

The Graduate School Admission Process: Organizing for Success

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Who am I?

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Adjunct Prof. Mat Sci. Eng.

B.S. Chemistry, U. of Arizona

Ph.D. Colorado State University
(Analytical Chemistry)

Postdocs (Applied Physics):

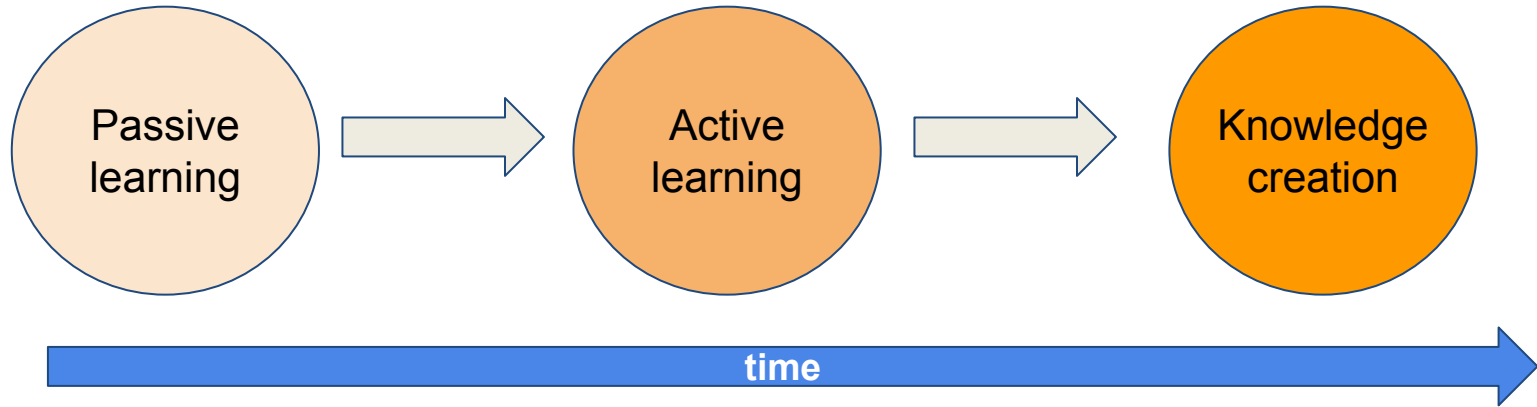
1. Technical University of
Eindhoven, The Netherlands,
2. National Renewable Energy
Laboratory, Golden, CO

Who are you?

- Name
- Year in School
- Discipline
- Degree to be sought (MS, Ph.D., other)
- Outline
 - Motivation
 - Timeline
 - Research and networking
 - Deciding where to apply
 - Organizing letters of recommendation (LORs)
 - Personal Statements

Why go to graduate school in STEM?

- Advanced degrees - being able to specialize
 - Specialized discipline/sub-discipline

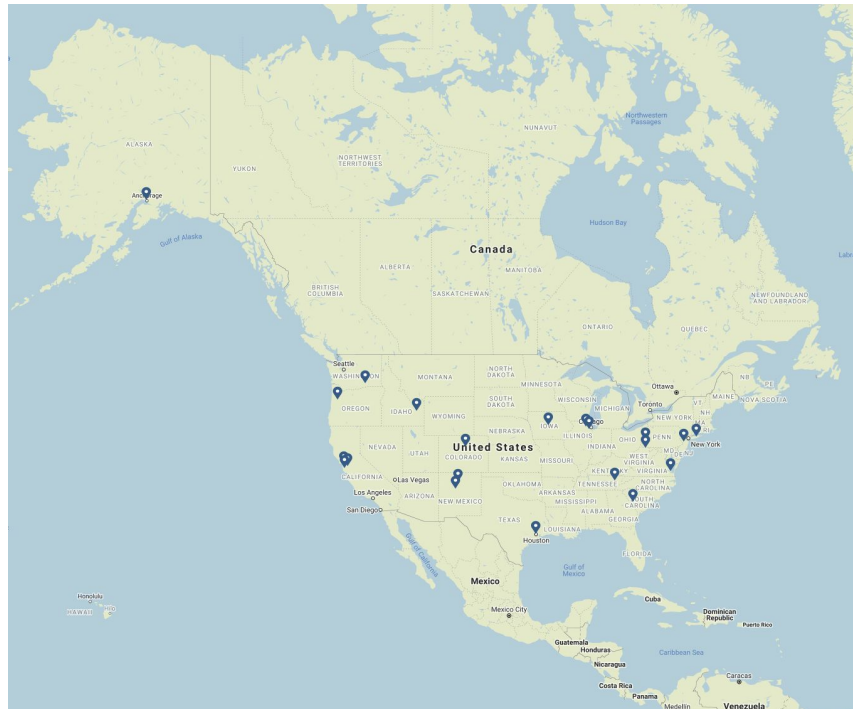


Why go to graduate school in STEM?

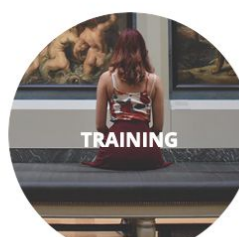
- Advanced degrees - being able to specialize
 - Specialized discipline/sub-discipline
- Master's degree: 1-2 y, courses, courses/research
- Doctoral degree (Ph.D.)
 - Research focused
 - 3-7 y (average is field, school dependent)

Your desired job/career

- Academics: professor
- Industry: advancement
- National laboratories
 - <https://nationallabs.org>



Your desired job/career



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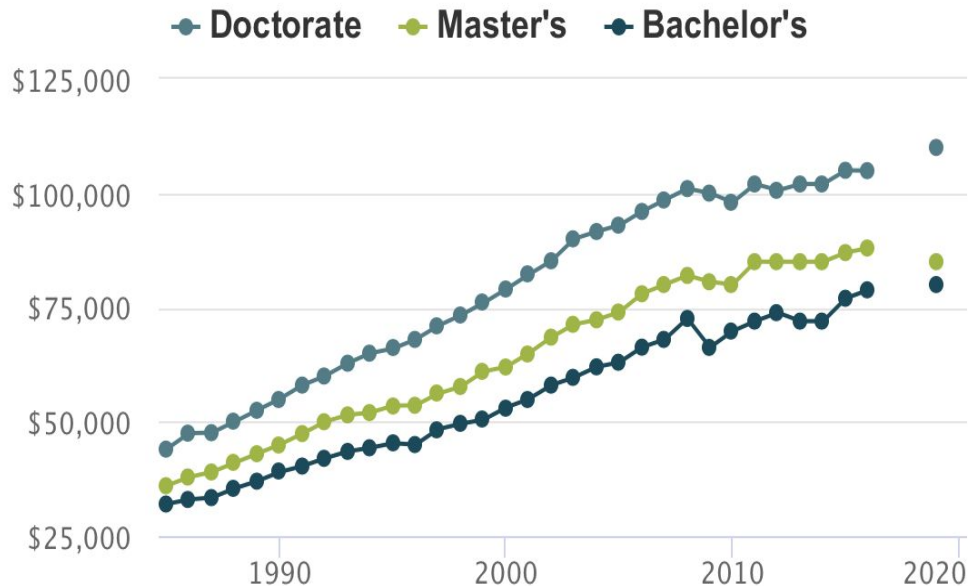
Physics Starting Salaries

B.S.: \$45,000

M.S.: \$60,000

Ph.D.: \$80,000

Surveyed Chemistry Salaries



Funding Graduate School

- STEM Ph.D. programs come with a stipend, there are additional funding opportunities (fellowships/grants)
- Master's programs may or may not
 - Coursework Master's usually out of pocket
 - Research Master's, depends on group/funding
 - B.S./M.S. program at CWRU
 - Apply during third year → find advisor, 5 years total for both degrees

Other sources of funding

<https://stemgradstudents.science.gov>

National Science Foundation (NSF) Graduate Research Fellowship: <https://www.nsfgrfp.org>

Department of Energy (DOE) Office of Science Graduate Research Program (SGRP): <https://science.osti.gov/wdts/scgsr>

Department of Defense NDSEG: <https://ndseg.sysplus.com/>

Fellowships at National Laboratories: [NASA](#)

Working at national laboratories as an undergraduate

Science Undergraduate Laboratory Internships (SULI)

<https://science.osti.gov/wdts/suli>

National labs recruit on campus periodically

<https://case.edu/postgrad/events/career-fairs>

Timeline

Soph/Jun Year

August/September

October

November

December

What type of research and school appeal to you?

Look at schools/programs and narrow down to no more than 8; Contact PIs?

Draft personal statement visit Career Center; have grad student read it

Have a strong draft of personal statement to PI, organize information on excel sheet

Deadlines- Be aware of overlap with finals and holidays; **program dependent**

Keep your resume up to snuff!!!

Berkeley: 12/2-19
Stanford- 12/3
MIT 12/1+
CWRU- 12/15

SUBJECT GRE:

Registration deadline is 5-6 weeks prior
Given 3x year:
September, October, April

GENERAL GRE: Year round

ets.org/gre
(note: many schools doing away with GRE requirement)

FYI...GRExit

In survey by *Science*, in 2018:

- 44% molecular biology Ph.D. programs stopped requiring GRE scores
- neuroscience and ecology ~ 33%
- 90% of chemistry, physics, geology, computer science, & psychology Ph.D. programs still required them (this number is decreasing)

Check with individual programs

CWRU programs that do not require GRE: Art Education, Astronomy, Biochemistry, BSTP, Clinical Translational Science, Designing Sustainable Systems, Earth, Environmental & Planetary Sciences, Molecular Medicine, Nutrition, Physics, Theater.

Optional: Chemistry MS and PhD, required for Chemistry Entrepreneurship

<https://www.sciencemag.org/careers/2019/05/wave-graduate-programs-drop-gre-application-requirement#>

Research

- Pursue research opportunities
 - School year vs summer
 - Credit or pay
 - Major or non-major department PIs
 - Academic vs. industry (co-ops)
 - NSF Research Experience for the Undergraduate (REU)
 - different focus for each school, usually like previous research
 - National laboratories have summer research programs (can be remote)
- SOURCE has research and travel funding opportunities:
<https://case.edu/source/find-programs-and-funding/source-funded-programs>

Networking

- Talk to your advisor
- Talk to new graduate students
- Cultivate a network, including recently graduated students
 - LinkedIn, Facebook, etc.
- Local and Regional Professional Meetings
- Undergraduate Research Society:
<https://sites.google.com/case.edu/cwruurs/home>

Where to apply?

- Multiple PIs you would consider working for at each school
 - You can ask directly if they will have funding/will take a student
 - Is the PI retiring/taking a sabbatical?
- Applying to multiple schools: remember time and application/transcript fees
 - Consider what makes a “top” school
 - Not really such a thing as a “safety” school
- Location
 - Metropolitan or rural? Big or small school? Big or small department?
- Outside obligations
 - Family/friends
- Lifestyles, department culture?

Faculty, Program, & University Fit

- Literature review: note faculty research interests & expertise
 - ISI Web of Science
- Quality & reputation of your chosen **program**
- Financial support (start to finish or year to year?)
 - Can ask to waive application fee and official GRE scores
 - Do you qualify for a GEMS/NSF/DoD fellowship?
- GPA & test scores for the average admitted student
- Time required to degree completion

Faculty, Program, & University Fit Cont.

- Why do you want to undertake graduate study @ this university?
- With whom do you wish to work?
 - Be familiar w/ their research?
- Why is this particular program the right fit for you & your interests?
- What do you bring to the program, what is your contribution?

Contacting Potential PIs

- Some PIs like it, some ignore it, some don't like it
- If you email, be polite, objective and to the point
 - If you don't hear back, don't worry
 - Use a professional email address

Dear Professor X,

I am currently a senior undergraduate and planning to apply to XYZ University to pursue a PhD in chemistry, starting fall 2016. As your research on (topic) is of great interest, I was wondering if you plan to take PhD students during this time. I have attached my resume with more information about my experience and interests. Thank you very much for your time!

Best Regards-

Emily

Letter of intent (Personal Statement)

- If you know people who applied in previous years contact them
- Be honest
- Input from different sources: writing center (set up time), labmates, grad students, etc.
- Specify- why, with whom
- Provide near-complete draft to letter writers
- Excellent overview:
<http://grad.unm.edu/resources/gs-forms/letter-of-intent.html>

Be professionally personal and matter of fact;

talk about how your experiences qualify you for graduate school

(engaged in research, what you've learned about the research process etc.)

If sensitive issues are relevant (e.g., low GPA due to medical diagnosis), consult with your advisor.

Components of The Statement

- 1-2 pages
- Emphasize strengths, explain anomalies
- Why you're interested in the field and why a PhD (MS)
- Your credentials (not repeating CV)
 - You did research, what did you actually do
 - Include any publications
 - Teaching or TAing
 - Writing and oral presentations
- Why their program is good for you
 - Is it their specialty?
 - Mentioning location is fine, as it pertains to your goals
- Overall career goals
 - Don't have to know exactly

General Organization

- P1. Intention to get an advanced degree, area of interest
- P2.** Summarize previous experience (school and research/lab, internships), how it prepared/motivated you for grad school
- P3.** Outlook for what you want from your graduate experience (skills, career goals)
- P4. Conclusion - reiterate goals, why you want to go to this school, which professors/area you are interested in

Organizing your letter: advice from four physics professors

Paragraph 1: Immediately introduce what you want to do and why.

Paragraph 2: Describe accomplishments, particularly any related to research. Include any specific skills you acquired, such as training in microscopy, using dedicated software packages, etc.

Paragraph 3: Describe your education, particularly things that are unusual, such as a special track in physics, graduate courses, foreign study or coops. This is where you can address issues like low grades or a leave of absence.

Paragraph 4: Describe why you are applying to that particular university and research field. Demonstrate that you have spent some time thinking about how you might fit there. Mentioning specific professors of possible interest can be helpful but it is dangerous to appear to limit your interest to them. You can say something to the effect of “Prof. X and Y and the research group in field W are of particular interest to me.”

At the very least

- Spell check
- Read it out loud
- Make sure the name of the school/department/professor is correct
- Do not plagiarize

****Think about what differentiates you****

****Show that you have the potential to succeed in the program****

Letters of Rec - Usually 3

Who to contact?

- Someone you feel is responsible and knows you well enough to speak of your character and abilities as a researcher and potential for success. Should be professor (or have a PhD)

When to contact?

- 3- 4 months in advance is preferred - no later than 1 month ahead of time.

What to say?

- Can you write me a strong letter of recommendation, what can I provide to help? (CV, personal statement, etc.)

Make it as easy as possible!

- Provide all information as early as possible and one document with all schools/deadlines

When to remind them?

- Many PIs don't write until week/day it's due. Be patient. Ask if you can help.

How to write an email to letter writer

How to approach:

- Email, address as: Dear Dr. or Dear Professor
- If you request a meeting give times you're available
- Keep things short and sweet (“TL;DR”)
- Be direct- don't bury the lead

After they've agreed:

- Provide excel (or google sheet) table of information on where you're applying (or whatever they request)
- Let them know when they'll have your “package”
- Ask if they want a reminder email (1 week before?)

Give info to letter writers in an easily digestible form

School	Dept.	Profs	GRE	Subj. GRE	Due date	How?
North-western	Chemistry	Mirkin, Scheidt, Nguyen	Required	Required	12/1	emailed link
UMass Amherst	Polymer Science	Emrick, Hayward, C rosby	Required	No	1/01	Mail to: 530 Goodell Building University of Massachusetts 140 Hicks Way Amherst, MA 01003-9272
Case Western	Chem	Sauve, Burda, Pentzer	Required	recommended	1/31 (Rolling)	emailed link

Visiting Schools

- Historically:
 - Visits are in the spring, many overlap; 4 is comfortable
 - Often Thursday night to Sunday morning on assigned weekends, meet with profs and social events
 - A great opportunity to meet prospective roommates
 - This is your opportunity to explore the environment
- Talk to students!
 - Where recent grads have gone
 - Average time to PhD
 - How is the group run?
 - What they like/don't like (best part/worst part of the program)
- Can you picture yourself working and living there?

Following up with schools

- Reach out to the point of contact (probably not a professor)
- If you get into one school with a deadline for acceptance before hearing back from others, you can negotiate an extension
 - nat'l deadline 4/15
- You can ask *when* they will make decisions

*Acceptance is based on numerous factors,
many are independent of your qualifications*

From a student's perspective

Graduate School Application Cycle - The Good, The Bad, The Ugly Junior Year:

Start to think about where you will apply

Make a list of what you value in graduate school

- Look at schools in locations you like
- Look at schools with high quality research
- Work/life balance
- A good starting place is US new & world reports
 - The Dean's offices have subscription, ask faculty for the list

Junior Year cont.

- Go to as many guest lecturers as you can! They are a great way to see the research that is out there and make connections
- Figure out when you are going to take the GRE and if you are going to study for it.
- Consider taking a business class or two.... It is important to be a well rounded human and the business school offers great classes that will help you learn networking and social skills. I highly recommend ORBH 303 Interpersonal Relationships or ORBH 370 Women and Men as Colleagues
- Search on LinkedIn (MAKE A LINKEDIN IF YOU DON'T HAVE ONE!!!!) to see what kinds of places people from grad schools you are interested in are going after
- Cultivate relationships with your 3 letters of recommendation and ask early!
- Decide if you will take the Subject GRE because it's only offered early in the fall semester - you should definitely study for it if you are going to take it

Senior Year

- Write your personal statement:
- Don't make it too personal! Scientists don't generally have too many feelings, they more so want to know why you want to pursue a challenging degree and why you are qualified.
- Write lots of drafts and have lots of people review it
 - the writing center, who helped with sentence structure and grammar)
 - several mentors and letter writers
- **Time management is key:** set aside a few hours every week that are purely dedicated to grad school things (and don't sacrifice them for other things!). It can be really easy to get behind, but working on a little bit each week makes the process easier.

Senior Year, cont.

Reaching out to professors:

- Consider reaching out to professors at schools that you're really interested in (I'm convinced that's why I got into Vandy!!), however don't be sad if they don't respond (some profs don't like it/are too busy)

Example email:

Hi Dr. _____,

I am _____, a senior at Case Western Reserve University. I'm currently studying chemistry and applying to _____ this application cycle. I find your research very interesting. I currently do research with solar panels in a more inorganic/materials science context and the water splitting approach is fascinating. I was hoping you would be willing to further discuss your research in an informational interview. I have attached my resume for your reference. Look forward to learning more!

Once you get in...

- Congrats!!! Now you'll get to be wined and dined :)
- Do your research ahead of time
 - which professors you are most interested in
 - what you want to know about the program,
 - what you want to know about student life
- There will be lots of free alcohol, remember this is a professional setting, so keep yourself together!
 - the best time to ask the grad students questions you want honest answers to is when they take you out
- Send thank you emails to each professor you met with and the coordinator, it leaves a good impression!

Choosing

- I made a spreadsheet with my original “grad school values” in order to compare them
- Look at the cost of living in the city and make sure that the stipend/your personal finances will cover that (some stipends are not sufficient to cover the cost of living)
- Make sure you will be happy at the school because you will be working constantly - listen to your gut
- Good Luck!!!

Resources

- Website of your chosen academic program
- Resource Guide: Suggested career websites every prospective PhD candidate should visit:
- www.phds.org
- www.gradschools.com
- <http://versatilephd.com/>
- www.admissionsessays.com
- <http://community.livejournal.com/applyingtograd/>
- <http://www.studentdoctor.net>
- www.academiccareers.com

Questions?

Good Luck!