Graduate Studies in YOUR Future

Garden State LSAMP
Rutgers University - NB

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October 11, 2019
Preparing for STEM PhD Studies

- Course work
- **Research**
- GRE exams
- Application
  - Personal statement
  - Letters of reference
- What to expect as PhD student
- Visit schools
Where would you like to be 10 years from now?*

- How are you preparing now to realize your dreams?
Where would you like to be 10 years from now?*

- How are you preparing now to realize your dreams?

- What advanced education & training will you need?
What do you want to do after you graduate college?*

- Go to graduate school?
  - PhD or Masters?
  - Which subfield?

- Do something else?

- Go to graduate school eventually?
Preparing for Graduate Studies

- Course work
  - Get to know your instructors
  - Do in-depth work, participate in class
  - Maintain good grades
Preparing for Graduate Studies

- **Course work**
  - Get to know your instructors
  - Do in-depth work, participate in class
  - Maintain good grades

- **Research**
  - During the summers
  - At your home institution
  - At other institutions?
  - REU sponsored by NSF
  - SULI supported by DOE
    - [http://science.energy.gov/wdts/suli/](http://science.energy.gov/wdts/suli/)

- GREs w/ Analytical Writing
- GRE Subject test (e.g., Biology, Chemistry, Math, Physics)
Research !!!

- This academic year
Research !!!

- This academic year
- During summers
  - At your home institution
  - At another university
    - NSF REU programs
  - At a national laboratory
    - SULI programs
Research !!!

- This academic year
- During summers
  - At your home institution
  - At another university
    - NSF REU programs
  - At a national laboratory
    - SULI programs
- Biological science opp. – post baccalaureate
  - After B.S. degree, before start Ph.D. program
  - Research + course work
  - Includes SULI
Research Experiences for Undergrads: NSF & DOE

- REU, e.g., Rutgers- New Brunswick
  Research In Ocean Sciences
  Cellular Bioengineering

- Stipend ($500/week)
- Housing
- Educational enrichment

- [https://science.osti.gov/wdts/suli](https://science.osti.gov/wdts/suli)
- Deadlines December to early January

Dept of Energy: Science Undergrad Lab Internships (SULI)
RISE – Research Intensive Summer Experience

The RISE Advantage
- Cutting-edge research
- Exciting interdisciplinary opportunities
- Personalized mentor matching
- FUNDING! stipend, housing, travel
- Field trips and fun!

Professional Development
- Scientific writing & speaking
- GRE preparation
- Career exploration
- Networking with academic & industrial scientists
- Poster and oral presentations
- Deadline Jan: one app all Big 10
- www.btaa.org/srop

http://rise.rutgers.edu
Components of the Grad Application

- Application form: Contact & background info
- Transcripts - all colleges you attended
- Lists of relevant courses
- Application fee (≈$70 per school)
  - May be waived because in LSAMP, McNair or other diversity program – ask
- Personal Statement
- Letters of Reference
Personal (professional) Statement*

- What I have done in *proposed field of study*
  - Discuss your research project(s)
  - What were your most important contributions
Personal (professional) Statement*

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  - Discuss *your* research project(s)
  - What were *your* most important contributions

- What I want to do
  - Continue to study in-depth and do research in *specify the topic*
    - If not sure of which subfield, OK to say so, but should have some preferred areas
  - Become a researcher or professor in this field or work in industry
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  - Discuss *your* research project(s)
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  - Become a researcher or professor in this field or work in industry
- Why this school?
  - Excellent faculty doing research in *specific area*
  - Or if undecided about sub-specialty, the strengths of the program in many (*specify*) areas of study that interest you
**Personal (professional) Statement**

- **What I have done in proposed field of study**
  - Discuss *your* research project(s)
  - What were *your* most important contributions

- **What I want to do**
  - Continue to study in-depth and do research in *specify the topic*
    - If not sure of which subfield, OK to say so, but should have some preferred areas
  - Become a researcher or professor in this field or work in industry

- **Why this school?**
  - Excellent faculty doing research in *specific area*
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- **Well written**
  - Have friend or mentor critique
  - Spell and grammar check
Letters of Reference*

- Usually require 3
- People who know you well
  - Course work
  - Your research
Letters of Reference*

- Usually require 3
- People who know you well
  - Course work
  - Your research

Examples

- Supervisor of summer research project(s)
- Professor in a class where you participated actively in discussions
- Should be high ranked person AND someone who knows you well

Someone who will be able to say more than
“She got an A in my course”
Preparing: What to Expect

- What you will do in a PhD program
  - Course work
    - 1-2 years
  - Qualifying exam
    - Sometimes end of 1st,
    - “always” by end of 2nd year
  - Original Research
    - Something no one has ever done before
  - Write, give presentations, often work in teams, often teach
  - 5-6 years in total
    - Make sure are willing to live where you are studying
Preparing: What to Expect

- Financial support
  - Ph.D. students in STEM fields are supported
  - Make sure indicate that are interested in financial aid (although Ph.D. programs likely to assume so)
Preparing: What to Expect

Forms of Financial support (Ph.D. students)

▪ Stipend + tuition remission (+ medical benefits)

▪ Teaching assistant or research assistant or fellowship (or combination of these)

  ▪ Teaching Assistant: teach in classroom, often sections of large introductory lecture or lab courses (≈15 hours/week)

  ▪ Research Assistant: Does research on the project of a faculty advisor (not necessarily your dissertation advisor)

  ▪ Fellowship: no work requirements.
    ▪ Award based on excellent promise
Preparing: What to Expect

- Financial support
  - Ph.D. students in STEM fields are supported
  - Make sure indicate that are interested in financial aid (although Ph.D. programs likely to assume so)
  - Apply for external fellowships:
    - NSF Graduate Research
    - DOD, DHS, NNSA
    - Ford Foundation, GEM
    - NPSC
  - LSAMP Bridge to Doctorate

More info: posted on GS-LSAMP
National Opportunities for Financial Support (Ph.D. students)

- National Fellowships – ask LSAMP office for list
  - Federal agencies that support the sciences
  - Foundations, e.g., Ford Foundation, GEM
  - LSAMP Bridge to the Doctorate – schools with LSAMP programs
  - NIH Bridges to the doctorate - partnerships—biomedical sciences

- Excellent stipends + funds for tuition, etc.

- Apply early fall Senior Year

- Award based on excellent promise
  - In research
    - Based on research experience(s) and research proposal
  - For broader impact
    - Potential for leadership
    - Role model for younger scholars
    - Commitment to enhance diversity
    - Commitment to outreach to community and K-12 schools
Preparing: When to apply

- **During the Summers**
  - Do research, start to prepare to take GREs
  - Talk with research mentors about grad study options for you
  - Work on personal statement

- **End of junior year/early in senior year**
  - Take GREs
    - General, with Writing Sample
    - Subject Test

- **Early senior year**
  - Decide to which schools will apply
  - Talk to professors about writing letters of reference

- **December of senior year**
  - Submit applications

- **External Fellowships**
  - Deadline October of Senior Year
    - Most programs have deadlines in early January, some in December, especially for financial support
Preparing for Graduate Studies

Learn about which school is right for you:

- Suggestions from faculty or research mentors
  - Graduate programs directors at local universities
- Graduate School recruiting fairs
  - Recruiters at recruiting fairs
- Request written materials and go on-line

- Visit schools before accepting
  - Talk with professors
  - Meet current students
  - Walk around campus, visit the town
Say thank you

- Thank you to letter writers
- Thank you for invitation to visit and people you met while visiting another school
- Thank you to schools that make you an offer
  - Decline offer(s) as soon as have made a decision, preferably before April 15

You are entering the broader STEM community:
Your future colleagues, collaborators and friends

Thank you Dr. Evelyn Erenrich & RiSE@Rutgers for Photos
Have fun in Grad School

- In-depth study in a particular field
- Doing something no one has done before
- Preparing for challenging career
- ALL of the above
Summary:
Preparing for STEM PhD Studies

- Course work - Now
- Research – summer 2020 and beyond
  - REU & SULI
  - RISE at Rutgers and Big Ten
  - Deadlines December and January
- GRE exams – early senior year
- Application – December-January deadlines
  - Personal statement
  - Letters of reference
- Visit schools before accept ⇔ your best match
- Have fun!