



Graduate School

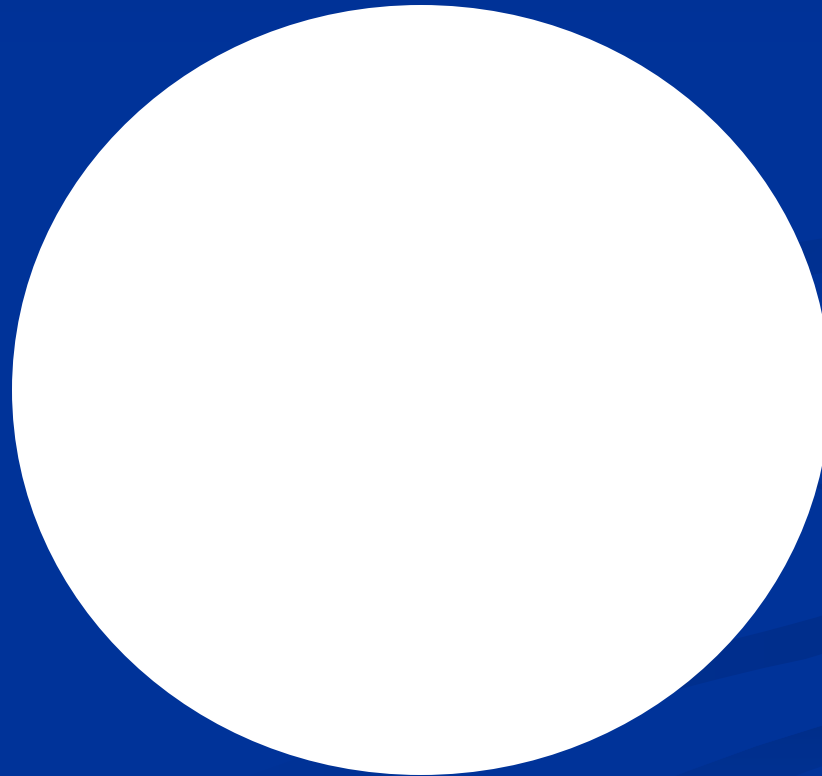
Chad Baker '06

Arian Vistamehr '07, '09

Randy Williams '06

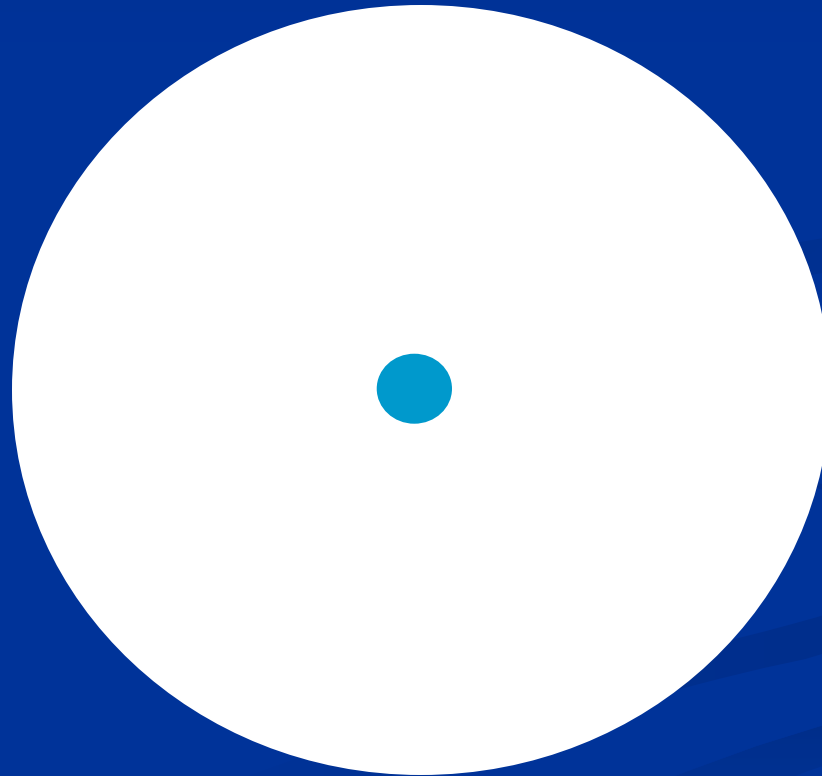
What is Grad School? What is a PhD?

Imagine a circle that contains all of human knowledge



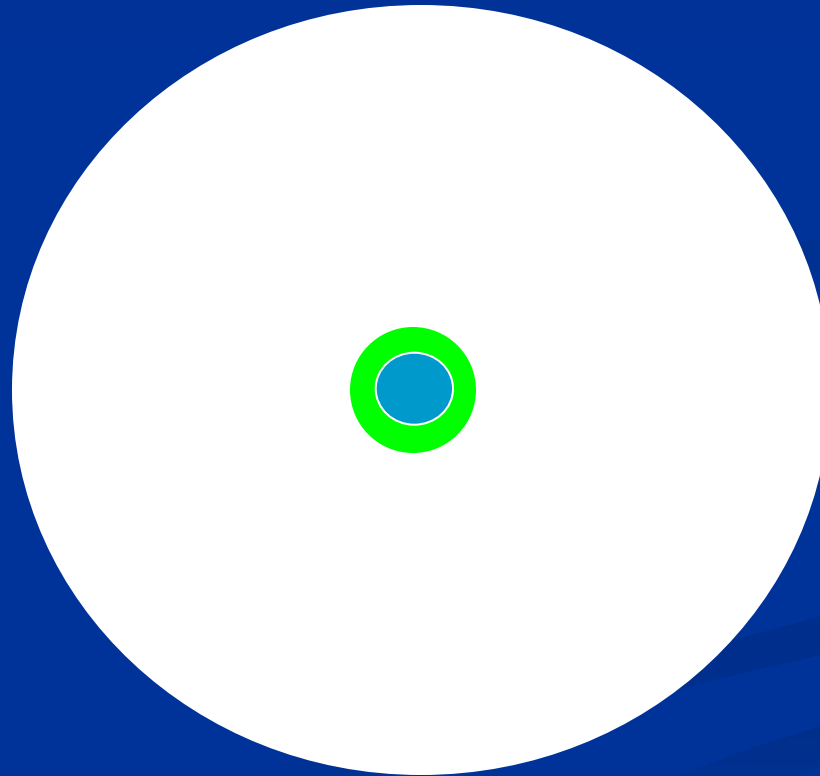
A Perspective

By the time you finish elementary school, you know a little



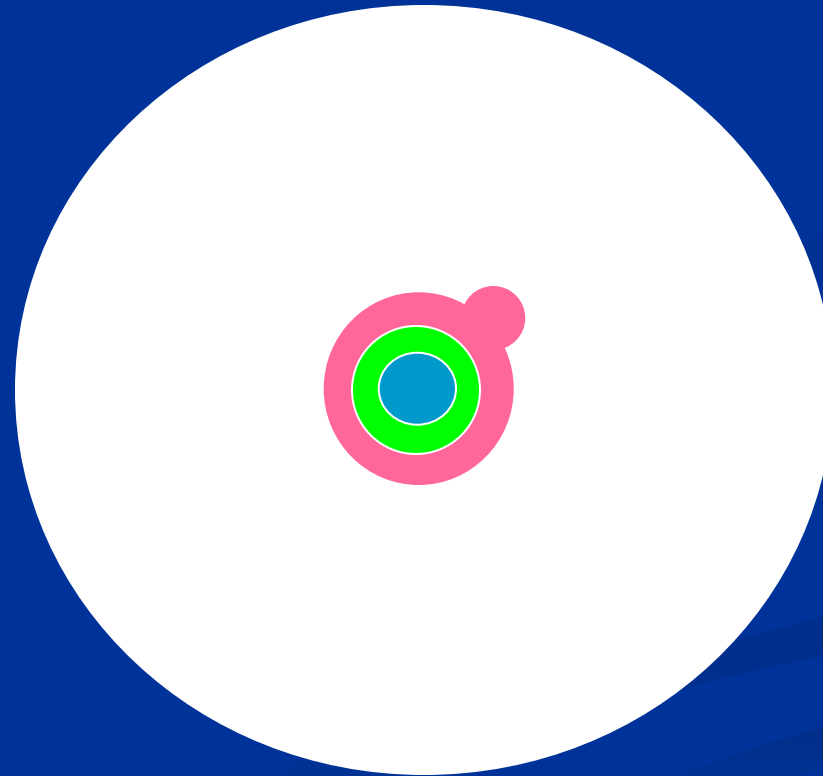
A Perspective

By the time you finish high school school, you know a bit more



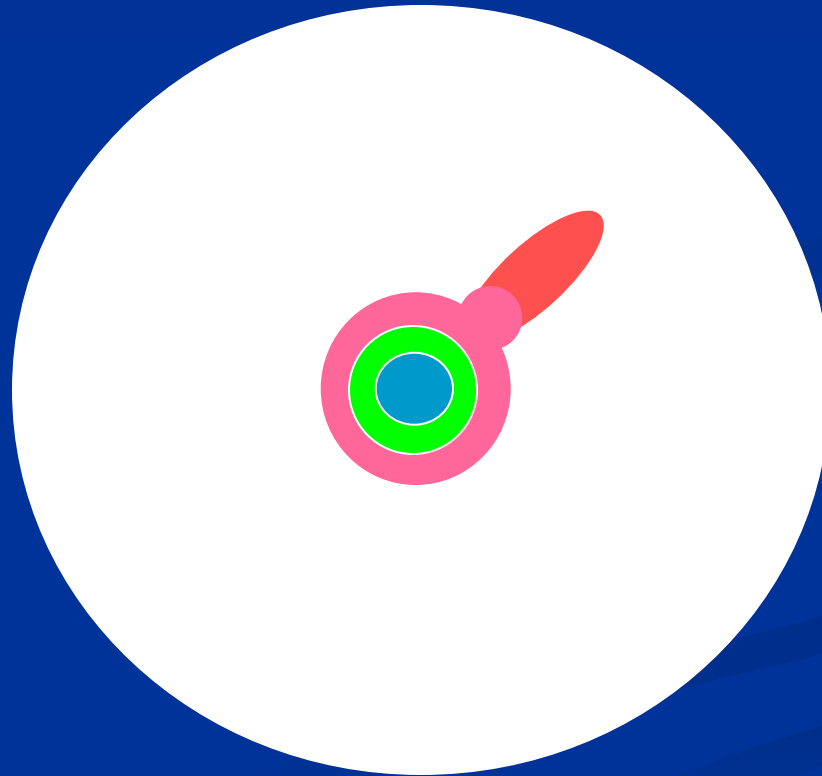
A Perspective

With a bachelor's degree, you gain a specialty



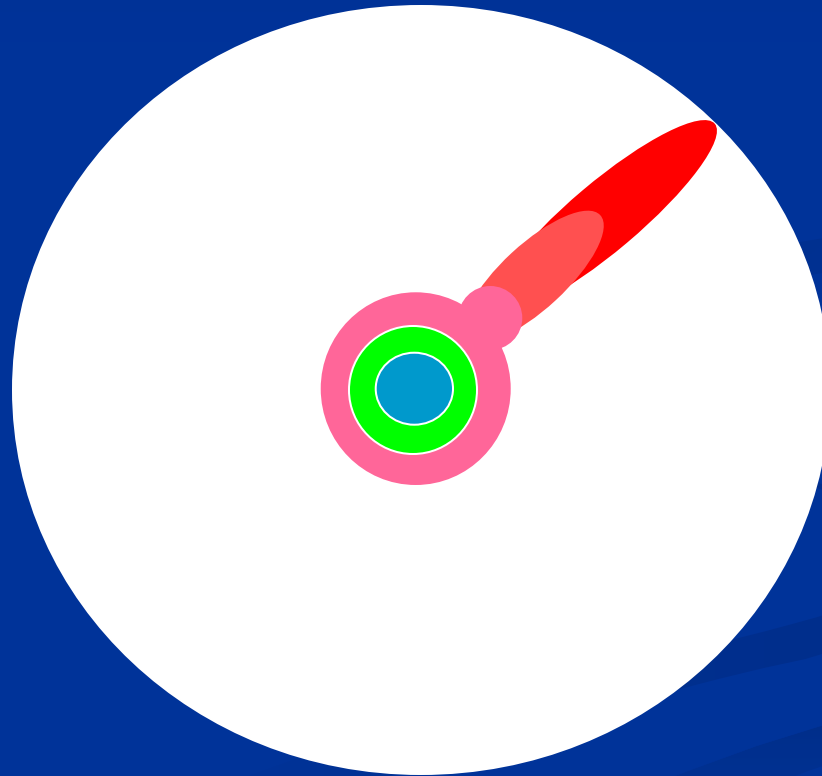
A Perspective

A master's degree deepens that specialty



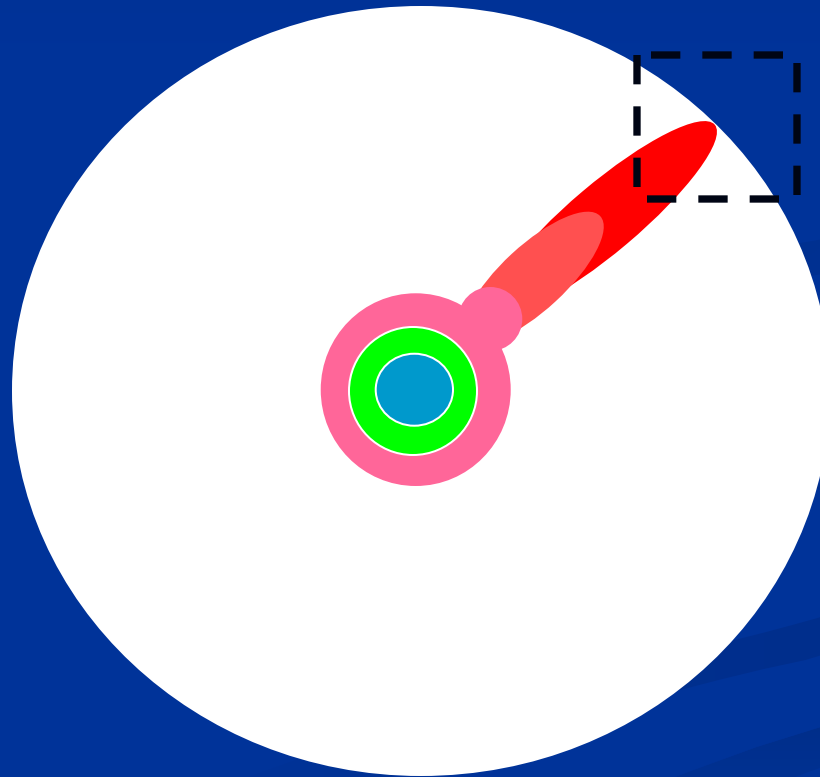
A Perspective

Reading research papers takes you to the edge of human knowledge



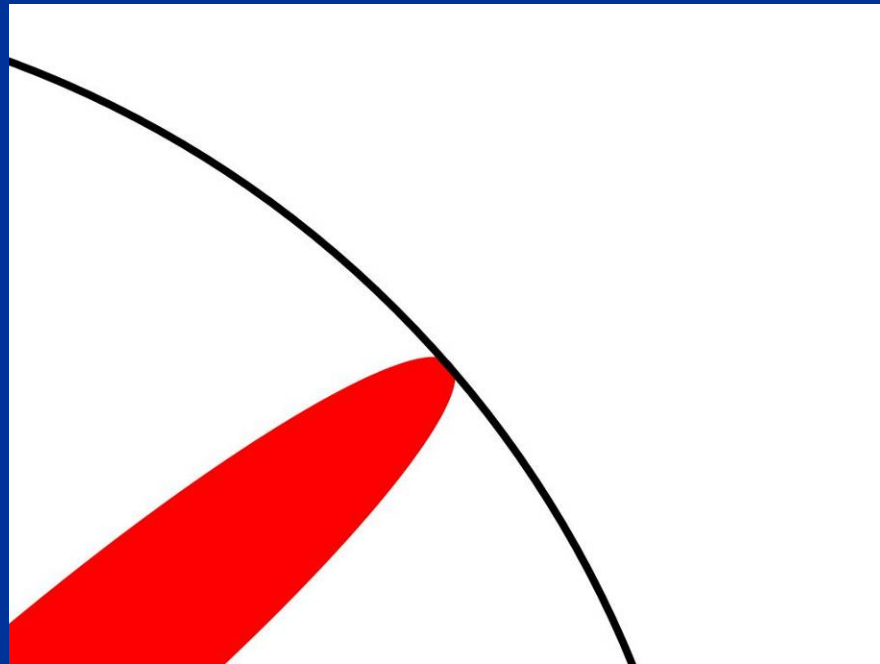
A Perspective

Once you're at the boundary, you focus:



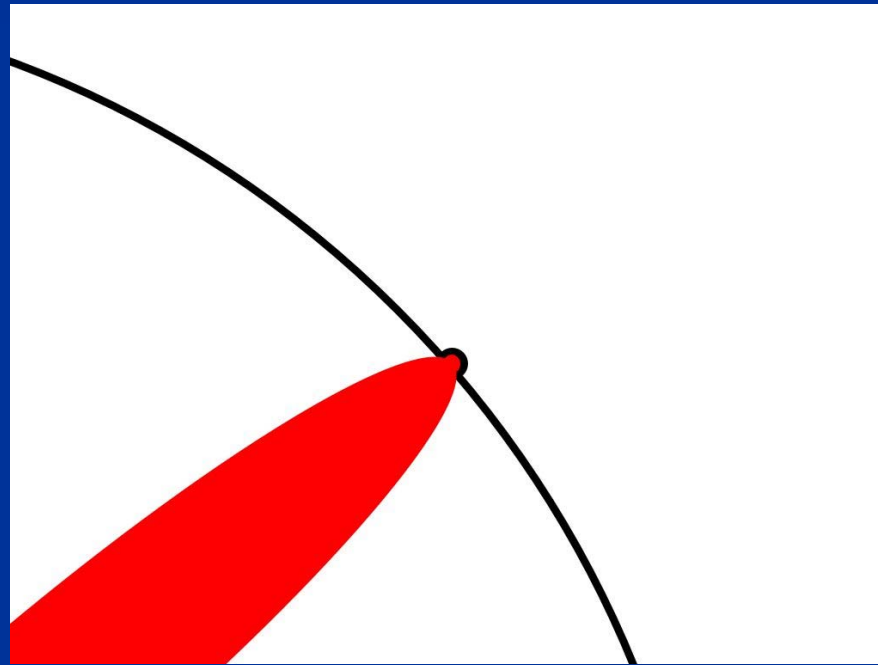
A Perspective

You push at the boundary for a few years



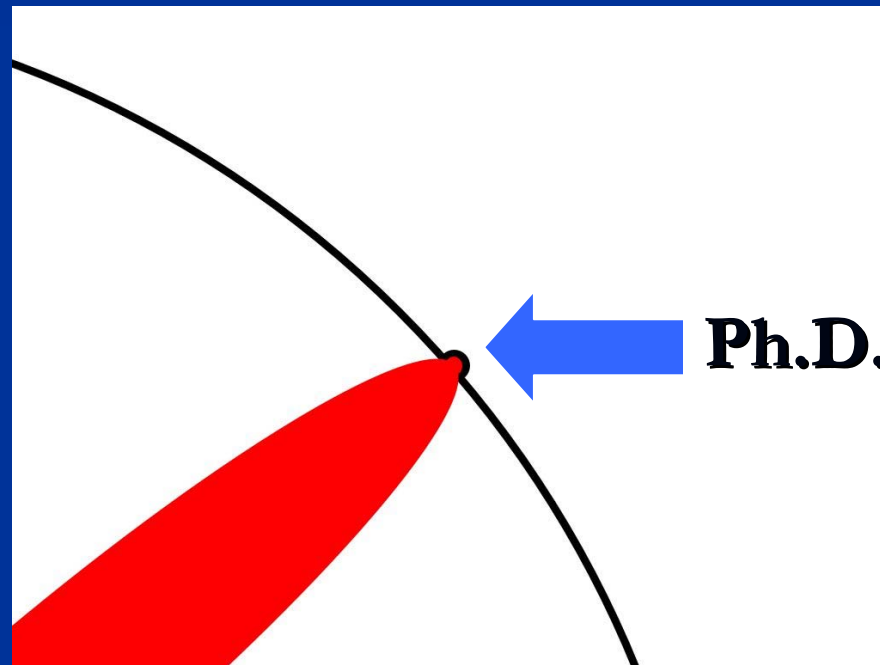
A Perspective

Until one day, the boundary gives way!!!



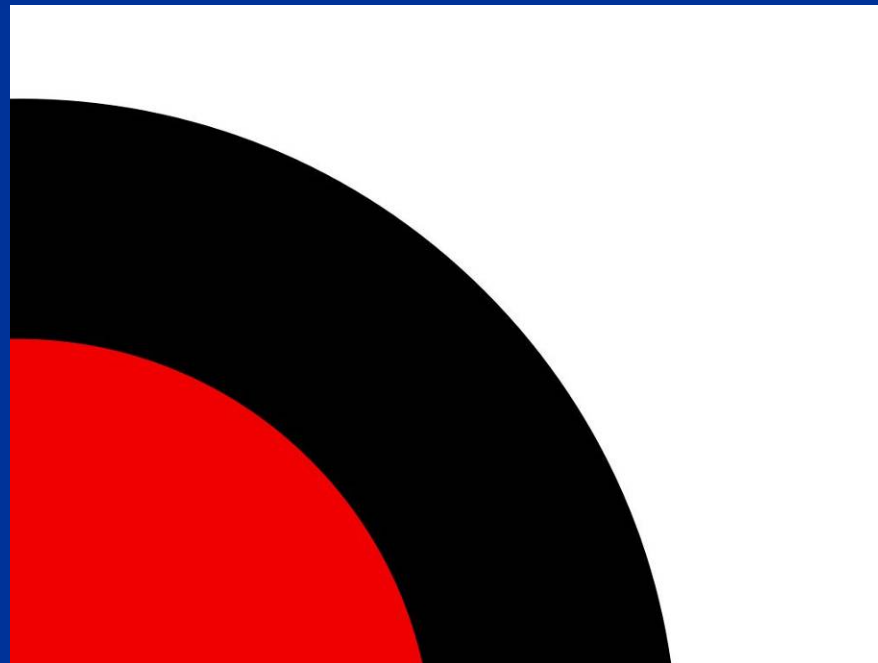
A Perspective

And that dent you've made is called a PhD!



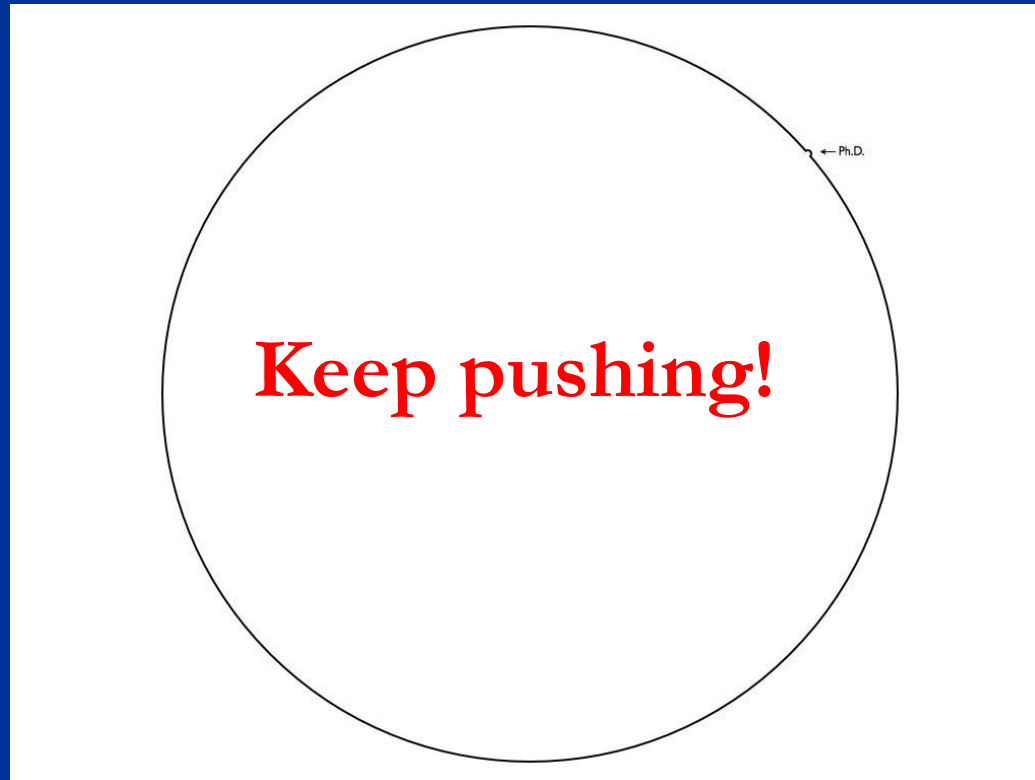
A Perspective

Of course, the world looks different to you now!



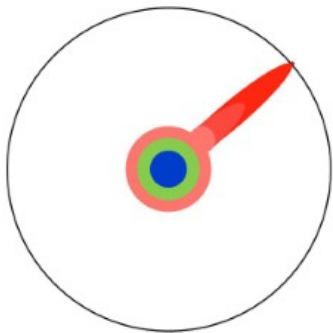
A Perspective

So don't forget the big picture:

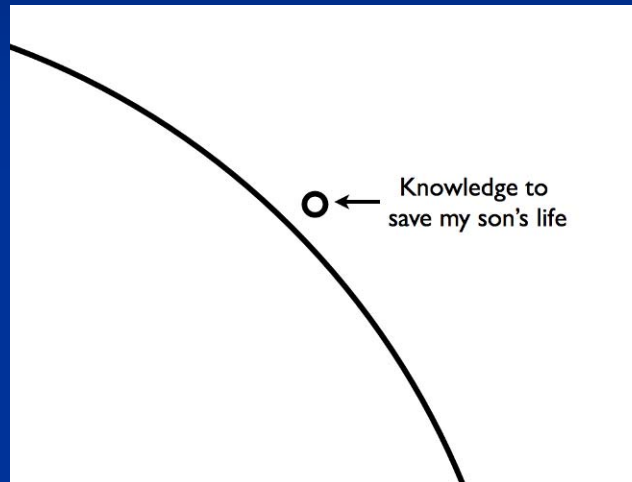


The Illustrated Guide to a PhD by Matt Might

The Illustrated Guide to a Ph.D.



Matt Might



Even one child suffering is too many

The only way to end this kind of suffering is science

And, the best way to do science is through graduate students

Matt Might, matt.might.net

What does a PhD Mean?

- You demonstrate that you can apply scientific principles to new and unique problems, even problems that are new to you.
- You can interact with people from broad backgrounds with different skill sets.
- You are not a one trick pony unless you think you are.

Advantages of Graduate School

- More time to digest undergrad (and grad) material!
- Work on interesting challenging problems
- Learn how to write!
- Learn to do independent work
- Learn to critically assess literature
- Build connection with people in industry and academia
- Flexible schedules
- More advanced degrees!



Disadvantages of Graduate School

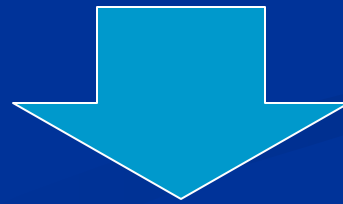
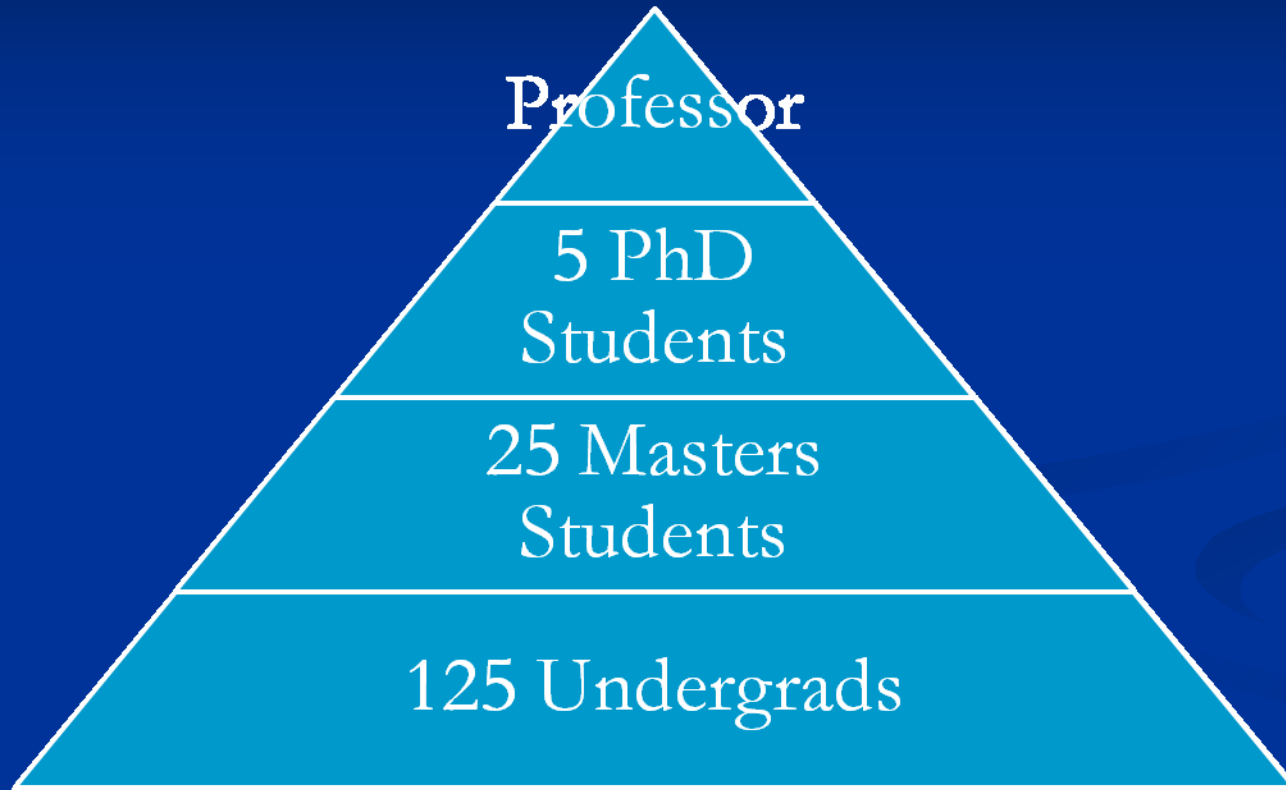
- \$\$
- Research has ups and downs (attitude is a key)
- Newton's 1st law: resistance to change, stay in grad school forever
- Qualification exams for PhD



“But I’ve already been in college for 4/5/6 years! I’m ready to work!”

- Not necessary to start grad school immediately after completing your undergrad education
- Many students work for a few years then return for a master’s or PhD degree
- Work experience may add to your motivation for earning an advanced degree
- In my case, making the switch from work back to school wasn’t difficult

Picking an Advisor

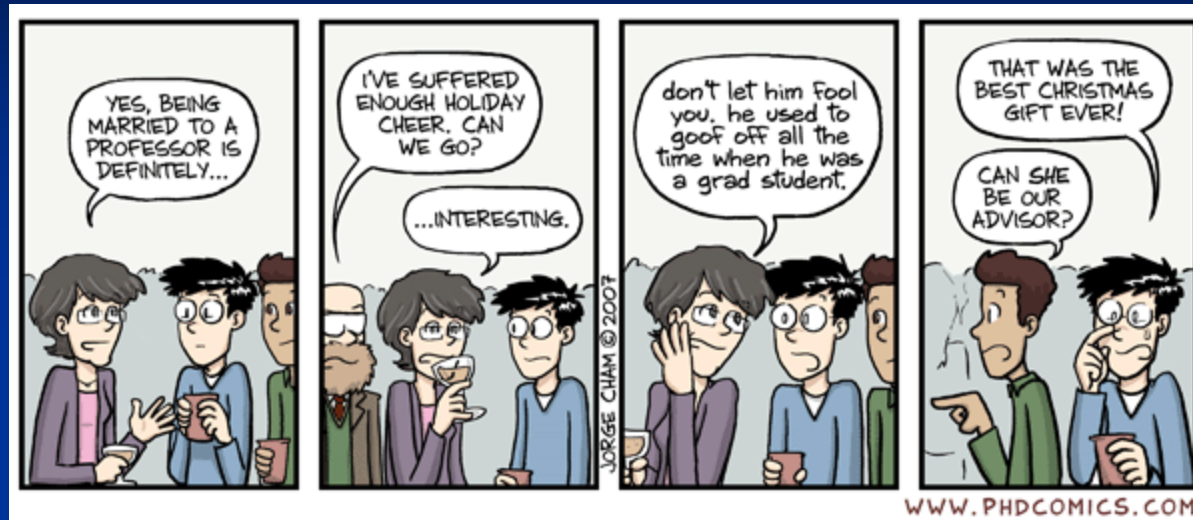


No time for students!!!!

My Advisor

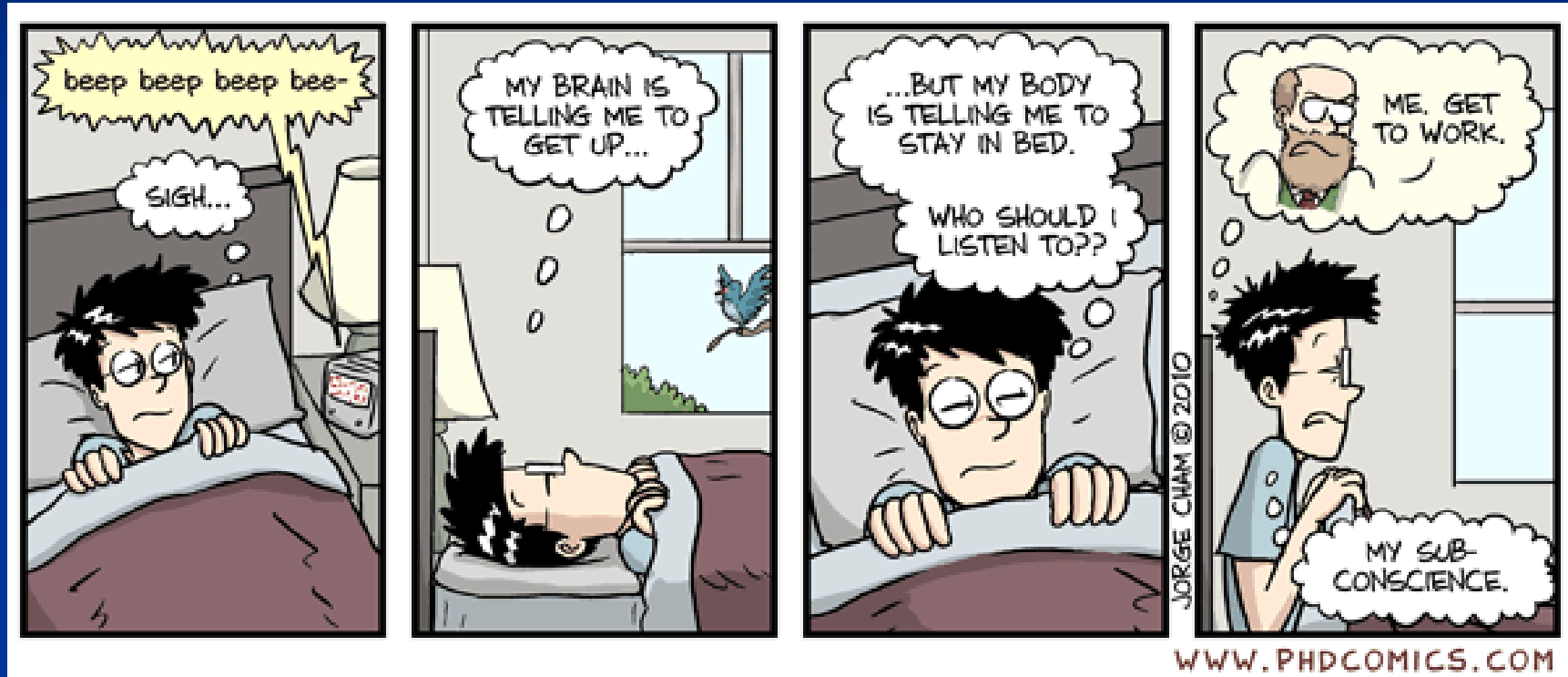


Time Management



- Routine!!!
- Sleep
- Not too much alcohol
- Recognize activities that don't help you achieve your goals
- Have clearly defined goals
- Plan time for hobbies and exercise
- Honor the clock!

Time Management



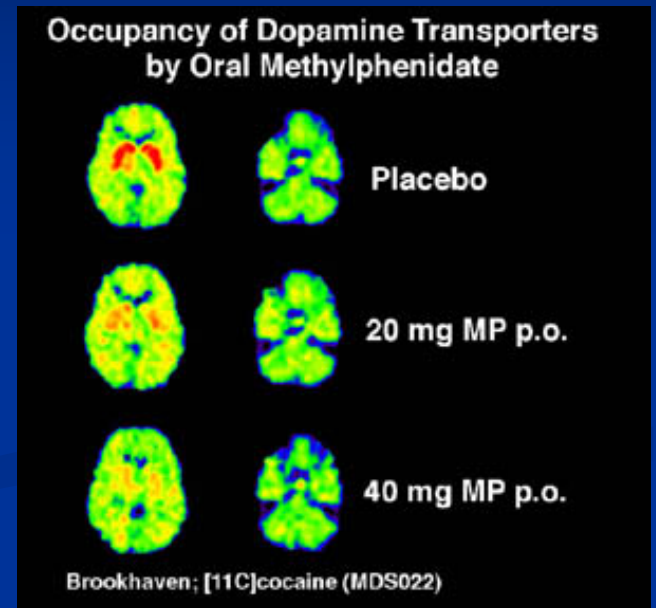
Avoid Over-committing

- If you think your schedule is too aggressive, tell someone.
- It's better to be honest upfront than to fail to achieve milestones.



Fine Tuning Success

- Why are things so hard for me?
- If you're asking yourself this sort of question, you might benefit from counseling.
- I found out I have ADD, and treating this has drastically improved my ability to follow my own advice on the previous slide.



More Advice for Success

- Coursework, while it is a pain, helps you to bring new ideas into your research
- Coursework also broadens your capabilities
- Coursework is highly theoretical and involves “first principles” analysis which gives you a small tool kit for solving a huge array of problems
- Learn as much as you can about IP and entrepreneurship
- Complete at least one summer internship in industry

Career Paths

- National Lab
- Industry
- Academia



Career Paths Comparison

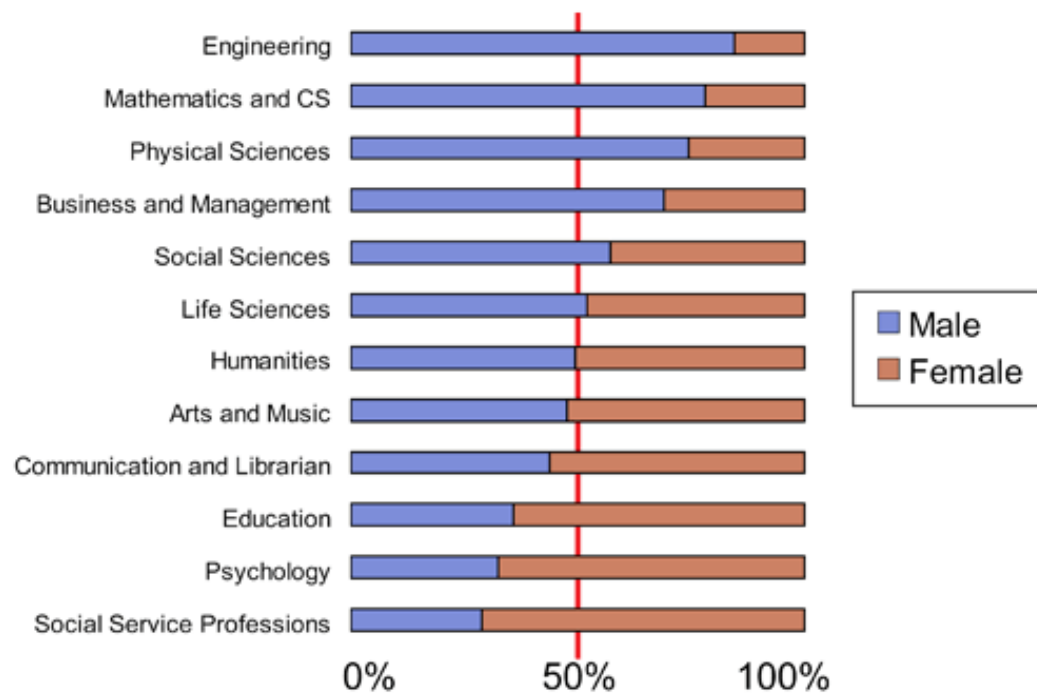
	Funding	Research	Vacation
Industry	Secure	Well-defined	Not much
National Lab	Secure	More open-ended	Better
Academia	PI is responsible	Most open-ended (except for industry projects)	Best??? (debatable, LSA?)

There is a high demand for Americans with graduate educations in all of these paths. International students are in high demand too, especially in industry and academia.

Gender Ratio

WWW.PHDCOMICS.COM

HOW TO CHOOSE WHICH DEPARTMENT HAPPY HOUR TO GO TO (if you're single)



Ph.D. Gender Ratio by Field of Study

Source: Survey of Doctoral Student Finances, Experiences and Achievements.

Neuromuscular Lab



Mechanical Engineering

Gender ratio!

Questions?