Graduate Studies in YOUR Future

Conference Experience for Undergraduates

Joint APS-DNP and JPS Meeting

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October 25, 2018
Preparing for Nuclear Science PhD Studies

www.uwlax.edu/ceu

- Course work
- **Research**
- GRE exams
- Application
  - Personal statement
  - Letters of reference
- What to expect as PhD student
- Visit schools

(* = where may want to make notes)
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?
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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

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- GREs w/ Analytical Writing
- GRE Subject test (e.g., Chemistry, Physics)
  - Best of success to those taking it on Saturday

- Research
Research !!!

- Last summer
- This academic year
Research !!!

- Last summer
- This academic year
- Next summers
  - At your home institution
  - At another university
    - NSF REU programs
      http://www.nsf.gov/crssprgm/reu/reu_search.cfm
  - At a national laboratory
    - DOE SULI programs
      http://science.energy.gov/ wdts/suli/
Research Experiences for Undergrads: NSF & DOE

- Stipend ($5K+)
- Housing
- Educational enrichment

http://www.nsf.gov/crssprgm/reu/reu_search.cfm
http://science.energy.gov/wdts/suli/

Deadlines December to early January
Components of the Application

- Application form:
  - Contact & background info
- Transcripts:
  - All colleges you attended
- Lists of relevant courses
- Application fee
  - ≈$70 per school
- 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
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- 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 (theory or experiment; nuclear or condensed matter, etc.)
  - Become a researcher or professor in this field or work in industry
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- 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

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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
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**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”

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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 physical sciences 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

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- Apply for external fellowships:
  - NSF Graduate Research
  - or fellowships from DOD, NNSA

More info:
posted on CEU web page
National Opportunities for Financial Support (Ph.D. students)

- National Fellowships – See CEU web site
  - Federal agencies that support the sciences
    - DOE, NNSA, DOD
- Apply early fall Senior Year OR once as 1\textsuperscript{st} or 2\textsuperscript{nd} year PhD student
- 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 program 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 you have made a decision, preferably before April 15

You are entering the nuclear science community:
Your future colleagues, collaborators and friends
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
Thank you!
Summary: Preparing for Nuclear Science PhD Studies

- **Course work** – Now - [www.uwlax.edu/ceu](http://www.uwlax.edu/ceu)
- **Research** – now, summer 2019 and beyond
  - REU & SULI – Deadlines December and January
- **GRE exams** – early senior year
  - Best of success to those taking them on Saturday!
- **Apply for external fellowships**
  - NSF October; others early January
- **Application** – December-January deadlines
  - Personal statement
  - Letters of reference
- **Visit schools before accept** ↔ your best match
- **Have fun!**