

“What can you be with a PhD!?”



Nathan Fried, PhD
Assistant Teaching Professor
Rutgers Camden

What Can You Be With a PhD?

October 19-20, 2019

A Science & Technology Career Symposium
in Association with Naturecareers

WHEN

OCTOBER 19-20, 2019

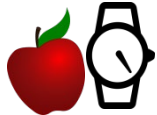
WHERE

**NYU School of Medicine
550 First Avenue
New York, NY 10016**

Dr. Nathan T. Fried

Assistant Teaching Professor

First-Gen
Low-Income



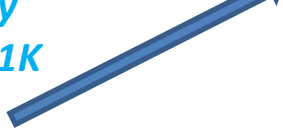
Primates
Lantern fish
Sea Turtles
Alzheimer's Disease



40-50 h/wk
5-7 y
~\$31K



Migraine
Traumatic Brain Injury



Science Policy
Public Outreach
Big Pharma
Small Biotech
Graphic Design
Web Development

Sensory systems,
Genetics, Optogenetics
in mice

IRACDA postdoc
45-55 h/wk
3-6 y
~\$54K

Professor
40-60 h/wk
4eva
~\$78K 10mo

Sleep & Pain in flies

A woman with dark curly hair, wearing a white lab coat, stands in a laboratory. She is looking directly at the camera with a slight smile. In the background, there are windows and laboratory equipment.

**Come for the MD,
leave with the PhD.**

A man with a beard and glasses, wearing a white lab coat over a blue patterned tie and a white shirt. He has a stethoscope around his neck and is smiling at the camera. His hands are clasped in front of him.

Treat the Disease or Discover the Cure?

Why get a PhD?

Guarantees you an interesting job for life.

It's a non-stop adventure.

No matter what path you go down, you OWN your work.

You have a boss, but you're pretty much your OWN boss.

Hard work, but its possible to balance hours.

You won't be rich (unless you go into pharma or start a company), but it's decent pay that makes a nice life.

Not for those who want to hang up their work boots at the end of a day.

Definitely for those who just love learning.



What does it take to get into a PhD program?

- 3.2 GPA usually the minimum. 3.5 GPA competitive. 3.8 GPA VERY competitive.
- GREs are a thing of the past (for most programs).
- Creative, critical thinker, independent learner, ability to troubleshoot.
- Personal Statement:
 - Demonstration that you know what research looks like (experience).
 - Demonstration that you are here for the right reasons.
 - Demonstration that you don't just have experience but that you actually UNDERSTAND the details.
- Three rec letters:
 - Must be PhDs
 - Should speak to your ability as an independent thinker or experience doing actual research.

A free degree!? And more!!!

MARC

REU

NSF
GRFP

F31

T32

F32

K99

LRP

*Only for PhDs in biomedical science. Math PhDs, Psychology Ds, Education PhDs end up being very different with different costs/stipend availability.



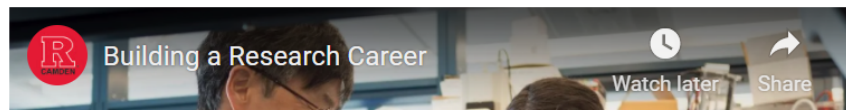
Financial Support:

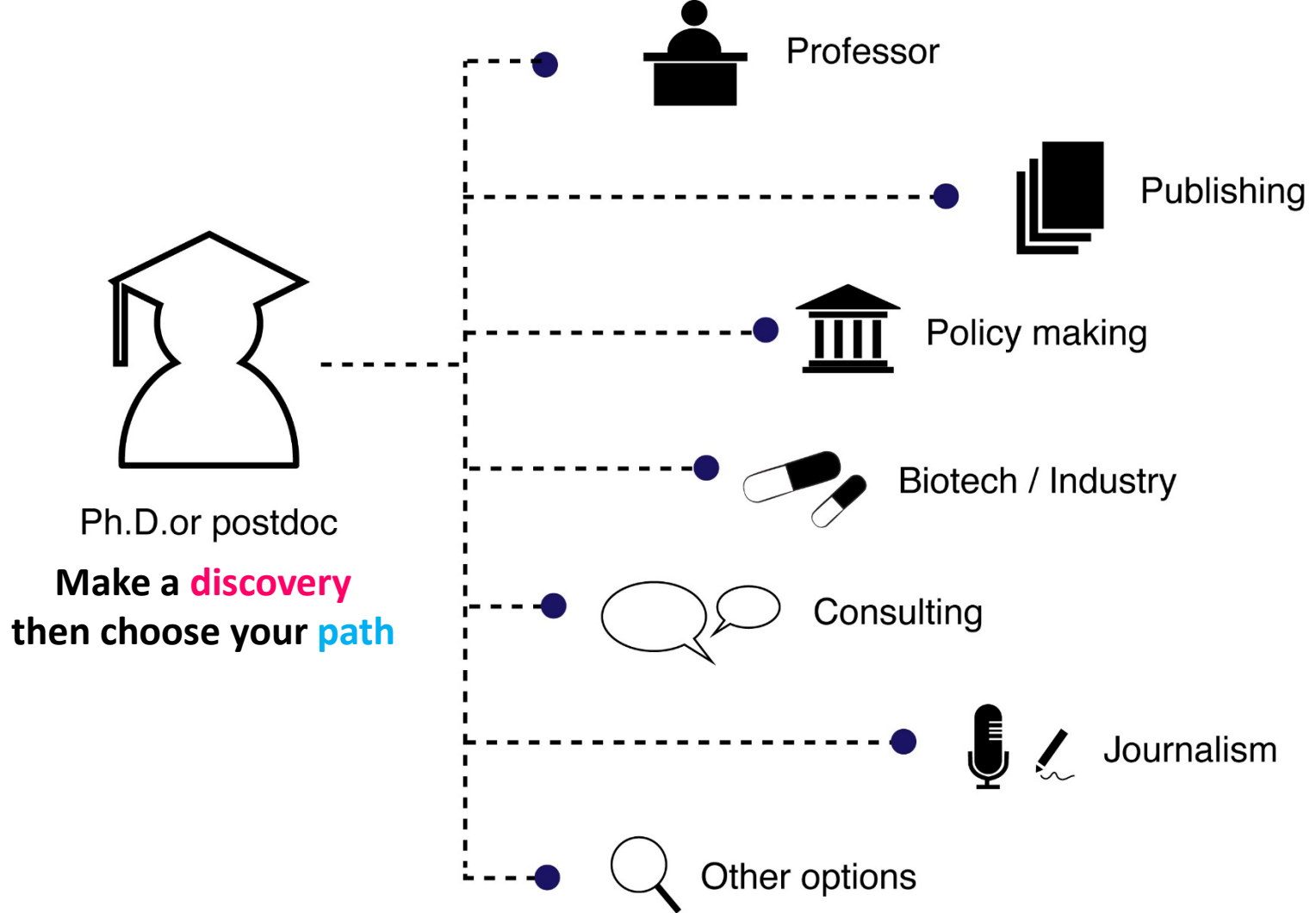
- Monthly financial stipend (~\$1,114/month)
- Partial tuition benefits for Fall and Spring tuition
- Travel and conference expenses (airfare, hotel shared room, per diem, etc.) for 1 conference per year
- Travel and Housing during Summer Internships

The Rutgers–Camden MARC program provides training, support, and mentorship for undergraduates from underrepresented backgrounds interested in pursuing a PhD in the biomedical sciences with the ultimate goal of enhancing diversity in the biomedical sciences. The Rutgers–Camden MARC program starts in the summer before the student’s Junior year and continues for two consecutive years. All MARC scholars take part in activities (academic skill building, presentation at conferences, monthly career development meetings, etc) and year-round research at Rutgers–Camden or the University of Pennsylvania that will build their credentials for graduate school applications. The goal of the program is to build a foundation of experience for our scholars to be accepted and then excel in PhD programs.

The Rutgers Camden MARC U*STAR Program is supported by the National Institute of General Medical Sciences, National Institutes of Health (NIGMS/NIH) under National Research Service Award T34 GM127154.

NOW ACCEPTING APPLICATIONS FOR THE 2021 COHORT! **APPLY TODAY!**





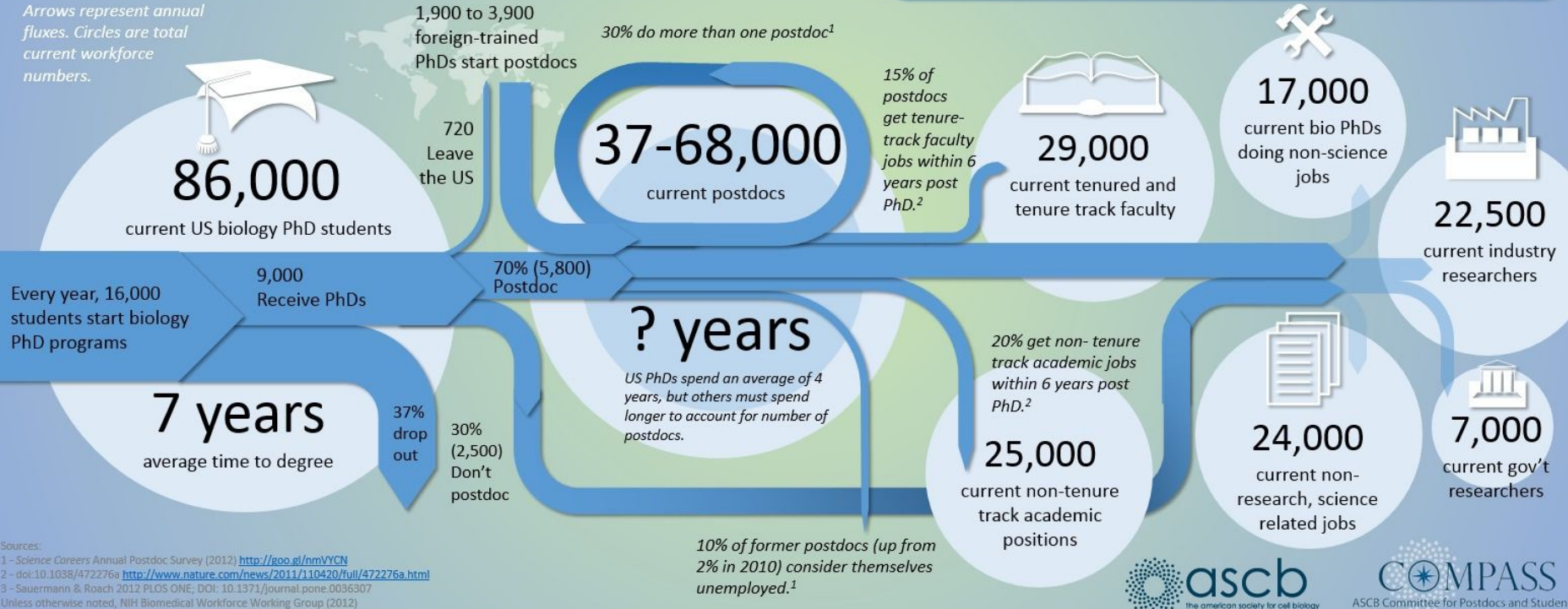
Where will a biology PhD take you?

A faculty job is an "alternative" career.



At this rate, <8% of entering PhD students will become tenure-track faculty. Yet, 53% rank research professorships as their most desired career.³

Arrows represent annual fluxes. Circles are total current workforce numbers.



Sources:

- 1 - Science Careers Annual Postdoc Survey (2012) <http://goo.gl/nmYCN>
 - 2 - doi:10.1038/472276a <http://www.nature.com/news/2011/110420/full/472276a.html>
 - 3 - Sauermann & Roach 2012 PLOS ONE; DOI: 10.1371/journal.pone.0036307
- Unless otherwise noted, NIH Biomedical Workforce Working Group (2012)



Life as an academic Scientist

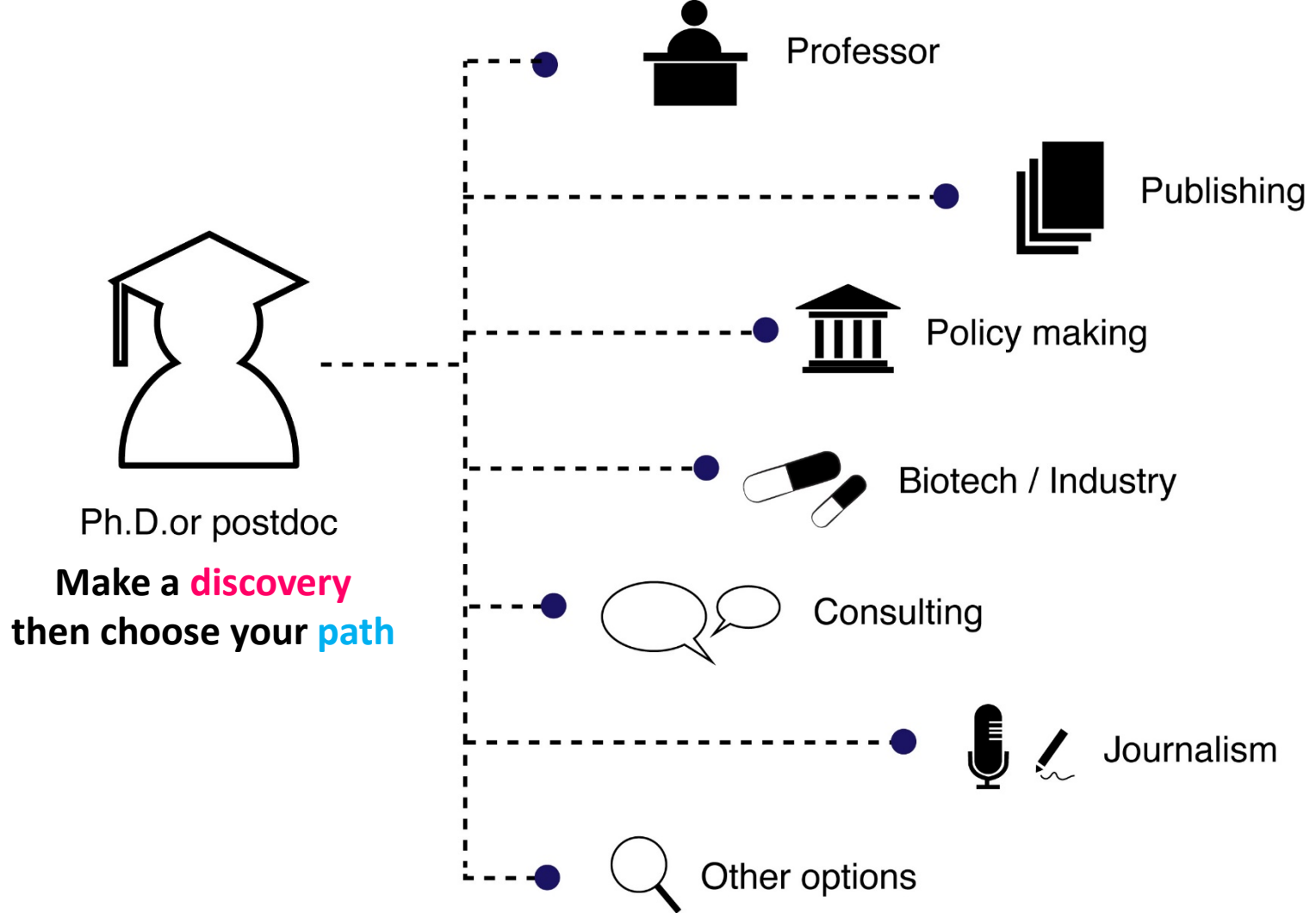
- Talk with people about cool ideas
- Come up with clever ways to test ideas
- Write articles about your findings
- Provide feedback on a national level about important issues in society
- Study ways to better educate next generation of scientists

unlimited **freedom**, unlimited **to-do list**



The practical path in academia

- Three paths in academia:
 - Research
 - Teaching
 - Administration
 - Or a mix of 2 or 3!
- Each institution is different
 - Community College? Only teaching
 - Small liberal arts college? Tons of teaching
 - R1-R3 institution? Some teaching
 - Research institution? No teaching





H. Gözde Şenel Ayaz · 1st
 Co-Founder & President at Tandem
 Philadelphia, Pennsylvania, United States
[Contact info](#)



Alana O'Reilly · 1st
 Associate Professor at Fox Chase Cancer
 Executive Director/Chief Scientific Officer
 Institute
 Philadelphia, Pennsylvania, United States
[Contact info](#)



Linnet Ramos, PhD · 1st
 Director of Learning Design and Development
 Cloud
 Philadelphia, Pennsylvania, United States
[Contact info](#)



Ted Price · 2nd
 Co-Founder at 4E Therapeutics
 Richardson, Texas, United States · 500+
[Contact info](#)



Nathan Vanderford, PhD, MBA · 1st
 Assistant Professor, Department of Toxicology and Cancer
 Biology
 Lexington, Kentucky, United States · [500+ connections](#)



Entrepreneurialism

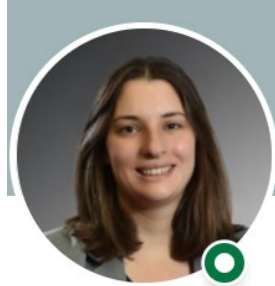
- Developing a new technology?
- Starting a non-profit?
- Leading a new arm of a company?
- A PhD has transferrable skills that naturally trains someone to be a leader.



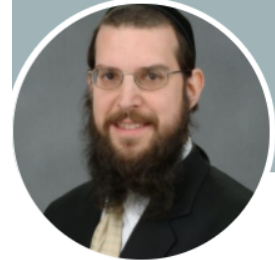
Lisa Kozlowski · 1st
Associate Dean, Student and Postdoctoral Programs at University of Pennsylvania
Greater Philadelphia · 500+ connections · [Contact info](#)



Daniel Marena · 1st
Program Director at National Science Foundation
Philadelphia, Pennsylvania, United States · [Contact info](#)



Christina Maxwell · 1st
Director Research Program at Global Health Institute
Lawrence, New Jersey, United States · [Contact info](#)



Michael Oshinsky · 1st
NINDS Program Director (Pain and Neuroscience) at National Institutes of Health
Bethesda, Maryland, United States · [Contact info](#)



Steven Tuyishime · 1st
Health Specialist at National Institute of Environmental Health Sciences (NIEHS)

Science Leadership

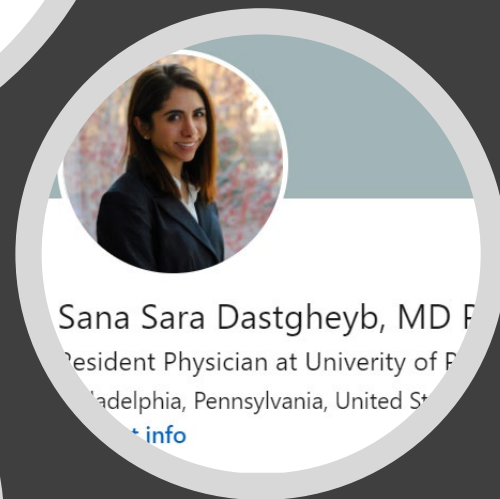
- Funding agencies and systems are HUGE. They need to employ tons of people who understand the SCIENCE.
- Great pay, tons of travel opportunities, helping the scientific industry move.



Scott Kinlein, PhD · 1st
Medical Science Liaison
Seattle Area · [500+ connections](#)



Michael Sangobowale Ph.D.,
Medical Science Liaison at Eisai US
Philadelphia, Pennsylvania, United States
[Contact info](#)



Sana Sara Dastgheyb, MD F
Resident Physician at University of P
Philadelphia, Pennsylvania, United St
[Contact info](#)

Interfacing between clinic and the researcher

- Working with patients.
- Working with doctors.
- You understand the science so you can help people make decisions.



Michael Jablonski · 1st

Vice President, Medical Affairs

Philadelphia, Pennsylvania, United States ·

[Contact info](#)



Jeff Fineberg · 1st

Senior Engagement Manager at P
Philadelphia, Pennsylvania, United
[Info](#)



Travis D'Cruz, Ph.D., M

Business Development & I

Boston · [500+](#)



Anna Vorobyeva, Ph.D. · 1st

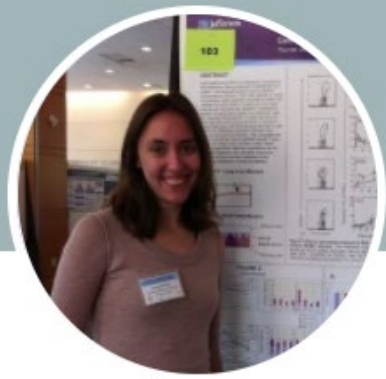
Associate at Goldman Sachs

New York, New York, United States · 500+

[Contact info](#)

Science Consulting

- Who else is best positioned to help a company make decisions with their money?
- Real-time example: Only a virologist with industry experience will know which company will likely make a COVID vaccine fastest.
- Interface between business and science.



Corinne Smith · 1st

Spark Therapeutics

Greater Philadelphia · [46 connections](#) · [Contact info](#)



Drew Peterson, PhD · 1st

Associate Scientist at WuXi AppTec

Philadelphia, Pennsylvania, United States · [165 connections](#)

[Contact info](#)

Moving into industry

- Still doing research.
- Making WAAAAAY more money than academia.
- Helping a company find and produce cures.



Alison McCook · 1st

Commentary editor at Knowable Magazine
Philadelphia, Pennsylvania, United States
[View profile](#) [Add info](#)



Peter Dong · 1st
Director, Scientific Services at Ortho
Pharmaceuticals Group
Metropolitan Area · 421



Stephani Sutherland · 2nd
Neuroscientist, Freelance Journalist
Los Angeles Metropolitan Area



Brendan Maher · 1st

Features Editor at Nature Publishing Group
Unknown · [500+ connections](#) · [Contact](#)

Scientific writing

- You've read the scientific papers. They're HARD to understand.
- How do you think journalists write about science well? They have a PhD.
- Running an entire publishing house
- Not just journalism. Think of all those brochures from pharma.



Jonathan Bowen · 1st
Interactive Designer and Developer
New York City Metropolitan Area · 115 connections



Caitlin Vander Weele, PhD · 2nd
Chief Executive Officer at Stellate Communications
New York City Metropolitan Area · 500+ connections ·



Medical Illustrator/artist

- If you don't understand the DETAILS, you can't make the images that help us understand the science.
- Creative arts
- Practical arts
- Graphic design



Rafaela Bagur Quetglas · 2nd
Data Scientist in Health R&D at 23andMe
San Mateo, California, United States · 500+ connections

[Contact info](#)



Aitor Lewinsohn

Google
Dirección de código

Go into big tech!

- Google is hiring biologists who know how to code!
- Rosalind.info best place to learn python.
- BIG money maker
- Needs PhDs who understand the science to dive into the code.



Alison Moyer · 1st

Education Coordinator at Edelman Foundation
University

Lebanon, Pennsylvania, United States

[Contact info](#)



Jayatri Das · 1st

Chief Bioscientist at The Franklin Institute
Philadelphia, Pennsylvania, United States · 50

[Contact info](#)



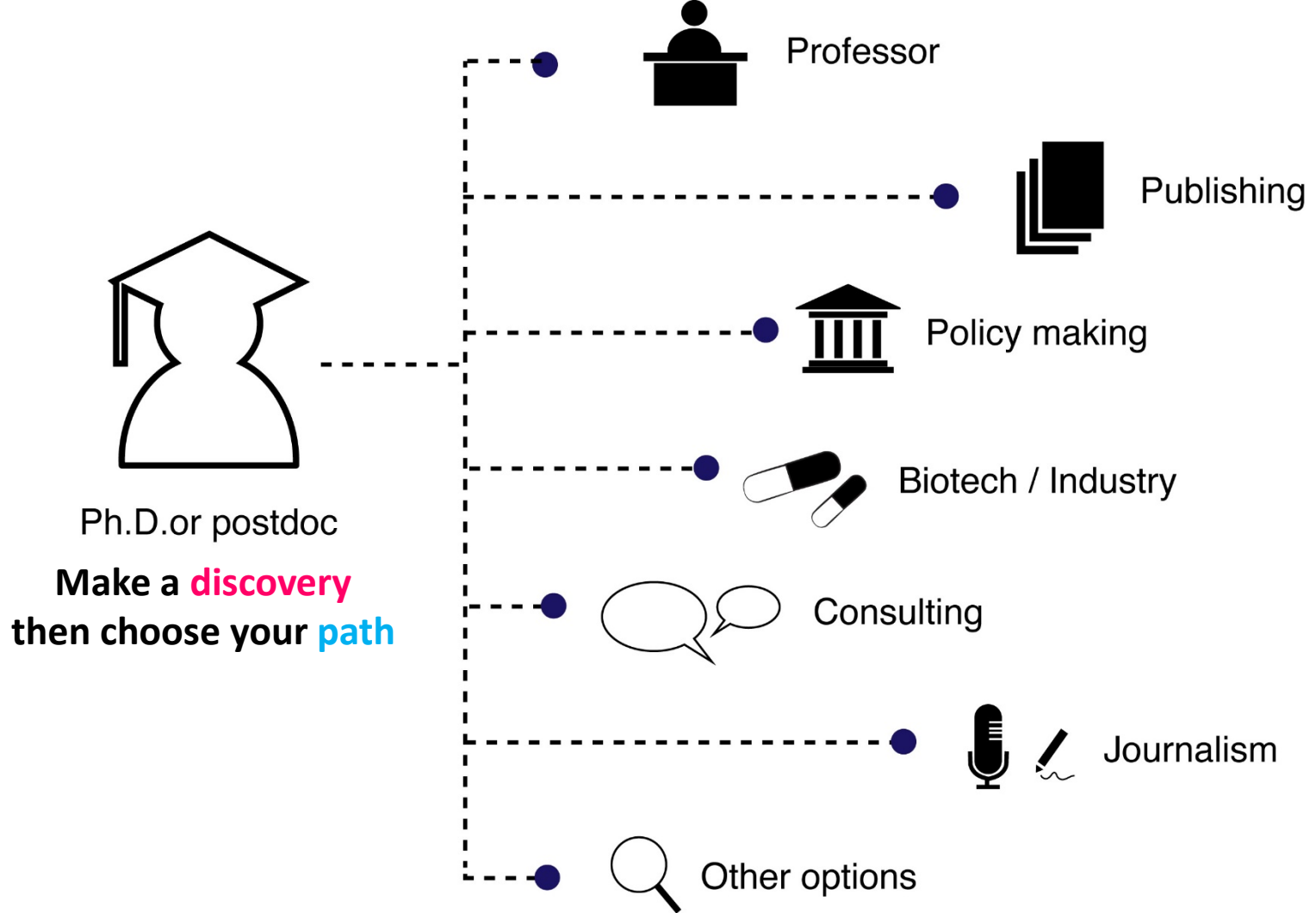
Kaitlin Malcolm, Ph.D. · 1st

High School Science Teacher at

Philadelphia · [109](#) con

Public Educator

- It's not just college kids, scientists, and doctors who need to understand the science.
- Who better to run these science outreach opportunities than those with a PhD!?



WHO WE ARE

WHAT WE DO

GET INVOLVED



AAAS
Science & Technology
Policy Fellowships
www.aaas.org

Training exists during
your PhD for ANY path

WHO WE ARE

WHAT WE DO

GET INVOLVED

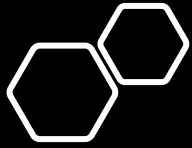
MEMBERSHIP



2019 Mass Media Science

MS

AAAS Mass Media Science & Engineering



When considering a PHD or MARC...

Don't ask yourself if you want to become a professor or even a researcher.

Instead, ask whether you want a career like this.

Consider the differences between MD & PhD. A lot of people become bio majors to treat patients, but end up more interested in making discoveries.

Probably easier to ask yourself what you DON'T want to do than to ask WHAT you want to do.

Scroll through my LinkedIn to find more cool examples.

Science PhDs lead to enjoyable

A science doctorate has high value in the UK and Canada

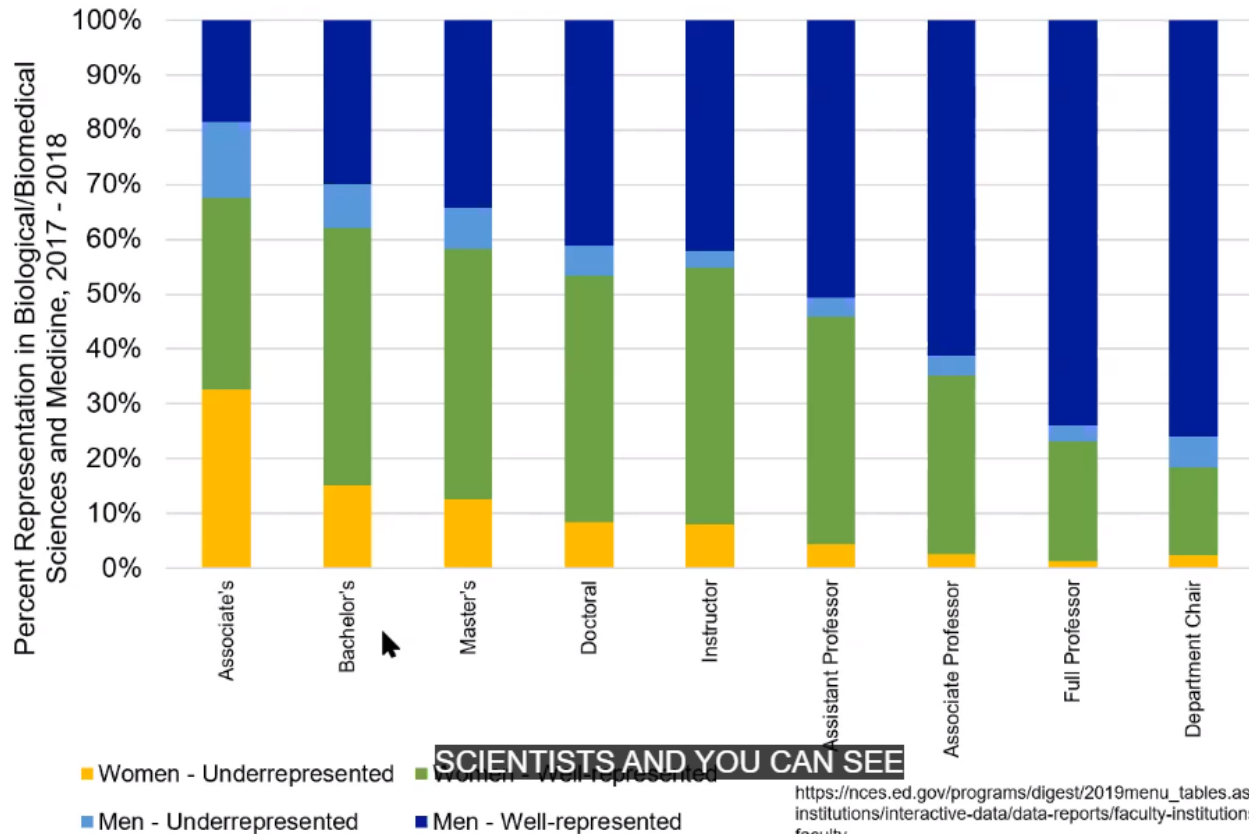
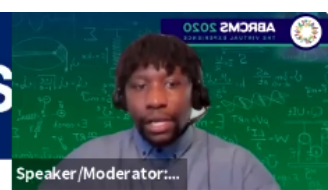
Chris Woolston



Discover first, then take the leap

- At the end of the day, a PhD requires you to do research to discover something new.
- But you can do what you want after that because you are now a **CONTENT EXPERT**.
- You learn transferable skillsets and those skills are **DESIRED**.

Diminishing Representation for Women and URG S



SCIENTISTS AND YOU CAN SEE

https://nces.ed.gov/programs/digest/2019menu_tables.asp; <https://www.aamc.org/data-reports/faculty-institutions/interactive-data/data-reports/faculty-institutions/interactive-data/2018-us-medical-school-faculty>



Introduction



Diversify
the Talent Pool



Unbiased Talent
Searches



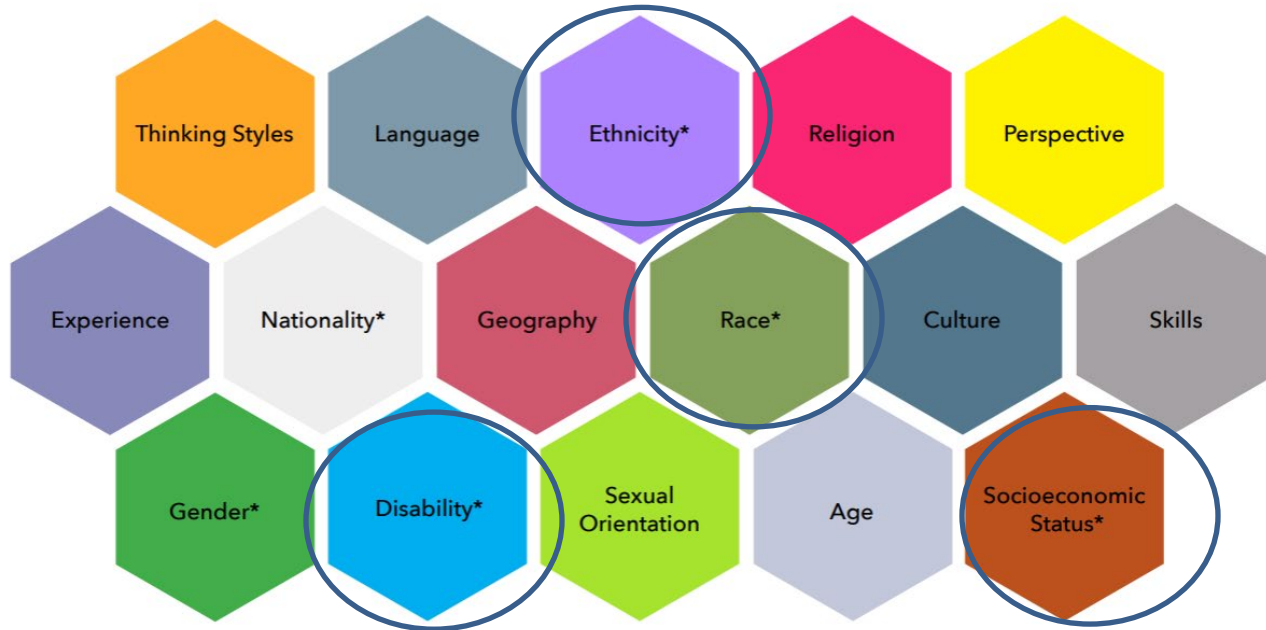
Outreach and
Networking



Mentoring
Relationships

Citation Library

Many Types of Diversity



* Underrepresented Populations in U.S. Biomedical, Clinical, Behavioral and Social Science Research

RESEARCH AT THE BENCH AND AT THE COMPUTER

#DisabledinSTEM: A conversation covering science, career advice, and applying to the Rutgers Camden MARC undergraduate research training program.

WED, MARCH 24: 11:20-12:20



Dr. Joseph Zinski
IRACDA Postdoctoral Fellow
University of Pennsylvania

C.CAMDEN.RUTGERS.EDU

MARC

be a good fit for the Rutgers Camden MARC program, how the MARC program will help you, and your scientific goals. Our goal is to understand WHY you want to pursue a research career.

- In the letter, please indicate two potential MARC mentors (at least one of which is at Rutgers–Camden) who you would like to work with. See these faculty in the MARC mentors page.
- CV/resume: Include your accomplishments, awards, jobs, etc.
- 1-2 letters of recommendation: Letters should be from faculty members you have either been taught, mentored, or advised by.

Application Process

Please submit your application [HERE](#).

apply to that pays their stipend and research expenses while in graduate school.

WED, APRIL 28: 11:20-12:20



Laura Collins
Assistant Dean
Rutgers Camden



Dr. Kimberly Moran
Assistant Teaching Professor
Rutgers Camden, Chemistry

CHRONIC PAIN AND NAVIGATING A PHD

#BlackinSTEM: A conversation covering neuroscience, career advice, and applying to the Rutgers Camden MARC undergraduate research training program.

WED, MARCH 10: 11:20-12:20



Andre Toussaint
PhD Candidate
Temple University



Dr. Ishmail Abdus-Saboor
Assistant Professor
University of Pennsylvania

...camden.rutgers.edu

MARC

Financial Support:

- Monthly financial stipend (~\$1,114/month)
- Partial tuition benefits for Fall and Spring tuition
- Travel and conference expenses (airfare, hotel shared room, per diem, etc.) for 1 conference per year
- Travel and Housing during Summer Internships

Applications due March 25