

# Engaging in Public Policy as a Scientist

Vetri Velan  
Grounds for Science  
April 25, 2019

# My day (and night) job

Ph.D. student in Physics  
at UC Berkeley

Experimental particle  
physics

Dark matter detection



X-ray: NASA/CXC/CfA/ M. Markevitch et al.;  
Lensing Map: NASA/STScI; ESO WFI; Magellan/U.Arizona/ D.Clowe et al.  
Optical: NASA/STScI; Magellan/U.Arizona/D.Clowe et al.

Source: The LUX Collaboration.

# And also science policy!

Engage with policy issues as a scientist

Why?

- Civic duty
- Responsibility as a scientist
- I enjoy it!



# What is Science Policy?

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*“National science policy” refers to the set of federal rules, regulations, methods, practices, guidelines under which scientific research is conducted.*

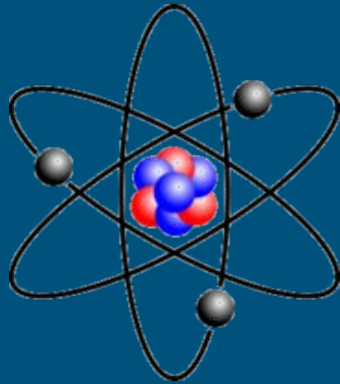
- Beyond Sputnik: U.S. Science Policy in the 21st Century. Homer Neal, Tobin L. Smith, and Jennifer B. McCormick. University of Michigan Press (2008).

# Science

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A framework for thinking and examining the world

An infrastructure for research at universities, labs, etc.

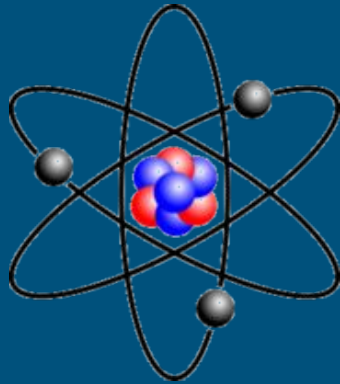


# Science

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A framework for thinking and examining the world

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# Policy

Legislation

Regulation

Implementation

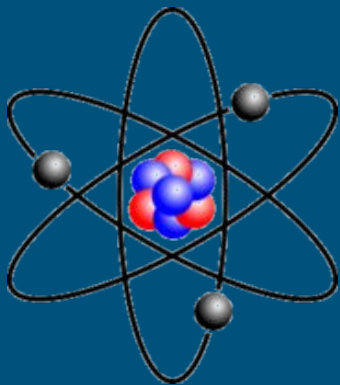
Structures



# Science ↔ Policy

A framework for thinking and examining the world

An infrastructure for research at universities, labs, etc.

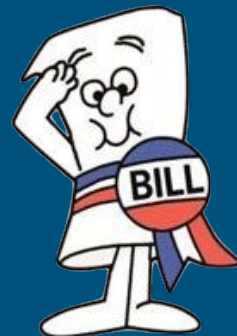


Legislation

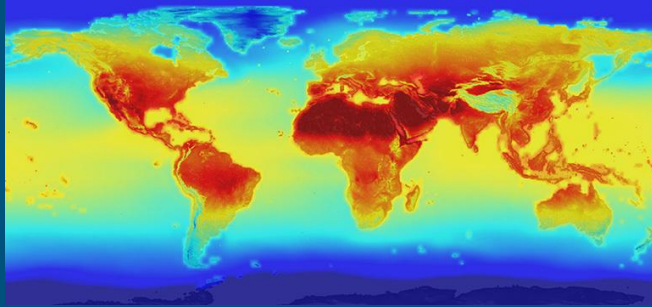
Regulation

Implementation

Structures



# Science for Policy



# Policy for Science



Source: NASA. <https://climate.nasa.gov/news/2293/nasa-releases-detailed-global-climate-change-projections/>

Source: Genetic Literacy Project. <https://geneticliteracyproject.org/2018/01/16/crispr-answer-genetic-engineerings-prayers/>



Why does this matter to you?

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# Why does this matter to you?

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Lessons learned from science policy  
can be applicable to many pursuits!

# The Graduate Student Tax

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THE CHRONICLE OF HIGHER EDUCATION

## Republican Tax Proposal Gets Failing Grade From Higher-Ed Groups

By *Eric Kelderman* | NOVEMBER 02, 2017

The bill proposes new taxes on some private-college endowments and on compensation for the highest-paid employees at nonprofit organizations, including colleges and nonprofit academic hospitals. **The plan would also tax the tuition waivers that many graduate students receive when they work as teaching assistants or researchers.**

# The Graduate Student Tax

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How Does the “Tax Cuts and Jobs Act” Affect Ph.D. Students?

By: Vetri Velan, Ph.D. student in Physics at UC Berkeley

November 4, 2017

*“We estimate the federal income tax for a TA at UC Berkeley, an RA at UC Berkeley, and an RA at MIT; we find that the Tax Cuts and Jobs Act will respectively increase their tax burdens from \$2,229 to \$3,641 (61% increase), \$3,590 to \$4,730 (31% increase), and \$3,993 to \$13,577 (240% increase).”*

# The Graduate Student Tax

Kathy Shield

Ph.D. Student, Nuclear Engineering  
 Founder, Science Policy Group at Berkeley



Calculate Federal Income Tax for Grad Students under the House Tax Plan

File Edit View Insert Format Data Tools Add-ons Help Last edit was made on August 27, 2018

Calculate Federal Income Tax Change for Graduate Students Under the Tax Cuts and Jobs Act (TCJA)

		UC Berkeley Example	MIT Example
<b>Calculate Federal Income Tax Change for Graduate Students Under the Tax Cuts and Jobs Act (TCJA)</b>			
At the moment, this applies only to American students. We will try to build a similar sheet for international students as well.			
If there are too many people working on this document (and thus messing you up), try downloading this as an excel sheet using the link to the right, or create a copy in your own Google Drive folder.			
<b>Total Income</b>	\$35,000	\$24,241	\$37,000
Enter the total amount of your annual take-home income (i.e. money that you get as a paycheck)			
<b>Health Insurance Plan</b>	\$4,304	\$4,304	\$3,000
Enter the amount of your health insurance plan if your institution gives you one as part of your appointment.			
<b>Tuition</b>	\$13,793	\$13,793	\$49,580
Enter the amount of tuition you have had waived			
<b>Are you on a Fellowship?</b>	1	0	0
(Yes = 1, No = 0)			
<b>Tax Increase Under TCJA (dollars)</b>	\$29	\$1,385	\$9,584

## Tax Stories from UC Berkeley Graduate Students

**Jessica\***, Jurisprudence & Social Policy, PhD Student  
 Married, Mother of Two

Jessica\* is a 4th year graduate student in Jurisprudence & Social Policy, where she works as a Graduate Student Instructor. Her wife, Kaitlin\*, works for a non-profit. In addition to these roles, Kaitlin works as a Community Advisor for UC Berkeley's family student housing residences, and Jessica works as an adjunct at the University of San Francisco and occasionally as a consultant to make ends meet. They welcomed twins into their family in early 2017, who suffered health problems early in life but are now healthy and thriving.

YEAR	FAMILY SIZE	FEDERAL TAXES	
		2016 LAW	TCJA (HOUSE)
2016	2 <i>2 adults</i>	\$15,053	\$16,700 <b>increased</b> \$1,647 (10.9%)
2017	4 <i>2 adults, 2 children</i>	\$11,028	\$13,500 <b>increased</b> \$2,472 (22.4%)

# The Graduate Student Tax

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Graduate students were  
**ACTIVATED!**

SPG and ESPM grad students  
organized a “phone blitz”;  
contacted 87 offices in 18  
states

Grad students got their  
departments and friends  
energized



# The Graduate Student Tax

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News coverage escalated, with help  
from UC Berkeley leadership



Gina Banks Daly

Director, Federal  
Government Relations



Dan Mogulof

Assistant Vice Chancellor,  
Executive Communications



# The Graduate Student Tax

This was a national effort involving thousands of students!

STOP THE TAX REFORM BILL if you care about higher education

**NATIONAL Walkout / Rally**

#GradTaxWalkout  
#SaveGradEd

Wednesday 11/29  
1:00 PM EST/10:00 AM PST

Join us in walking out to our campus quads, uniting our voices, and calling our senators!

Facebook Page "Grad Student Walkout Protesting Tax Reform Bill"  
Follow us on twitter @Gradtaxwalkout - <https://gradtaxwalkout.wixsite.com/walkout>

NOV 29 Grad Student Walkout/Rally Protesting Tax Reform Bill

Public · Hosted by Marie Laura and 5 others

The New York Times

Opinion

ON CAMPUS

## The House Just Voted to Bankrupt Graduate Students

By Erin Rousseau

Nov. 16, 2017

796

The Washington Post  
*Democracy Dies in Darkness*

Grade Point • Perspective

## I'm a grad student, and the Republican tax plan could cost me thousands of dollars

By David Walsh  
November 12, 2017



Washington 10:17 PM ET

Sara Bijani | Graduate Student, Michigan State University

LIVE CNN 7:17 PM PT

CNN DEBATE NIGHT: THE FIGHT OVER TAX REFORM #TaxDebate

Washington 10:18 PM ET

QUESTION

How will you guarantee graduate students won't bear the burden of paying for the tax cuts?

LIVE CNN 10:18 PM PT

CNN DEBATE NIGHT: THE FIGHT OVER TAX REFORM #TaxDebate



# The Graduate Student Tax

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## **The Republican tax bill saves grad students' tuition benefits**

It preserves the exclusion for graduate tuition waivers.

By Jen Kirby | [jen.kirby@vox.com](mailto:jen.kirby@vox.com) | Dec 15, 2017, 7:30pm EST

The Vox logo is displayed in a stylized, black, serif font on a bright yellow rectangular background.

# What did I learn?

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If scientists don't advocate for ourselves, no one will

Members of Congress don't understand what our lives are like

- It is our responsibility to teach them

You can make a difference!



# All politics is local

Observer

## Dallas Congressman Pete Sessions Pushes Back on Grad Student Tax Hike

STEPHEN YOUNG | DECEMBER 8, 2017 | 4:00AM

Dear Leader McConnell, Speaker Ryan, Chairman Hatch, and Chairman Brady:

We the undersigned strongly oppose the repeal of the income exclusion for graduate tuition waivers in the *Tax Cuts and Jobs Act* as passed by the House of Representatives on November 16, 2017. A tax on graduate tuition waivers would be unfair, would undermine our competitive position, and would inhibit the economic growth that tax reform promises.

### Signed by 32 Republican House members

Source: <https://www.chronicle.com/items/biz/pdf/201712071532.pdf>



Kamala Harris

November 18, 2017 · 🌐

Another thing to add to your list of why the GOP tax plan is terrible: If the House bill becomes law, graduate school would become unaffordable for many Americans.



BUZZFEED.COM

### Here's Why Graduate Students Are Freaking Out About The New Tax Bill

🤔👍🙄 3.9K

604 Comments 1K Shares



# Collaboration

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Teamwork makes the dream work

“Crowdsourcing” advocacy is effective



# Communication is key

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Communicating for science policy is VASTLY different than communicating scientific research

Data is good, but stories matter

Are you speaking the same language as your audience?



# Science Policy on Capitol Hill

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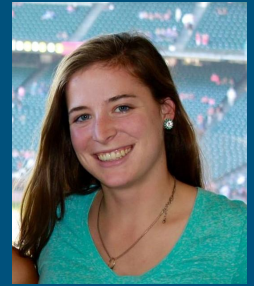
“Catalyzing Advocacy in Science and Engineering”  
(CASE) workshop in March 2019

Organized by the American Association for the  
Advancement of Science (AAAS)

- Training in science funding and communication skills
- Meetings with Congressional and Senatorial staffers to advocate for federal research funding



Qinjin  
3rd Year  
Physics PhD



Erin  
4th Year  
Chemistry PhD

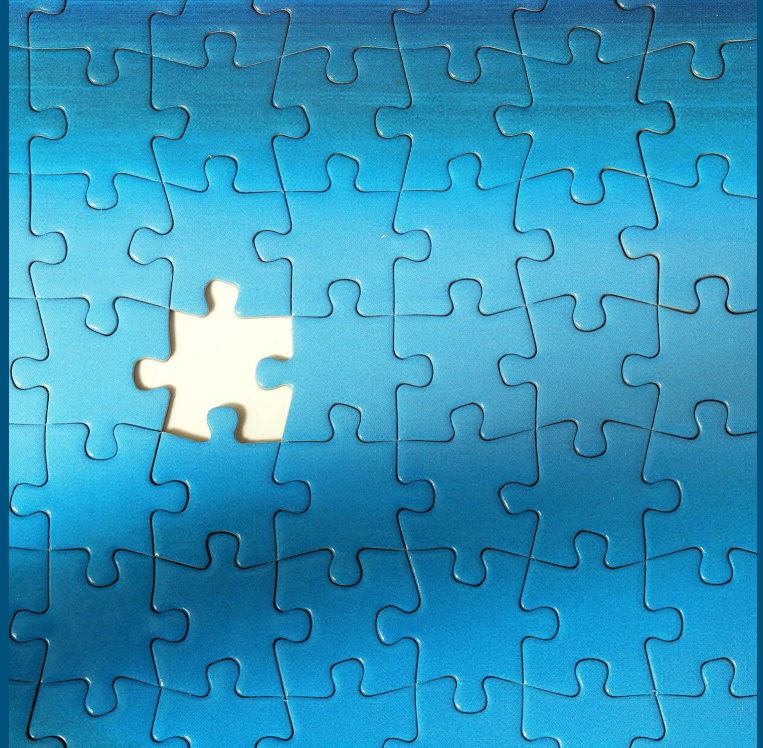


# Science is only one piece of the puzzle

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The rest:

- Economics
- Budgets
- Politics
- International relationships
- Priorities



# Communicating with Policymakers

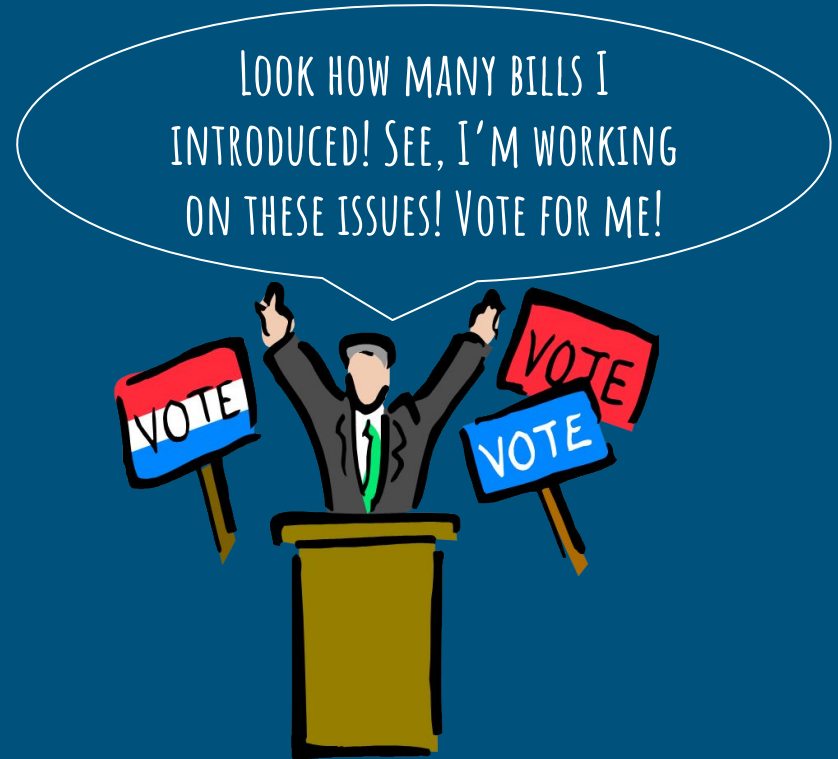
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Focus your message on what is persuasive, not what you think should be important!

What influences politicians?

- District
- Personal beliefs
- Media

Know your strengths and limitations

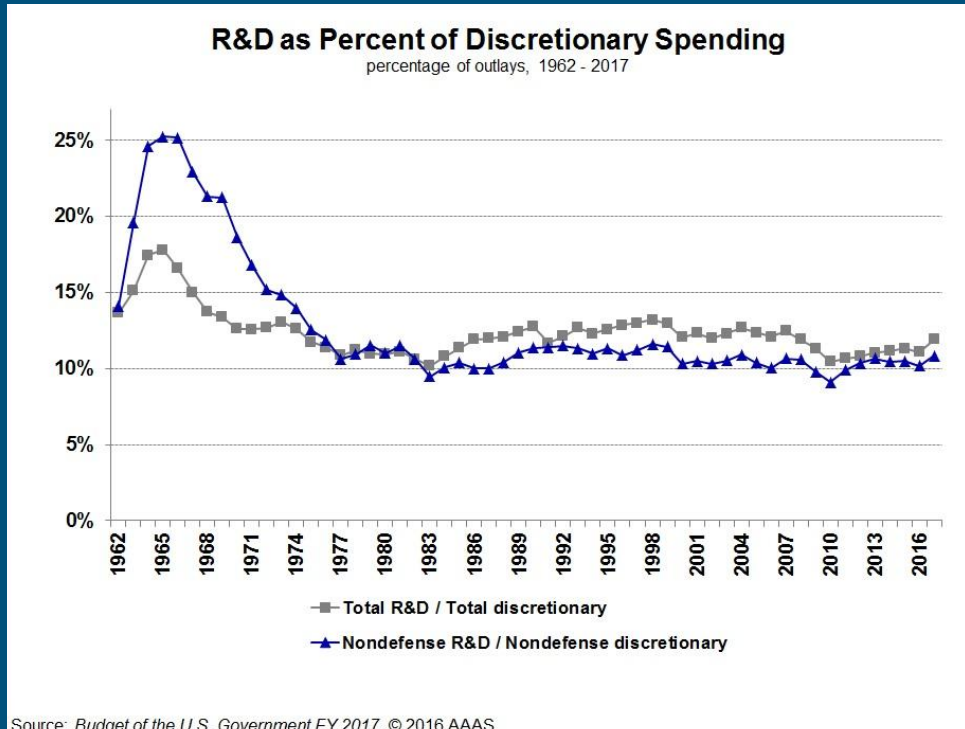




# Federal Research Funding

Generally a bipartisan consensus on funding basic science research.

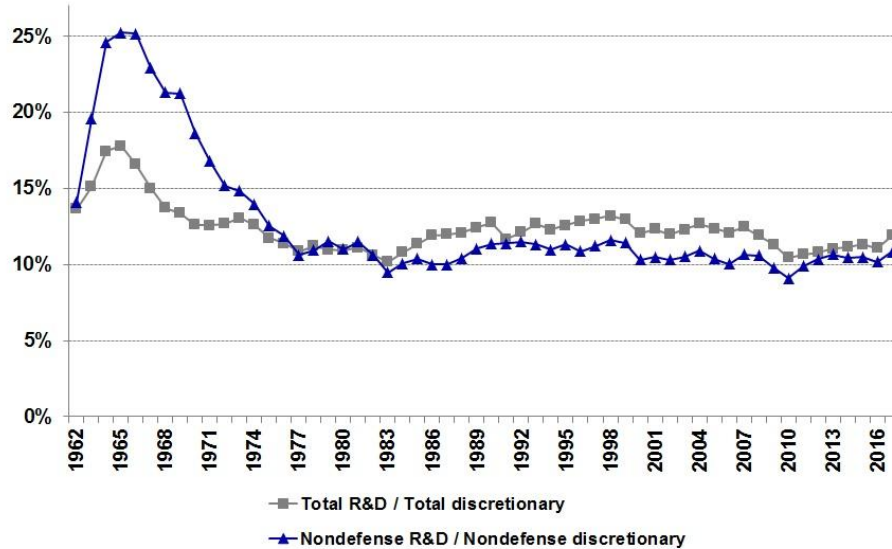
But...



# Federal Research Funding

## R&D as Percent of Discretionary Spending

percentage of outlays, 1962 - 2017



Generally a bipartisan consensus on funding basic science research.

But...we need to show up!



# Thank you!

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Interested in learning more? [sciencepolicy.berkeley.edu](http://sciencepolicy.berkeley.edu)