Goal of the Ph.D. program – why are we here?!

To prepare students for mathematical research and development, in industry, government, or academia.

• **Academic** Mathematicians conduct research and train the next generation of mathematics teachers for elementary through high school levels. To teach mathematics well at the college level requires a depth of understanding that comes from doing mathematical research.

• **Industry** and **Government** Mathematicians work in teams with scientists, engineers and financial analysts. They are responsible for creating mathematical models of situations of interest, analyzing data, and drawing quantitative conclusions.
BEGINNING of PhD program

- **Comprehensive requirements – 5 courses**
  - Math 500 Abstract Algebra, and Math 540 Real Analysis
  - Three more chosen from list of twelve
    - Need A- or better (though B+ is allowed for 2 courses).
    - Or pass the Comprehensive exam in the subject (Aug, Jan, May)
- **Math 499** (Introduction to Graduate Mathematics)
  - Meet professors, hear about their research.
  - **Required** in Fall & Spring of first year in PhD program.
- **Undergrad complex analysis (or take grad course).**
- **English proficiency**
  - TOEFL iBT speaking score 24, or
  - campus EPI test by end of second year.
- **No foreign language requirement.**

Questions?
MIDDLE of PhD program

- Advanced graduate courses (beyond comp level)
- Topics courses (Math 595)
- Reading courses (Math 597) with potential advisers
- Choose an adviser during 2nd year, take more reading courses, get involved in graduate student seminars, weekly research seminars.
- Develop thesis project ideas. Many advisers suggest problems.
- Summer school at national institute?
- Internship in scientific lab or industry? e.g. PI4 program, or apply independently.
- Preliminary exam - the “thesis proposal”, where the student explains the proposed thesis project to a faculty committee.

Questions?
END of PhD program

• Thesis/dissertation research (register for Math 599)
• Summer school, research workshop at national institute?
• Speak at a conference?
• Write a research paper and get it published?
• Job search
• Thesis defense

THEN A NEW BEGINNING...

JOB AND CAREER

Questions?
AFTER the PhD

Competitive job market – Math PhD’s up 80% in last 12 years

Doctoral Degrees Awarded to US Citizens

- Total Doctoral Degrees Awarded
- Total US Citizen Doctoral Degrees Awarded

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40-50% of graduates go to research/postdoctoral positions:

So consider careers in industry and government …

e.g. do an internship one summer, to explore your options.
Immediate concerns

- Summer funding is not guaranteed.
  - Save money during the year!
- Sign up for comps with Marci now (if taking next week).
- Learn PhD Progress Requirements in:
  - Guide for Graduate Students
  - If offered 6 years of funding then need 2 comps by February (for **GREEN** status) or 1 comp (for **YELLOW** status).
  - If offered 5 years of funding then need 3 comps by February (for **GREEN** status) or 2 comps (for **YELLOW** status).

**Assignment:** spend 10 minutes today exploring the Graduate Program website.

http://www.math.illinois.edu/GraduateProgram/

Questions?
Your support team

Marci Blocher
Assistant to Director of Graduate Studies

Lee DeVille
Director of Graduate Studies

Karen Mortensen
Associate Director of Graduate Studies

Scott Ahlgren
Associate Chair of Mathematics

Your adviser

Your fellow students, and your professors