The Department of Health and Human Services (HHS) is a major sponsor of research for our universities. UIC has seven health science colleges that train many of the state’s future healthcare professionals and conduct groundbreaking basic and clinical research. The National Institutes of Health (NIH) was the largest UIC research sponsor in FY2021, providing over $185M in funding.

**HHS-Supported Projects at UIC**

**COVID-19 RESEARCH**

A team of UIC researchers is projected to receive approximately $22M from NIH over four years to research long COVID-19. The emerging health condition causes many COVID-19 patients, even those who were not hospitalized, to have continued and new symptoms months after their initial illness. As part of the NIH’s Researching COVID to Enhance Recovery (RECOVER) Initiative, UIC is leading an Illinois-based research consortium, called ILLInet RECOVER, which has been selected to participate as one of the cohorts in the NIH initiative.

**NATIONAL INSTITUTES OF HEALTH (NIH)**

- UIC has 198 active R01 grants which support health-related research for individual investigators.
- UIC’s Center for Clinical and Translational Science (CCTS) is receiving $22M in new funding from NIH to continue its work supporting critical clinical and translational health research programs.
- UIC researchers have been awarded a five-year, $10.15M grant from NIH to develop a broad-spectrum immunomodulatory eye drop to treat patients with severe dry eye and ocular surface disease due to inflammatory and immune system disorders.
- UIC researchers are leading an NIH-funded, $7.1M, five-year national study to review opioid alternatives to treating sickle cell disease (SCD) by determining the effectiveness of acupuncture and guided relaxation for people with chronic pain from SCD.
- In 2017, the University of Illinois Cancer Center was awarded $6.75M from NIH to establish a specialized Center of Excellence in minority health and health disparities research. The Center for Health Equity Research (CHER) is investigating how social structures and determinants contribute to the health of marginalized groups.
- With funding from NIH, UIC’s School of Public Health leads an Occupational and Environmental Health and Safety Education and Research Center, which addresses occupational safety and health training needs regionally, nationally, and internationally.
- UIC researchers are assessing the association of chronic eye disease in Hispanic/Latino groups with cardiovascular disease and sociocultural risk factors in an ongoing NIH-funded Hispanic Community Health/Study of Latinos.

**HEALTH RESOURCES AND SERVICES ADMINISTRATION (HRSA)**

- A $9.5M grant from HRSA will help UI and the Illinois Department of Public Health improve maternal outcomes in Illinois. In addition to enabling the launch of a series of new systems-level statewide efforts, the funding will facilitate the design and implementation of a first-of-its-kind, two-generation postpartum clinic and research and training center at UIC.
- UIC is launching an effort to reduce the health disparities experienced by women and babies living in historically underserved and marginalized communities, thanks to a $4.7M Healthy Start grant from HRSA.
HHS-Supported Projects at Urbana-Champaign

From creating novel diagnostic methods and synthesizing new drugs to conceiving the world’s first engineering-based college of medicine, Urbana harnesses interdisciplinary collaboration to uncover fundamental insights into fighting disease and improving health.

- **Rapid Acceleration of Diagnostics (RADx) initiative**: UIUC is working with the NIH to conduct a COVID-19 research study aimed at improving testing strategies to control SARS-CoV-2. A UIUC researcher was awarded $1.6M in RADX funding from the NIH for a study exploring the use of HIV/AIDS interventions in mitigating the spread of COVID-19 among marginalized and hard-to-reach populations.

- **With partial support from NIH, the Cancer Center at Illinois and Mount Sinai researchers have developed a low-cost, portable, point-of-care technology capable of diagnosing early-stage liver cancer within 30 minutes.**

- **A UIUC researcher was recently awarded** funding from the NIH’s 4D Nucleome Program for two projects to advance understanding of the structure of the cell nucleus and dynamics and gene expression.

- **With one NIH T32 grant**, the **Tissue Microenvironment Training Program** is preparing the next generation of interdisciplinary leaders capable of undertaking fundamental research and enabling translational advances. For over 15 years, NIH has funded the Chemistry-Biology Interface Training Program through a T32 grant to bridge the divide between these disciplines, promoting a common scientific language, sharing advanced tools, and taking a multidisciplinary approach to longstanding issues that compromise public health.

- **NIH awarded UIUC** a five-year, approximately $4.8M translational research grant to develop an **optimized gene therapy for amyotrophic lateral sclerosis** (ALS), a severely debilitating and fatal neurological disorder.

- **UIUC is a leader in engineering-based translational research with NIH/NCI funded projects like the Polarization-Sensitive OCT for Assessing Breast Tumor Margins.** This intraoperative optical imaging technology finds positive breast tumor margins in real time.

- **The NIH Biotechnology Research Center for Macromolecular Modeling and Bioinformatics has been developing leading software for computational biology and molecular simulation and visualization** for nearly three decades. Through its evolving programs, comprehensive dissemination, range of collaborative biomedical projects, and extensive training program, the Center serves more than 120,000 biomedical researchers across the nation and in the world.

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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 routinely leads the nation in NSF awards.

**RESEARCH TO ADDRESS GRAND CHALLENGES OF OUR TIME**

- **POETS**, a UIUC-led Engineering Research Center (ERC), addresses thermal and electrical challenges surrounding mobile electronics and vehicle design.
- UIUC **leads** a $25M NSF Quantum Leap Challenge Institute on hybrid quantum architectures and network.
- **I-MRSEC**, a $15.6M UIUC-led Materials Research Science and Engineering Center (MRSEC), performs fundamental, innovative materials research and supports interdisciplinary education and training of students.
- NSF **selected** UIUC to create a $15M Institute for Geospatial Understanding through an Integrative Discovery Environment (I-GUIDE) to better understand the risks and impacts of climate change and disasters.
- The NSF **awarded** a five-year, $12.5M grant to a UIUC collaborative research team for Genomics and Eco-Evolution of Multi-Scale Symbioses, a **Biology Integration Institute**.
- The NSF’s Innovative High-Performance Computing program **awarded** $10M to UIUC’s National Center for Supercomputing Applications to deploy and operate Delta, an **advanced computing and data resource** that will shape the future of technology and practice in advanced research computing.

**FOSTERING ENTREPRENEURSHIP & ADVANCING COMMERCIAL APPLICATIONS**

- **Innovation Corps (I-Corps)**: The Illinois I-Corps Site (2013 - 2022) has played a key part of the Illinois innovation ecosystem with over 250 teams having participated in this commercialization program and raising close to $140M in external funding after participating in the program. UIUC played a leadership role in the $3.5M Midwest I-Corps node (2016-2021) which led to the recently launched $5M Great Lakes regional I-Corps Hub.
- **Industry/University Cooperative Research Centers (I/UCRCs)**: UIUC 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 UIUC’s Research Park, particularly its tech incubator EnterpriseWorks. From 2003-2020, NSF awarded 102 SBIR/STTR awards to EnterpriseWorks companies for a total of more than $28.4M. 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
UIUC has 104 active Faculty Early Career Development (CAREER) awards, 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.

Education and Graduate Training
- With the support of an NSF Research Traineeship (NRT) grant, UIUC is beginning a PhD level certificate program that combines materials and data science.
- Also through an NRT grant, UIUC 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.

UIC faculty have also received a significant number of CAREER awards from NSF designed to help rising U.S. researchers and scholars establish long-term leadership through the integration of research and education. They currently have 29 active CAREER awards.

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 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 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 affiliated with LSRI 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.

UIUC has a $2.5M NSF grant to improve undergraduate STEM engagement in environmental sciences, physiology and chemistry using the study of the Monarch butterfly.

A UIUC researcher received a $14.1M, five-year grant to expand the experimental capabilities at NSF’s Chemistry and Materials Center for Advanced Radiation Sources, one of the world’s leading facilities for the study of the crystallography of small molecules and liquid surfaces and interfaces.

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DOE-Supported Projects at Urbana-Champaign

The Urbana campus has been one of DOE’s top university funding partners. UIUC is regularly among the top 10 institutions nationwide in annual DOE research expenditures.

DOE OFFICE OF SCIENCE

DOE awarded a five-year, $115M Bioenergy Research Center grant — one of four in the U.S. — to UIUC and 20 partner institutions in 2017 to establish the Center for Advanced Bioenergy and Bioproducts Innovation (CABBI). CABBI is using thematic research into feedstock production, conversion, and sustainability to develop sustainable, cost-effective biofuels – and bioproducts.

UIUC launched the Illinois Quantum Information Science and Technology Center (IQUIST) to revolutionize computing, communication, security, and measurement and sensing through quantum mechanics. In 2020, a team from UIUC was awarded a $12.6M DOE Energy Frontier Research Center on quantum sensing and quantum materials.

A $10.6M project funded by DOE’s Office of Science, Renewable Oil Generated with Ultra-productive Energycane (ROGUE), uses computer models to guide the engineering of energycane to produce the oil used to create biodiesel and biojet fuel.

OFFICE OF CYBERSECURITY, ENERGY SECURITY, & EMERGENCY RESPONSE (CESER)

With support from DOE CESER and DHS’ Security Science & Technology Directorate, the Cyber Resilient Energy Delivery Consortium (CREDC) is conducting cutting-edge research to bolster the resiliency of the nation’s energy delivery systems.

NATIONAL ENERGY TECHNOLOGY LABORATORY (NETL)

The Prairie Research Institute is a global leader in demonstrating technologies for capture and storage of carbon dioxide to balance our nation’s growing energy needs and climate concerns. DOE is funding multiple CarbonSAFE geologic storage projects to define and develop regional carbon storage infrastructure. A post-combustion Carbon Dioxide Capture project enables the commercial-scale capture of CO₂ from coal-fired power plants.

ADANCED RESEARCH PROJECTS AGENCY (ARPA-E)

A “smart farms” research team was awarded $4.5M from DOE’s ARPA-E program to calculate farm-scale carbon credits. It will allow individual farmer to understand the value of their land and practices toward carbon trading markets.

DOE awarded a $3.3M ARPA-E grant to a multidisciplinary research team at UIUC to develop a precise system for measuring greenhouse gas emissions from commercial bioenergy crops grown in central Illinois.
THE NEXT GENERATION OF MATERIALS FOR ENERGY

As part of the Manufacturing USA Initiative, UIUC is a Tier 1 member of the DOE-funded REMADE Institute, which focuses on driving down the cost of technologies needed to reuse, recycle, and remanufacture materials such as metals, fibers, polymers, and electronic waste.

UIUC is leading a $2M project for the development of next generation steels aimed at meeting the challenges of hydrogen embrittlement.

UIUC’s Prairie Research Institute is part of a national team to develop artificial intelligence technologies to sort non-recyclable plastics so they can be reused for fuels. DOE’s Office of Energy Efficiency and Renewable Energy has awarded the team $2.5 million to complete the three-year project.

DOE NATIONAL NUCLEAR SECURITY ADMINISTRATION (NNSA)

The DOE’s NNSA Advanced Simulation and Computing announced it will fund a new $17M Center for Exascale-enabled Scramjet Design at UIUC. It will be a boon for hypersonics efforts at UIUC and for bringing high-performance computing together with engineering analysis and design.

OFFICE OF NUCLEAR ENERGY

The DOE’s Office of Nuclear Energy funds R&D projects, infrastructure upgrade grants, fellowships and scholarships under the Consolidated Innovative Nuclear Research program. DOE-supported nuclear energy research at Illinois includes enterprise risk management, irradiation assistance for stress in weldments, computer code validation for nuclear power plants, advanced structural materials tolerance, and accident-tolerant nuclear fuels.

ADVANCING COMMERCIAL APPLICATIONS

From 2003-2020, DOE awarded 84 Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) awards to EnterpriseWorks companies for a total of nearly $38.6M.

DOE-Supported Projects at UIC

In 2020, DOE’s NNSA awarded $8M over four years to UIC to lead a multisite, interdisciplinary center focused on research, training and technique development in the study of materials in extreme conditions.

UIUC’s Energy Resources Center was selected to receive a $1.8M research grant from DOE to investigate the impacts of locating pollinator habitat at large-scale solar facilities.

UIUC and UIUC are partners in the Joint Center for Energy Storage Research (JCESR), a DOE Energy Innovation Hub that was renewed by the Office of Science in 2018 for another 5 years. JCESR is a major research partnership that integrates national laboratories, universities, and private companies with the mission of overcoming scientific and technical barriers and developing breakthrough energy storage technologies for transportation and the electricity grid.

With a five-year, $4.2M grant from the DOE Office of Energy Efficiency & Renewable Energy, UI is helping industrial, commercial, institutional and utility entities evaluate and install highly efficient combined heat and power (CHP) technologies. CHP, also known as cogeneration, is a single system that produces both thermal energy and electricity. CHP has typical operating efficiencies of 65-75% or greater while more conventional and separate systems for electricity and heat operate at approximately 50% efficiency.
DOD R&D EXPENDITURES, FY2021

| URBANA-CHAMPAIGN: $58.7 MILLION | UIC: $11.1 MILLION |

*Source: FY2021 NSF HERD Survey*

The U of I System is the state’s leading recipient of DOD research funds. The University is prepared to support DOD’s research, development, test and evaluation (RDT&E) portfolio at the highest levels, thanks to the construction of a Sensitive Compartmented Information Facility (SCIF), an enclosed area within UIUC’s Research Park to process classified information.

It is imperative that DOD—even in a constrained funding environment—invests in the foundational science and technologies to confront looming challenges. U of I System research supports current Department-wide research and technology priorities under the 2018 National Defense Strategy, including hypersonics, artificial intelligence, autonomy, next-generation wireless (5G), cybersecurity, and quantum, and explores long-term research questions to anticipate the military’s future needs. The U of I System encourages Congress to support sustained and robust funding for the 6.1, 6.2, and 6.3 science and technology accounts across services.

U.S. Army Research Laboratory

The U of I System has been strengthening its partnership with the Army Research Laboratory (ARL). Both UIC and UIUC are significantly involved in ARL’s Open Campus Initiative, specifically ARL Central.

ARL launched a Center for UAS Propulsion (CUP) to convene a community of academic, industry, and government partners around technologies for small engine power for next-generation UAS. UIUC is the academic lead for CUP, in close partnership with UIC. Both universities are engaged in multi-disciplinary research to develop next generation multi-fuel engine architecture, novel batteries, advanced materials research, aerospace propulsion, supercomputing aided simulations, advanced control architecture and algorithms, and power optimization.

Both UIUC and UIC were selected to receive awards from ARL through its Internet of Battlefield Things (IoBT) program. UIUC was selected to lead a $25M initiative to develop the scientific foundations of next-generation IoBTs, designed to enable predictive battlefield analytics and services. The IoBTs will connect soldiers with smart technology in armor, radios, weapons and more to give troops a better understanding of battlefield situations and help assess risks.

The Army Research Office (ARO) sponsors diverse projects at UIUC in catalysis, surface science, and engineering the optical properties of materials.

DOD-Supported Projects at Urbana-Champaign

The Defense Advanced Research Projects Agency (DARPA) has funded several cutting-edge UIUC projects. For instance:

- Through its KAIROS program, DARPA has provided $12.3M to support a UIUC-led project, named RESIN—Reasoning about Event Schemas for Induction of kNowledge, which seeks to create a framework for the next generation of event understanding systems, with an ambitious goal: being able to provide a comprehensive understanding of evolving situations, events, and trends.
- DARPA is providing $10M for two projects for research on human performance optimization within U.S. warfighters at the Beckman Institute for Advanced Science and Technology.
- Advanced wireless technology to support warfighter communications is a major focus. Researchers are developing new low-power and ultra-compact radio technology to
enable communications through soil, rock and water. Another project will empower individuals to exercise better control over the quality of information they are exposed to on social media. At a national level, the work will help fight adversarial propaganda and help maintain integrity of critical information from malicious manipulation. Methods are in development to safeguard the electrical power grid from attacks on its GPS synchronization system.

- UIUC received an $18.7M grant from DARPA to develop a testbed that will enable validation of new technology for faster response and recovery following an attack on the electric grid. The project, called Cyber-Physical Experimentation Environment for RADICS, will leverage expertise, tools and data provided by industry collaborators.

UIUC receives significant funding from the Air Force Office of Scientific Research (AFOSR). In DOD’s selection of projects for its FY2021 DOD Multidisciplinary University Research Initiative (MURI), UIUC was a participant in four of the 25 projects that received awards. In 2017, UIUC’s Materials Research Laboratory (MRL) was part of a consortium that was funded under the MURI program for research centered on additive 3D self-assembly of responsive materials.

DOD’s Defense University Research Instrumentation Program (DURIP) supports the purchase of major, state-of-the-art equipment that augments current research institutions’ capabilities or develops new capabilities to perform cutting-edge defense research and associated graduate student research training in disciplines of importance to DOD. UIUC received six DURIP awards in 2020.

**DOD-Supported Projects at UIC**

A multidisciplinary research team from UIC was awarded a $3M, three-year DOD award to establish an undergraduate research mentoring program in STEM areas with a focus on engaging undergraduate student veterans and minority students.

UIC is currently leading a $3M project funded by DARPA to design, develop, and evaluate a system that will identify security vulnerabilities in web software.

With a four-year, $5.25M grant from DOD, UIC researchers are leading a multi-site clinical trial to test the efficacy of a stem cell-based treatment for eye injuries.

UIC’s Cancer Center has a three-year, $1.17M DOD grant to develop a new therapy to treat triple-negative breast cancer.

A three-year grant totaling nearly $1M from the DOD is funding UIC research on the gene SELENOF and its role in the development of prostate cancer among black men.
UIUC has an enduring and dynamic partnership with USDA. The College of Agricultural, Consumer and Environmental Sciences (ACES) at UIUC is home to the Illinois Agricultural Experiment Station, which supports research capacity and education infrastructure in Illinois. Hatch and other related formula funds support capacity for applied science to benefit Illinois in areas such as plant photosynthesis and genetics, soil and water conservation, animal performance, and human nutrition and health strategies. USDA’s Agriculture and Food Research Initiative (AFRI) supports competitive research programs that are essential to the research portfolio in ACES and in other units on the campus.

The National Institute of Food and Agriculture (NIFA) supports University of Illinois Extension, whose network of educators reaches all 102 counties of Illinois with evidence-based outreach and engagement programs in five broad areas: energy and environmental stewardship; food safety and security; economic development and workforce preparedness; family health, financial security, and wellness; and youth development. NIFA provides capacity support to U of I Extension through Smith-Lever 3(b) & (c).

More than $7M in competitive USDA funding to the College of Veterinary Medicine advances agricultural animal health through basic and applied research into disease prevention and through training programs that help producers and veterinarians improve biosecurity and productivity on farms.

**USDA-Allocations/Awards, FY 2021**

<table>
<thead>
<tr>
<th>Account</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hatch Act (Research &amp; Education Programs)</td>
<td>$7.2M</td>
</tr>
<tr>
<td>Smith-Lever 3(b)-(c) (Extension Activities)</td>
<td>$10.1M</td>
</tr>
<tr>
<td>Agriculture and Food Research Initiative (AFRI) (Research &amp; Education Programs)</td>
<td>$20.9M</td>
</tr>
<tr>
<td>Expanded Food and Nutrition Education Program (EFNEP)</td>
<td>$2.25M</td>
</tr>
<tr>
<td>Supplemental Nutrition Assistance Program Education (SNAP-Ed) (Extension + UIC)</td>
<td>$16.1M</td>
</tr>
</tbody>
</table>

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**USDA-Supported Projects at Urbana-Champaign**

**ARTIFICIAL INTELLIGENCE IN AGRICULTURE |** The $20M USDA-funded Artificial Intelligence for Future Agricultural Resilience, Management, and Sustainability Institute serves as a nexus for multidisciplinary research teams that advance foundational AI and use these advances to address important challenges facing world agriculture. Early accomplishments include advancements in computer vision, including applying technology developed for human dance to detect livestock movement; improvements in small robot navigation in corn and soybean fields; as well as many developments in AI algorithms. The project continues to serve and receive input from diverse stakeholder groups.

**FARMER MENTAL HEALTH |** Agricultural producers in the North Central region experience anxiety, depression, substance use, and death by suicide at disproportionately higher rates than the general population. Through a $7.2M grant from USDA-NIFA, Illinois researchers and Extension specialists have formed the North Central Farm and Ranch Stress Assistance Center to create and expand stress management and mental health resources and services. Early accomplishments include providing professional interventions, supporting farm telephone hotlines and websites, and providing training and resources for producers and those who support them.

**HEALTHIER & LESS WASTEFUL SCHOOL LUNCHES |** Supported by nearly $1M in USDA-NIFA funds, Illinois researchers are working with schools across the country to encourage greater vegetable consumption and reduce food waste. The project uses “behavioral nudges” shown to positively influence personal choices around nutrition, and ensures schools can tailor these nudges to maximize effectiveness for their specific populations.
ANIMAL HEALTH | UIUC’s College of Veterinary Medicine has more than $7M in competitive USDA funding to support animal health research. These projects are focused on vaccine development and understanding the pathogenesis and transmission of agricultural animal diseases. For instance:

- Supporting the beef, pork and poultry industries by developing vaccines to fight important viral diseases, developing new ways to detect and monitor for disease threats, and preparing producers and veterinarians to respond in case of a disease outbreak.
- Fighting global hunger with novel approaches to reduce the impact of key livestock parasites.
- Delivering high-quality online learning focused on animal-disease training and other needs of rural veterinary practitioners and students, so these professionals can partner with producers to ensure on-farm biosecurity and increase productivity and efficiency.

HARNESSING SOLAR POWER ON THE FARM | Investments in green energy are key to mitigating climate change, but major expansions of solar arrays could compete with farming for land area. A $10 million NIFA grant explores agrivoltaics, the placement of solar panels in agricultural fields across diverse landscapes. The project addresses key knowledge gaps and will analyze system-wide effects on markets and climate systems. The technology could provide climate-smart solutions to improve total land productivity, crop water-use efficiency, profitability, and economic resilience of agriculture.

KEEPING FARMERS SAFE IN GRAIN BINS | Each year in the U.S., an average of 30 farmers become engulfed in grain when entering grain bins to dislodge blockages. Sadly, at least half of them die. A $300,000 NIFA project is testing high powered air compressors as tools to break apart grain blockages, avoiding the need for farmers to enter bins in the first place. The project, which involves agricultural engineers and safety professionals in the College of ACES, is also developing a training and safety program to educate farmers and prevent needless deaths.

Impacts of the Illinois SNAP-Ed and EFNEP Investments

University of Illinois Extension and UIC leveraged $17M of total investment in Illinois’ 2021 Supplemental Nutrition Assistance Program Education (SNAP-Ed) to improve food access, promote healthy food choices, and help Illinois families save money. Despite the challenges of the COVID-19 pandemic, Illinois SNAP-Ed worked in 89 counties, 315 cities, and 437 zip codes across Illinois. SNAP-Ed partnered with 1,396 organizations to deliver nutrition education and support organizational changes that promoted health and improved food access for individuals and families having low-income. Since the onset of the pandemic, SNAP-Ed has helped partners and communities acquire over $1.1 million in grant and donor funds to expand food access and health in priority areas. Additionally, SNAP-Ed continues to host the Find Food IL Map helping Illinois residents easily identify local food resources. Since the launch, the map has acquired over 23,000 pageviews and more than 11,000 new users.

Using the the $2.2M Expanded Food and Nutrition Education Program (EFNEP) investment, University of Illinois Extension continues to deliver in-depth nutrition, physical activity, and food buying educational programming to diverse audiences having limited incomes. Through virtual and in-person programs, 87% percent of adults reported making healthier food choices after participating in the EFNEP program and and 77 percent of youth improved their knowledge or abilities to choose foods according to the Dietary Guidelines for Americans.
Pell Grant

Federal student aid expands access for the roughly 90,300 students attending the U of I System. Along with the Direct Loan program, the most important piece of federal aid is the Pell Grant, which provides critical financial aid to low-income students. U of I is also doing its part to make attendance more affordable. For FY 2021, the U of I System is expected to provide more than $261 million in institutional aid to students with grants, scholarships, fellowships and waivers.

PELL DISBURSEMENTS, RECIPIENTS (2020 - 2021):

<table>
<thead>
<tr>
<th>Campus</th>
<th>Pell Amount Disbursed</th>
<th>Number of Pell Recipients</th>
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</thead>
<tbody>
<tr>
<td>Urbana</td>
<td>$44.3M</td>
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<tr>
<td>UIC</td>
<td>$53.8M</td>
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<td>UIS</td>
<td>$4.3M</td>
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<tr>
<td>U of I System</td>
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</tr>
</tbody>
</table>

TRIO

The U of I System proudly educates many low-income, first-generation students and fully supports ED’s TRIO programs, which motivate and support students from disadvantaged backgrounds in their pursuit of a college degree. The system has six TRIO-funded programs that serve approximately 1,136 students.

TITLE VI INTERNATIONAL EDUCATION PROGRAMS

ED funds important international and foreign language teaching, research, and outreach through the Title VI International and Foreign Language Education programs. Urbana operates four National Resource Centers (NRC): Center for East Asian and Pacific Studies; Russian, East European and Eurasion Center; European Union Center; and Center for Global Studies. These centers, which have more than 600 faculty affiliates, provide students with specialized language skills, support area/international studies teaching and research, and provide professional and curriculum development for K-14, graduate, and postsecondary educators. Our NRCs also administer Foreign Language and Area Studies (FLAS) Fellowships, which are underwritten by ED, and support graduate and undergraduate language study in combination with area and global studies, as well as related professional studies. Eight of our centers recently applied for funding as part of the FY2022 NRC/FLAS competitions.

The Fulbright-Hays program supports international education, research, outreach, and foreign language studies, especially in the less commonly taught languages of U.S. strategic interest. UIUC continues to be a top producer of U.S. Fulbright Students and Scholars by the State Department.

TITLE III (INSTITUTIONAL AID)/TITLE V (DEVELOPING INSTITUTIONS)

In 2016, UIUC received a five-year, $5.3M grant from ED’s Hispanic-Serving Institutions—Science, Technology, Engineering, or Mathematics (HSI-STEM) and Articulation Programs, to augment UIUC’s efforts to increase the number of Latino and low-income students attaining degrees in STEM fields.

UIUC is designated by ED as an Asian American and Native American Pacific Islander Serving Institution (AANAPISI). Since 2010, UIUC has received four grants totalling approximately $7.1M that make up its AANAPISI Initiative, which supports the recruitment, retention, and graduation of first-generation, low-income AAPI students at UIUC.

OFFICE OF POSTSECONDARY EDUCATION

Educators at UIUC received a $2.5M grant from ED to develop a program that will prepare individuals with intellectual disabilities for competitive employment.

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National Endowment for the Humanities (NEH)

NEH is the most important source of federal funding for research and scholarship in the humanistic fields, including history, literature, and foreign languages. With a limited federal budget, NEH is able to expand cultural and historical scholarship into K-12 classrooms, sponsor humanistic research and scholarship, and support preservation and exhibition efforts at libraries and museums.

In the first 50 years since the founding of the NEH, institutions in the state of Illinois collectively received more funding than those of any other state in the midwest region.

The University of Illinois Press has received awards through the Fellowships Open Book Program at NEH, a limited competition designed to make outstanding humanities books available to a wide audience.

NEH-Supported Projects at Urbana-Champaign

The NEH budget includes crucial support for humanities scholarship that reaches outside the academy to educate and inform the general public—a direction UIUC has also taken through programming at the Humanities Research Institute (HRI). HRI also administers the internal competition for campus nominees to the NEH Summer Stipend program, which aims to stimulate new research in the humanities and its publication, and has funded many UIUC faculty. In April 2021, two UIUC campus nominees received Summer Stipends.

With an NEH grant, a UIUC professor is leading a project to preserve and catalog a collection of architecture student drawings. The drawings are student design projects from 1890 to 1985.

With support from NEH’s Public Humanities Projects program, UIUC’s Krannert Art Museum will be able to do a major reinstallation of its pre-Hispanic Andean arts collection that will center past Andean communities as active agents in the creation of their own art histories. Comprising over 700 objects, the KAM collection includes exquisite textiles, ceramics, and objects fashioned in gold, silver, wood, and shell from cultures that flourished throughout the coastal and highland regions of Peru from 1500 BCE to the Spanish colonial period.

Two UIUC faculty were among the 71 scholars from across the nation who were awarded NEH Fellowships for 2021. The Fellowships are highly competitive, with more than 1,100 applicants competing, on average, for the prestigious award.

UIUC faculty are also collaborating with teams of international researchers on projects funded under the NEH/AHRC New Directions for Digital Scholarship in Cultural Institutions grants. One involves collaboration between UIUC and City, University of London to use artificial intelligence to enhance access to archival music collections.

NEH-Supported Projects at UIC

UIUC’s Institute for the Humanities seeks to foster an intellectually vital, interdisciplinary community of scholars. As the hub of humanities scholarship on campus, the Institute provides a forum for intellectual exchange among faculty and students at UIC and other colleges and universities in the region.

In early 2022, a UIUC professor received NEH funding to support research and editing a critical edition of Blas Valera’s Historia Occidentialis (1596), a chronicle of Incan history.
NEH-Supported Projects at UIS

Building on its location in the home town of Abraham Lincoln, the University of Illinois Springfield has recently established a Center for Lincoln Studies that is expected to grow into a national center for scholarship, teaching, and public history centered on Abraham Lincoln’s life, leadership, and legacy. As it reaches full strength, the Center will facilitate research and scholarship by developing curriculum, offering public history interpretation, hosting visiting scholars, engaging broad campus and public audiences, and offering an interdisciplinary learning laboratory for undergraduate and graduate students. In addition to being supported by private gifts, the Center will pursue relevant federal funding opportunities and partnerships at appropriate agencies to support programming, research, publishing and dissemination of materials, hosting of events, and other relevant activities.

National Endowment for the Arts (NEA)

Funding from the NEA has helped ensure that our communities—especially underserved or rural communities—receive support to enhance their cultural, artistic, and innovative opportunities in the arts. The past 10 years have seen nearly $500,000 of awards from the NEA to projects across the U of I System.

NEA-SUPPORTED PROJECTS AT URBANA-CHAMPAIGN

The Krannert Center for the Performing Arts—a university-based performing arts complex housed within the College of Fine and Applied Arts at UIUC—has benefited from NEA funds to advance sustainable creativity through culturally emblematic performances. The Krannert Center also receives support from NEA through Illinois Arts Council, Arts Midwest, and New England Foundation for the Arts. One UIUC faculty member recently received an NEA grant award to examine the experiences of artists and arts alumni regarding racial inclusion in higher education and the impacts of the pandemic.

NEA-SUPPORTED PROJECTS AT UIC

UIC received $20,000 in NEA funding to help support the production of "Transforming Storytelling," an immersive theater experience combining live performance and virtual reality. Presented in partnership with Goodman Theatre, the production will incorporate new technology in an immersive storytelling experience that allows participants to engage with live actors and other audience members virtually. Community outreach will focus on youth from Chicago public schools to cultivate interest in the intersection of theater and new technology.

INSTITUTE FOR MUSEUM AND LIBRARY SCIENCES (IMLS)

In 2021, a UIUC faculty member was awarded a three-year grant from IMLS under its Laura Bush 21st Century Librarian Program to research how knowledge brokers assess the quality of scientific and technical information and the implications for public access, information literacy, and understanding of science on policy-relevant topics such as COVID-19, artificial intelligence, and climate. The Early Career Development project will research, create, and test a toolkit of services for public libraries around technical and scientific information literacy, in collaboration with partner libraries and the Public Library Association.
DHS R&D EXPENDITURES, FY2021

URBANA-CHAMPAIGN: $5.1 MILLION

Science and Technology Directorate (S&T)

Urbana-Champaign is home to the Critical Infrastructure Resilience Institute (CIRI), a Center of Excellence funded under DHS S&T's Office of University Programs through a multi-year grant to conduct research, technology transition, and education and workforce development to strengthen the security and resilience of our nation's critical infrastructures. Such infrastructure includes emergency communications systems, next-generation (5G) telecommunications networks, critical and defense manufacturing, and transportation systems, as well as the supply chains supporting those infrastructures. The Institute’s research has already developed several compelling technologies that are being transitioned to critical infrastructure markets.

New this year are research projects exploring the risks to the 5G wireless infrastructure associated with supply chain vulnerabilities, as well as research to identify and address potential cybersecurity risks to our nation’s current 9-1-1 emergency communications and dispatch systems and next-generation 9-1-1 systems. CIRI has also extended its research collaboration with the United States Transportation Command (USTRANSCOM) focused on enhancing USTRANSCOM mission assurance by strengthening the cyber security and resilience of its vast supply chain and the maritime port operations that are so critical to USTRANSCOM’s global mission.

Also, under a contract from DHS Cybersecurity and Infrastructure Security Agency (CISA), CIRI is developing plans for building a nationwide cybersecurity education and training network of academic institutions to address the chronic and growing gap of properly skilled cybersecurity professionals through-out the nation. This national-scale program will include both 4-year and 2-year institutions with a focus on institutes serving traditionally underserved demographics including women, minorities, veterans, and individuals from tribal and territorial regions.

Federal Emergency Management Agency (FEMA)

The Illinois State Water Survey (ISWS) at UIUC’s Prairie Research Institute continues to receive grant funding from FEMA through the Risk MAP program to support the Illinois floodplain mapping program. ISWS is a Cooperating Technical Partner with FEMA and produces regulatory and non-regulatory flood risk identification maps and related products that assist Illinois communities and citizens in understanding and taking measures to reduce flood risk. The project coordinates with the Illinois Department of Natural Resources to identify and prioritize state needs and with the Illinois Extension on extensive outreach to inform the public about flood hazards and mitigation alternatives.

FEMA also provides support to the Illinois Fire Service Institute (IFSI), the statutory State Fire Academy for Illinois, which is at UIUC. In addition to providing training on campus, the Institute offers hands-on classes for fire departments at Regional Training Centers and local fire stations across the state. IFSI has engaged with FEMA on studies of firefighter chemical exposure and cardiovascular risk, with a focus on translating findings into actionable strategies that are disseminated across the U.S.

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The NASA Science Mission Directorate is an essential part of meeting the growing challenges to fully understand global changes to the Earth and answer fundamental questions regarding the universe through space exploration.

**NASA-Supported Projects at Urbana-Champaign**

**SPACE**

In Dec. 2020, NASA announced the selection of just two projects to “to share a ride to space in 2025 with the agency’s Interstellar Mapping and Acceleration Probe (IMAP),” A UIUC researcher will lead one of the missions, a $75M project, called Global Lyman-alpha Imagers of the Dynamic Exosphere, or GLIDE.

UIUC graduate students have received NASA Space Technology Research Fellowships, which provide financial and material support to graduate students through training grants and opportunities to conduct research at a NASA Center.

Undergraduates benefit from NASA's CAPSat project, where we are responsible for one of three payloads on the "CubeSat" (a mini-satellite), which launched in fall 2018. Our payload will test techniques to reduce the deleterious effects of background space radiation on single-photon detector noise.

Some of the data collected as part of the Ionospheric Connection Explorer (ICON) mission, which launched in 2019, was the result of work done at UIUC's Grainger College of Engineering.

**AVIATION**

NASA is providing $6M over 3 years to UIUC to support the Center for High-Efficiency Electrical Technologies for Aircraft (CHEETA), which seeks to develop, mature, and design disruptive technologies for electric aviation. Research themes include distributed electric propulsion, electrical components, energy storage, and systems integration.

The Urbana campus is a partner in a $9.9M research center for aviation innovation, supported by NASA under its University Leadership Initiative. The goal of this research center is to mature a disruptive airfoil design concept, known as the Slotted Natural Laminar Flow Airfoil, aimed at producing low-drag wing configurations for commercial transport vehicles.

UIUC has been helping to break down technical barriers to hybrid electric propulsion for commercial transport aircraft. Multiple grants from NASA’s AATT and LEARN programs (roughly $4M over four years) have supported work on high-power density electrical machines and drives and system level modeling and analyses.

**REMOTE SENSING**

UIUC researchers provide critical ongoing support for instruments on NASA’s Terra satellite, the flagship of the Earth Observing System, providing data critical for understanding weather, air pollution, food security, the hydrological cycle, radiation budgets, and the link between aerosol pollutants and health problems.
These include the Multi-Angle Imaging SpectroRadiometer and the Moderate Resolution Imaging Spectroradiometer, and will include the Multi-Angle Imager for Aerosols instrument, with a nominal launch date of 2021. UIUC is a key site for the ACCESS to Terra Data Fusion Products project, which aims to harmonize use of the 1.2 petabytes of data from instruments on the Terra satellite through the use of a common format and grid, and development of needed software tools and cyberinfrastructure.

NASA funds research in the use of novel sensing technology and satellite data to improve monitoring and predictability of the broader U.S. Midwest carbon budget and food productivity. Awards totaling more than $1.2M focus on the integration of multi-source satellite data with improved land surface modeling to improve monitoring of the carbon budget for the U.S. Corn Belt, and the use of chlorophyll fluorescence measurement to improve crop modeling from both ground and space.

**NASA-Supported Projects at UIC**

UIC has a $1.1M, five-year grant from NASA’s Astrobiology Institute to identify biosignatures of life on Titan — Saturn’s largest moon — from either currently living or long-extinct life.
Led by USAID, **Feed the Future** is an important initiative to achieve national goals. UIUC is a key partner in Feed the Future programs for building higher education and extension capacity, and delivering research for development in the Feed the Future Innovation Labs.

Under **AgReach**, Feed the Future programs led by UIUC aim to strengthen extension systems and agricultural higher education in the developing world, building institutions that enable food systems to work for smallholder farmers. Since 2011, nearly $40M of development work has enhanced extension systems in 339 institutions around the world; trained more than 2,900 Extension Officers, subject matter specialists, and policymakers; and improved the services received by more than 17.8 million rural farmers, entrepreneurs, and consumers in developing countries.

USAID’s network of **Feed the Future Innovation Labs** solve critical agricultural problems that impact food security and poverty through research conducted collaboratively between U.S. and developing country students and scientists. USAID awarded UIUC a two-year $1M award in 2020 and a three-year, $6M grant in 2018 to build on its previous $25M investment in the **Soybean Innovation Lab (SIL)**. Using its unique demand driven research for development strategy, SIL provides a suite of technologies and technical support that enable practitioners in the public and private sectors to achieve their goals in building the modern African soybean complex. SIL now operates in 28 countries and is the only U.S. entity conducting basic research on soybeans for African settings.

As a partner in the **Innovation Lab for the Reduction of Postharvest Loss**, UIUC conducts applied research to develop and scale drying, storage and processing solutions so that smallholders in Africa and South Asia can adopt more sustainable and profitable postharvest practices.

The **Appropriate Scale Mechanization Consortium (ASMC)**, led by UIUC, is a $7M sub award under the Feed the Future Innovation Lab for Collaborative Research on Sustainable Intensification at Kansas State University funded by USAID. The overall objective of ASMC is to develop and deploy appropriate scalable mechanization technologies to enhance sustainable intensification for smallholder farmers in Bangladesh, Burkina Faso, Cambodia, and Senegal.

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