Session 5: How to Succeed in Graduate School

Thursday, November 18, 7pm ET

CSGRAD4US & mentoring program

Computer and Information Science and Engineering Graduate Fellowships

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Widening Participation

NSF

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Learning Objectives

- Perspective on your research and contributions
- Defining your own success
- Ways to be productive and balanced
- Building a positive relationship with your advisor
- Strategies for growing a support network

Acknowledgements:

- Matt Might's blog
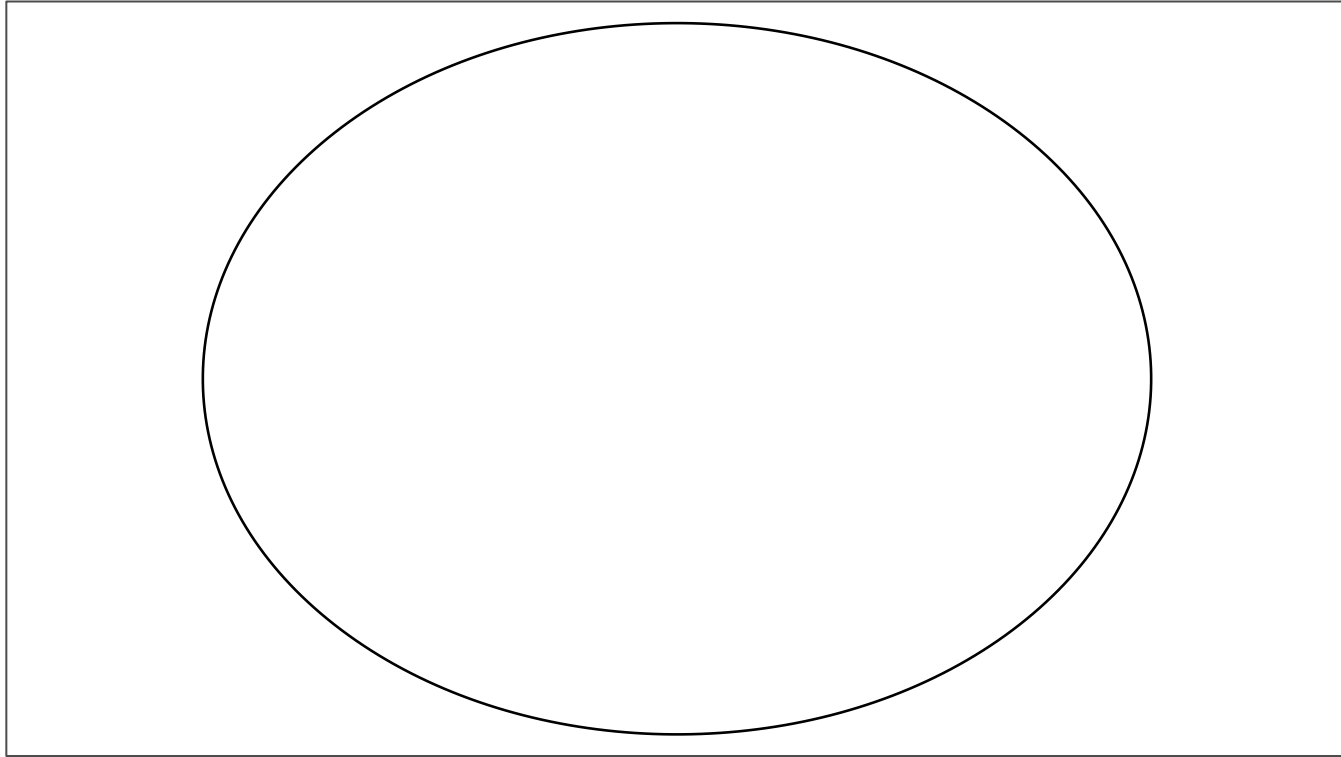- How to Excel in Graduate School (Nikos Hardavellas)

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What is a PhD?

The illustrated guide to a Ph.D.

Matt Might

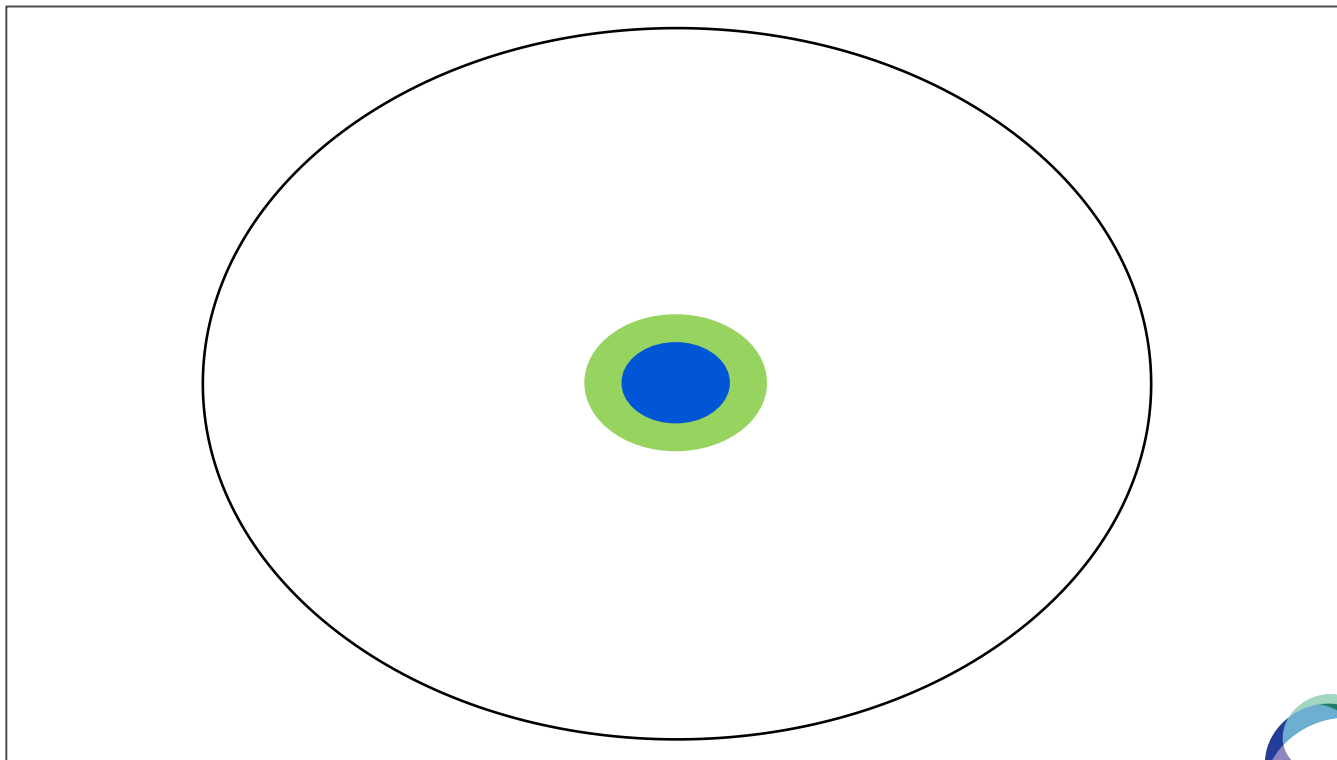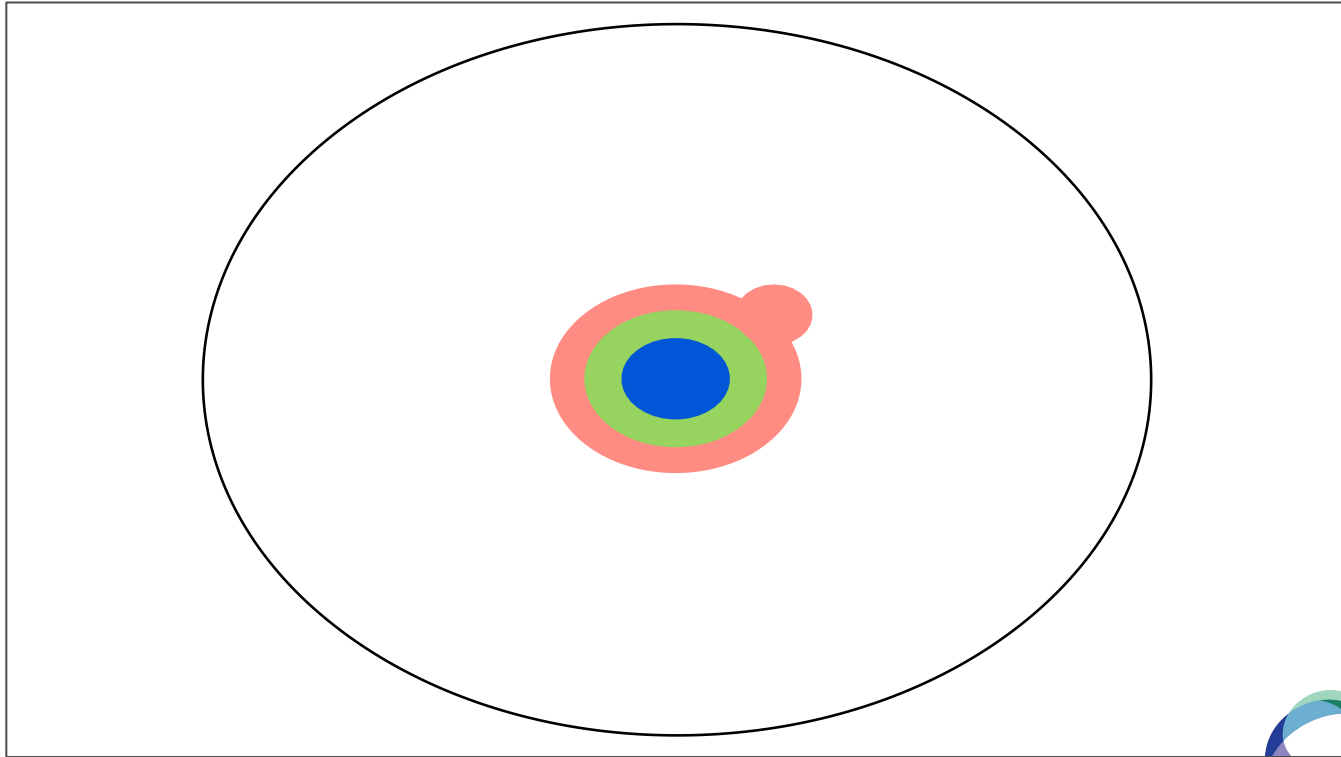matt.might.net

The circle of human knowledge

Elementary school: you know a little
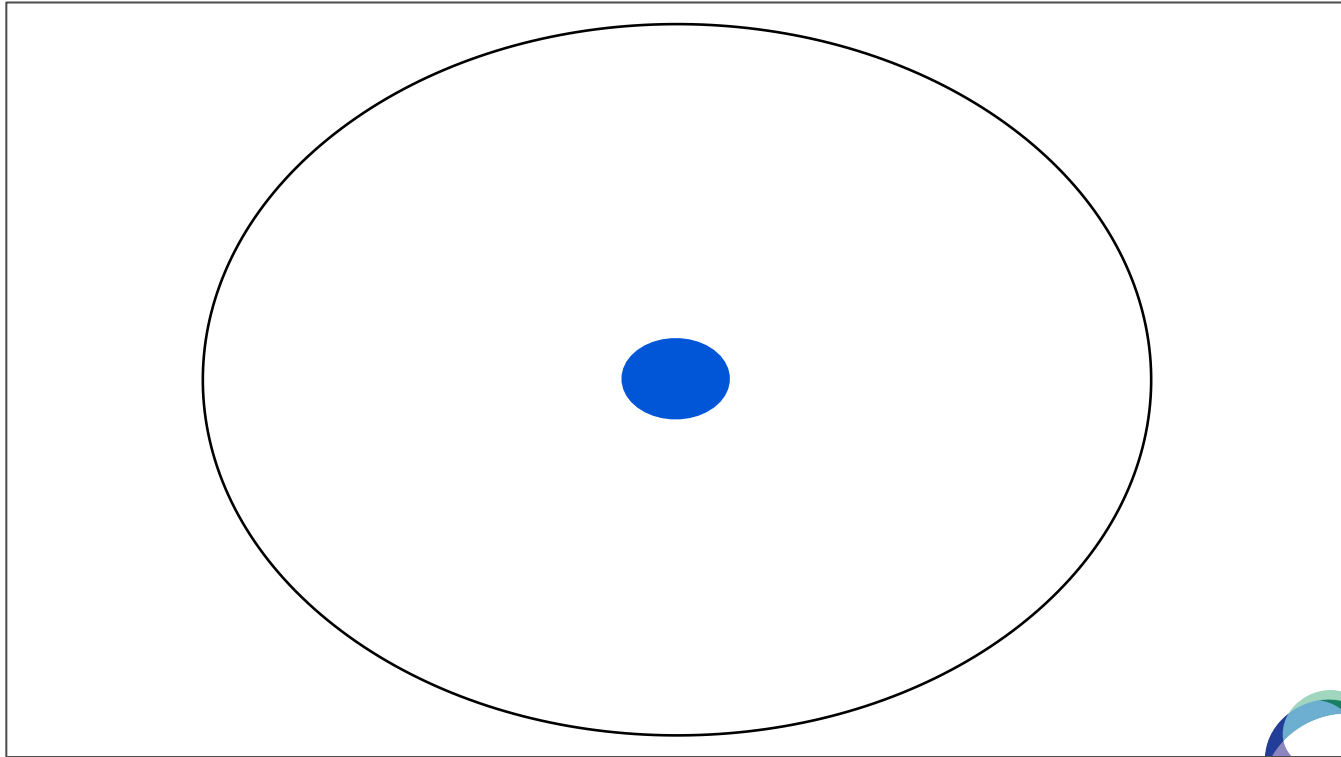
High school: you know a bit more

Bachelor's degree: you gain a specialty

Master's degree deepens that specialty
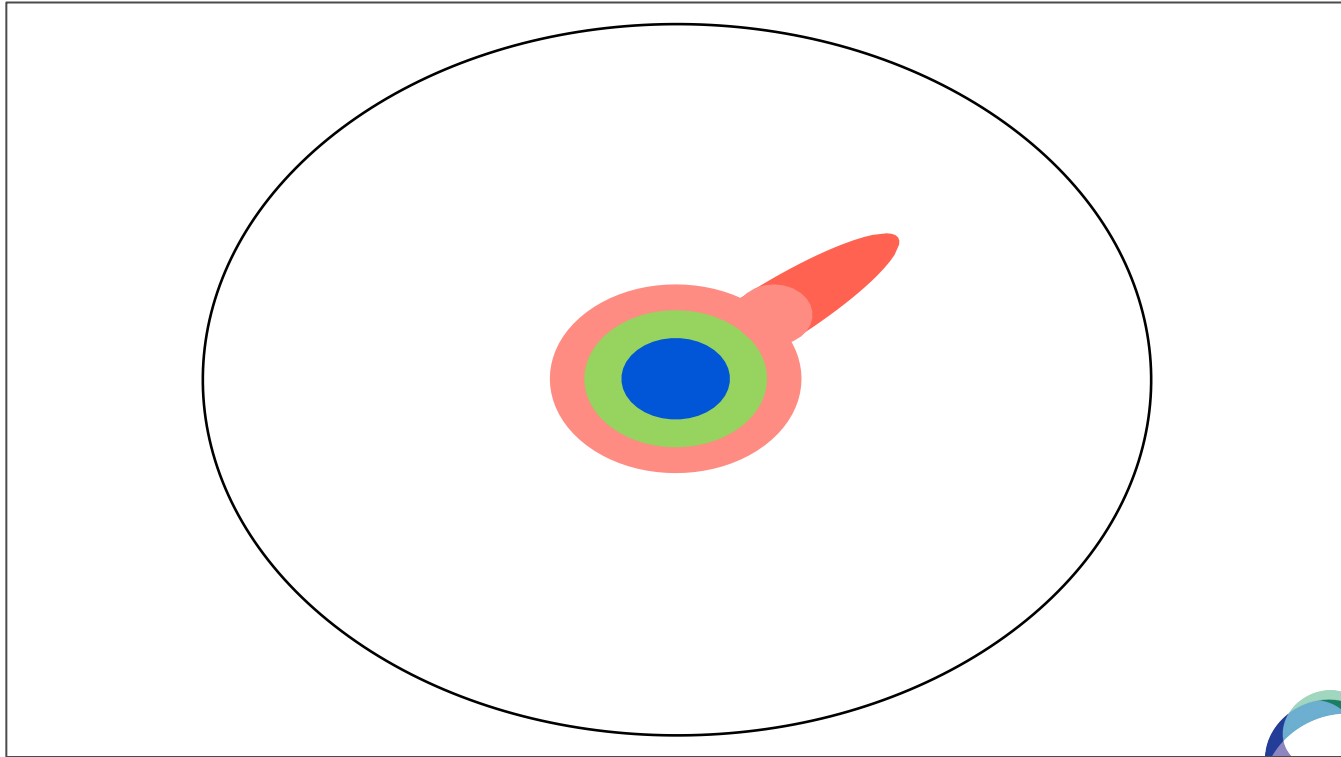
Research papers represent the edge of current human knowledge
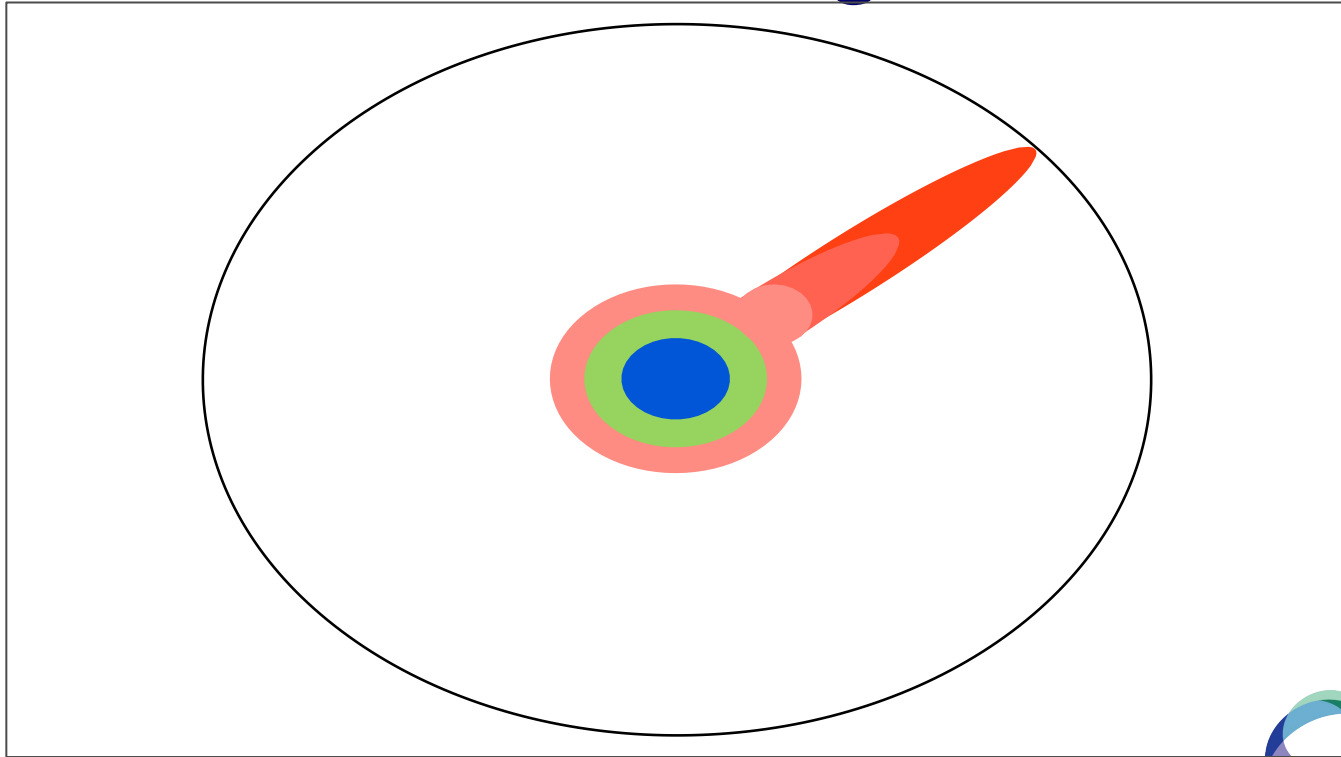
Once you're at the boundary, you focus
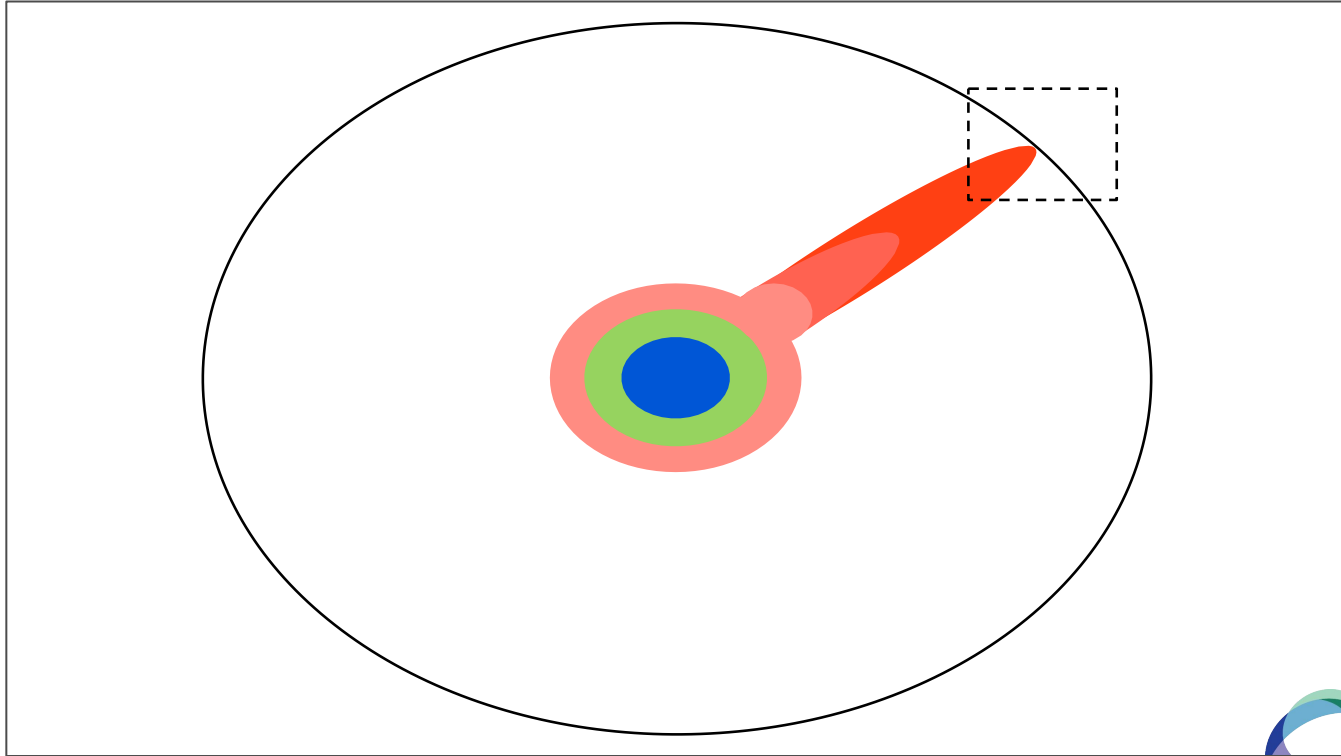
You push at the boundary for a few years
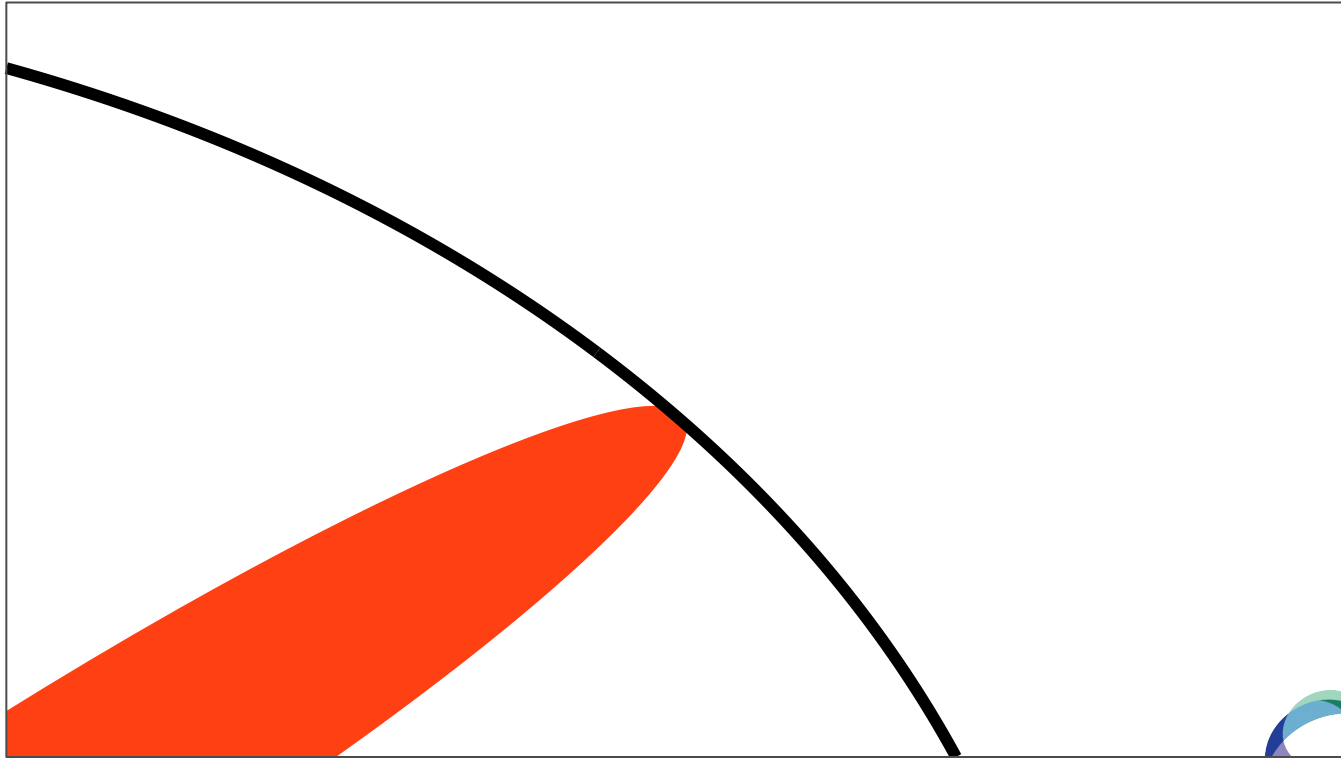
Until one day, the boundary gives way
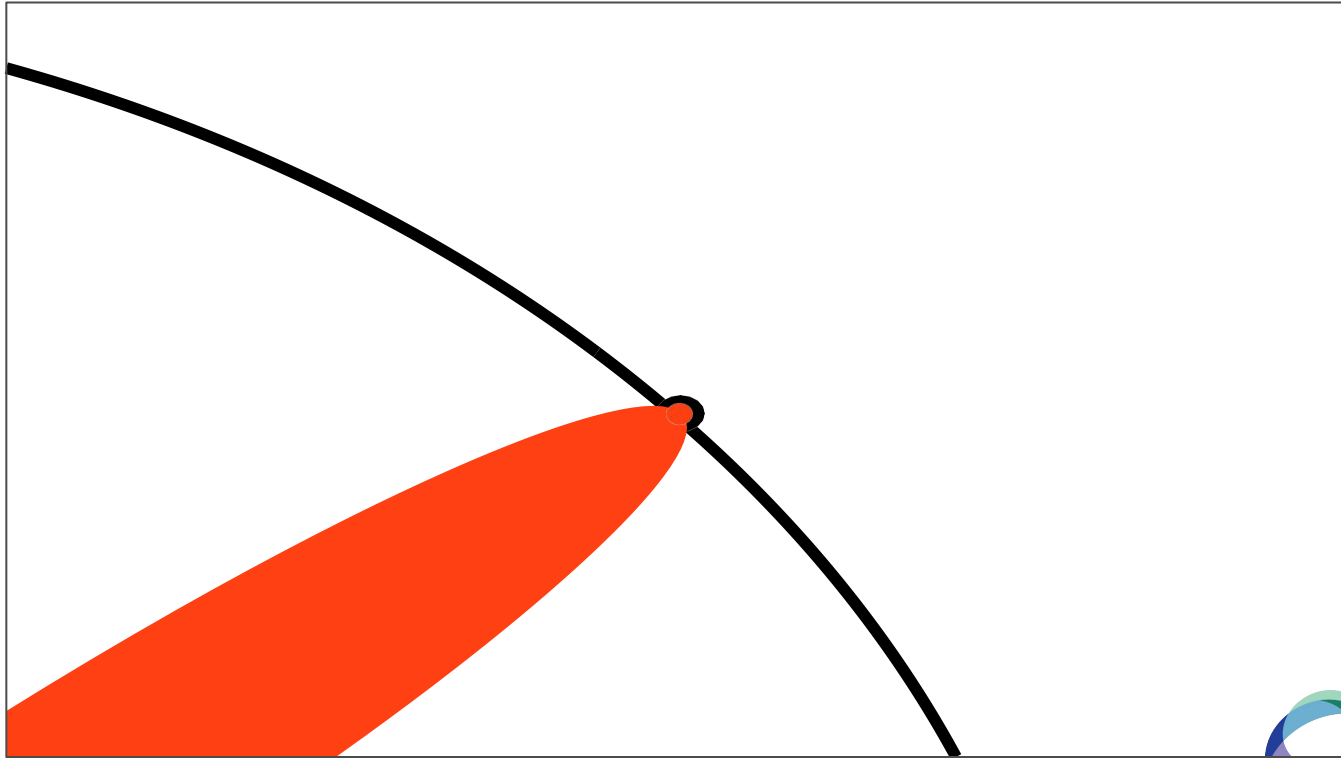
That dent you've made is your Ph.D.
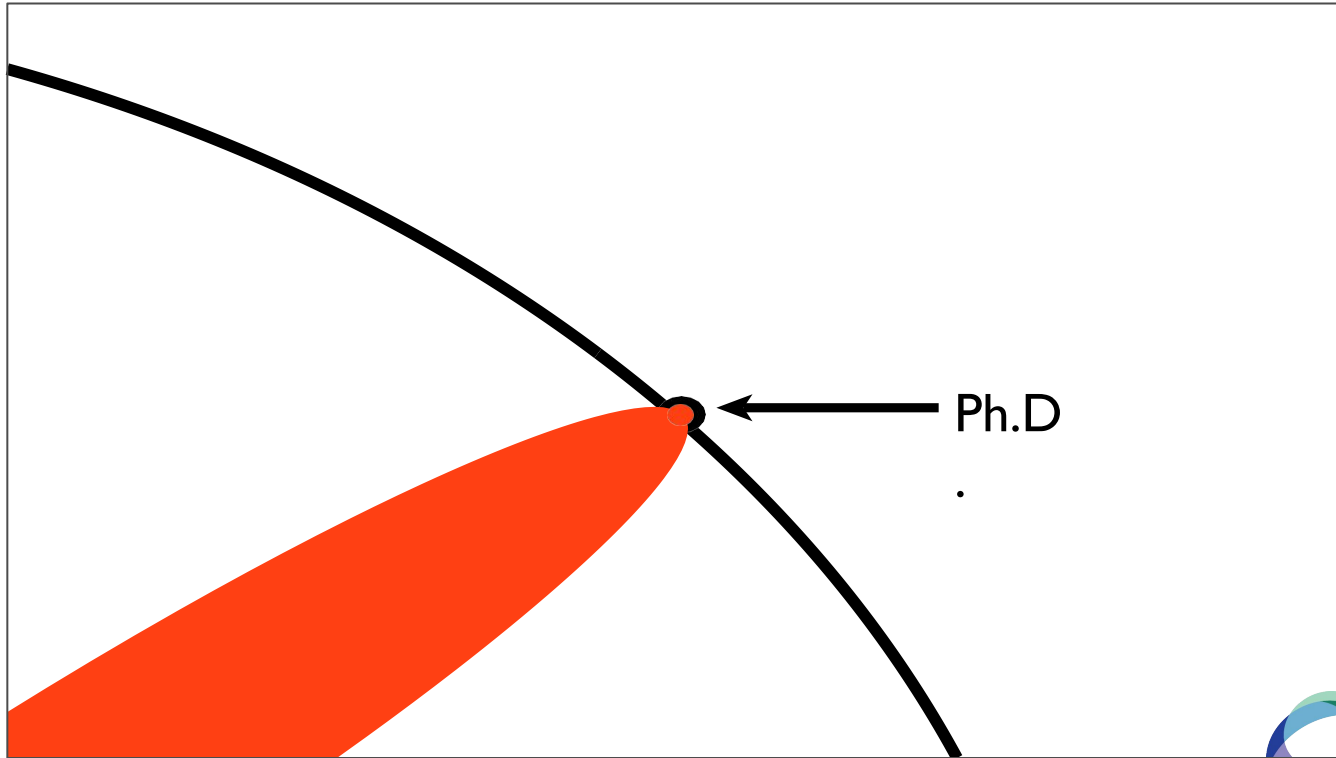
Of course, the world looks different to you now
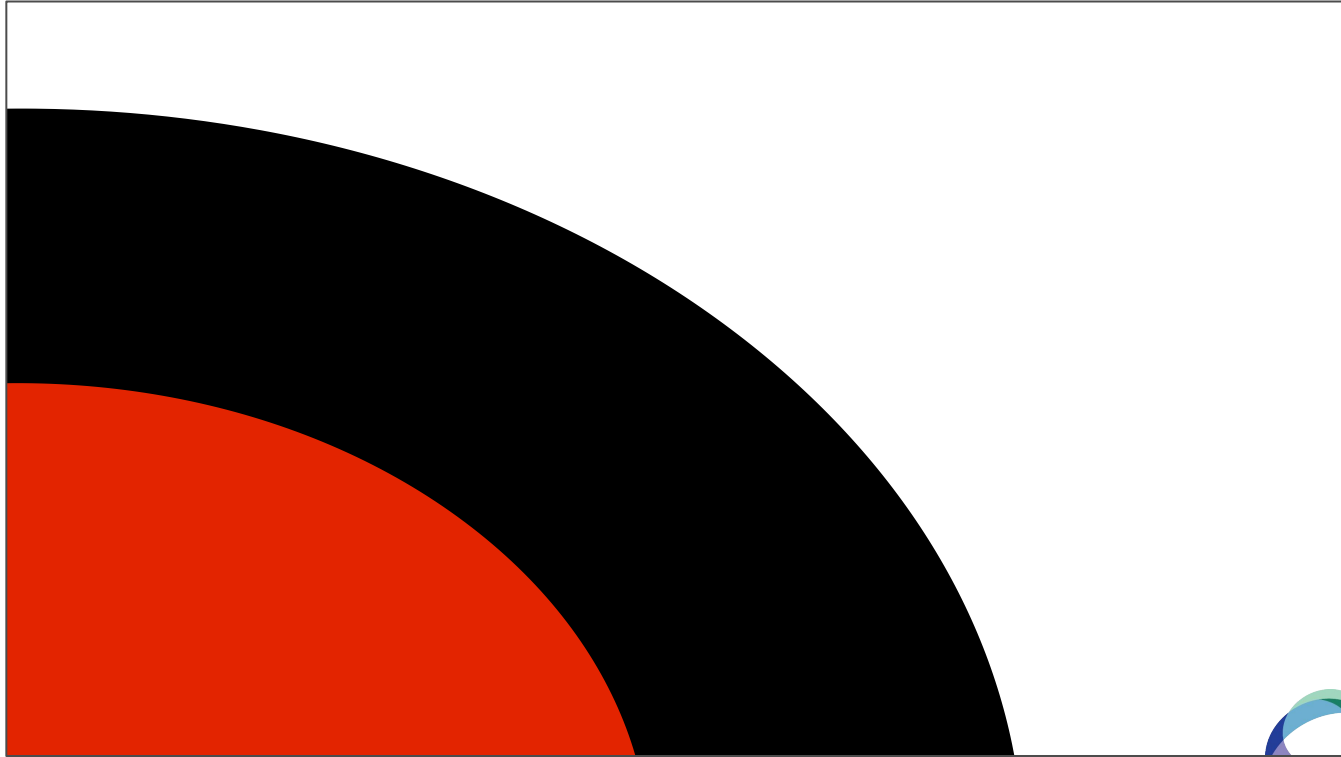
So, don't forget the bigger picture
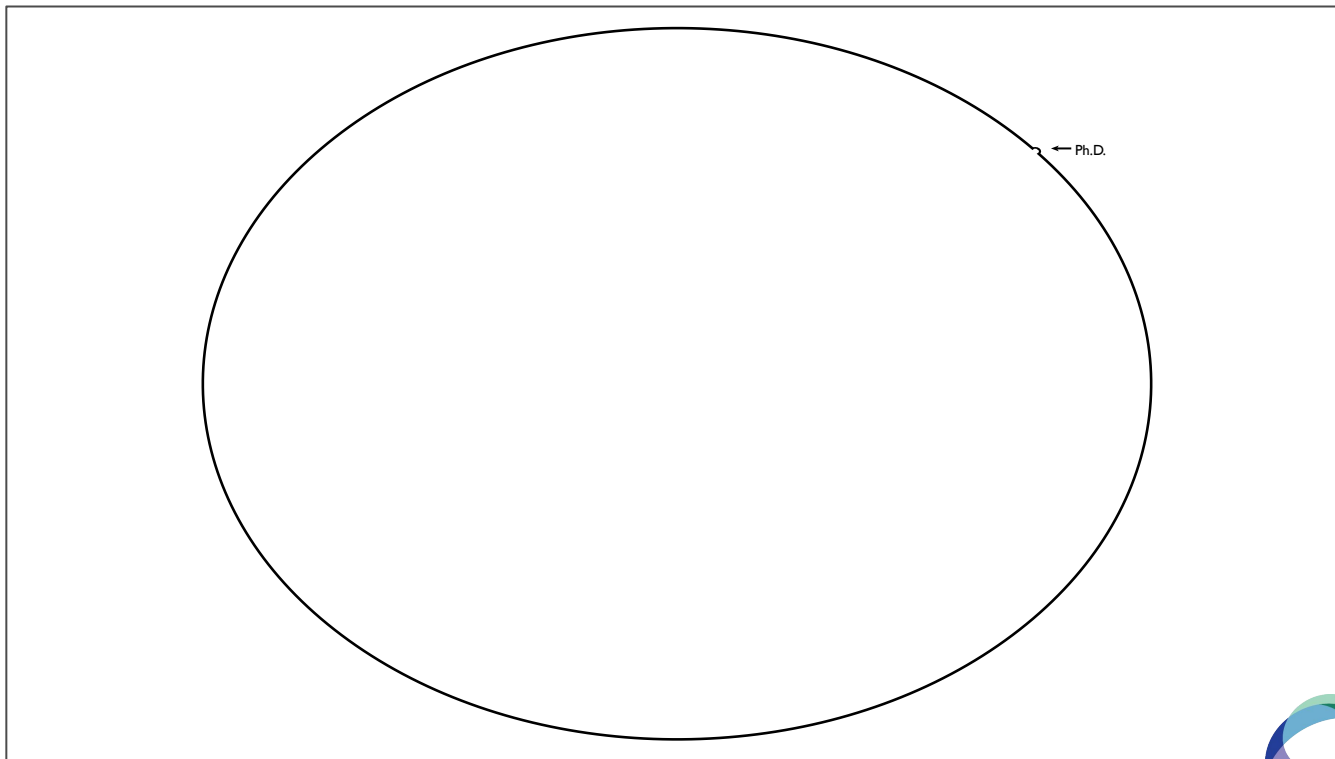
Research is the focus of your PhD

It is a journey into the unknown with lots of ill-defined problems...

How will you know when you are successful?

What does success look like?

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What Does Success Look Like?

Different ways to measure success in your PhD studies

Need to satisfy at least three entities:

1. Program has requirements
   - course work, qualifiers, proposal, defense
2. Advisor has a broader research program
   - expectations for each student (within PhD and beyond), research deliverables, group-level goals
3. You need to feel good about your work
   - personally satisfying, aligns with career goals, work/life balance

Agreement Critical

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Activity: Personal Reflection

- What does success in grad school mean to you today?
- How does a PhD relate to your current career goals?

Take 2 minutes to think this over and write down your thoughts.

PhD Timeline

Qualifying Exam

Thesis Proposal

PhD Defense

**Take classes
Prepare for quals
Choose advisor**

← **Thesis Research** →

← **Submit Papers** →

←**Job Hunt**→

←**Write Dissertation**→

Year 1

Year 2 - 4+

Year 5+
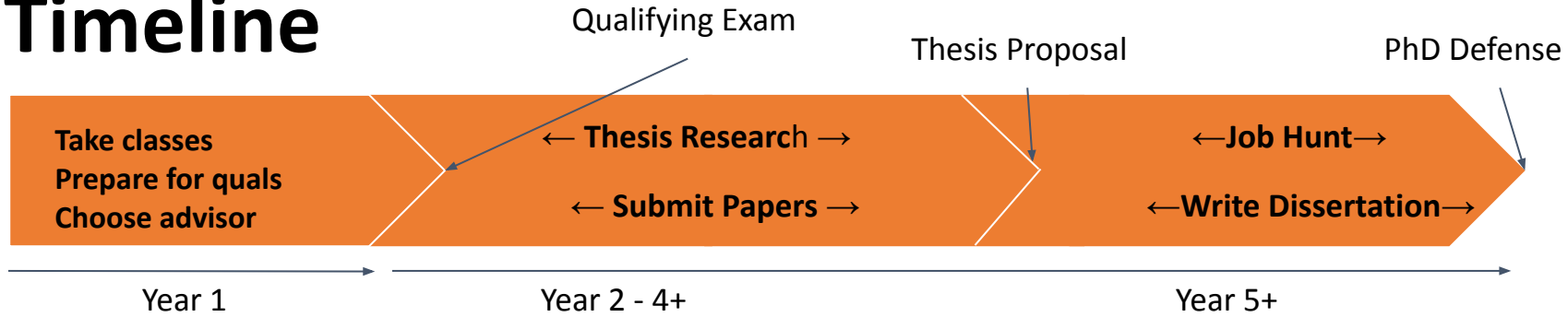
Many programs define success by ability to achieve milestones:

- Complete course work
- Pass qualifying exam
- Gain thesis proposal approval
- Pass PhD defense

Generally fixed and program-wide

Do you and your advisor agree on the timeline?

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Highs and Lows of PhD Timeline can be Rollercoaster

Stay focused!

Draw on your support network for advice and motivation!
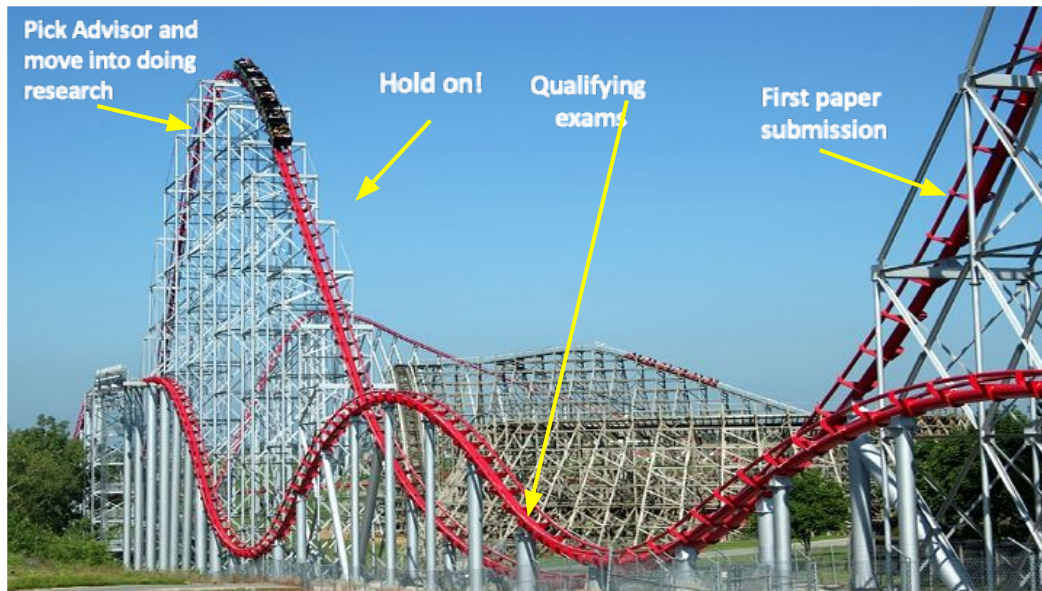
Managing expectations: Advisor's wants

What do advisers expect?
- Research output (Ex. n papers in top venues)
- Work hours (Ex. in lab during core hours but expect crunch at deadlines)
- Meeting/group culture
- Checklist for graduation (accomplishments, skills)

Impact:
- What does my day-to-day look like?
- When do I graduate?

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Managing expectations: Your Needs

What do you expect from/during your PhD?
- Career goals (Ex. R1 Faculty position, teaching position, industry researcher, …)
- What kind of feedback do you need?
- Constraints on time (Ex. Family responsibilities, health, graduate within k years)

Need to communicate effectively

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Communicating Expectations

- Clearly explain outside commitments/responsibilities
- Alert advisor of disabilities or health issues if they impact work
- Try to find creative solutions
- Exploit flexibilities that arise in academia
  - Example: I am not available from 4pm-8pm, but will get back online once kids are in bed
  - Example: I get migraines so my workspace cannot have bright light

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Making It Work

- Learn when to say no
    - Pay attention to norms
    - Think about opportunity costs
    - Negotiate
- Ask for help: Don't be shy

A Day In The Life … of a PhD Student

- First year: Taking classes, starting research, preparing for qualifiers, etc
- Second year and beyond: Majority of time should be spent on research
    - Working independently on your research problems
    - Reading papers, other resources (self-directed learning)
- Keep in mind:
    - Workload peaks around critical deadlines (paper, proposal, presentation)
    - Carefully choose non-research tasks (e.g., don't overload on courses)

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Work/Life Balance

- Your PhD work should be a major focus of your time and energy
- But it should not be the only thing you do
  - This is not a healthy lifestyle...you will eventually burn out
- Stay engaged in outside activities that allow you to recharge
  - Physical activity: run/walk, biking, swimming, dancing, yoga
  - Culture: books, music, movies
  - Social: special interest clubs/groups, spending time with family/friends
  - Relax: Schedule regular breaks (daily/weekly/monthly following academic schedule)

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Advisor-Advisee vs Boss-Employee

- You will work closely with your PhD advisor on
  - choosing a research topic
  - conducting research
  - writing papers, publishing results

- Different than boss-employee relationship:
  - Much more ambiguity about choosing/defining tasks
  - Advisor is a mentor/manager/advocate
  - Advisor should provide guidance through your first job and beyond…

this is a life-long relationship

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Interacting with your Advisor

- Common to have weekly (or bi-weekly) one-one meetings
  - Prepare appropriately
- Some advisors are more hands off and want to meet once a month or semester
  - Need to be more self-directed about monitoring progress
- At semester boundaries or after completing a milestone, consider longer term outlook

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Breakout Room Activity:
Imagine you are talking to a potential future adviser

What do you think is important for a potential advisor to know about your goals?

What are the key questions that you would ask your advisor?

Trouble with your advisor?

- Common reasons
  - Mismatch in styles: e.g., micromanager, distracted/absentee advisor, irreconcilable difference
  - Lack of communication on expectations and limitations
  - Change in your research interests
- Talk to
  - Your advisor, other mentors, the graduate program director
  - Potential advisors to see if they might be interested in working with you (maybe become a co-adviser)
  - Be open and honest
- If difficulties cannot be corrected, changing advisor is an option.
  - A difficult decision, but sometimes it is the right thing to do

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Evaluation and Feedback

- Different from industry performance reviews
- Most advisors provide feedback, but often at adhoc basis
  - Ex: comments on paper draft, critique of a proof/implementation
- Program might have regular evaluation points (varies between schools)
  - Might review each graduate student yearly (or at some other time interval)..but may not also

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Building Your Support Network

- The PhD journey is difficult...you will need support

- Actively assemble a team of people who aid in your professional development and provide guidance

- You want some diversity in this team (expertise, seniority, backgrounds).
    - Your advisor (obviously)
    - Other mentors at your institution and beyond (includes CSGrad4US)
    - Advocates in your research community
    - Peers at your institution and beyond
    - Friends/family for moral support

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Networking: Assemble Your Squad

- Make sure people in your field know about your research
    - □ Will evaluate your work on more than one occasion
    - □ Get informal feedback early
- Peer networking
    - □ Cross--pollination of ideas (may help with nuts and bolts issues)
    - □ Future collaborators (and friends)
- Conference etiquette
    - □ Must read: [Ten simple rules for attending your first conference (Kelly Shaw et al)](#)
    - □ Seek people you don't know; introduce yourself
    - □ Practice your elevator speech

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Advice: Remember your successes
Not just your setbacks!

- You will sometimes fail on your way to success
- Setback is part of doing research
  - If everyone knew it would succeed, it wouldn't be an interesting result
  - Research stalls or doesn't pan out; good papers are rejected
- Best Cure
  - Remember it happens to everyone
  - Keep track of your successes -- little and big ones
    - Move TODO items to the Done list and celebrate

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Last Nugget

- Grad school is fun
  - ☐ Some of your best memories will be from there
  - ☐ Make friends for life (faculty and students)
  - ☐ The freedom of exploration is unparalleled
- If you love what you do, you'll enjoy it
- Make sure you love what you do!
- Have fun!
- Keep pushing the boundary!

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Keep pushing
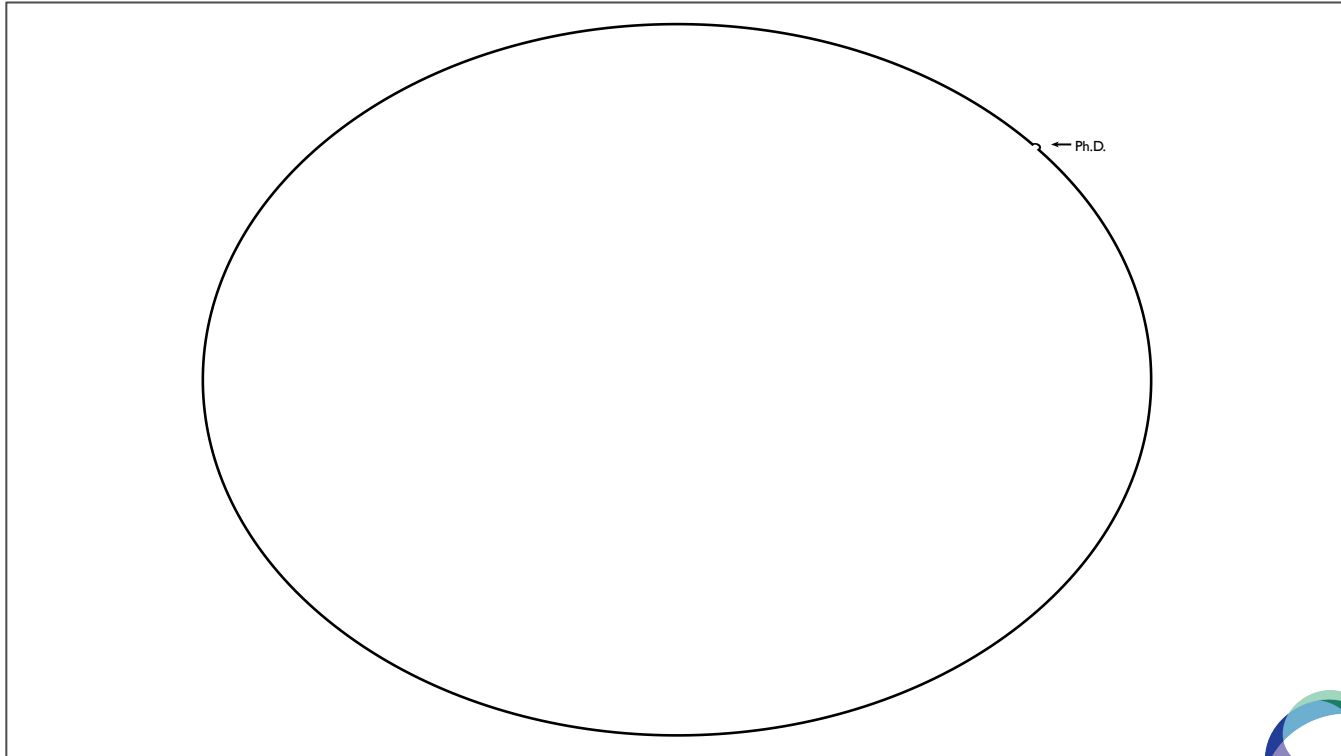
Questions we received from you (1)

Will I still have access to the CSGrad4US resources and mentorship next year, when I plan to apply?
- Yes to resources.
- Mentoring unclear (if you have established a relationship with your coach, they may be more than willing to continue to help)

What could go wrong?
- not admitted to a school you want to attend
- adviser problems
- not finding a research problem that leads to progress
- realizing that you don't like research

Questions we received from you (2)

Tips on how to survive on a PhD student budget?
Any other income/side job opportunities you'd recommend?

- take advantage of resources and access a student has for free/almost free (gym, library, entertainment, clubs, campus transportation, day care, …)
- students have reduced fees for many activities beyond the university
- internships in summer; teaching in the summer
- 75% RA/TA appointments are possible
- college towns adjust to purchasing power of students (restaurants, services, etc)
- many grad students (re)-assess needs versus wants versus luxury

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Questions we received from you (3)

What kept you going when times inevitably got hard? If things become difficult, what can you do to keep going?
comments from panelists
- friends and activities outside the department providing a different perspective
- a strong advisor relationship
- mentors and collaborators

Issues with the department
- Adviser should be representing you on issues related to requirements.
- Graduate office is another valuable resource on solving problems.
- Other sensitive issues? Many departments have an ombudsperson or similar

Questions with partial answers in sessions

Advisor relationship
see material in session 5

Things to talk about with potential advisors.
I have some 1:1s set up and don't really know what to talk about or ask yet.
- See session 3, slide 24 - 26. Session 5 breakout

Time management guide.
- some insight covered in session 5

How did you plan out a healthy life during grad school?
- see work-life balance related material in session 5

Final Thoughts

Grad school can be a transformative experience which opens many new possibilities. Go in with an open mind and do great work!

Thank you for your participation, questions, and comments throughout the mentoring program.

Relationships you have built through the CSGrad4US program are part of your professional network.

Good luck!

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