Preparation for Graduate Schools and entry-level professional jobs

Sponsored by
Mathematics Department and S-COAM (NSF, *DUE 0966206)*

Prepared by: Dr. Yu-Ju Kuo

Outline

- To which schools should you apply?
- Application process for graduate schools
  - Typical application package
  - Recommendation letters
  - Personal/Goal/Research statement
  - Helpful experiences
  - Exams
- Life in graduate schools
- A different type of master program
- Exams/Certificates for some scientific fields

To which schools should you apply?

- What do you want from the degree?
- Do you have any specific interests?
- School ranking:
  usnews.com PhDs.org
- DREAM BIG!! Think thoroughly. Take challenges!!!

Application Package

- Typical Requirements:
  - Application Form, Application Fee
  - Goal Statement or Research Statement
  - At least 2 recommendation letters (most require 3)
  - Official Transcripts from all universities
  -

What you need to know about recommendation letters:

- It is not just A letter.
- Faculty usually need to rank the student against other students in various categories.
- CI·Ödztüè ă2YŜúʎYŜă ySŜŘ ű2 I·ŘŘ℠Ŝăă úKŜ ăúdzŘŜyűΩă strength and weakness, sometimes even at a more personal level.
- It is not only about your academic performance, but also who you are as a person. Are you responsible? Are you a team-player? Are you emotionally mature?

What you need to know about the goal statement or the personal statement

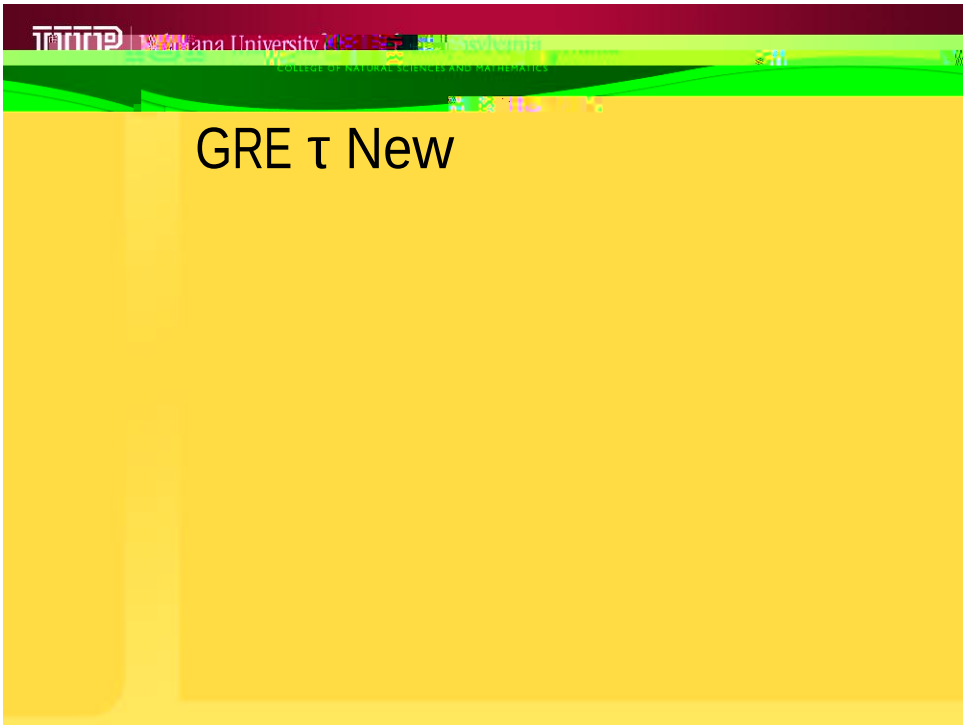
- Talking about the major in general is not enough.
- Try to be specific.
- Especially for Ph.D. program:
  - Specific research area(s)
  - Specific persons in that school
  - Research experience

Other Helpful Experiences

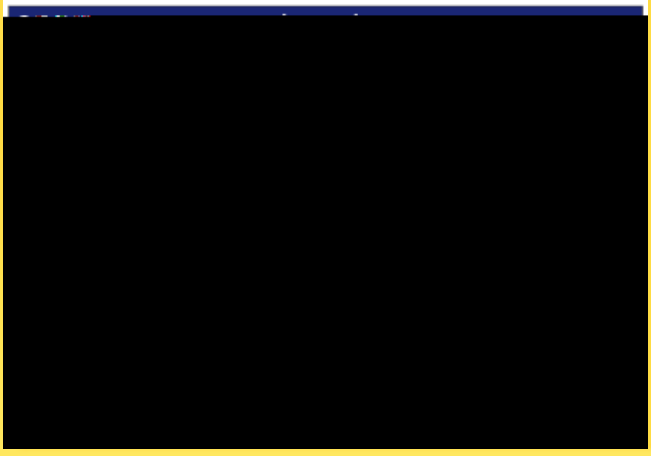
- Research Experience
  Research Experience for Undergraduate (REU)
  http://www.ams.org/programs/students/undergrad/emp-reu
  Research projects from classes
- Tutoring Experience
- Presentation Experience
- Leadership Experience

GRE-General http://www.ets.org/gre/

- Almost all Ph.D. programs in US require either GRE or GMAT.
- Many Masters programs require it.
- Many schools have a minimum score requirement.
- Score:
  - Verbal (old: 200-800, new: 130-170)
  - Quantitative (old: 200-800, new 130-170)
  - Analytic writing (0-6)
- Scores of all attempts will show up on the transcript.


GRE τ New

GMAT τ For Management related program



Life in graduate schools

- ω hYX yƵżΣ èƵdz I·ŃŜ I·ŎŎŜLJűŜŘXXøKI·ű łă yŜĖűK
- ω Be familiar with the program curriculum: course requirements, elective, comprehensive ŜĖI·YˇăΣ XXXΦΦΣ anything you must complete in order to graduate
- ω If you already have a graduate degree from another university, find out if any courses can be transferred AS SOON AS POSSIBLE.

Life in graduate schools

- Expect to live in the library, the lab, the office, the Ŏ2₮ŜŜ ăK2LJΣ X¢ØKŜℕŜ ŜØŜℕ è2dz Ř2 è2dzℕ ăŎK22f Ø2ℕ⅂
- If you work as a research assistant, say goodbye to most 2₮ è2dzℕ K2fΛŘI·èăX¢
  - But this experience might land you your first full-time job if you make significant progress and/or publish articles, so BE PROACTIVE.
- Expect to be frustrated when working on the thesis or the dissertation. This is the main experience that makes you different from most of undergraduate students, RESEARCH EXPERIENCE.

  If you are DETERMINED, YOU CAN GET THROUGH IT.

Thesis/Dissertation topic:

DREAM BIG BUT START SMALL.

Thesis/Dissertation advisor:

share similar research interests, know the field, have other advisees

A Different type of graduate degree: Professional Science Masters

http://www.sciencemasters.com/

- PSM programs are characterized by "science-plus" curricula that combine science and technology coursework with professional skills.
- Program Examples
- Applied Computing: Modeling, Network Design, Network Security, Simulation, Geographic Information Systems, Conflict Resolution, Negotiation, Project Management, Writing, Leadership
- Applied Industrial Mathematics: Differential Equations, Linear Algebra, Matrix Theory, Cost Benefit Analysis, Leadership, Organizational Decision Making, Human Resources Management
- Bio/Pharmaceutical Discovery and Development: Clinical Biostatistics, Clinical Trial Design, Gene Expression Systems, Proteomics, Molecular Evolution, Experimental Immunology, Applied Entrepreneurship, Intellectual Property and Licensing, U.S. Regulatory Affairs, Project Management

Entry-Level Exams/Certificates in Various fields

- Actuary: www.soa.org

  Exam P: the fundamental probability tools for quantitatively assessing risk, applications of these tools to problems encountered in actuarial science, thorough command of the supporting calculus, basic knowledge of insurance and risk management

  Exam FM: the fundamental concepts of financial mathematics, and how those concepts are applied in calculating present and accumulated values for various streams of cash flows as a basis for future use in: reserving, valuation, pricing, asset/liability management, investment income, capital budgeting and valuing contingent cash flows, an introduction to financial instruments, including derivatives, and the concept of noçarbitrage as it relates to financial mathematics, basic knowledge of calculus and an introductory knowledge of probability is assumed.

- IT- Related
- Microsoft Certification (It is not just about Office.)
  - http://www.microsoft.com/learning/en/us/certification/exam.aspx
- Cisco (Mostly Network related)
  - http://www.cisco.com/web/learning/le3/learning_certification_overview.html

- Data Related
- Quality Control: www.asq.org
  http://asq.org/store/training-certification/
  -Six Sigma
- SAS Global Certification Program
  http://support.sas.com/certify/