

Math151 at the University of Tennessee, Knoxville - Chat for November 2, 2015 with the course instructor, Louis Gross.

I will be online starting at 9PM and will be happy to answer questions regarding any aspect of the course, assignments, etc. You can type in this document to ask questions.

When you ask a question, please do not use your name because this document will be saved and publicly posted after we close it. I will be on-line at least until 10PM but will stay on longer if there are still questions. Note that I do not know the identity of anyone posting questions - each participant shows up as "Anonymous" animal.

I am now online if there are questions-lou

For some reason the nimbios site is not loading right now, but could you possibly go over an example problem in the book from chapter 11?

NIMBioS Site is down because power is off on several buildings. I can do a problem from Ch 11 - is there one you particularly want?

Is the LeslieFecundityV2.m file worked out to find juvenile, or yearling in our case?
How do we change it to give us adult and calf fecundity?

The LeslieFecundityV2.m code as I posted it varies the yearling fecundity using the values in f(i) vector. If you want to vary adult fecundity you would move the f(i) to the adult fecundity position in the matrix so it would look like

$$A = \begin{bmatrix} 0 & .4 & f(i) \\ 0.5 & 0 & 0 \\ 0 & 0.25 & 0 \end{bmatrix};$$

where I have just put in .4 for the yearling fecundity.

Our matrix for A would be different though right? It would be the one the book gives us?

Yes it would be the one in the text for the Bison model but you would do the same change to vary the adult fecundity - put f(i) as in the matrix A above. OK?

Thank you that makes sense. What should the graph look like? I just want to make sure I executed the code correctly.

I assume you are asking about the plot that is from problem 1 b in the Bison Matrix project - in that case you can use essentially the same code as in LesliePopulationPlot.m to produce the graphs but you will need to change the matrix of course and the time period to plot and the legends of the graph.

I am actually wondering about the graph in 1(c)

The graph generated at the end of LeslieFecundityV2.m is just like the one needed for 1(c) except it has more $f(i)$ values than we ask for in the Bison project so there are fewer points to plot. OK?

Any question will do I just wanted to see how a problem in chapter 11 should be worked?

For problem 11.1(a) the first answer is $\{1, 2, 3, 4, 5\}$ because each element in this set is in either A or B or both of them - this is the union of A and B the second part of (a) asks for the intersection so it is the elements in both A and B so it is $\{1,3\}$ OK?

Since Nimbios is down, could you post the homework for chapters 10 and 11 please?

I can try to do this through Blackboard, assuming that is up.

I'll put it in an announcement on Blackboard.

OK, can you write it here too?

OK - for chapter 11 it was problems 11.1, 11.3, 11.4, 11.5 for the first set (for this Wednesday) and 11.7, 11.9, 11.10 and 11.11 for next Monday. I am digging through my notes to find the ones for Chapter 10 but I think I had 10.1, 10.3, 10.5, 10.8 and 10.9 and 10.13

thank you

How should the matrix A in the for loop look like in 1(c), 1(d), and 1(e)?

It should have the Bison data in it with varying $f(i)$ or $s(i)$ in the appropriate places. For example

$A = [\quad 0 \quad 0 \quad f(i) ;$

```
0.6 0 0 ;  
0 0.75 .95 ];
```

for the case of varying adult fecundity which is 1 (c) and so for 1 (d) you'd have a vector of the 5 survivorships in s(i) and it would look like

```
A = [ 0 0 0.42;  
      s(i) 0 0 ;  
      0 0.75 .95 ];
```

OK?

Is the survivorship also in 1(e)?

For 1(e) you vary the adult survivorship so that is varying it in the matrix

```
A = [ 0 0 0.42;  
      .6 0 0 ;  
      0 0.75 s(i) ];
```

It is giving me an error when i put s(i)

Undefined function or variable 's'.

Error in Project_4 (line 105)

```
A2 = [0 0 .42;
```

```
      s(i) 0 0;  
      0 .75 .95];
```

Did you define s(i) before this

No i did not

Then that is the problem - you need to say

```
s=[.3 .5 .6 .7 .8]
```

so Matlab knows what s(i) is inside the for loop.

Got it, thanks so much.

For number 2 on the project, what code format should we use?

You already have the code so you should think about what of the results led to population extinction (that is, so that all of the calves, yearlings and adults are essentially zero by time 200) Think about what decreasing survivorships and/or decreasing fecundities would do to the population then choose some case in your results from the earlier sections and see if any of them die out. If not then consider further reducing the survivorships or fecundities. OK?

Yes thank you for all of your help.

Anything else from anyone-if not I am going offline - Lou