

One of the many things that attracted me to San Diego State University was the prominent role research and creative endeavors play in the life of the university. SDSU is nationally recognized for achievements in research. Last year, SDSU faculty and staff were successful in securing \$145 million for their projects, a remarkable accomplishment.

This report highlights the work of SDSU researchers who are addressing critical societal challenges. Their research will create a sustainable world that is healthier, safer, and better educated.

Studying Moral Courage

Professors Rebecca Moore and Risa Kohn developed this new initiative last year. This interdisciplinary think tank focuses on the critical study, promotion and recognition of moral courage and brings together scholars across a broad spectrum of specialties (history, political science, philosophy, religious studies, Jewish studies, psychology, and ethics), world-renowned leaders and thinkers, and the students of San Diego State University. The program will encourage the examination and study of a range of issues related to moral courage under the broader rubric of contemporary global ethics.

Dr. Kathleen Jones' seminar on "The Political Theory of Hannah Arendt" explores key works by this political theorist, and provides a philosophical perspective on current debates about the use of violence to settle political conflicts, about the conditions of democracy, and about the scope and importance of human rights.

Inclusive excellence

All students - regardless of background or station - can achieve excellence. SDSU faculty and staff share a deep belief in human potential and their work supports all students as they strive to be successful.

As an example, SDSU's College of Education is a national leader in training teachers to support students with autism. While the incidence of autism is increasing, school districts are faced with a shortage of teachers prepared to support students with autism spectrum disorders (ASD) and their families. SDSU faculty in education, psychology and public health work to address the needs of this population and SDSU's new master's degree in autism provides training to graduate students who plan to work in this field. Dr. Vera Gutierrez-Clellan and Dr. Valerie Cook-Morales are examining transdisciplinary approaches to ASD. Dr. Ralph-Axel Mueller studies brain development in children with autism using magnetic resonance imaging techniques, eye-tracking, behavioral, and neuropsychological measures and Dr. Laura Hall works with special educators to provide advanced knowledge that will foster teacher retention.

More SDSU programs promoting access and achievement:

Mr. Michael Eichler prepares low income students to be community leaders and lawyers.

Dr. Thomas Carey's project provides developmental math courses and has proved successful in fostering community college student success.

The Bridges to the Baccalaureate Program, led by Dr. Jose Castillo, helps community college students achieve their academic objectives through enrichment courses. These students are tracked from program entry through transfer to SDSU and matriculation to graduate school.

Dean David Hayhurst's "SERVICE" project creates a path from military service to a career in engineering by early intervention in the veteran's academic career, both by engaging soon-to-be-discharged service members in educational paths that shorten the time to degree and by establishing a robust, year-round, industry-supported, paid internship program with local engineering firms.

Engineering professor Gustaaf Jacobs leads an outreach initiative that integrates and motivates students (K-12 through the graduate level) from underrepresented groups into aerospace research and development.

Dr. Louis Murillo's work creates a "college-going" culture by providing middle school students the information they need to become college students.

Dr. Donna Conaty continues the Southern Counties Arts Project which provides comprehensive teacher leadership development, builds teacher learning communities, and strengthens technical assistance and support in the arts disciplines for low performing schools.

In the Imperial Valley, Ms. Susanna Fuentes and Dr. Gregory Ponce are providing workplace skills training, as well as math and English immersion projects.

Research & creative endeavors are critical to addressing challenges in healthcare

SDSU scholars are helping address problems in the areas of cancer, child health, aging and PTSD.

Tackling Cancer Topics

Psychologist Vanessa Malcarne runs the state's Breast Cancer Clinical Trials Education Program which is designed to significantly increase African-American and Hispanic-American women's knowledge and participation in breast cancer clinical trials. Fellow psychologist Elizabeth Klonoff works with the state's tobacco control department to prevent youth access to tobacco and psychology chair Georg Matt is studying third-hand smoke pollution and exposure in the homes of ex-smokers. Dr. Suzanne Hughes works with Korean-Americans



who are at higher risk for passive smoke exposure (PSE) and related diseases.

Professor Wayne Beach's award-winning theatrical production "Conversations About Cancer" portrays family members communicating about cancer.

Chemist Thomas Huxford's research increases understanding of the molecular structure and chemistry of I κ B kinase complex (IKK), which could assist in the development of novel drug therapies in cancer treatment.

Dr. Terry Cronan hosted The International Cancer Continuum Conference to better understand the similarities and differences of American and European approaches to cancer research and practices.

Child and Community Health

SDSU faculty in health, psychology, economics, education and biology are addressing issues related to children and the health of our community.

Dr. Melbourne Hovell and his UCSD colleagues were selected to lead Southern California's arm of the prestigious National Children's Study, the largest long-term examination of children's health and development ever conducted in the United States.

Our faculty are examining the experience of culturally diverse youth in school-based mental health services programs (Dr. May Yeh); promoting parental involvement in youth mental health services (Dr. Rachel Schlagel); and making strides in pediatric anxiety and depression (Dr. V. Robin Weersing). Dr. Joseph Price works with Rady Children's Hospital to improve pediatric mental health. Several other professors are collaborating with our local hospitals, including Dr. Janelle Stichler (Sharp Hospital), Dr. John Landsverk (Rady); Dr. Roland Wolkowicz (Hospital for Special Surgery), and Dr. Susan Hedges (Palomar Hospital).

Psychologist Sarah Mattson is studying math and attention deficits in children with Fetal Alcohol Syndrome.

Latino researchers from all over the nation attended a special health disparities mentoring program last year led by Drs. John Elder and Greg Talavera. Dr. Colette Ingraham is promoting health and wellness in San Diego's City Heights neighborhood.

Health professors Guadalupe Ayala, Elva Arredondo and Hala Madanat and

nutrition scientist Mark Kern are studying obesity prevention, effects of sweeteners, cholesterol impact of certain foods and exercise, and the consumption of fruits and vegetables in low income households.

Many of our youth are using MP3 players and iPods with growing frequency. Dr. Peter Torre is studying the effects of these personal music systems on the cochlear within the inner ear. Dr. Carren Stika helps us understand the developmental trajectories of children with mild to severe hearing loss.

Assisting the Aged

Immunologist Joy Phillips is developing special vaccine strategies for the aged and therapeutics to halt respiratory viral infections. Dr. Marilyn Thoman is studying a novel gene therapy to restore the aged Thymus; and Dr. Roland Wolkowicz is examining the protein target responsible for osteoarthritis onset and progression.

Dr. Caren Sax and her colleagues have established an aging and disability resource center. Using fMRI imaging of the aging brain, psychologist Claire Murphy studies impairment of taste and olfactory function which can negatively impact dietary selection, nutritional status, and mortality in the elderly.

Aphasia, a language disorder caused by stroke, has enormous physical, emotional, and financial consequences. Dr. Lewis Shapiro's and Dr. Tracy Love's studies detailing the language deficits in aphasia have implications for rehabilitation of stroke victims.

Help for PTSD

Dr. Marian Liebowitz is leading The HeartPower Performances at Veterans Village San Diego. These performances are enhancing the treatment of traumatic brain injury, post-traumatic stress disorder (PTSD) and addictions in the veteran population with concerts and music classes.

Dr. Michael Buono is examining physiological response to exercise in a combined heat and altitude environment. Psychologist Nader Amir is studying home delivery of his PTSD relaxation model and Dr. Ariel Lang is working on a novel memory program to decrease PTSD symptoms.

Addressing local and national environmental challenges

Biologist Todd Anderson and his colleagues are helping to sustain a healthy

San Diego bay by improving the flow-through seawater system at our Coastal Marine Laboratory Institute. Similarly, Dr. Brian Hentschel examines the impact of plastic marine debris on the bay.

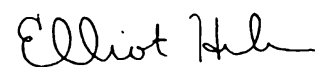
Several SDSU faculty focus on conservation of San Diego species and land. Dr. Rebecca Lewison studies gull billed terns in and around San Diego Bay, as well as the Hawksbill sea turtle. Dr. Douglas Deutschman's work involves burrowing owls, pink abalone, and seagrass ecosystems. The revegetation and restoration projects led by Dr. Kevin Hovel and Mr. Tom Zink involve temperate reefs, plant species management and fire management at San Clemente, Murphy Canyon, Miramar, Point Loma, Coronado, and Camp Pendleton. Dr. Rob Edwards and Dr. Forest Rohwer study the ecology and viromes of coral reefs.

Iron is a critical micronutrient for all plant species, including those associated with the marine environment. Dr. Carl Carrano's research examines how this vital element is acquired and stored in a seaweed model.

Our faculty are actively using information from the natural world (e.g., bio-mimetics) to design their own systems. For example, by making improvements to the performance of certain algal strains, Dr. John Love contributes to lowering the cost of producing near net-zero carbon liquid fuels. Dr. Douglas Grotjahn is using his understanding of catalytic reactions to design new compounds that will use the energy from the sun to separate water into hydrogen and oxygen, storing hydrogen as a fuel and returning the oxygen to the atmosphere. And, Dr. Laurence Beauvais is experimenting with novel chemical frameworks that will allow lignin in agricultural waste to be converted into transportation fuel and other useful chemicals.

Leadership Starts Here

It is clear from the foregoing that our faculty and staff members are national and international leaders. Their work is critical to addressing local and national challenges and to creating a better society. I and our entire administrative leadership team are very proud to introduce this report which highlights the diverse and impressive programs SDSU researchers are undertaking.



Elliot Hirshman, President