian Elimination.

Augmented matrix:

(b) Use the space below to solve the following series of linear equations using Gaussian Elimination.

$x1 + 3x2 – x3 = 14$

$2x1 + 3x2 + 6x3 = 24$

$10x2 – 6x3 = 34$

Augmented matrix:

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Activity 3 – What's the Game Plan? (15 mins)

Take some time to reflect on how this class has gone for you so far, and come up with some goals that you want to set for this class as well as strategies to achieve these goals. Be realistic, but also have high expectations for yourself! After about 10 minutes we'll have people share some of their strategies with the rest of the class.

How much of your grade is still up for grabs?
What are some goals you want to set for this class?
What are some specific actions you will take to achieve these goals?
Get any good ideas from your classmates?

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Closer (5 mins)

As your ticket out, write down two things you would like to see at PASS in the second half of the semester.