



National Science Foundation

FOR FY2021,
THE U OF I SYSTEM
REQUESTS
\$9 BILLION FOR NSF

FY2021 PBR = \$7.741B
FY2020 = \$8.28B
FY2019 = \$8.075B
FY2018 = \$7.767B
FY2017 = \$7.472B
FY2016 = \$7.464B
FY2015 = \$7.344B

Appropriations Bill:

Commerce, Justice, Science,
and Related Agencies

Agency: National Science
Foundation

Questions? Contact:
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NSF R&D EXPENDITURES, FY2019

URBANA: \$141.1 MILLION | UIC: \$19.341 MILLION

*Source: FY2019 NSF HERD Survey

The U of I System has a longstanding and successful partnership with the National Science Foundation (NSF), the only federal agency charged with funding fundamental research and education across all scientific and engineering disciplines. NSF is the cornerstone of America's basic research enterprise.

NSF-Supported Projects at Urbana-Champaign

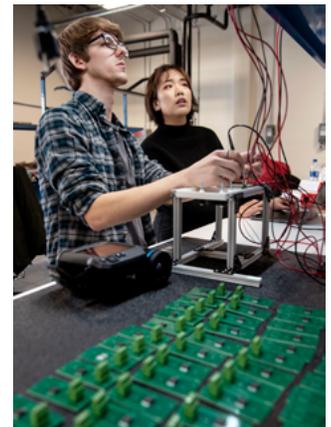
Urbana is routinely leading the nation in NSF awards.

NSF-SUPPORTED INFRASTRUCTURE FOR THE NATION'S RESEARCH COMMUNITY

- **XSEDE:** NSF selected the National Center for Supercomputing Applications (NCSA) at Urbana to lead a five-year, \$110M project to expand the **Extreme Science and Engineering Discovery Environment**, to substantially enhance the productivity of a growing community of scholars, researchers, and engineers through access to advanced digital services that support open research; and coordinate and add significant value to the leading cyberinfrastructure resources funded by the NSF and other agencies.
- NSF awarded NCSA \$5M to bring together the Clowder community. Clowder, an open source data management tool based on active curation, was developed at NCSA.

NSF-SUPPORTED RESEARCH TO ADDRESS GRAND CHALLENGES OF OUR TIME

- **POETS**, an Urbana-led **Engineering Research Center (ERC)**, addresses thermal and electrical challenges surrounding mobile electronics and vehicle design.
- **I-MRSEC**, a \$15.6M Urbana-led **Materials Research Science and Engineering Center (MRSEC)**, performs fundamental, innovative materials research and supports interdisciplinary education and training of students.
- Under Urbana's leadership, the **Critical Zone Observatory for Intensively Managed Landscapes (IML-CZO)**, which includes other Big Ten universities, received NSF funding to understand the transformation of the landscape of the Upper Midwest and help stabilize this critical zone.



FOSTERING ENTREPRENEURSHIP & ADVANCING COMMERCIAL APPLICATIONS

- **Innovation Corps (I-Corps):** Since the Illinois I-Corps Site was established in 2013, 180 teams have participated in this entrepreneurial program and have raised close to \$80M in external funding. In 2016, NSF announced a \$3.5M Midwest I-Corps node, and Urbana plays a central role.
- **Industry/University Cooperative Research Centers (I/UCRCs):** Urbana participates in university research to meet industry needs that transfer research results and technological advances to the U.S. marketplace.
- The NSF **Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)** program is critical to Urbana's Research Park, particularly its tech incubator EnterpriseWorks. From 2001-2018, NSF awarded 105 SBIR/STTR awards to EnterpriseWorks companies for a total of more than \$27 million. Several NSF-funded startup companies have gone on to raise hundreds of millions of dollars in venture capital and private investments.





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Faculty Career Development

21 faculty were awarded NSF CAREER awards in 2018, which provide funding to launch research programs for promising early-career faculty.

- Researchers are leading an **Engineering Frontiers and Multidisciplinary Activities** project that applies the science of teamwork to spark research collaborations across disciplines and institutions. The project seeks innovation by engaging a variety of scholars and researchers from the American Indian Higher Education Council, the Hispanic Association of Colleges and Universities, and the National Association for Equal Opportunity in Higher Education.
- Three faculty members will use **Major Research Instrumentation** (MRI) awards from NSF to purchase and develop instruments for cutting-edge advances in battery technology, biomaterials, and deep learning. The NSF allowed three MRI proposals per university and all three of Illinois' submissions were accepted.

Education and Graduate Training

- With the support of an NSF **Research Traineeship** (NRT) [grant](#), Urbana is beginning a PhD level certificate program that combines materials and data science.
- Also through an NRT grant, Urbana has launched the **Miniature Brain Machinery (MBM) Program**, which combines cognitive and behavior studies with brain cell and tissue biology studies to train the next generation of STEM workforce in advancing discovery.



NSF-Supported Projects at UIC

NSF-supported projects at UIC range from large multi-scale initiatives to individual research grants.

CAVE2: NSF supports big data and visualization research at the **Electronic Visualization Laboratory (EVL)**, which is home to CAVE2, a renowned interdisciplinary research laboratory that pioneered the development of the CAVE virtual-reality system.



The **Learning Sciences Research Institute (LSRI)**, a campus-wide, multidisciplinary unit focused on improving instruction and learning, has several faculty who have been successfully funded by the Education and Human Resources Directorate at NSF in areas of STEM education. Two current and one recently completed project are focused on developing the capacity of teachers to engage in instruction and assessment aligned with the vision of multi-dimensional science proficiency represented in the National Research Council's *Framework for K-12 Science Education and the Next Generation Science Standards*. The three projects span grades 3-12 and involve collaborations with teachers from the Chicago Public Schools and surrounding districts. In addition to developing teacher capacity to design high-quality instruction aligned with the standards, two of the projects include development of free resources designed to support classroom formative assessment practices, which are being widely disseminated via a technology portal.

Researchers at UIC are leading a five-year, \$4.7M project funded by NSF to develop and implement a **professional development program for K-8 math educators** that spans across three levels — teacher, school and district.

Dynamic social-network analysis reveals animal social behaviors: a computational ecologist is leading an NSF-supported project that uses **IBEIS (Image-Based Ecological Information System)**. The software design takes collections of images from field scientists, tourists, and incidental photographers and analyzes and stores the information to improve management and conservation of animals.

In 2017, UIC received a \$1.44M grant from NSF to discover new 2D materials to be used to **manufacture better and cheaper batteries**.

UIC has **26 active Faculty Early Career Development awards**.

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