

CALIFORNIA STATE UNIVERSITY, SACRAMENTO

Sponsored Research and Contract Activity

2006 Year in Review



Sacramento State Research Administration and Contract Administration

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Sacramento State Discoveries & Directions

Sacramento State is a vibrant metropolitan university that is among the largest campuses in the California State University system. Sacramento State's research enterprise supports and nourishes a broad array of investigations and programmatic activities. Faculty members are engaged in research that expands the body of knowledge in their disciplines while maintaining a core focus on enriching the educational experiences of our students.

Among the more vibrant pathways to discovery in which faculty and students are engaged are the following three collaborations which have recently advanced to particularly high levels of visibility:

Science, Technology, Engineering and Mathematics (STEM)

The Sacramento State STEM Initiative is an innovative and inclusive effort to make the campus the first choice in the region for undergraduate and M.S.-level training in STEM disciplines. Under the leadership of Dr. Thomas Landerholm, professor of biological sciences and director of the Center for STEM Excellence, the Initiative also works to integrate Sacramento State with the regional STEM agenda as both a leader and a working partner, as evidenced by the April 2007 Regional STEM Summit hosted by the University. For more information on the Sacramento State STEM Initiative, visit: www.csus.edu/stem.

The Sacramento State / UC Davis Cancer Center Partnership

In November 2005, Sacramento State and the UC Davis Cancer Center (UCDCC) formed a milestone partnership to reduce cancer health disparities through education, research and training. Among the Partnership's initial priorities are writing joint grant proposals for research, training and outreach programs and implementing population-based studies on cancer prevention and control

using community-based participatory research platforms. A constant focus is creating opportunities for graduate student and faculty research in a clinical environment, as well as advancing scholarships for under-represented Sacramento State students. The Partnership also co-develops training opportunities with federal agencies such as NIH, NCI, and NSF and pursues complementary activities which bring together faculty, staff and students from each institution to advance awareness of each others' programs and expertise, and create new linkages. For more information on the Partnership and its activities, visit www.sacstate-ucdcc.com.

The Sacramento State Clean Energy Center (CEC)

The development of clean and renewable energy is vital to the future of the region. Sacramento State faculty and students are involved in helping to nurture new applied research techniques and develop the region's clean energy cluster. With an opportunity to partner with the region's more

Welcome to the research enterprise at Sacramento State!

Our faculty explore the perimeters of knowledge each day in their disciplines, in collaboration with each other and increasingly in partnership with their graduate and undergraduate students. They are leading this emerging applied research agenda into new arenas and across new pathways of discovery, to the benefit of the campus, the region and the national academic community.

With new initiatives related to STEM (Science, Technology, Engineering and Mathematics), Clean Energy, and our partnership with the UC Davis Cancer Center, research at Sacramento State is poised to grow at a rapid pace over the next few years. On the operations side, with a reorganized structure, an upgrade of our information technology capacities, and a renewed commitment to faculty and student success, we are energized by what the path to 2010 and beyond represents for this campus.

This is our first in a series of annual presentations to the campus community on our sponsored grant and contract activity. I invite you to learn more about our colleges, our faculty, our students and our mission, in part through this 2006 Year in Review and also through the campus web portal at www.csus.edu.

*David P. Earwicker
Assistant Vice President
Research Administration and Contract Administration*

than 200+ clean energy start-ups on collaborative research, the CEC was formed to provide multi-faceted support to sustain this growth and to establish Sacramento as a global leader in clean energy research and development. Under the leadership of Dr. Emir Macari, Dean of the College of Engineering and Computer Science, and Dr. Timothy Marbach and Dr. Dongmei Zhou, professors of mechanical engineering, the CEC prepares science and engineering graduates to lead clean energy companies through classroom-based curricula and authentic learning experiences. The Center also provides technical expertise to help local start-up companies transform innovative ideas into successful products and job creation enterprises.

Recent Programs & Projects at Sacramento State

PRESERVING SALMON AND STEELHEAD HABITAT FOR FUTURE GENERATIONS: Funded by the U.S. Bureau of Reclamation, geology professor Tim Horner is working to preserve, manage, and enhance the spawning gravel of these fish which travel great distances to lay their eggs along the American River. Working with agencies such as the U.S. Bureau of Reclamation and California Department of Fish and Game, Horner has focused his team's efforts on the interaction between water and gravel, looking at specific variables such as water flow and temperature. Horner's research is providing a new assessment of the current spawning conditions along the American River, which will lead to more informed decisions on how to enhance and improve the remaining habitat.



Katherine McReynolds

A NEW CLASS OF HIV DRUGS THAT IS SWEETER THAN MOST: Chemistry professor Katherine McReynolds has been awarded multi-year grants from Research Corporation and the National Institutes of Health to further her research on glycodendrimers. These sugar-based molecules potentially could be used to prevent infection by the HIV virus, either alone or in concert with other drug therapies already approved by the FDA. McReynolds and her team of student researchers are gaining knowledge in new aspects of chemistry that will contribute to a growing body of research on glycodendrimers and their effects on the HIV virus.

MAKING A DIFFERENCE IN HEALTHCARE: Bonnie Raingruber, professor of nursing and director of the Center for Health and Human Services Research, has a track record of creating innovative programs that positively impact healthcare in California. Funded through a multi-year grant from the U.S. Department of Health and Human Services, Raingruber has partnered with the UC Davis Medical System to improve the retention of registered nurses working in hospitals. To date, hundreds of nurses have taken part in the mentorship, education and simulation training, and self-care programs. The results show that the nurses participating in the programs have had marked improvements in their work satisfaction as well as in their ability to interact with their colleagues.

MAKING WAVES IN SCIENCE EDUCATION THROUGH INNOVATION & TECHNOLOGY: With equipment grants from Hewlett Packard (HP), Lynn Tashiro, professor of physics, in collaboration with Hui-Ju Huang and Lori Hammond, professors of teacher education, has created an innovative, blended K-8 Teacher Credential Program. Student learning has improved by integrating courses in both physics and education and incorporating cutting-edge technology such as HP mobile computers.

These future teachers are providing positive assessments of the technology and its impact on their learning, while also scoring higher on exams. This dynamic trio is hopeful that their discoveries will impact teaching and learning in K-8 science classrooms in the Sacramento region and beyond.

THE ARCHAEOLOGICAL RESEARCH CENTER (ARC) brings together considerable individual and team experience in the management of cultural resources throughout California and the Great Basin. Professional expertise is offered in prehistoric archaeology, with specialization in paleoethnobotany, human osteology, and flaked and ground stone analysis. Most staff members have worked together for many years on various surveys, evaluations, and data recovery programs, and as a team they are intimately familiar with the prehistoric archaeology of the western United States. ARC is engaged in projects for a wide range of federal, state and local agencies as well as private concerns.

BUILDING BRIDGES: Civil engineering professor Eric Matsumoto, along with researchers from UC San Diego, are exploring the seismic performance and constructability of an innovative precast concrete bridge system to accelerate construction in earthquake-prone regions throughout the United States. The research, funded by the National Cooperative Highway Research Program, focuses on a precast bridge element called the bent cap, which connects bridge girders to columns. Design and construction guidelines will be developed by Matsumoto and his students based on the five beam-column connection tests currently being conducted at Sacramento State.



Timothy Fong

DIGITAL ARCHIVE: Timothy Fong and Wayne Maeda, professors of ethnic studies, received funding from the California State Library to develop a new digital archive focused on the late Congressman Robert T. Matsui. The archive highlights his leadership in gaining redress and reparations for Japanese Americans interned during World War II. The online collection features video clips, photographs, and speeches. For more, visit: <http://digital.lib.csus.edu/mats>.

POLICY RESEARCH: Funded by the James Irvine Foundation and the William and Flora Hewlett Foundation, the Institute for Higher Education Leadership & Policy is led by professor Nancy Shulock. The institute, an affiliate of the Center for California Studies, conducts policy research disseminated to policy makers, practitioners, and educators throughout the state.



FORECASTING: Business administration professors Amy Mickel and Stan Taylor have been working with the California Department of Developmental Services to produce forecasts on the state's developmentally disabled population. They analyze demographic and consumption data, and refine methods to accurately forecast population and expenditure growth. Mickel and Taylor have also been charged with developing methodologies and forecasting Early Start program expenditures for children with developmental disabilities under the age of three years.

WEARABLE MONITOR DEVELOPMENT: Electrical and electronic engineering professor Warren Smith is collaborating with Shriners Hospitals for Children Northern California on a three-year project to develop a miniature wearable monitor to assess the activity levels and frequency of falls in children with cerebral palsy, and to use this monitor to assess the treatment of children by Botox injections. This research will likely benefit children with cerebral palsy by allowing for assessment of treatment beyond controlled activities to real-world participation.

CALIFORNIA SUBJECT MATTER PROJECTS: Sacramento State houses four California Subject Matter Project sites, each serving a minimum ten-county region. Dedicated university faculty and teacher leaders design and provide quality professional development programs and activities for K-12 teachers aligned with the California Content Standards and Framework. The projects strive to build content knowledge, enhance pedagogical skills and develop teacher leaders in their respective content areas. On-going funding is provided through the University of California Office of the President.

- » California State University, Sacramento Math Project (CSUSMP)
www.csus.edu/mase
- » Sacramento Area Science Project (SASP) in partnership with UC Davis
<http://sasp.ucdavis.edu>
- » Capital Foreign Language Project (CapFLP)
- » California Reading and Literature Project (CRLP)
www.csus.edu/crlp/sacramento

INSTITUTE FOR SOCIAL RESEARCH (ISR) & IN-HOME SUPPORTIVE SERVICES (IHSS): Administered by the California Department of Social Services (CDSS), the IHSS program helps pay for services provided to elderly and disabled persons so that they

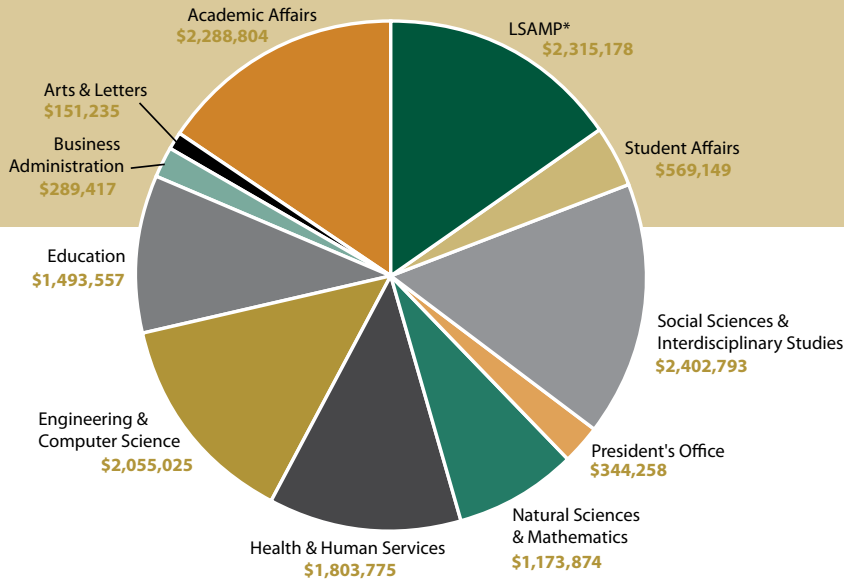
can safely remain in the comfort of their own homes. Since the early 1990s, the Institute for Social Research (ISR) has conducted several projects for IHSS. In 2006, ISR produced a series of educational materials for IHSS consumers and service providers. The materials were produced in 14 different languages and have been distributed throughout the entire state. ISR has also partnered with the College of Continuing Education to assist CDSS with the IHSS Quality Assurance Initiative, including an evaluation of the statewide IHSS Social Worker Training Academy. In addition, CDSS has asked ISR to assess its major new initiative on the implementation of Hourly Task Guidelines designed to standardize the allocation of aid to IHSS consumers.

KEEPING TAHOE BLUE: Since 2001 Civil engineering professor John Johnston and Office of Water Programs research engineer Dipen Patel have worked with the California Department of Transportation (Caltrans) to identify, test and evaluate potential treatment methods to mitigate pollution entering Lake Tahoe. As a result of this partnership, several cost effective, high-rate storm water treatment processes have been developed. These efforts were recognized by the American Society of Civil Engineers Sacramento Section when it awarded CalTrans the 2006 Outstanding Engineering Project Award in the water environment category.

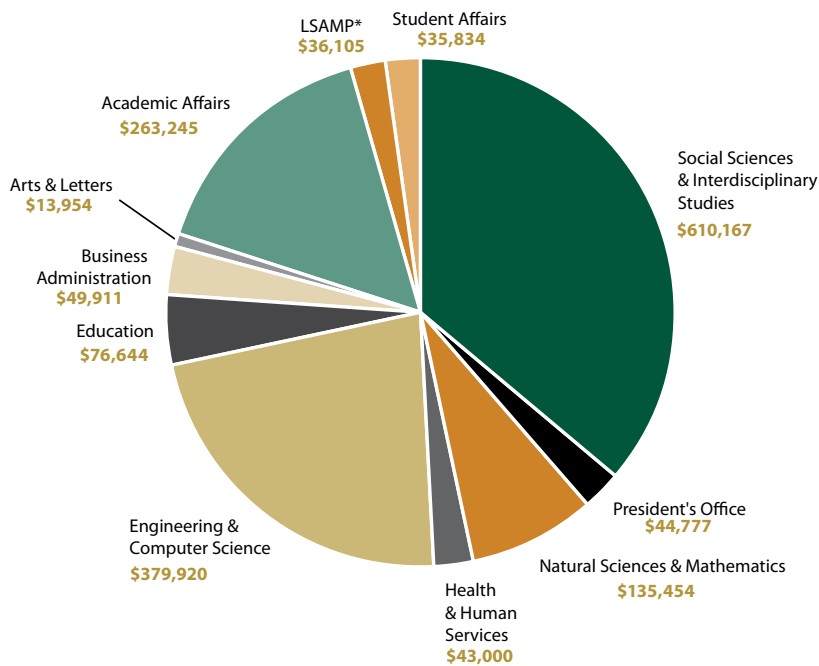


RESEARCHING PLANT EMISSIONS IN CHINA: A passion for atmospheric chemistry has taken Brad Baker, professor of chemistry, to China to study emissions of reactive chemicals from various species of plants. Through collaborations with the Chinese Academy of Sciences/Institute of Atmospheric Physics in Beijing and botanical gardens throughout China, Baker has been able to pursue his research with a multi-year grant from the National Science Foundation.

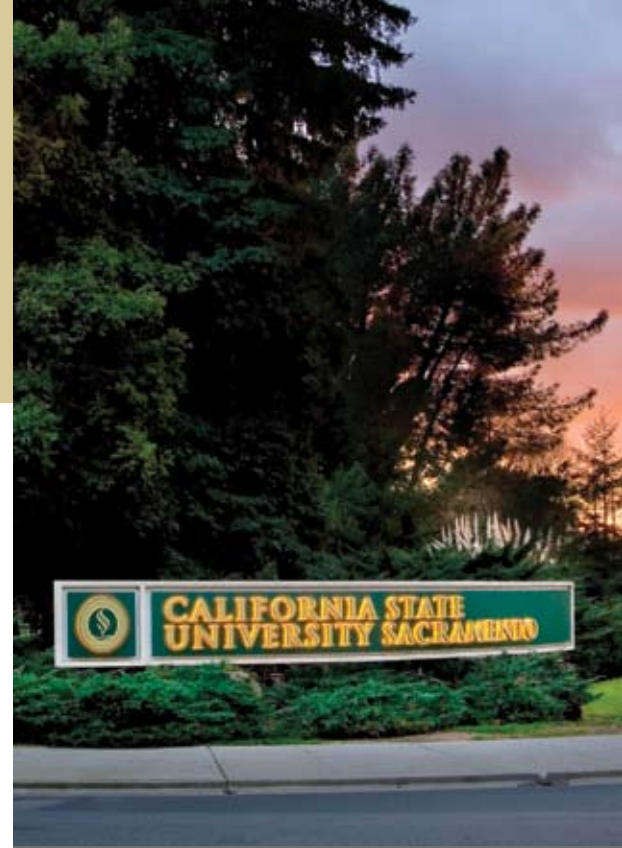
Sponsored Research Expenditures



Facilities and Administration (F&A) Cost Recovery (before return to Centers/Institutes)



*LSAMP—The Louis Stokes Alliance for Minority Progress is funded by the National Science Foundation as an award to the California State University system (18 of 23 campuses) managed by Sacramento State.



California State University, Sacramento offers life-changing opportunities for our students, preparing them to be leaders in their fields and communities. Our teacher-scholars have made superior teaching a top priority. We offer 60 undergraduate degrees and 40 graduate degrees in eight Colleges—Arts and Letters, Business Administration, Continuing Education, Education, Engineering and Computer Science, Health and Human Services, Natural Sciences and Mathematics, and Social Sciences and Interdisciplinary Studies.



Selected Research Centers and Institutes

The Archaeological Research Center | www.csus.edu/anth/arc

Center for African Peace and Conflict Resolution | www.csus.edu/org/capcr

Center for California Studies | www.csus.edu/calst

Center for Collaborative Policy | www.csus.edu/ccp

Center for Health and Human Services Research | www.hhs.csus.edu/CHHSR

Center for Interdisciplinary Molecular Education, Research and Advancement (CIMERA) | www.csus.edu/org/mbigweb

Center for Mathematics and Science Education (MASE) | www.csus.edu/mase

Center for Regional Environmental Science and Technology (CREST) | www.csus.edu/crest

Center for Small Business | <http://cbaweb.cba.csus.edu/csb>

Center for STEM (Science, Technology, Engineering and Mathematics) Excellence | www.csus.edu/stem

Institute for Higher Education Leadership and Policy | www.csus.edu/ine

Institute for Social Research | www.csus.edu/isr

North Central Information Center | www.csus.edu/hist/centers/ncic

Office of Water Programs | www.owp.csus.edu

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