



# Pathways through mathematics

pre-REU 2021



# Math Degree For Undergraduates

- Visit the advising office (academic advisors, Director of Undergraduate Studies, Older Peers) to talk about potential degree types
  - B.S., B.A., Applied Math, Honors Math, etc
- There is not an incorrect degree choice, however, one might be better than the other depending on what you want to do after you graduate!
  - The earlier you know, the better!
- Overall, this should be fun as you figure out which degree you want to pursue!



# What Can I Even Do with a Math Degree?

- Academia – graduate school, post-doc, etc.
- Non Academia Research
  - Institute of Defense Analyses
  - Lab
- Industry
  - Tech
  - Actuary
  - Banking
- Education – high school, university level, etc.
- Other



# Academia

- What is it?
- The typical path of Academia:
  - Graduate School
    - PhD Program or Masters
  - Post Doctorate (Post Doc)
    - Typically 1-3
  - Tenure Track Position
    - Hopefully once!
  - Tenure
    - Permanent position



# Let's Focus on the Bridge to Grad School

- What is graduate school?
  - Pure Math or Applied Math
- Masters' Program
  - 1-2 years
  - Complete research project
  - Typical and necessary in Europe but common for Mstat
  - Not commonly funded
  - No teaching requirement (Not typically paid)
- You can either go to a Phd Program or start working after!



# Let's Focus on the Bridge to Grad School

- PhD Program
  - 4-6 years
  - Pass qualification exams
  - Complete a thesis, dissertation, or research papers
  - Funded
  - Teaching required (this is how you get paid!)
- Next stop: Postdoc or other job!
- Note: PhD programs really love when their applicants have graduate course experience – so if you want to go to grad school, try to get in as much course work as possible!



# Non Academia Research

- This typically follows after a PhD but is a great opportunity for those that want to do research but no teaching
- The problems are real world focused rather than applied topics or theory



# Industry

- Industry just means having a career in technology, healthcare, banking, etc – a specific industry
- Accessible for all math pathways – you can go straight from undergrad, masters or a Phd
- If you do go right after undergrad, you might consider doing an internship the summer before you graduate!
- Sometimes, you need other skills like programming or finance
- If this is something you are interested in, meet with someone at your career services office to hear about employer events and networking as well as preparing resumes!





# Education

- This can come from either a math education degree or a math degree
- You can teach at elementary, middle or high school with an undergraduate degree
- For higher level like community college or a university, you need at least a masters degree
- If you like tutoring or teaching, this might be a good path for you to explore!



# Other!

- Al Jean – writer for Futurama and the Simpsons – has a math degree!
- Kenneth Keeler – went to school with Al Jean and they made the shows together!
- Eileen Collins – astronaut – did her undergrad in math and a masters in operations research!
- Christina Tosi – Milkbar Owner – is one of the world's most famous pastry chefs!
- Art Garfunkel from Simon & Garfunkel has a masters in math education!
- John Urschel from the NFL does math research!
- Matt Stone – South Park co-creator – has math degree!
- ...And the list goes on!



# Story Time

- Even three math PhD students do not have the same paths!



Questions?

