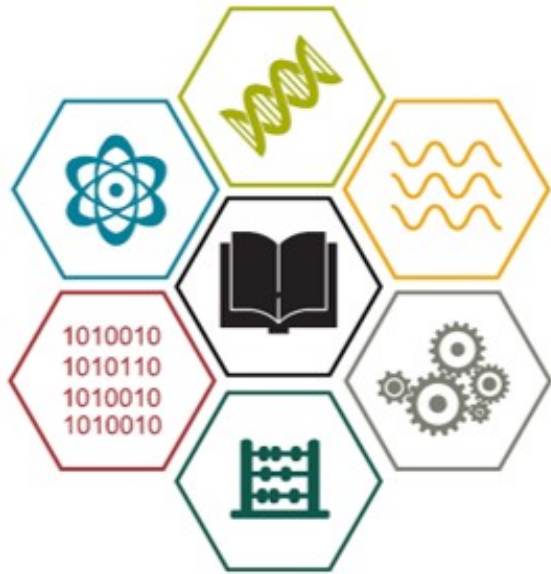


Hauber Summer Research 2020



HAUBER
RESEARCH FELLOWSHIP PROGRAM

A background image showing a desk with several books, a pair of black-rimmed glasses, and a pen. The scene is softly blurred, creating a professional and academic atmosphere. A large, semi-transparent white circle is overlaid on the left side of the image, containing the text.

Planning for Graduate Studies

Hauber Fellows Program

June 10, 2020

Bahram Roughani

Associate Dean for the Natural
and Applied Sciences



Have you
ever asked
yourself...

A dark green background with a light green horizontal band in the center. The text "SHOULD I GO TO GRAD SCHOOL?" is written in a bold, white, sans-serif font across the band. The band has a slight shadow effect, making it look like a piece of paper or a sticker.

SHOULD I GO
TO GRAD
SCHOOL?

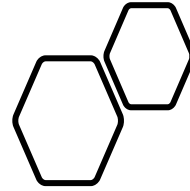
What are your plans after graduation & Why?

- Finding a job?
- Pursuing graduate studies?
- Searching for a job with CE / education support
- Be Your Own Boss: Launch a start up
- Considering a “Bridge Year”?
- Volunteer work?
- Other plans?



everybody join in.

Reasons for pursuing
(or not pursuing)
graduate studies?

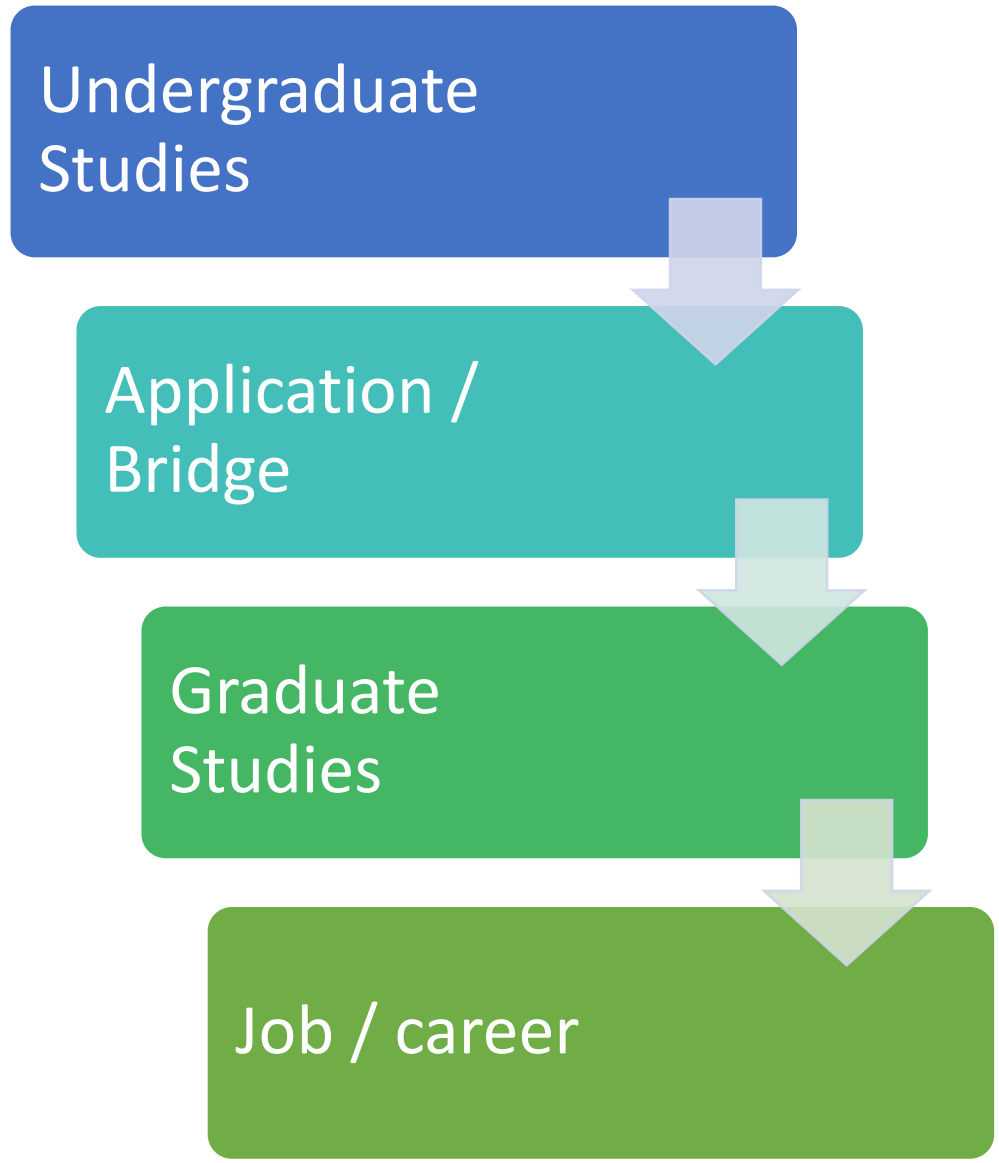


What is (are) your reasons?

- Financial / paying off loans
- Gaining Work Experience
- Personal
- Family
- Exploration
- Can't decide
- Others



Common
Stages of
Education
&
Career



Planning for Graduate School

As an undergraduate student:

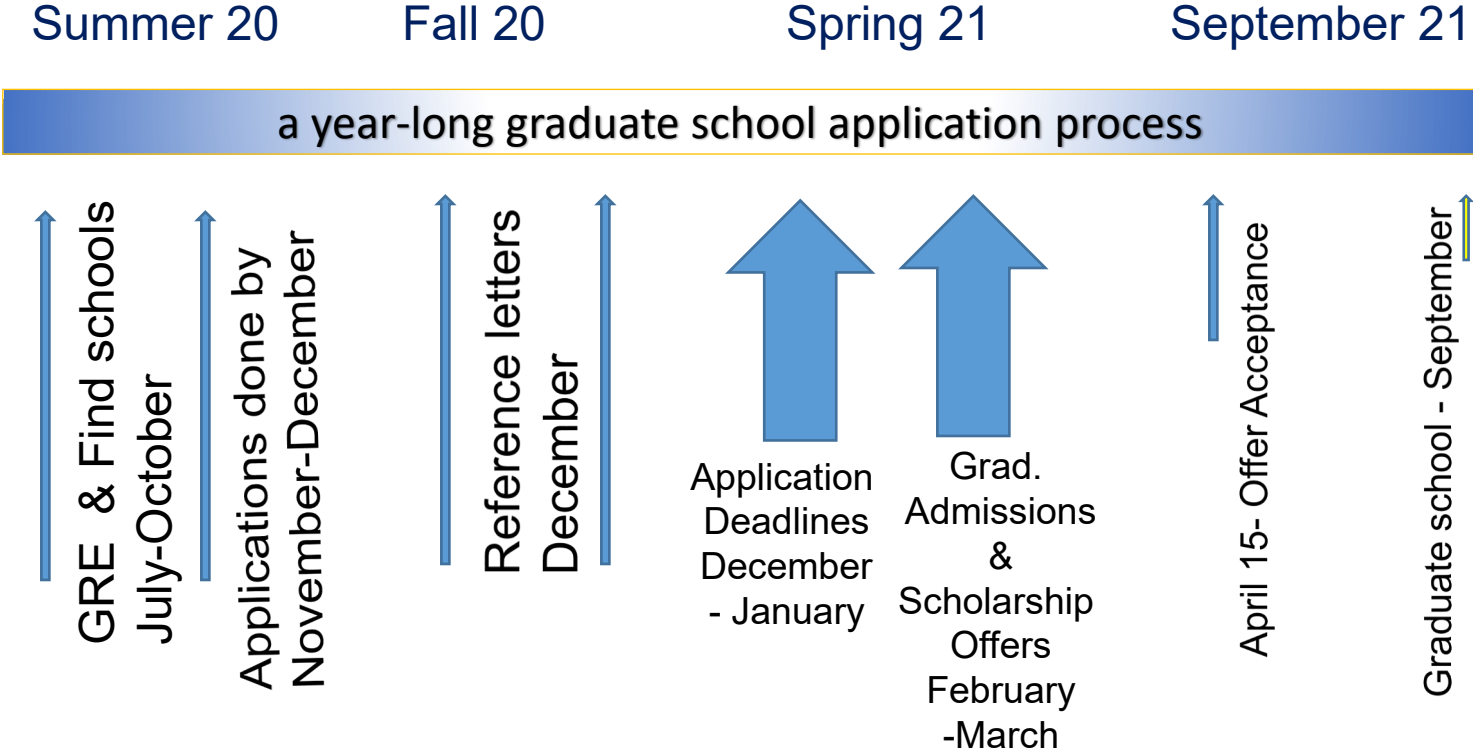
- What to do as an undergrad?
- When to start the application?
- Navigating the application process?
- Where to find the right information?
- How to narrow down your choices?
- How to “negotiate” your options?

As a graduate student:

- How to succeed in G.S.?
- Selecting your thesis project & thesis advisor?
- Life after grad school?

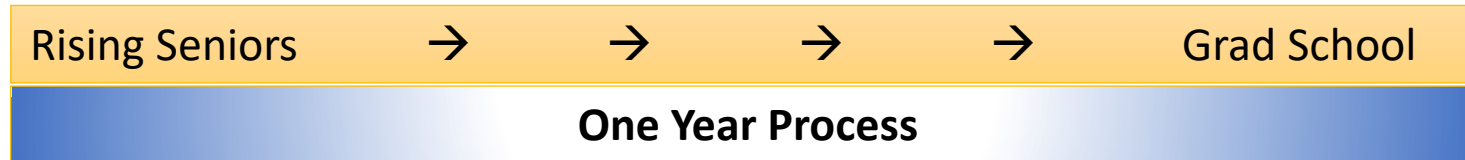
Graduate School Application Timeline (other than medical fields)

Planning ahead with a focus on the end date:

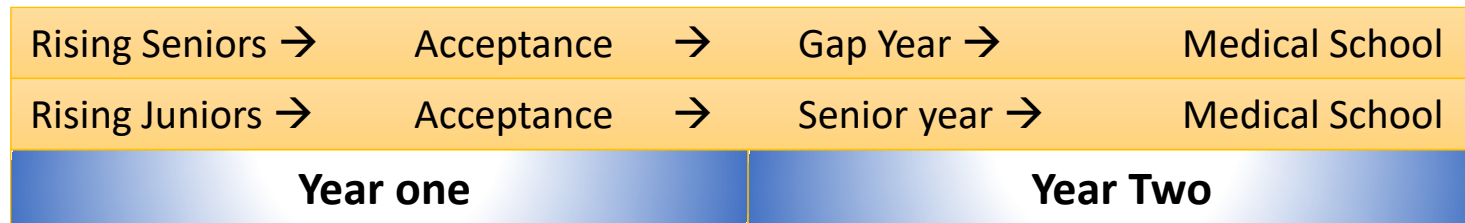


Comparing the timelines & options

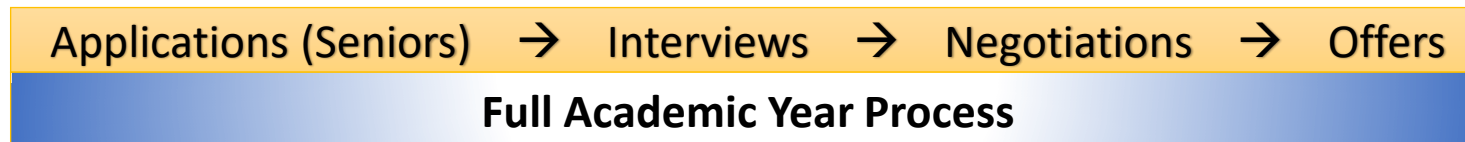
Pursuing Graduate Studies (STEM related):



Planning to attend Medical School:



Seeking a fulltime position:



Preparing for Graduate School Application

What should you do as an undergrad?

- Strong letters of Recommendations based on:
 - Strong academic performance
 - Research & experiential experience
 - Problem solving, critical thinking, creativity
 - Independence & team work skills
 - Intellectual curiosity
 - ...

**Get to know
your professors!**

Also,

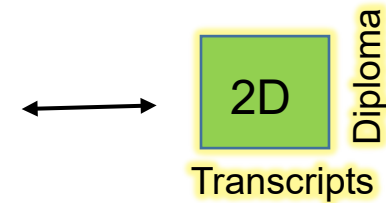
- Use your elective courses wisely
- Explore and discover areas of your interest.
- Avoid defining yourself narrowly
- Become knowledgeable about emerging areas of knowledge & research
- Do you want to be a CEO?
- Etc.

**CONNECT
THE DOTS**

Graduate School Applications: The Differentiating Factors

Important documents you may need for application

- Transcripts / good grades
- Degree / diploma



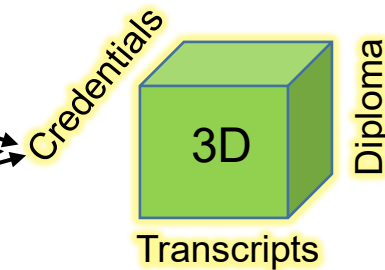
- Recommendation letters
- GRE / other similar exams

Documents your accomplishments!

- Achievements / Research

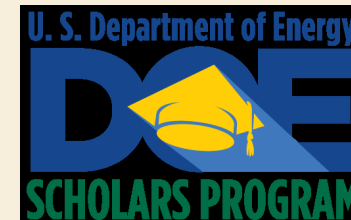
Tell them your story

- Strong Essay (Personal Statement or Statement of Purpose)



Making a stronger case through research

- Hauer Summer research
- [Summer Undergraduate research and Internship Opportunities](#)
- National Institute of Standards and Technology (NIST) Summer Undergraduate Research Fellowships (SURF)
- NASA Summer Research programs.
- National Science Foundation (NSF) :Research Experience for Undergraduates (REU)
- Department of Energy research and internship.



REU Application



- Students search REU sites on the NSF website: http://www.nsf.gov/crssprgm/reu/reu_search.jsp
- Contact the individual sites for information and application materials. NSF does not have application materials and does not select student participants. A contact person and contact information is listed for each site.
- Deadlines in early spring for summer experience



How do I find other opportunities?

Loyola's National Fellowships Office

- Dr. Maiju Lehmijoki-Gardner
Director of Pre-Health Programs and National Fellowships
Donnelly Science 147
nationalfellowships@loyola.edu
410-617-2218

*Statement Of
Purpose*



Does your statement of Purpose include:



Open with a "**hook**" to demonstrates your passion for the field.

Tell a story about you that people will remember! An attention grabber!



Explain your interest & experience in the field?



Describe your academic background in the field?

Name the important & relevant classes you have taken.
Specify relevant experience in the field(s)



Describe important extracurricular activities you have had in the field



Mention publications, presentations & relevant professional activities.



Explain about problems in background (If Necessary)



Explain why you have chosen the specific grad school.

What relevant work done by professors in that school ?
What specific features of the grad program attracted you?
The overlap between your goals and the specific program?

Selecting a Graduate School

Where to find the right information?

How to narrow down your choices?

How many schools to apply?

Example - Physics: <http://www.gradschoolshopper.com/>

Example - [Chemistry](#)

Example - Organic chemistry research groups

<http://www.organiclinks.net>

<https://www.organicdivision.org/organicsyntheticfaculty/>

Other Links for selecting Graduate Schools

- http://www.usnews.com/usnews/edu/grad/rankings/rankindex_brief.php
- <http://www.phds.org/rankings/>

These links may ask you for personal information:

- <http://www.gradschools.com/>
- <http://www.graduateguide.com/>
- <http://gradschool.about.com/>

Additional Links for selecting Graduate Schools

- Find the Best Grad Schools (US News & World report):
 - <https://www.usnews.com/best-graduate-schools>
- Graduate Guide: <https://graduateguide.com/>
- Graduate School.com: <https://www.gradschools.com/>

- GRE FAQs: What You Need to Know About the Graduate Record Exam
 - <https://www.thoughtco.com/gre-graduate-record-exam-faq-1684880>
- GRE vs. MCAT: Similarities, Differences, and Which Test Is Easier
 - <https://www.thoughtco.com/gre-vs-mcat-4773914>
 - <https://www.thoughtco.com/graduate-school-4132543>



Graduate school opportunities & options:

- “Negotiating” your options?
 - Teaching Assistance (TA)
 - Research Assistance (RA)
 - Fellowship: <http://www.nsfgrfp.org/>



Other National Fellowship Opportunities:

National Fellowships

- National Science Foundation (NSF) Graduate Research Fellowship Program
- National Defense Science & Engineering Graduate Fellowship
- National Institute of Health (NIH) National Research Service Awards
- Department of Energy (DOE) Fellowships
- Ford Foundation Fellowship Program
- National Aeronautics and Space Administration (NASA) Graduate Student Researchers Project
- National Research Council (NRC) Research Associateship Programs



Congratulations, you are a graduate student - Now what?



Things to consider as a graduate student:

Do you have the right pre-requisite courses?

What is a qualifying exam?

How to pick your thesis topic & thesis advisor?

- Interview at least 5 faculty before making a decision.
 - How “hot” is your advisors research area?
 - Is she/he well known in her/his field
 - Could she/he help you with your plans after graduation
 - How easy is it to work with her/him?
 - How supportive is she/he?
 - Could she/he support you as an RA?

Plan ahead for after Graduate School

- Avoid becoming a “professional G.S.”
- Have an “Exit Plan”
- Develop / act on a Plan for after graduate school



"I'm coordinating five different R&D projects,
but SURE, I can spare a minute."



Good Luck in a successful Graduate School Journey

Keep in touch!

We like to follow your success stories after you graduate from Loyola University & we love to brag about it!

Good Luck!



**RESPONSIBLE
CONDUCT OF
RESEARCH**



Responsible Conduct of Research (RCR)



- There are guidelines and standards for what ethical conduct in the sciences looks like.
- Ethical conduct in scholarship and research is important and required by regulation.
- You should be aware of RCR and acquaint yourself with the guidelines.
- Get training: www.citiprogram.org



RCR
incorporates a
variety of
different areas



Responsible Authorship



Following Data Management
Standards



Adhering to Safety Standards



Protection of Human Subjects and
Animals



Avoiding Conflict of Interest

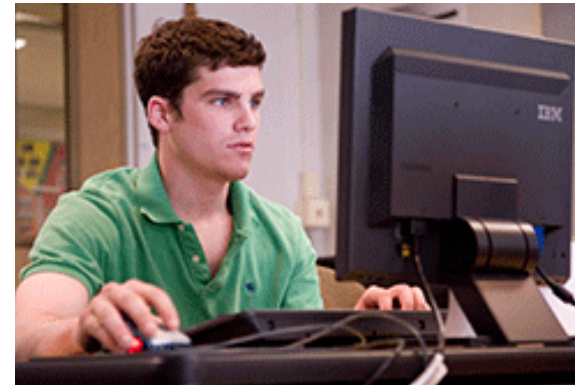


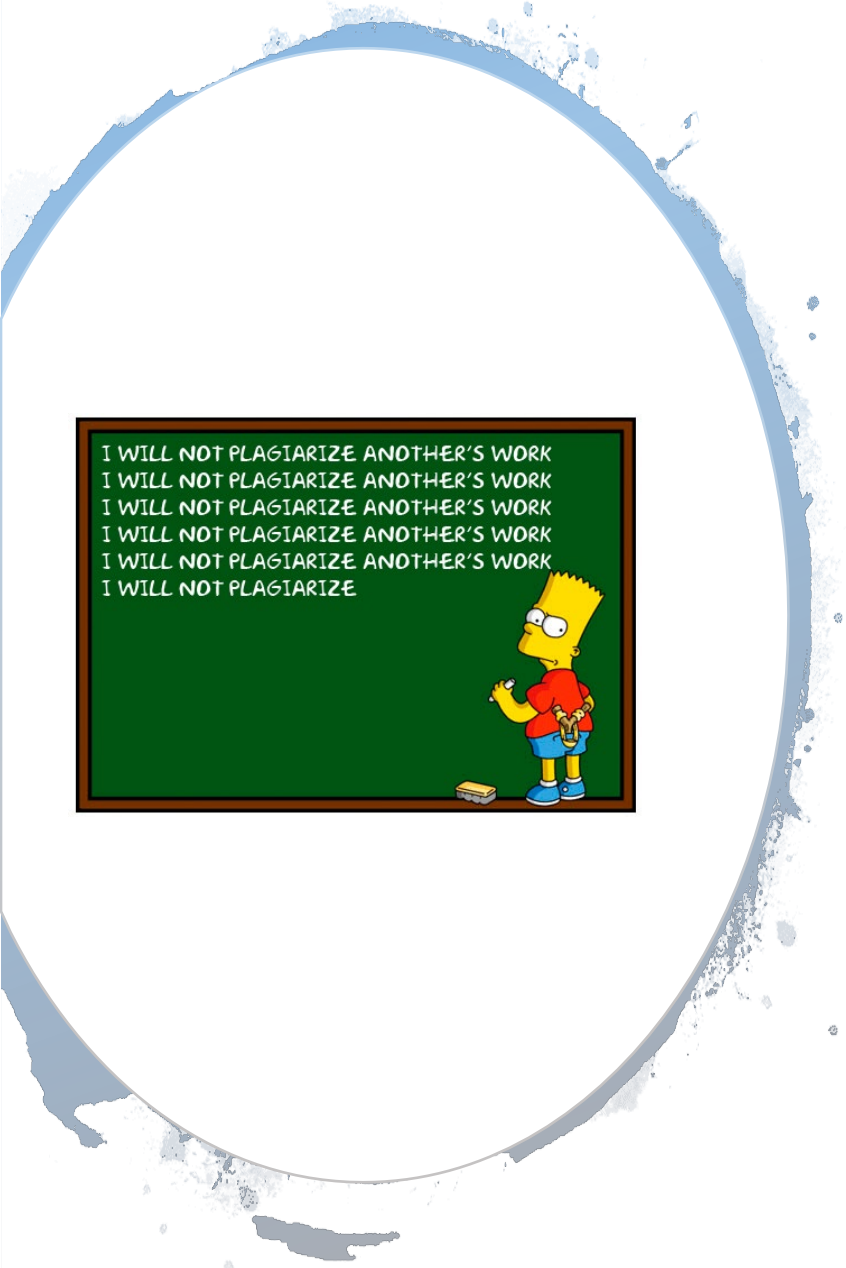
Avoiding Scholarly Misconduct



Data Management

- Research data is normally information collected, stored, and processed in a systematically in order to meet the goals and objectives of a research project.
- Talk to your research mentor about how to handle
 - Data **selection**
 - Data **collection**
 - Data **analysis**
 - Data **handling**
 - Data **reporting and publishing**
 - Data **sharing**
 - Data **ownership**





Responsible Authorship

Be careful of:

- Falsification
- Fabrication
- Plagiarism

The editor of *Applied Surface Science* stated that 10% of papers they receive are guilty of some form of plagiarism—self or outright.

When in doubt, talk to your research mentor.



Protection of Human Subjects & Animals

- Loyola requires anyone performing research involving human participants, to submit the plan of data acquisition to the **Institutional Review Board (IRB)**. All human subjects research must be approved before research begins. www.loyola.edu/irb
- Institutions undertaking animal research are required to have an **Institutional Animal Care and Use Committee (IACUC)** that reviews the animal care program, facilities, and other aspects of animal research.

Thank you for your attention

You are part of the Hauber Fellows community

Thus

Keep in touch after graduating from Loyola!
