





beyond expectations



Preparation for Graduate Schools and entry-level professional jobs

Sponsored by
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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 (well, only including those that I know of....)

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
 - Exams: GRE (General, Subject), GMAT
- Where do you send your material?
Sometimes you need to send one package to Graduate School and one package to the department.





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.
- Faculty sometimes need to address the student's 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—New-August 2011



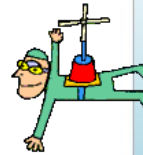
- The Analytical Writing section will always be first, while the other five sections may appear in any order.
- **Analytical Writing**—One section with two separately timed tasks-- 30 minutes per task
One "Analyze an Issue" task, one "Analyze an Argument" task
- **Verbal Reasoning**—Two sections
Approximately 20 questions per section 30 minutes per section
- **Quantitative Reasoning**—Two sections
Approximately 20 questions per section 35 minutes per section
- **Unscored**—Varies-- typically a Verbal Reasoning or Quantitative Reasoning section, that may appear at any point in the computer-based GRE revised General Test
- **Research**- Varies
- You'll get a **10-minute break** following the third section, and a **1-minute break** between the other test sections.

GRE-Subject (only offered 3 times a year)

- [Biochemistry](#), [Cell and Molecular Biology](#), [Biology](#), [Chemistry](#), [Computer Science](#), [Literature in English](#), [Mathematics](#), [Physics](#), [Psychology](#)
- Some Ph.D. programs require it.
- It might be a good idea to take Subject-GRE if you are changing fields or had a low GPA at the undergraduate level.
- Math – 170 minutes for 66 questions
Calculus-50%, Algebra-25%, Additional Topics — 25%

GMAT—For Management related program

GMAT® Exam Format and Length		
Test Section	Number of Questions	Timing
Analytical Writing Assessment		
Analysis of an Issue	1 topic	30 minutes
Analysis of an Argument	1 topic	30 minutes
<i>Optional rest break: 8 minutes</i>		
Quantitative Section		
	37 questions	75 minutes
Problem Solving		
Data Sufficiency		
<i>Optional rest break: 8 minutes</i>		
Verbal Section		
	41 questions	75 minutes
Reading Comprehension		
Critical Reasoning		
Sentence Correction		



Life in graduate schools



- OK... now, you are accepted.....what is next?
- Be familiar with the program curriculum: course requirements, elective, comprehensive exams,, **anything you must complete in order to graduate**
- 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 coffee shop, ...where ever you do your school work
- If you work as a research assistant, say goodbye to most of your holidays....
 - **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 no-arbitrage 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/>