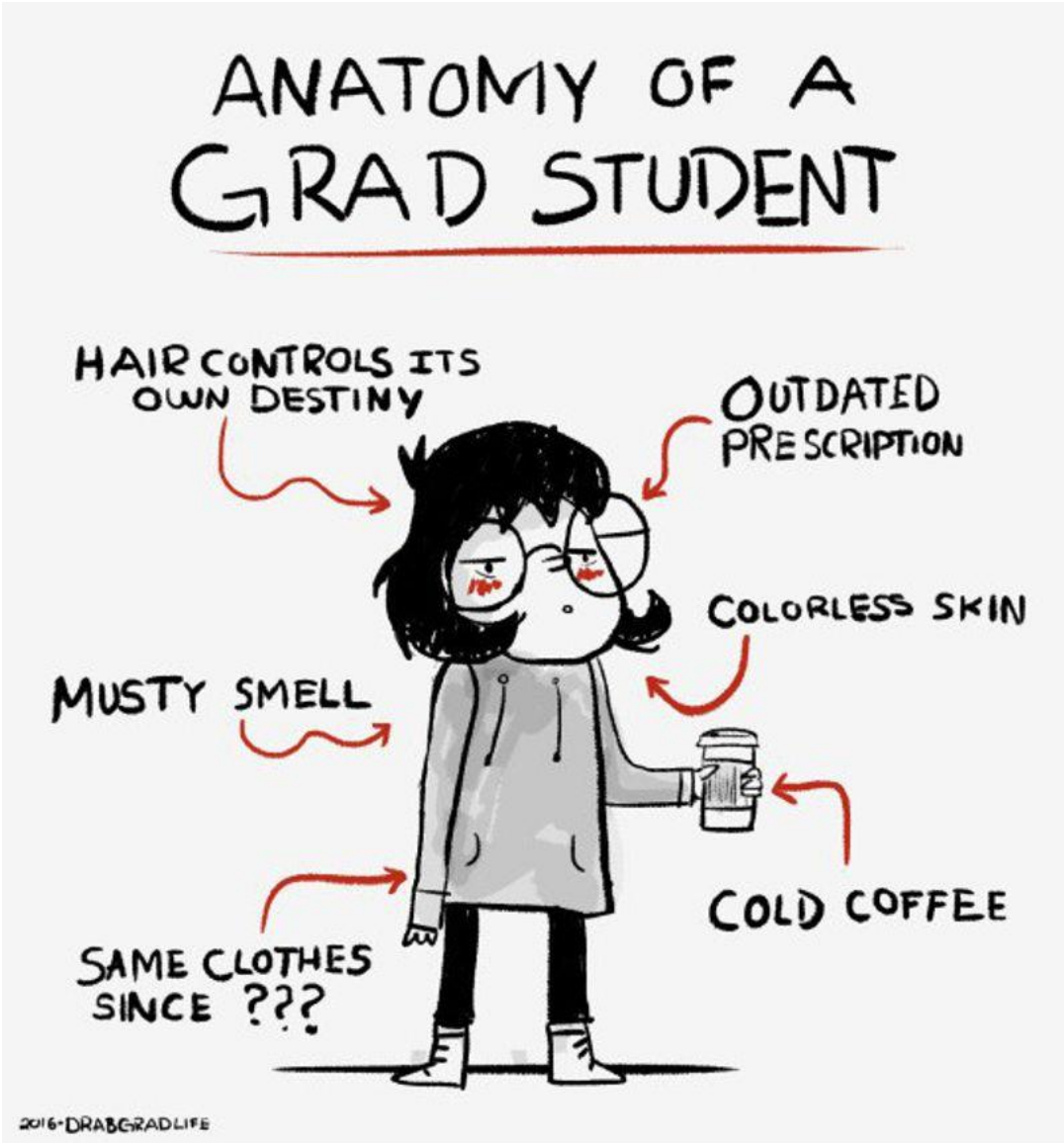
Grad School 101

Tips and tricks for a successful application

By Aubrey LaPlante



GIS Analyst

Natural resource specialist

Wellsite geologist

Environmental policy analyst

Environmental consultant

Geologic mapper

Forester

Geotechnical engineering

Marine geologist

Conservation biologist

You do not need to go to graduate school to get a job

Environmental field tech

Hydrographic surveyor

Air quality monitoring

Mining/exploration

Environmental engineer

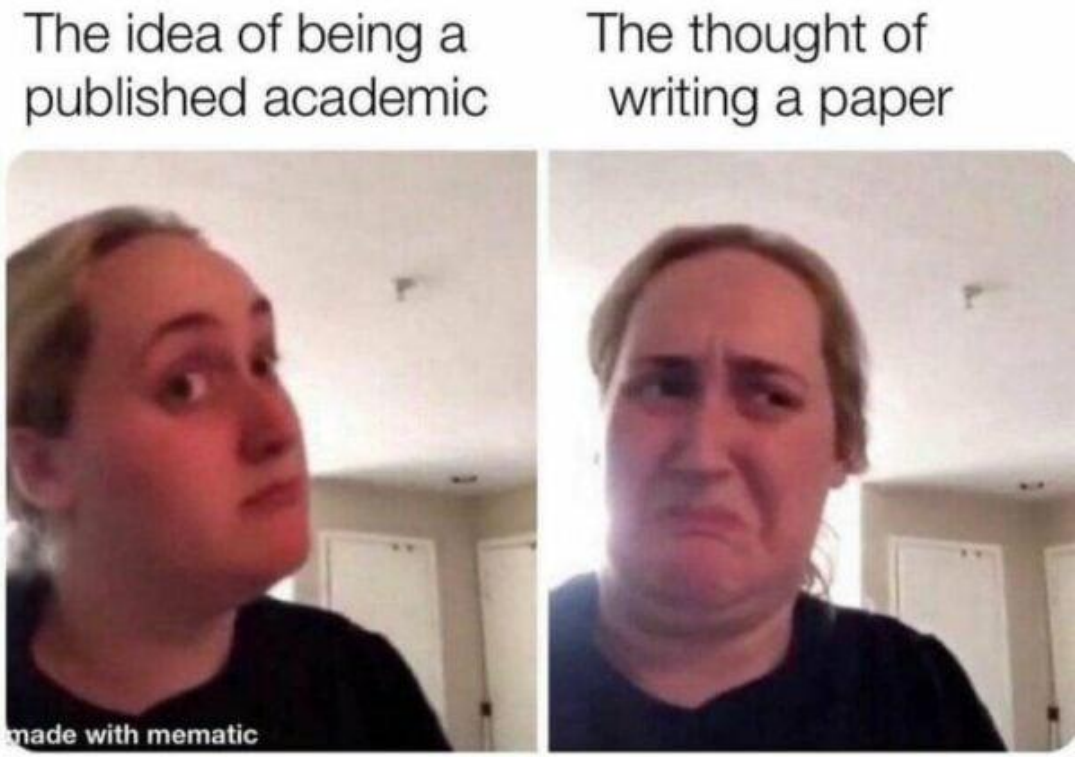
Land surveyor

Park ranger

Environmental educator

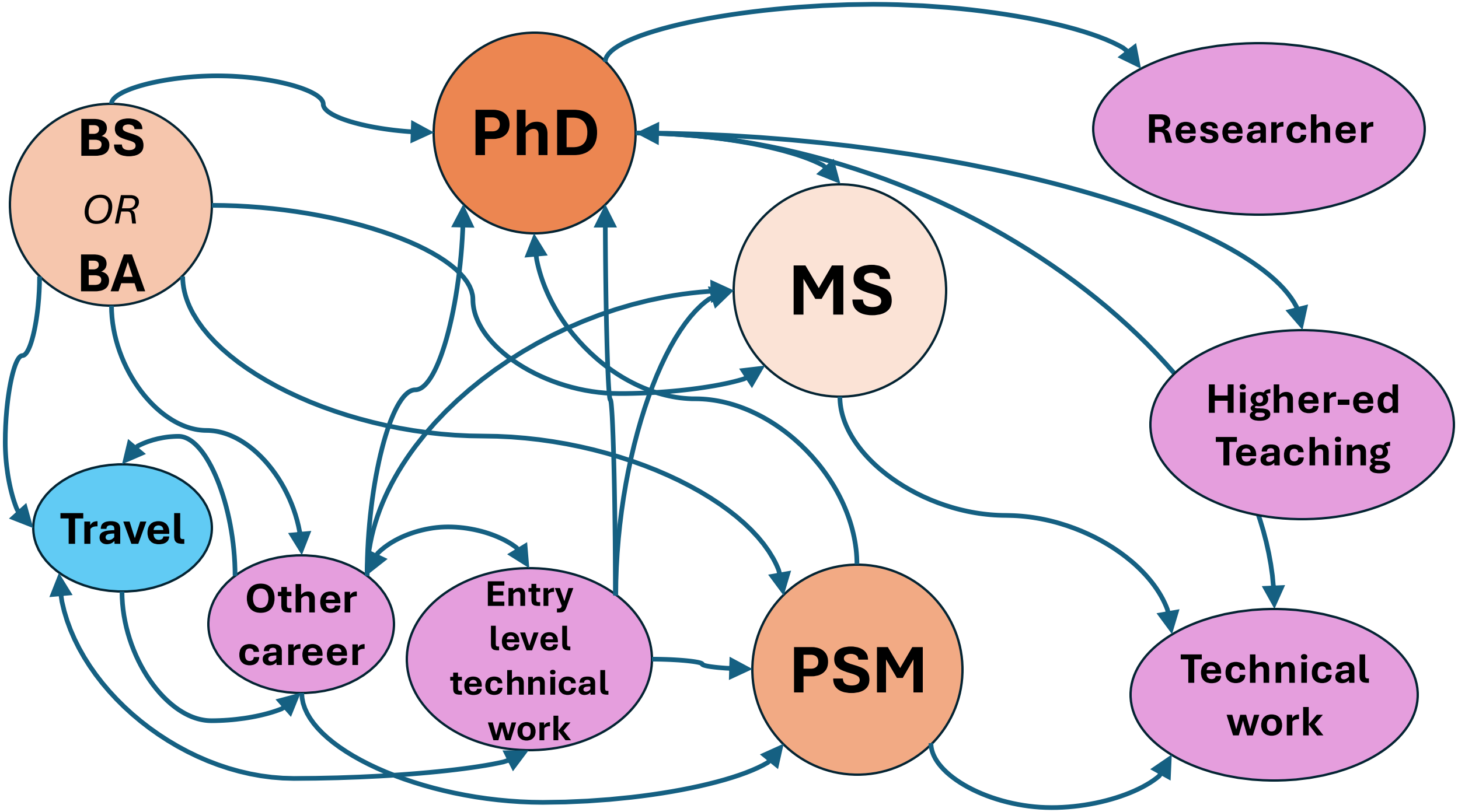
Environmental scientist

Operations geologist

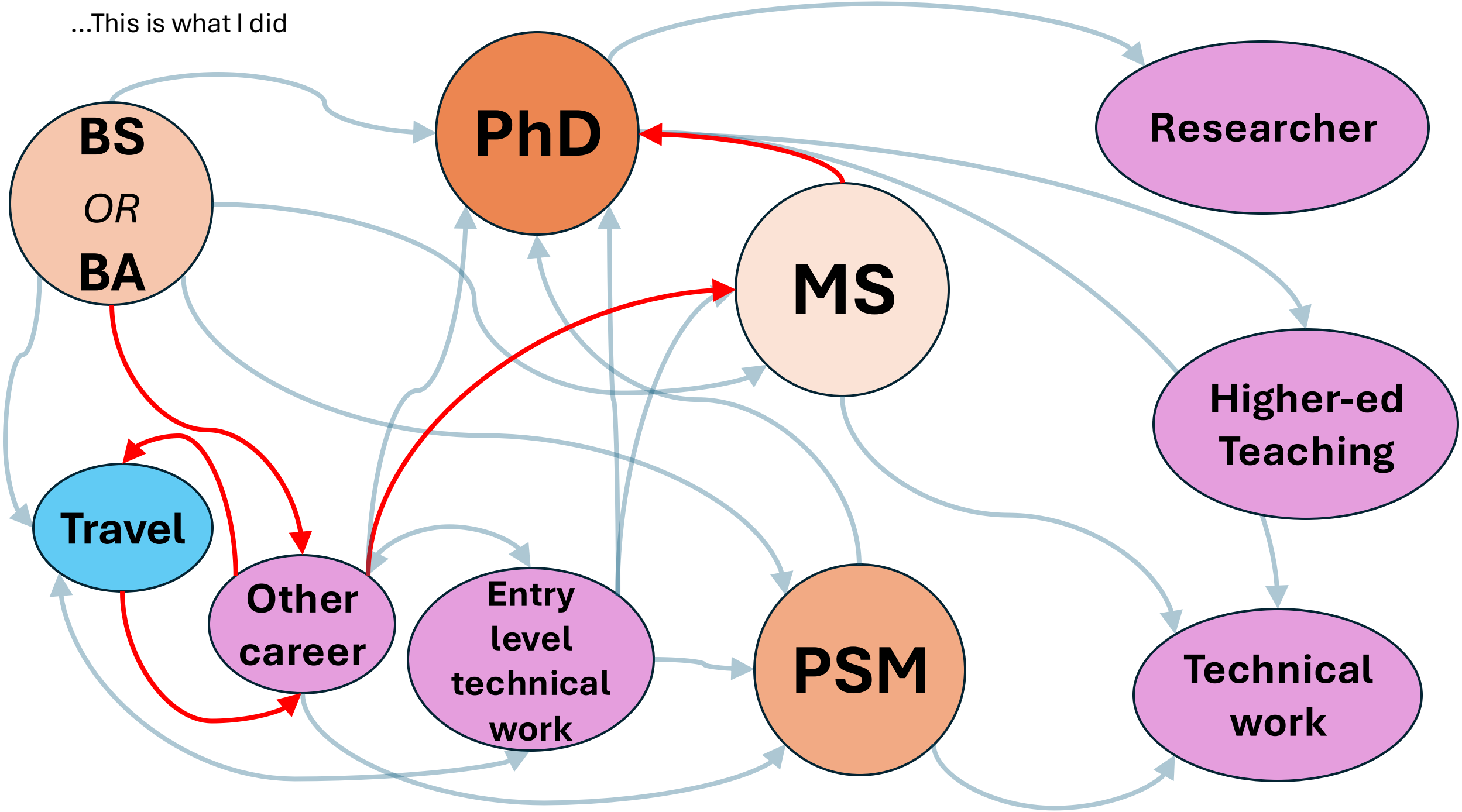


Questions to ask yourself

- **Do I need grad school** for the career that I want?
  - Industry jobs like to hire MS or PSM degrees for the writing and management skills
  - Teaching and governmental jobs want PhDs for the high-level independent research skills
- What class projects have you worked on that **make you the most excited**?
- What aspects of science do you **like the most**?
  - Working with people?
  - Solving problems?
  - Managing projects?
  - Teaching others?
- Grad school is often **paid for** (tuition, stipend, health insurance)
  - **Don’t let cost stop you**

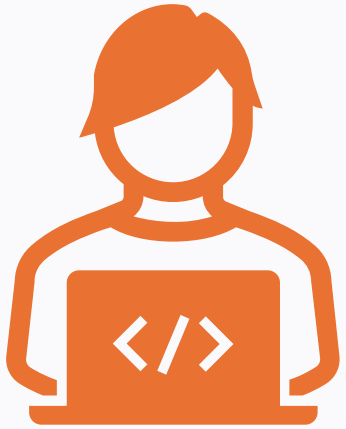

BS
OR
BA
PhD
Researcher
MS
Higher-ed
Teaching
Travel
Other
career
Entry
level
technical
work
PSM
Technical
work

...This is what I did



Which path is right for you?

MS

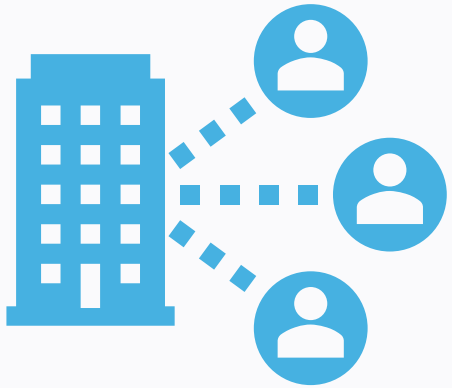


- Thesis
- Typically **paid** (~2 yrs)
- Guided project
- Writing proposals
- Building a budget
- Writing reports

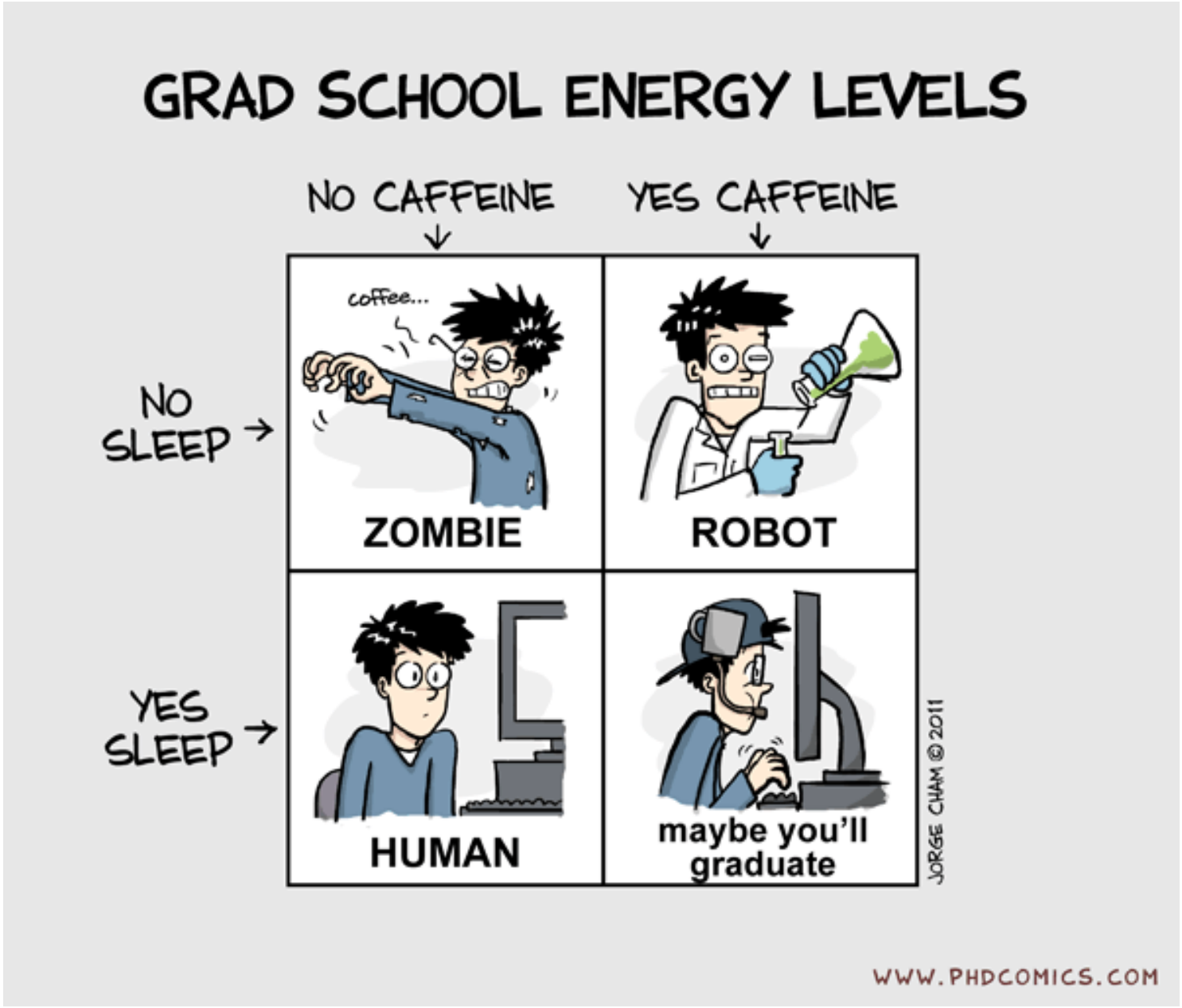
PhD

- Dissertation (3x thesis)
- Typically **paid** (4-6 yrs)
- More independent than MS (generally)
- Developing your research questions
- Very specialized in one topic

PSM



- Professional science masters
- Typically **unpaid** (1.5-2 yrs)
- Technical training
- Communication, leadership, policy
- Internship



How is graduate school different from undergrad?

- Project and advisor oriented (research thesis)
- Not grade oriented
- Not location oriented
  - *Many research projects are not located in the vicinity of the school*
- Participation, self driven
- Developing professional skills for the workplace
  - *jump start your career*

How to find an advisor/project

- Ask for advice from your current professors
- Authors of interesting papers in the field/topic
- Look up departments of schools you are interested in
  - Most people have a page with their current research
- Explore research topics at scientific meetings (GSA, AGU, SSA, AGI, EGU, etc)
- Email current students of advisors you are interested in

The cold call (email)

- DO:
  - Have a relevant email subject
  - Briefly introduce yourself
  - Say what research/work you are interested in pursuing
  - Say why you are interested in their work (do your homework!)
  - Use formalities (Dr.)
  - Ask if they are accepting graduate students
- DON’T
  - Write several loooong paragraphs. Shorter intro emails are typically better.
  - Have spelling errors.
  - Be too general. Be specific!

Examples

Subject: *Prospective Graduate Student (Fall 2025)*

Dear Dr. Thorpe,

I am a senior *at Northern Arizona University, and I have* ***developed a strong interest*** *in the impact of land use on the degradation of desert pavement in the southwest USA, and the processes of desertification. I am* ***currently conducting undergraduate research*** *on how the degradation of desert pavement changes local ecology in the Uinta Basin, in Utah. I will be graduating this coming spring, and* ***I am interested in pursuing*** *a master's degree.*

I am contacting you because I am very ***interested in your work*** *quantifying local infiltration in areas of increased land use, and the desertification in the Tuscon Basin.* ***I am drawn to your research because*** *of your focus on how human interaction plays a role in permanently modifying geomorphic systems.*

Will you be accepting graduate students *for Fall 2025? I look forward to speaking to you about potential research projects.*

All the best,

Aubrey LaPlante

Examples

Subject: *Possible Graduate Research Opportunities (Fall 2020)*

Dear Dr. XXXX,

My name is Aubrey LaPlante and I am ***interested in applying to the University of XXXX*** *to work with you.* ***I am drawn to your multi-disciplined approach*** *to understanding the accommodation of stress in tectonic systems.* ***I am mostly interested in*** *neotectonics and I have a strong background in physics. In the final quarter of my undergraduate degree at Western Washington University, I participated in an active tectonics seminar that barely scratched the surface of the complexities of modeling the Cascadia subduction zone.*

Please let me know if you are accepting Masters students for the fall of 2020. I look forward to hearing from you!

All the best,

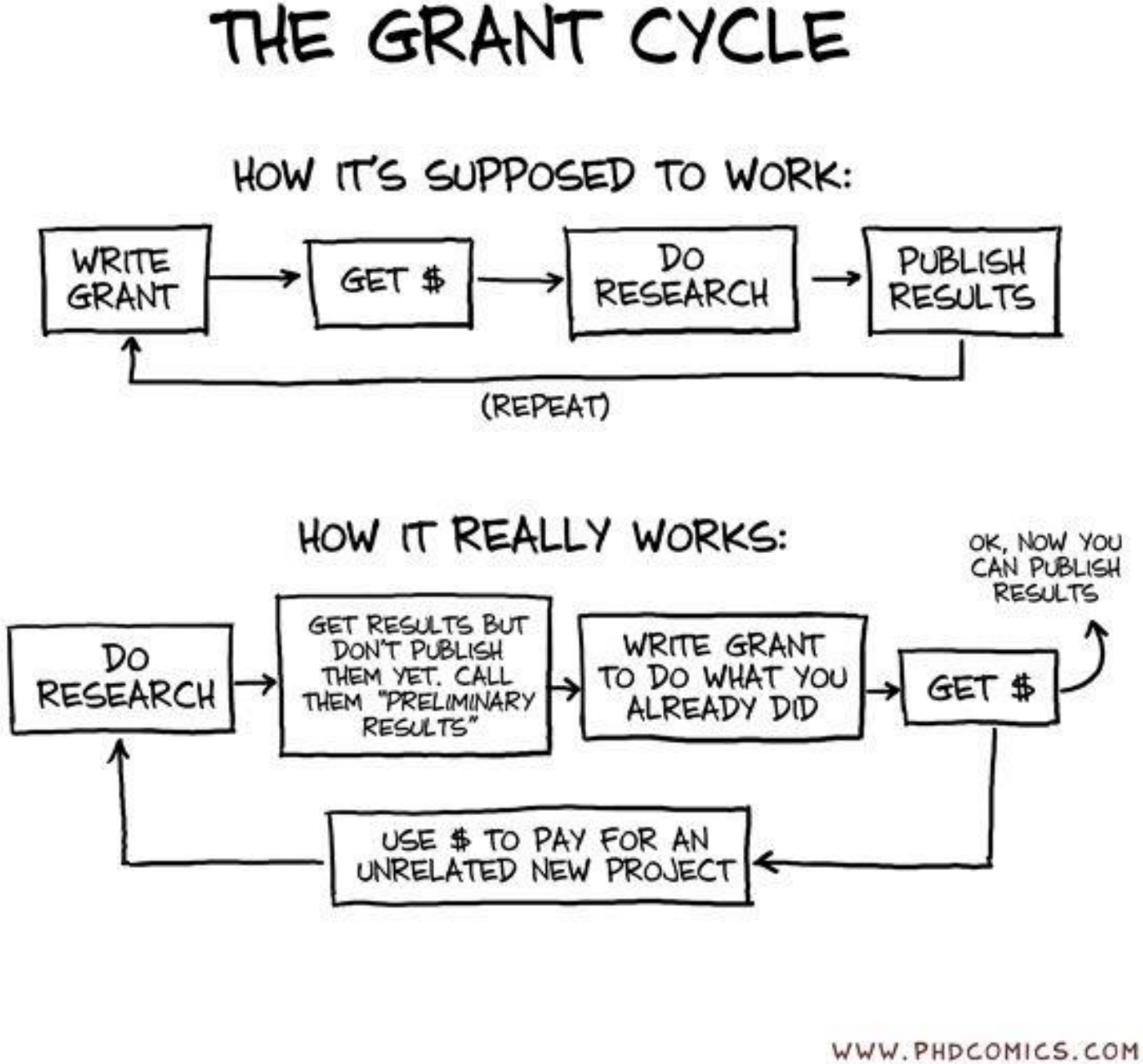
Aubrey LaPlante

You scored an interview – what now?

- Very similar to a job interview – typically zoom or phone call
  - They will be trying to figure out if you are the right person for the project
  - Assess if this is the right person for you to work for
- Come prepared with questions
  - What projects do they have **funding** for?
  - How many students are in their lab currently?
  - How do you they approach their **role as a mentor**?
  - How many of their students have completed the program?
  - Are the opportunities for pursuing a PhD or a MS? (often program/school dependent)

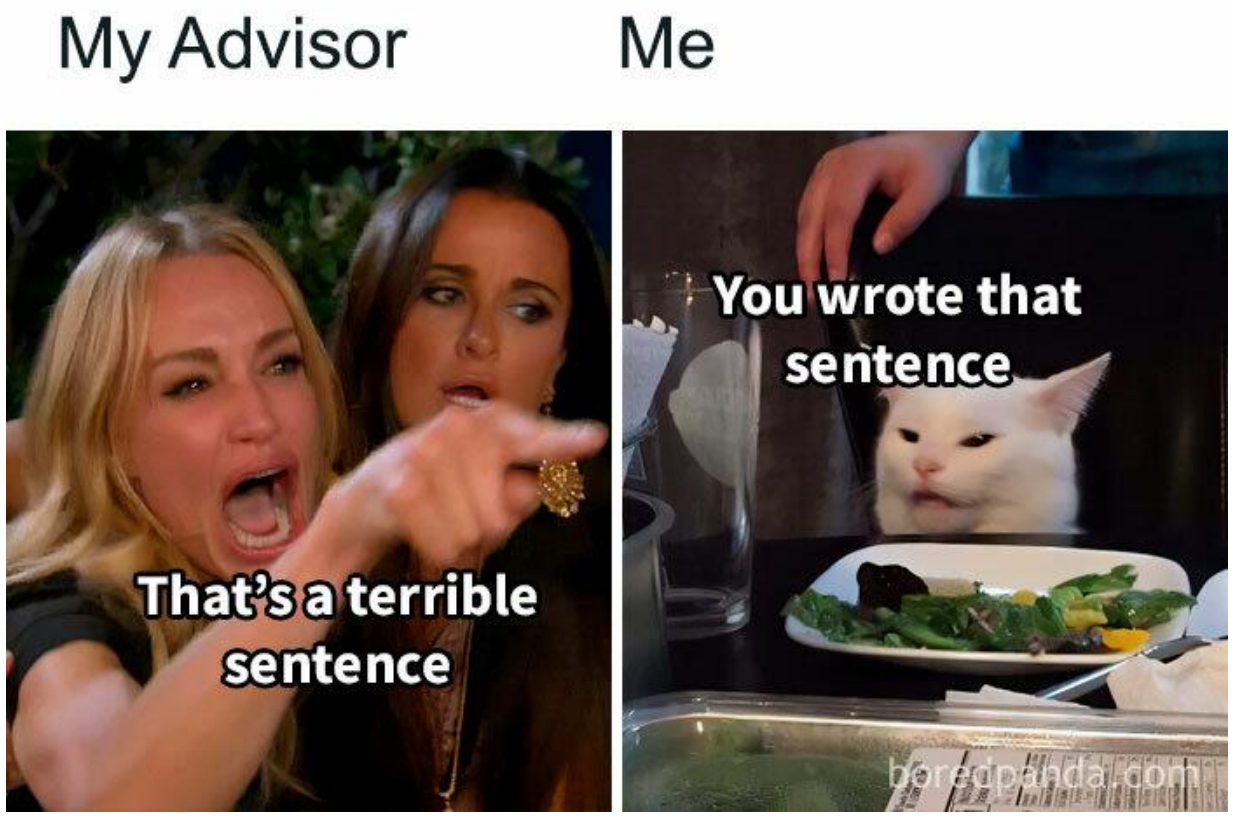
Sources of funding

- **Assistantships**
  - Teaching (TA)
  - Research (RA)
- **Fellowships** (GRFP)
  - NSF Graduate Research Fellowship Program (Oct deadline)
- **Scholarships**
- **Loans** (avoid if possible)
  - Consider moving to a location and working to establish residency (~ 1yr) for in-state tuition
- **On and off-campus employment**



What's the tea – ask current students

- Campus visit -- many advisors will pay to fly you out)
- What is the housing/rent like?
- What is the stipend/pay like?
- Is healthcare included?
- Is there summer funding/pay?
- How long does it take people to graduate?
- How many people finish the program?
- What is the weather like?
- What is there to do to unwind?



What you need to apply

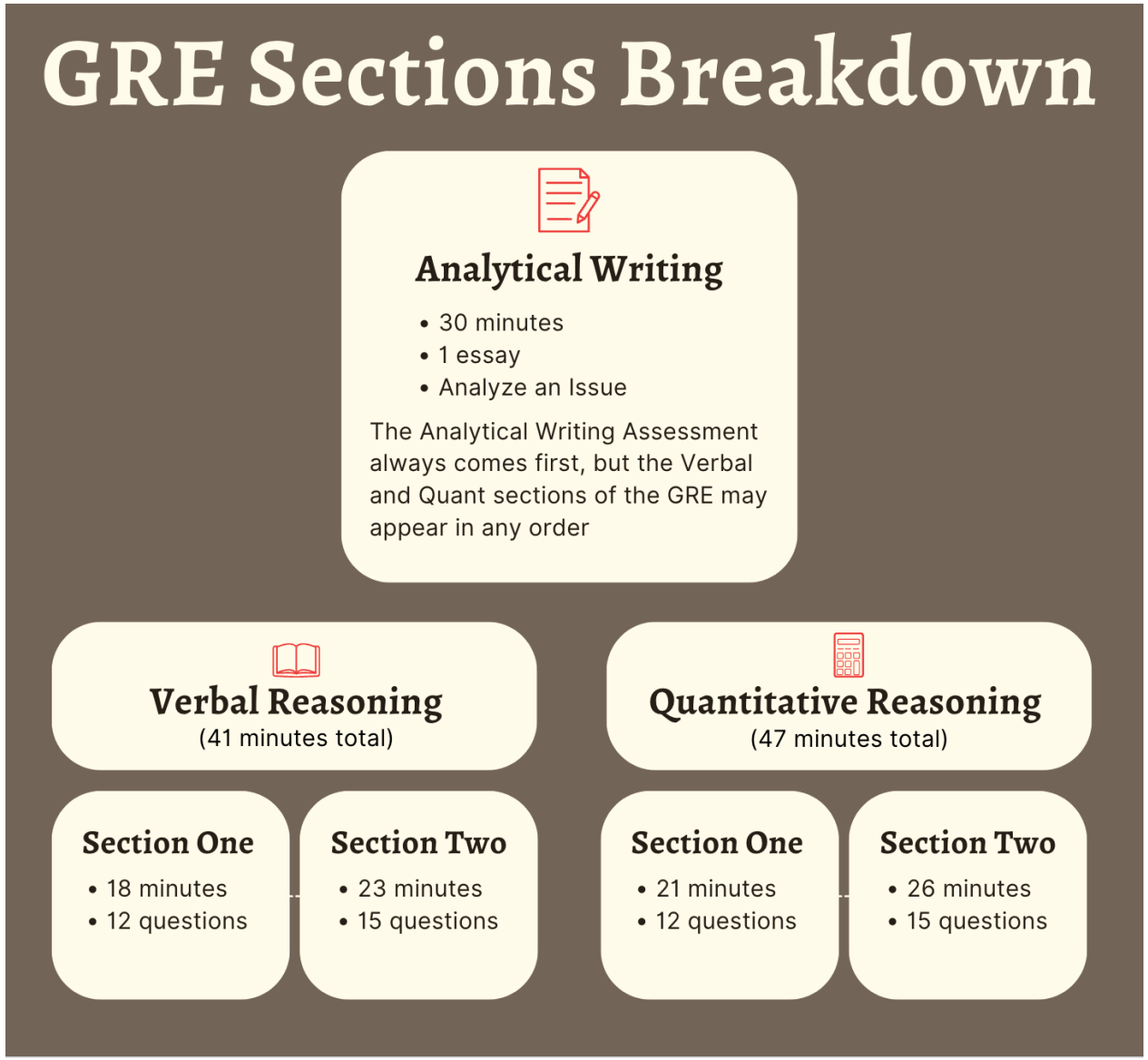
- Official transcripts ($15-20 per transcript)
- Application fees ($50-100 per application)
  - may qualify for a waiver
- Curriculum vitae (CV)
- Letters of recommendation
- GRE – rarely ($100 – 220 per attempt)
- Either SOP or PS, or both (sometimes…)

Curriculum vitae (CV)

- Means “course of life”
- Highlights your professional + academic history
  - **Academic history**
  - **Research interest summary**
  - Work experience (field-specific)
  - **Teaching experience**
  - Professional skills
  - **Certifications/licenses**
  - **Publications**
  - **Conference presentations**
  - **Leaderships/organizations**
  - Volunteer work
  - **Scholarships/grants**
  - Achievements/awards
- No length limit

Letters of recommendation

- 3 – 4 letters of recommendation
- Typically from people who can assess your academic work in your field of research
  - Best to ask people you worked directly with – why office hours are good
- Ask **early** (months in advance) for a *good* letter
- Bug them **often**
- Provide them with useful information
  - List of grad schools/programs with application due dates
  - Your current CV
  - Blurb about why you are applying to graduate schools, and what your professional goals are



GRE

- Essentially like the SAT or ACT for graduate school
  - Writing
  - Verbal reasoning (vocab)
  - Quantitative reasoning (math)
- Can take it at home or at a testing center
- Test once every 21 days, up to 5 times in a year
- $220 per attempt – can qualify for reduced $100 rate
- Scores valid for 5 years
- Becoming less common to rare
  - The “GRExit” movement
  - Very easy to avoid
  - Some still require it, others say it can help your chances

Statement of Purpose/Letter of Intent

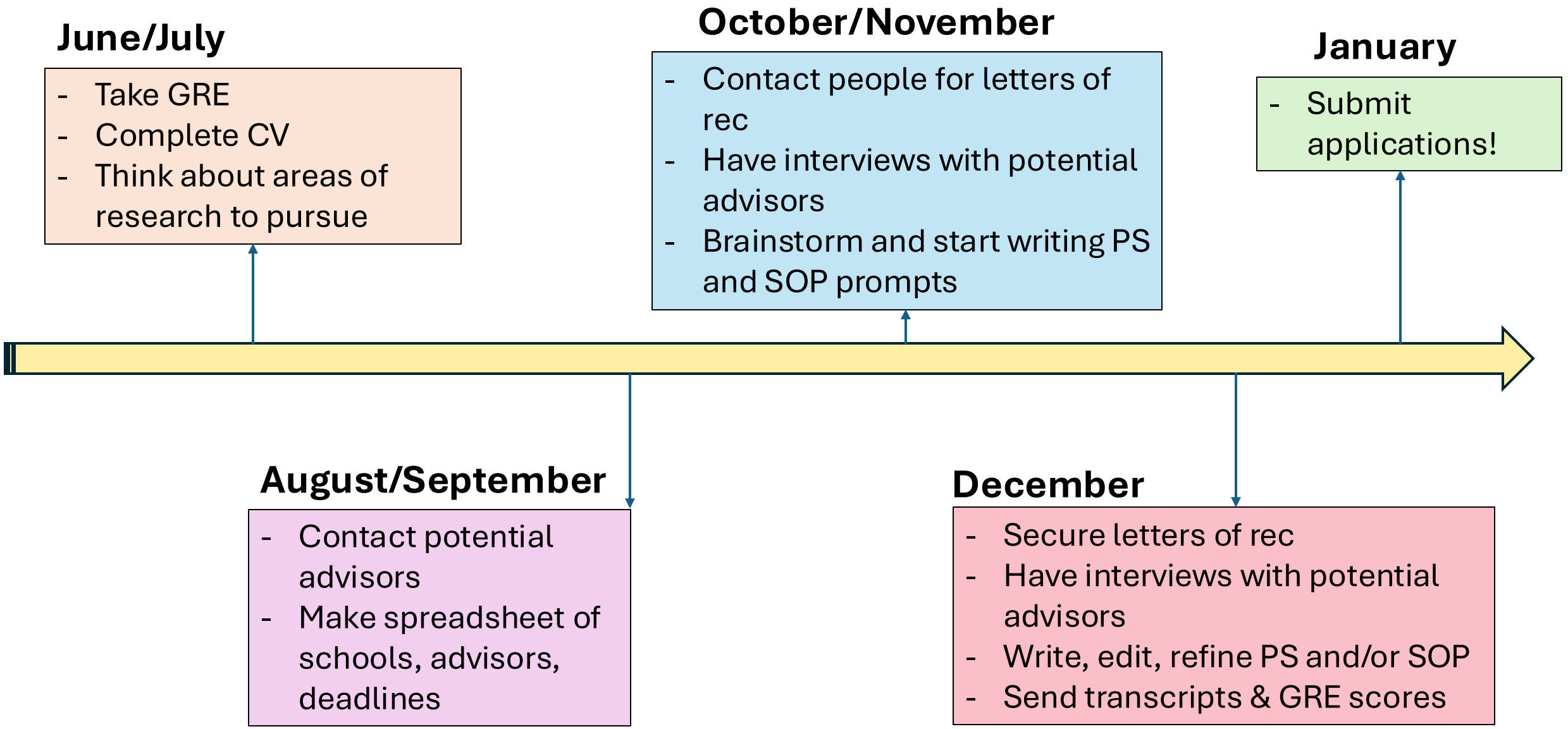
VS

Personal Statement

- **Why** do you want *this degree*?
- **Why are you interested** in this particular branch of research?
- **Why are you qualified** to undertake research in this field? What experience do you have that led you to want to study *this topic*?
- **What are your goals** for integrating this degree into your future career?
- **Identify an advisor** or advisors you want to work with
- Identify specific aspects of the school that draw you to that particular program
  - Do your homework, and *modify this section to each school/program*

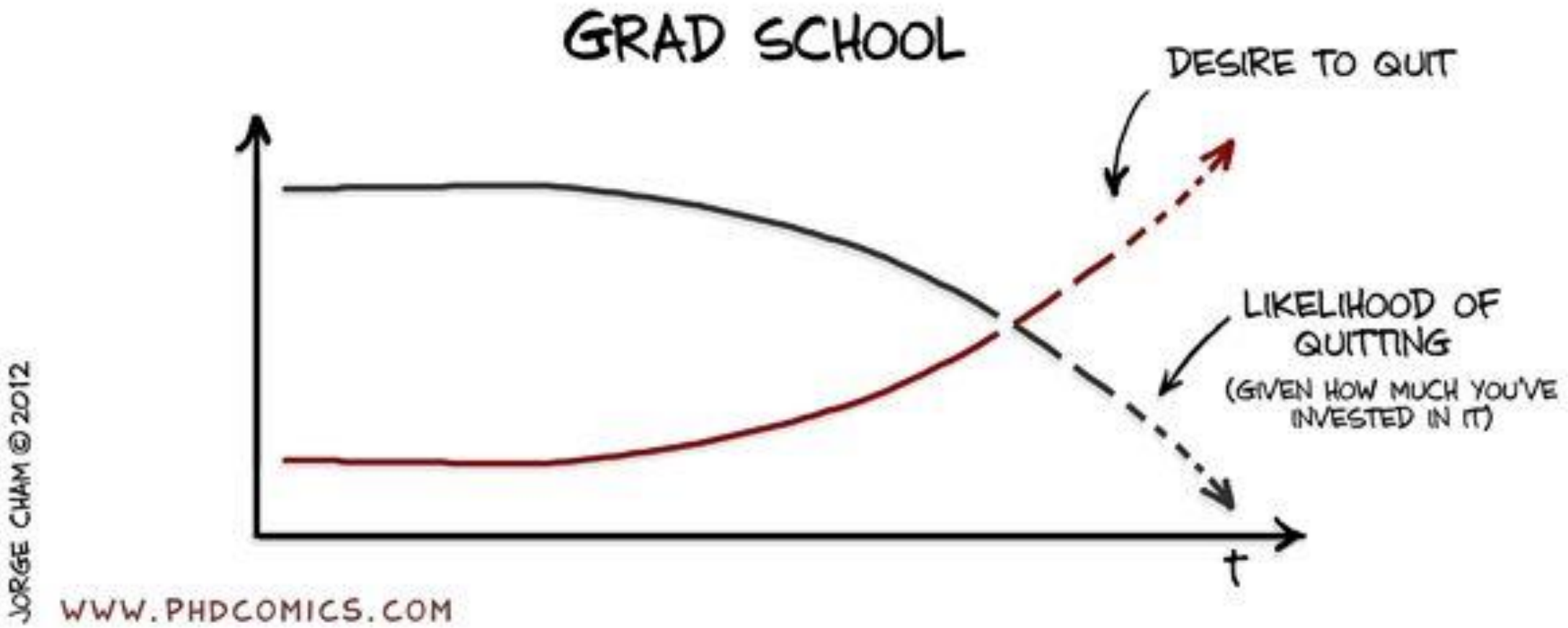
- **Goals, passions, unique strengths**
- **Highlight traits** that *you will bring to the program*, or what you are hoping to get out of the program
  - Tenacity, grit, passion, problem-solving, curiosity, collaboration, adaptability, attention to detail
- Significant life **experiences** or **challenges**
  - May or may not be relevant to your field of study
  - Address setbacks or gaps in your academic history (optional)
  - **Tell a story!**
- EX: Climbing and embracing failure/mistakes

Application timeline



How to succeed in graduate school

- You do not need prior research experience
  - But you **do** need passion and a goal
- Endurance
- Patience
- Flexibility



Still unsure?

Apply for the **Hooper Undergraduate Research Award** (HURA)

- HURA applications due early spring semester (Feb-Mar)
- OR Ask your favorite professor if they have anything you can work on!

Pathways to Science summer research REUs

Seed your future, nonprofit or NGO internships

Research Experiences for Undergraduates (REUs) through the National Science Foundation (NSF)

- Select universities or organizations
- Many different disciplines and projects
- Typically includes stipend, travel, housing

FAQ

Q: *I got my undergraduate degree in biology, but I want to study air quality in grad school, is that possible?*

A: YES! You do not have to go to graduate school for the topic you studied in undergrad. You will need to ensure you have the necessary prerequisites (such as required math classes), and explain why you are pivoting to a different field in your application.

Q: Do I need a master's degree to apply to a PhD?

A: No, absolutely not, but it does help you complete a PhD. Some people know for sure that research is what they want to do for their career, but I recommend completing your MS before your PhD. It can help you learn the skills that you need for research and help you feel more confident when doing your PhD.

Q: Will I be more competitive if I study field or computer-based science?

A: You should pursue whatever project you are most passionate about. There are a lot of jobs in both field and computer-based science. It is typically best if you know how to do a bit of both. I am primarily a field geologist, but I do a lot of coding as well, which I learned how to do in graduate school.

Send me an email if you'd like to ask me more specific questions,
or if you'd like to connect with a graduate student in your potential research field. ☺

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