

A visualization of gravitational waves, showing ripples in spacetime. The waves are represented by concentric, overlapping bands of color, ranging from dark blue to bright yellow and red. The background is black, making the colorful waves stand out.

Faculty Perspectives on Federal Research Funding

University of Illinois
Board of Trustees
Meeting

gravitational waves
credit: NCSA @ UIUC

University Senates Conference Report

March 16, 2016

Prof. Harley Johnson (UIUC)

Prof. Mary Jo LaDu (UIC)

Federal Funding:
Enables UI faculty to **generate ideas and make discoveries**

Research \$\$
(~\$546M in FY14)



Raises UI prestige
Increases value of UI degree
Attracts best and brightest to Illinois

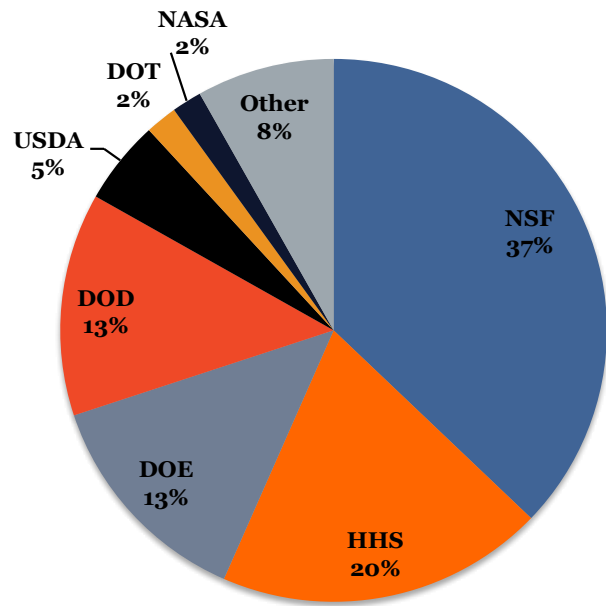
Role of individual faculty:

- Write research proposals (individual and collaborative)
- Win funding through competitive processes
- Manage research funds to run research programs
- Generate ideas, make discoveries, develop innovative technology

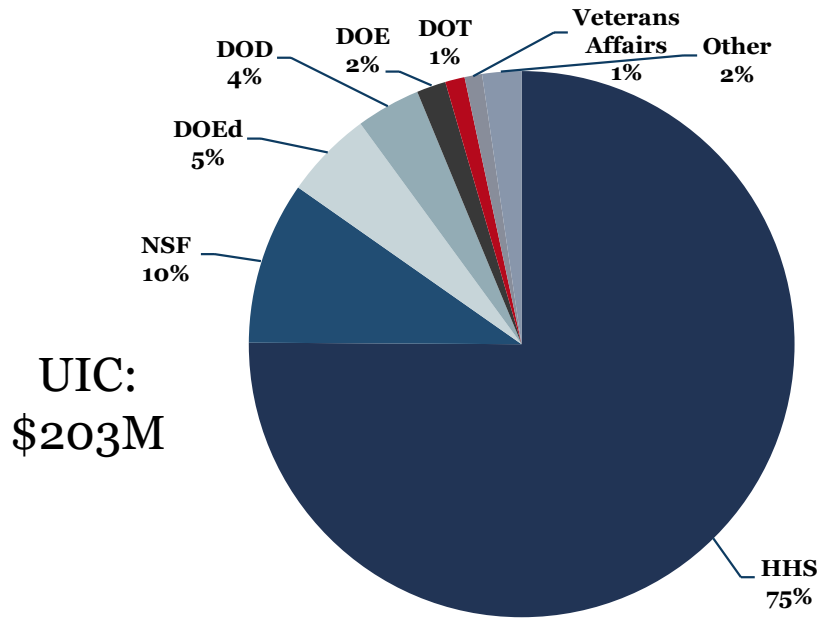
UI faculty use federal funds to run research programs... like small businesses!

Federal Funding: Enables UI faculty to **generate ideas and make discoveries**

Total FY14 Federal Funding (expenditures) by Agency:



UIUC:
\$343M



UIC:
\$203M

- UIUC is ranked #1 in NSF funding among all US research institutions
 - Nearly 1000 separate awards for \$127M total from NSF in 2014
- UIC has 26 NIH/HHS centers and 829 separate awards for \$153M total in 2014
- UIS has federal funding from National Institute of Justice, US DOJ

NSF & NIH Funding Process

NSF & NIH funding is awarded through a competitive, peer reviewed process

UI researcher
submits proposal



NSF/NIH
program officer
arranges review

Peer
Review

NSF/NIH
program
decision

awarded
(10-20%)

NSF/NIH
awards office

declined (80-90%)

\$\$

Research Grant

UI

~60% Indirect Cost

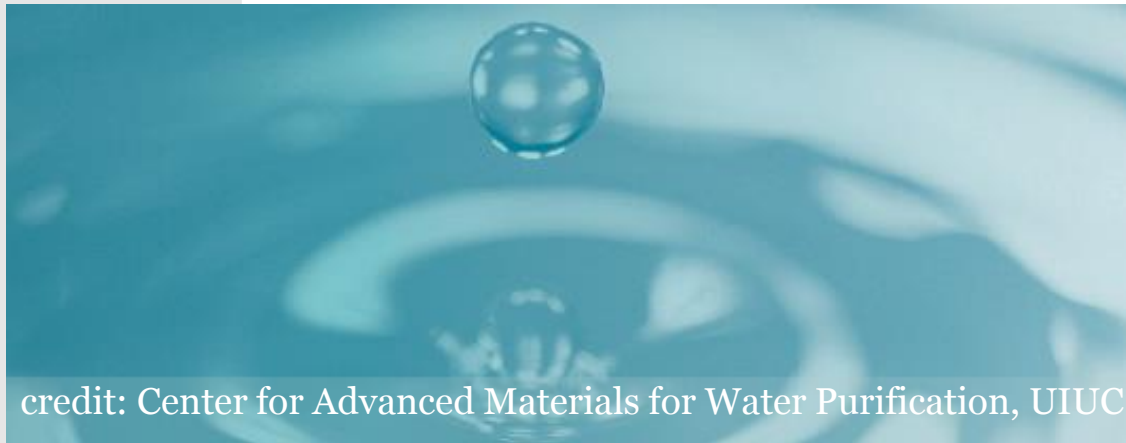
NSF Funding for Sciences and Engineering



NSF invests over \$7B annually in research in physical sciences, life sciences, social sciences, engineering

Major funding “mechanisms”:

- **“Single-investigator” grants:** ~\$150K/yr for 3 yrs
- **Major centers:** \$3-5M/yr, many investigators
(e.g. Center for Power Optimization of Electro-Thermal Systems: New \$18.5M center at UIUC)
- **Pre- and postdoctoral fellowships**
- Other major research projects, e.g. LIGO



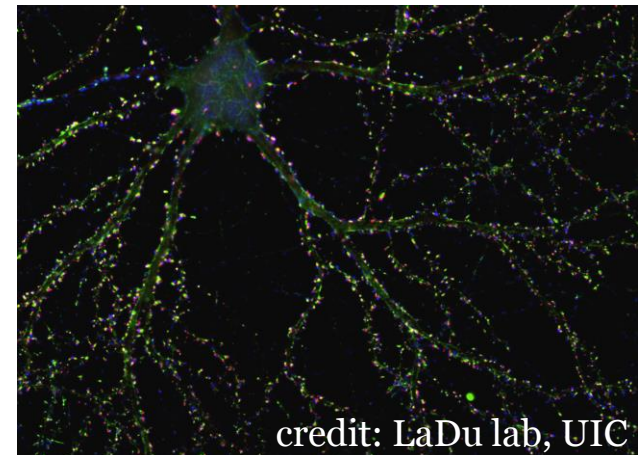
credit: Center for Advanced Materials for Water Purification, UIUC



NIH Funding for Biomedical Sciences

Major funding “mechanisms”:

- **Pre- and post-doctoral fellowships**, early career researchers and researchers returning to work force
- **R21**: Proof of concept grant, characterized as high risk/high gain: \$150K/yr for 2 yrs
- **R01**: “single-investigator” awards: \$250K+/yr for 5 yrs
- **Center and training grants**: \$10-50M/yr for 5 yrs (e.g. UIC Center for Alcohol Research in Epigenetics, and Neuroscience of Mental Health)

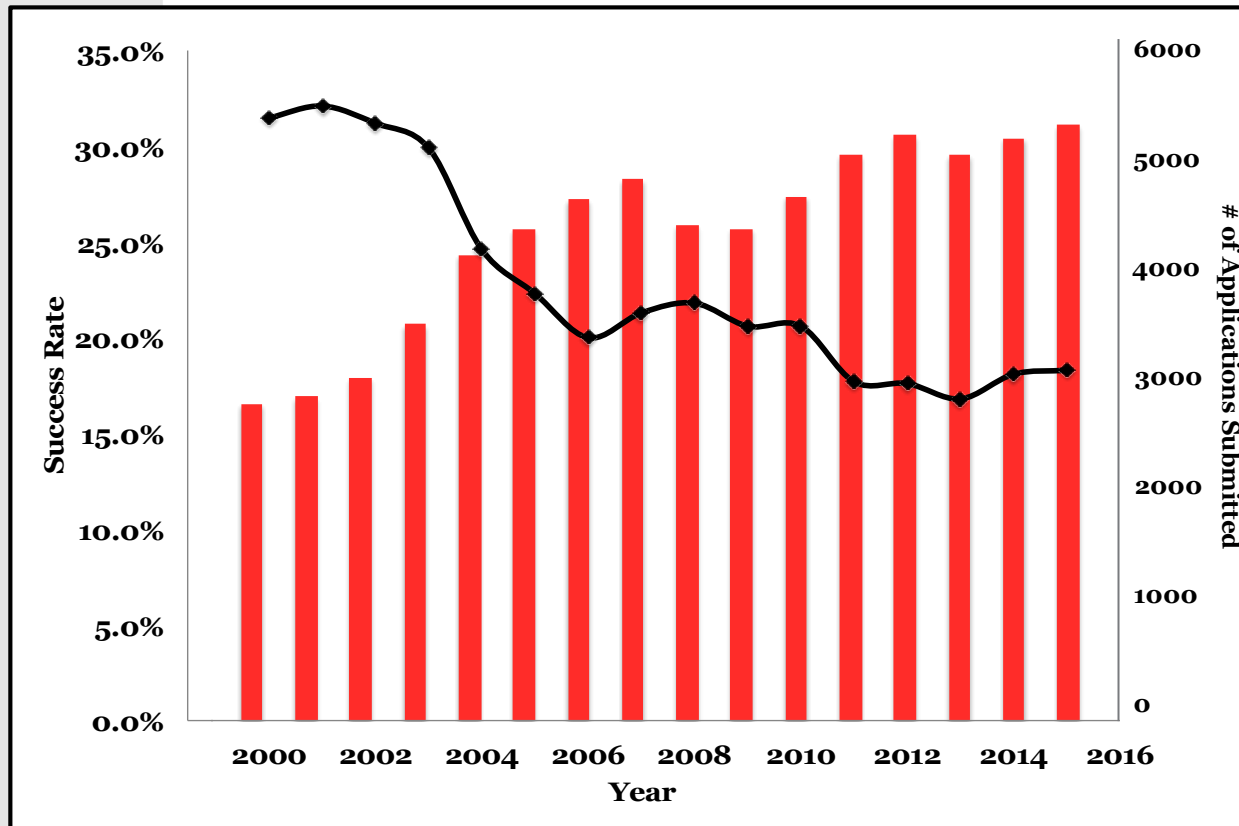


NIH Funding for Biomedical Sciences

Federal funding is increasingly competitive!

...a decline in funding rates makes it more difficult for faculty to maintain their research activities

2000 to 2015, overall NIH funding rates declined from 32% to 17%

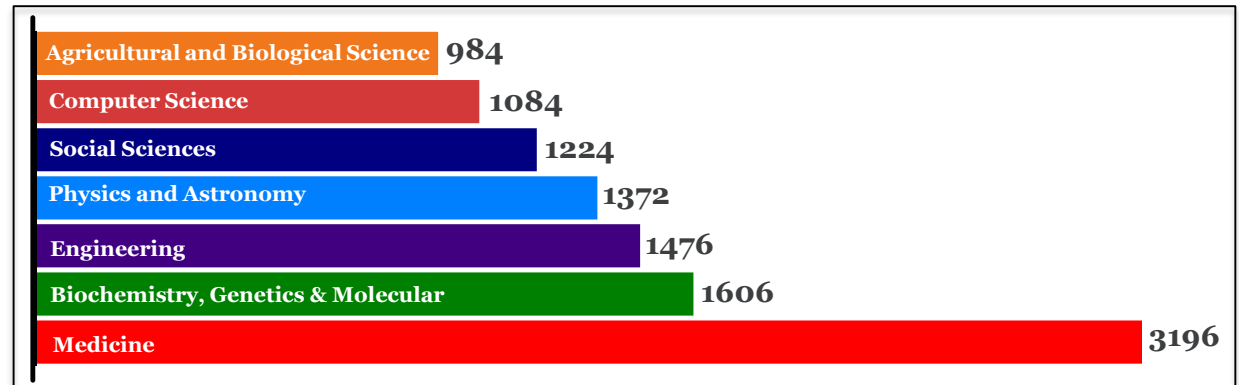


...from 2001 to 2014, NSF funding rates also declined, from 27% to 20%

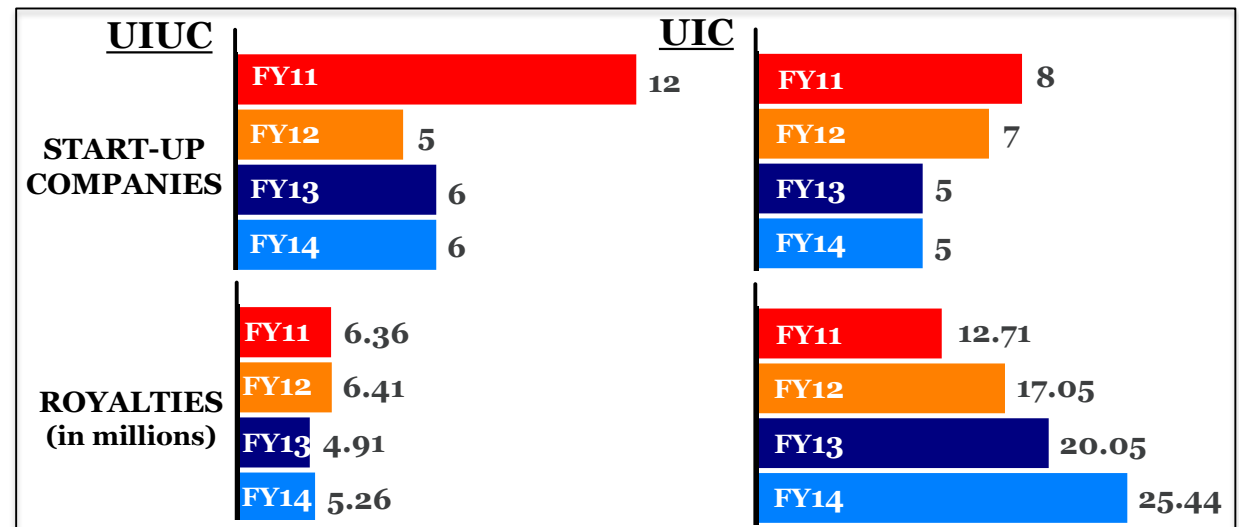
Federal Funding
Leads to:
Ideas
Discovery
Technology

2014 Doctoral degrees: ~1,750 (UIUC+UIC+UIS)

2014 Journal articles: ~10,700 (UIUC+UIC+UIS)



2014 Technology royalties: > \$30M (UIUC+UIC+UIS)



Federal Funding:
Enables UI faculty to **generate ideas and make discoveries**

- Faculty run research programs, like small businesses
- NSF and NIH funding are major sources of federal funding for research at UI
- Output: - ideas and discoveries, and,
 - students and scholarship
 - development of innovative technology

Given state budget pressure, UI must continue helping researchers to win federal funds and capitalize on discoveries.

Thank you for your continued advocacy for the
University of Illinois

...and thank you for helping us to generate ideas and
make discoveries.