

How to thrive in grad school

Session 4: Getting started on research

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Roadmap and expectations

We will cover

- Session 1: Basics
- Session 2: LaTeX
- Session 3: Computing
- Session 4: How to learn from previous research
- **Session 5: Starting your own research**
- Session 6: Communicating your research to others
- Session 7: Possible career paths

Starting research

- How to choose research topics
- How to choose an advisor
- How to get started practically
- Wellbeing: Imposter Syndrome

Introductions

What was your favorite part of elementary school?

Thinking about research

- What are your long term goals?
 - Academic positions: can be advantageous to do more methods + theory
 - Industry / Government positions: can be advantageous to do more applied work
- What interests you about problems?
 - Mathematical statistics: aesthetics
 - Methods / ML: empirical performance and engineering
 - Applications: scientific impact
 - Do you want to think about a problem for a long time? Do you want to work on things that you can publish quickly and move on?
- Not just what you are good at now, but what you want to be good at later
 - You are in grad school to learn
 - Assume that your interests will change over time
 - What is a good place to start?

How to pick an advisor

- Does their research topic align with your interests?
 - Theory vs methods vs applications
 - Can this person teach you how to do research?
 - Look at list of professors in Statistics field
- Does their research style align with your style?
 - Very “hands-on” or more “big-picture”
 - Interested in problem “aesthetics” or “application-driven”
 - Career stage: early stage researcher vs more established professor
- What are the outcomes for this person’s previous students?
 - Ask more senior graduate students
 - How will this person be able to help you throughout your career?

How to practically start

- Select classes based on faculty instructors
 - Allows you to show the faculty how you work
 - Allows you to get a sense for how faculty works
- Reach out to faculty
 - Discuss papers (e.g., in this paper you did..., could you have done...?)
 - Reading groups (read through textbooks or new papers)
 - Ask about any ongoing work (professors almost always have more ideas than they have time to work on)
- Attend seminars and talks to see what you're interested in
- Start earlier rather than later
 - It's okay to start with one person, but then choose another advisor later
 - Keep expectations clear

Imposter syndrome

- The feeling that you don't belong, or are somehow doing worse off than everyone else
- Common amongst high-achieving individuals, and particularly academia
- Ways to navigate imposter syndrome:
 - Recognize that what you see of others probably is not representative
 - Make time for non-work friends/activities
 - Success is not binary outcome: set achievable goals
 - Don't hide!
- Your value does not depend on your academic productivity!