

Technology Transfer and Patents

SIUC is increasingly active and successful in technology transfer and commercialization. During the past ten years, the University's researchers and scientists have disclosed **217 inventions**, issued 54 licenses or options for innovations, filed more than 113 applications for patents, and received **nearly 40 U.S. patents**. During this time, SIUC and the School of Medicine have received more than **\$3.8 million in royalties**.

The discoveries and inventions of SIUC researchers have led to the establishment of several new companies including:

- Midwest Energy Group Inc. focuses on ways to optimize and commercialize novel biodiesel production technology.
- Genetics and Agriculture Biotechnology Inc. uses patent-pending genetic markers to analyze soybean germplasm for resistance to sudden death syndrome in soybeans and soybean cyst nematode as well as to develop high-speed genetic screening technologies and provide genetic "libraries" to researchers.

The annual Technology and Innovation Expo brings together **inventors** and potential **investors** in an effort to promote and enhance the commercialization of technologies developed through research.

Specifically in **FY2010**:

Inventions Disclosed: 29
Licenses/options executed: 6
License income and royalties: \$569,105
U.S. patent applications filed: 15
U.S. patents issued: 2

■ U.S. Patent No. 7,700,756

Metabolic Primers for the Detection of Perchlorate-Reducing Bacteria and Methods of Use Thereof issued April 2010 to Kelly Bender and Laurie Achenbach, Department of Microbiology, College of Science.

■ U.S. Patent No. 7,557,142

Therapeutic Use of Methionine to Reduce the Toxicity of Platinum-Containing Anti-Tumor Compounds issued July 7, 2009 to Kathleen Campbell, Department of Surgery, School of Medicine.



Research Centers and Institutes

Center for Advanced Friction Studies ■ frictioncenter.engr.siu.edu
Center for Alzheimer Disease and Related Disorders (Springfield) ■ www.siumed.edu/alz
Center for Archaeological Investigations ■ www.siu.edu/~cai
Center for Autism Spectrum Disorders ■ www.casd.siu.edu
Center for Delta Studies ■ www.siu.edu/~delta
Center for Dewey Studies ■ www.siu.edu/~dweyctr
Center for Ecology ■ www.ecology.siu.edu
Center for Health Law and Policy ■ www.law.siu.edu/healthlaw.asp
Center for Innovation ■ www.innovation.siu.edu
Center for Integrated Research in Cognitive and Neural Sciences ■ www.siumed.edu/circns
Center for Rural Health and Social Service Development ■ www.crhssd.siu.edu
Center for Workforce Development
Coal Research Center ■ www.crc.siu.edu
Consortium for Embedded Systems ■ www.engr.siu.edu/ces
Cooperative Wildlife Research Laboratory ■ www.wildlife.siu.edu
Fisheries and Illinois Aquaculture Center ■ fisheries.siu.edu
Global Media Research Center ■ www.gmrc.siu.edu
Illinois Soybean Center ■ www.ics.siu.edu
Materials Technology Center ■ mtc.engr.siu.edu
Meyers Institute for Interdisciplinary Research in Organic and Medicinal Chemistry ■ www.chem.siu.edu/meyers-institute/Homepage.html
Middle Mississippi Wetland Research Field Station ■ fisheries.siu.edu/wetland
Paul Simon Public Policy Institute ■ www.paulsimoninstitute.siu.edu
Pontikes Center for Management of Information
Safety Center ■ ritzel.siu.edu/safetycenter
SimmonsCooper Cancer Institute (Springfield) ■ www.siumed.edu/cancer
Special Collections Research Center ■ www.lib.siu.edu/departments/speccoll

To learn more about SIUC research, visit www.siu.edu/research, or contact:

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CONTEMPLATE our world – why and why not.

CREATE to better understand.

CULTIVATE a passion for curiosity.

COMPREHEND the meanings.

CHANGE our world.

Research Profile 2011

Southern Illinois University Carbondale

Office of the Vice Chancellor for Research and Graduate Dean



CONTEMPLATE

CREATE

CULTIVATE

COMPREHEND

CHANGE

Five simple words, yet they describe a myriad of far-reaching research activities at **Southern Illinois University Carbondale**. Central to the mission of our institution, these words – along with the field and laboratory investigations, scholarly efforts, and creative activities they inspire – have brought SIUC national and international recognition.

Ranked by the Carnegie Foundation as a high-research activity institution, we are among the **top 4 percent** of all U.S. institutions of higher learning for research, and the only research university in the southern half of Illinois.

Our **strengths in the sciences and social sciences** include areas of environmental and energy research, materials science, agricultural biotechnology, biomedical research, and cognitive science, aided by more than two dozen interdisciplinary research centers.

Highlights in the arts and humanities encompass fields as diverse as American philosophy, creative writing, documentary filmmaking, finance, and rehabilitation. We also conduct novel grant-funded outreach projects in education, rural health, and social sciences, all with global benefits.

For fiscal year 2010, grant and contract funding totaled **\$79.94 million**, a University record. More than \$41 million supported research projects, an increase of 16 percent from 2009.

The five C's extend from our faculty and professional staff to students at all levels. Research and creative activities positively impact student learning. Extensive student research programs at both the graduate and undergraduate levels give SIUC students exposure to new knowledge, opportunities to share in the excitement of new discoveries, and a role in **changing our world**.



Initiatives, Discoveries, and Highlights

■ An interdisciplinary group of researchers is using a \$1.43 million grant from the National Science Foundation to examine the response of Midwest agriculture to climate change. The four-year project, entitled "CNH: Climate Change, Hydrology and Landscapes of America's Heartland: A Multi-Scale Natural-Human System," aims to forecast agricultural land use patterns and, in particular, how climate change and human activity will affect the watersheds in Illinois and other Midwestern farming states during the next 90 years.

■ Mining and Mineral Resources Engineering Professor Yoginder "Paul" Chugh has a patent pending on an engineered lightweight steel crib for use as a mine ceiling and tunnel support. A second pending patent is for a mine dust control water spray system that significantly reduces airborne dust particles in longwall mining operations. Both inventions are expected to increase the safety and efficiency of mining.

■ The School of Music's annual Southern Illinois Music Festival includes dozens of performances throughout the region and features musicians from around the world. Now in its seventh year, the festival concludes with a summer music camp for high school students, a 40-year SIUC tradition.

■ Buoyed by a \$1.1 million grant from the Illinois Department of Natural Resources, researchers at SIUC are trying to help the state's fish industry take advantage of the invasive Asian carp species while simultaneously attempting to eradicate it. Researchers are looking at methods to both fight the fish and utilize the species. The goal is to find beneficial uses for Asian carp while trying to eliminate them from Illinois waterways.

■ A new professional master's degree program in advanced energy and fuels management is now offered at SIUC. The program is the first of its kind in the country and provides a trend-setting educational experience for individuals with backgrounds in science, technology, agriculture, and engineering while teaching them to apply their theoretical training to real-world management issues.

■ Angela Aguayo, assistant professor in the Department of Cinema and Photography, along with several students, is conducting oral histories to document and archive the history of the civil rights movement in the region during the 1960s and '70s.



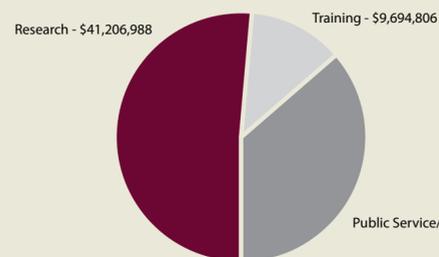
Summary of Grant Funding, FY 2010

(July 1, 2009 - June 30, 2010)

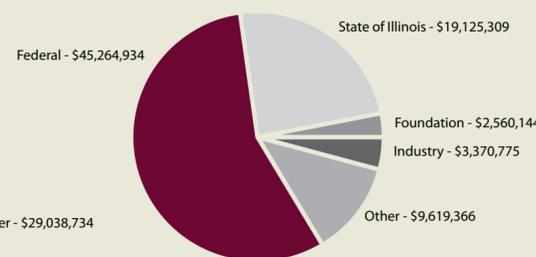
Total funds awarded*	\$79,940,528
Number of grant awards received	581
Number of agencies awarding grants	243
Number of faculty, staff, and students receiving grants	367
Number of grant projects active during fiscal year**	1,247

*Total includes an additional \$1.49 million in FY2010 funding disclosed after the initial reporting period. All fiscal data exclude Financial Aid Office awards. The term "grants" here includes contracts and cooperative agreements.
**Some projects are funded by one-time grant awards that cross fiscal years.

Grant Funding by Project Type



Grant Funding by Source



All federal figures in this publication include flowthrough funding (federal funds awarded via subcontracts from nonfederal agencies). Figures in some tables and charts do not sum due to rounding and also to rounding of awards with fractional dollar amounts.

Grant Funding by Source versus Project Type

	Research	Training	Service/Other
Federal	\$24,955,069	\$ 5,600,688	\$14,709,177
State of Illinois	\$ 8,656,867	\$ 3,167,882	\$ 7,300,560
Industry	\$ 3,273,277	\$ 79,835	\$ 17,663
Foundation	\$ 1,719,815	\$ 141,230	\$ 699,099
Other	\$ 2,601,960	\$ 705,171	\$ 6,312,835

Additional grant funding data available at www.siu.edu/orda/reports/grantdata.

Research Expenditures in Science & Engineering (S&E) Fields, FY 2010

from all sources:	from grants:	from federal grants:
\$69,924,242	\$38,309,972	\$22,209,279

The National Science Foundation ranks universities based on expenditures made by each institution for research projects in a given fiscal year, rather than on research grant dollars received during that year. S&E fields include agriculture, the social sciences, and psychology, but exclude education, humanities, the arts, law, library science, and all other non-science fields. *All sources* includes institutional funds and grants.

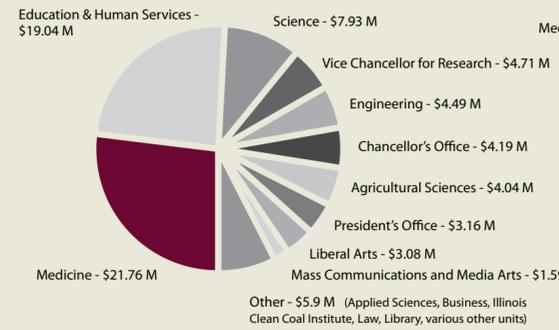
Top Sponsors, All Grant Funding

National Institutes of Health (NIH)	\$14.43 M
National Science Foundation	\$6.84 M
U.S. Dept. of Health & Human Services - non-NIH	\$6.63 M
Illinois Dept. of Children & Family Services	\$6.24 M
Illinois Dept. of Commerce & Economic Opportunity	\$5.88 M
U.S. Dept. of Education	\$4.36 M
Illinois State Board of Education	\$3.87 M
U.S. Dept. of Energy	\$2.55 M
Illinois Dept. of Labor	\$1.99 M
U.S. Dept. of Public Health	\$1.82 M

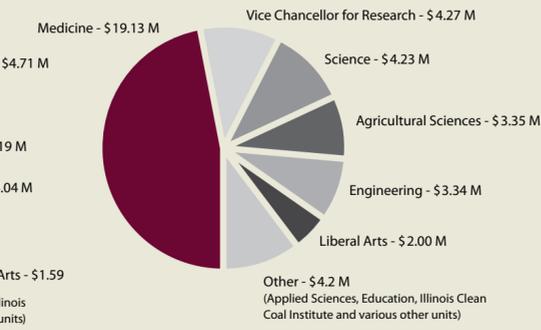
Top Sponsors, Research Grant Funding

National Institutes of Health (NIH)	\$14.43 M
Illinois Dept. of Commerce & Economic Opportunity	\$5.33 M
National Science Foundation	\$3.32 M
U.S. Dept. of Defense	\$1.84 M
U.S. Dept. of Energy	\$1.57 M
U.S. Dept. of Agriculture	\$1.28 M
Illinois Dept. of Natural Resources	\$1.23 M
U.S. Dept. of Health and Human Services non-NIH	\$0.78 M
U.S. Dept. of the Interior	\$0.62 M

Grant Funding by Area



Research Grant Funding by Area



Medicine includes both Carbondale and Springfield campuses. Office of the Vice Chancellor for Research includes Coal Research Center, Fisheries and Illinois Aquaculture Center, Graduate School, and Cooperative Wildlife Research Laboratory. Office of the Chancellor includes diversity programs. Office of the President includes economic development programs.

Total Awards for Last Ten Fiscal Years

FY 2001	\$55,811,186
FY 2002	\$62,747,891
FY 2003	\$64,884,972
FY 2004	\$59,481,653
FY 2005	\$65,509,249
FY 2006	\$68,284,164
FY 2007	\$68,004,535
FY 2008	\$72,216,800
FY 2009	\$69,206,574
FY 2010	\$79,940,528

Total Research Awards for Last Ten Fiscal Years

FY 2001	\$27,166,920
FY 2002	\$28,959,630
FY 2003	\$34,016,308
FY 2004	\$28,832,246
FY 2005	\$30,635,952
FY 2006	\$34,145,242
FY 2007	\$34,251,876
FY 2008	\$36,016,710
FY 2009	\$34,211,203
FY 2010	\$41,206,988

