

Should you go to
grad school?

Kristina Islo

@GUILHERME.SUARES

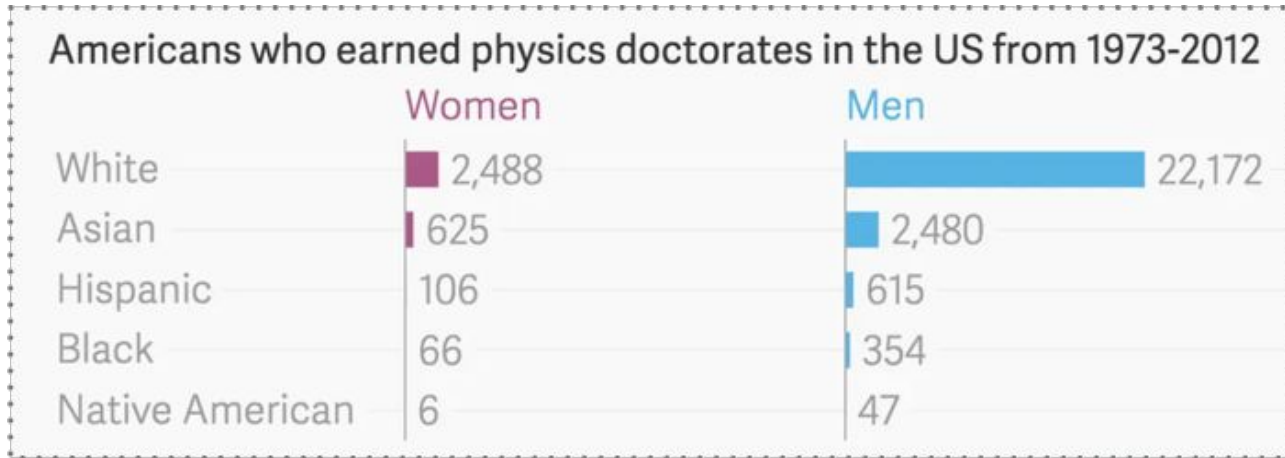
Allegheny College
February 2020

Higher Ed Physics/Astronomy

In a nutshell: Advanced study with the goal of contributing original research to the field

Masters: < 3 years¹

PhD: 5-7 years²



1. American Institute of Physics; [Source](#)

2. Ibid.

Figure: [National Science Foundation](#)

Key Success Factors¹

- ❖ Capacity for hard work
- ❖ Persistence
- ❖ Solid undergraduate background
- ❖ Intellectual curiosity

Skills Gained

- ❖ Problem solving (using scientific method to create models, test, investigate, and adapt without bias; mathematical leverage)
- ❖ Communicating research (conference presentations, outreach)
- ❖ Teaching (teaching assistantships, mentoring)
- ❖ Computing (programming [e.g., python], software development, data analysis)
- ❖ Writing (publications, grant proposals)

Career Prospects

Industry	Academia	Government	Other
<ul style="list-style-type: none">- Data Science*- Systems Developer- ∞	<ul style="list-style-type: none">- Professor- Staff Researcher- Lecturer	<ul style="list-style-type: none">- Science Policy- Military- Labs- ∞	<ul style="list-style-type: none">- Education- Writing- Medical- ∞

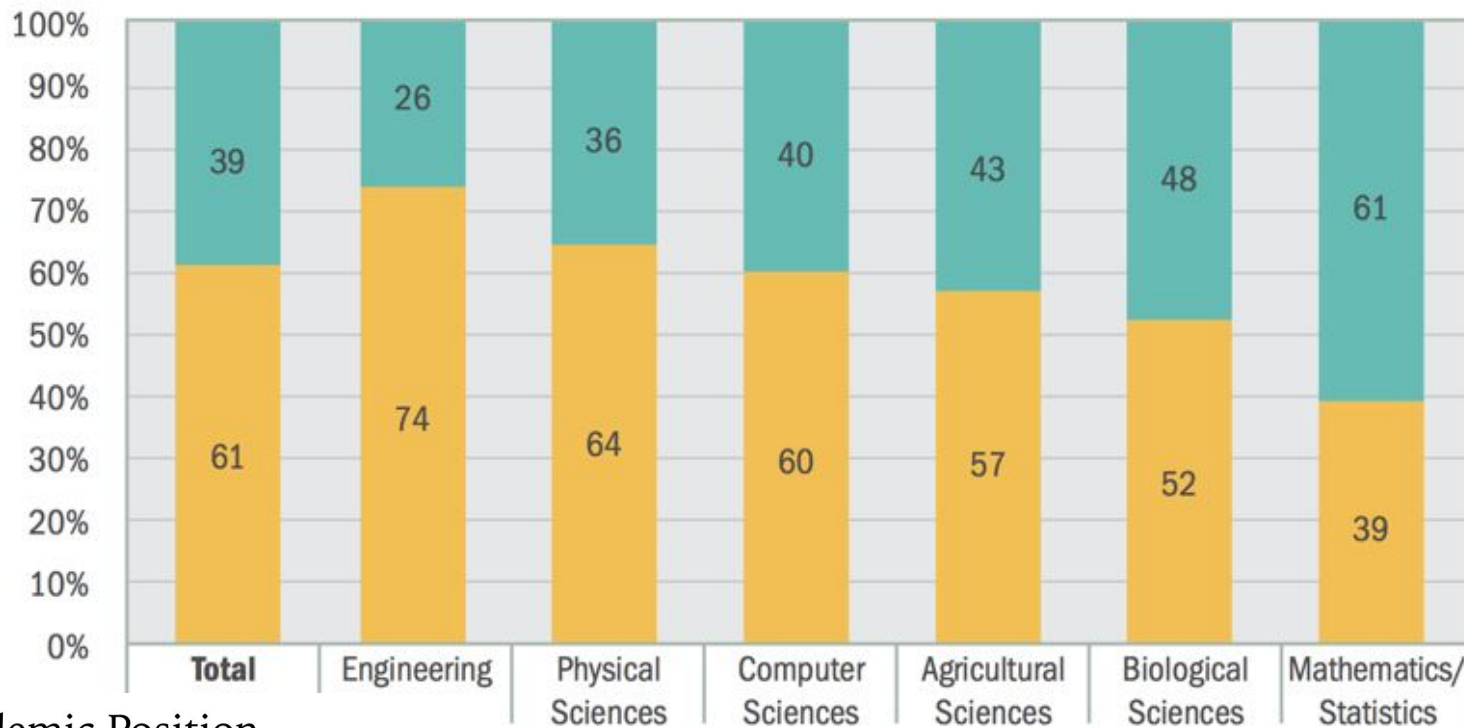
Increased demand for physics/astronomy PhDs¹

*See discussion [here](#)

1. Bureau of Labor; [Source](#)

Career Prospects

Percentage Distribution of Employed STEM PhD Holders



Academic Position

Non-Academic Position

Academic Career Prospects

Preferred Future Employment of First Year Astronomy Graduate Students in the US, Academic Years 2014-15 and 2015-16 Combined

<u>Employment Goals</u>	
Unsure	22%
University	49%
2- or 4-Year College	11%
Private Sector	10%
National Lab or Gov't	7%
Medical & Hospital	-
Other	1%

“<17% of new PhDs in science, engineering and health-related fields find tenure-track positions within 3 years after graduation.”¹

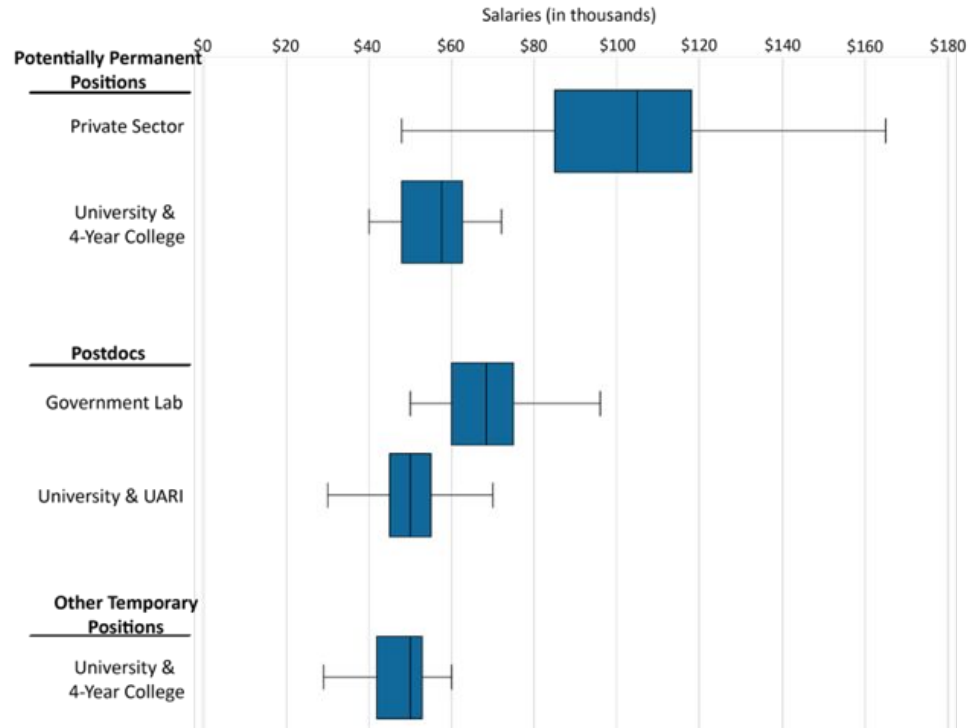
2019 survey of particle physics and astrophysics PhDs concludes: “Don’t get a physics PhD because you want to be a physicist; get a physics PhD because you want the experience of earning a physics PhD.”²

1. [Discover](#), 2015

2. [Symmetry](#), 2019

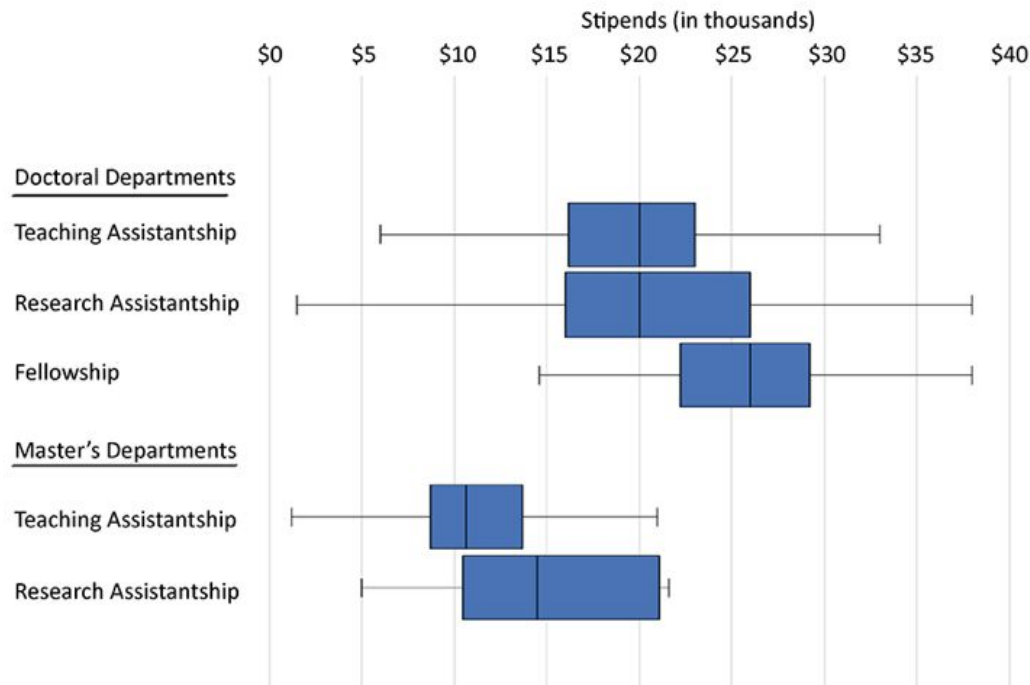
Career Prospects

Starting Salaries for New Physics PhDs, Classes of 2015 & 2016 Combined

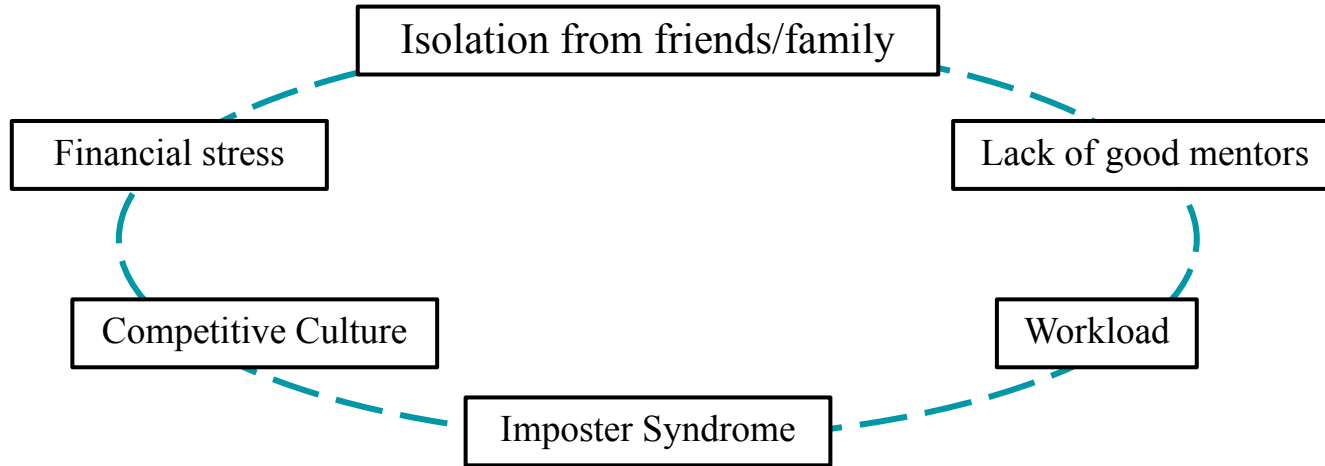


Stipends

Stipends for First-Year Physics Graduate Students,
Academic Years 2014-15 and 2015-16 Combined



Mental Health



Confluence of stressors
increases chances for
developing/exacerbating
depression, anxiety, etc.



Studies indicate doctoral students
are ~3-6 times more likely
than average American to suffer^{1,2}

1. [Barrera et al.](#), 2018

2. [Evans et al.](#), 2019

Remember...

- ❖ Grad school gives you many employable skills
- ❖ PhD is helpful, but not necessary for lucrative, fulfilling career
- ❖ Anticipate stress - seek grad programs with happy students
- ❖ Always have a plan B