

PhD Launchpad Linear Algebra 2022 (Introductory Activity)

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1 Introductions

Get to know Professor R.G., Martha, and Aleyah a bit.

2 Activity 1

In your group of 3-4 people, do the following:

1. Introduce yourselves. Include your name, an area of math you might decide to study, and one thing you're excited about for grad school. Write down your teammates' names so you can remember them!
2. For each of the following questions, think on your own for 30 seconds, then discuss your answers with your group. When you've answered the questions, send people from your group to write your answers on the board.
 - (a) What is something (non-math) you are good at, and how did you become good at it?
 - (b) What is the value of making mistakes while learning?
 - (c) What skills/support do you need to succeed in graduate school?
 - (d) What do you think it means to do research in math?

In 5-10 minutes, we will reconvene as a class to discuss your answers.

3 Talk about class structure

The purposes of this class are:

- Learn material that grad classes assume you know.
- Practice making mistakes while the stakes are low. (No grades!)
- Get to know your cohort and figure out who you like working with.
- Get to know some returning grad students and professors, so you feel comfortable asking them questions.
- Find out about post-degree career options.

So that you get to know people and practice collaborating, a significant part of class time will consist of group work. You'll be working together on problems that encourage you to think more deeply about the material and discuss your work with each other and with us.

4 Activity 2

Since you will be working in a group during class, we need to agree on some norms for how to do mathematics collaboratively. On your own, answer each of the following questions. Then discuss your answers with your group, and use them to **come up with 3 suggestions for how a group can work effectively**. When you are done, send members of your group up to the board to write your ideas. ***Note: all group work will take place during class, so please keep that in mind as you answer the questions.***

1. What is the best experience you've had working in a group? What is the worst one?
2. What is one thing a teammate can do that helps you succeed in a group?
3. What is one thing you can do to help your teammates succeed?

Make your answers detailed. For example, instead of writing "communicate", explain what information should be communicated, how to share information respectfully, or something else.

In 5-10 minutes, we will reconvene as a class to discuss your answers.

5 Course plans

- For most of the class time, you will work with your group of 3-4 people. I will assign each group a section of the whiteboard. Please each take a different color of marker to write with. This helps us and you make sure you have all had a chance to contribute.
- Remember to follow the groupwork guidelines we just discussed, and talk to each other about what you need to make the group dynamic work. If you can't reconcile an issue, get one of us to step in.
- At the end of the day, Martha and Aleyah will collect information from you on what topics you're still confused by and what problems you'd like more closure on. At the beginning of the day tomorrow (and every day after today), groups will take turns presenting some of those problems. The presentations are informal, and it is okay to present a partial result. You'll present what you have, and lead the class in filling in the rest and improving your explanation.
- I will also give mini-lectures on topics that the class finds confusing.