

2009 GRANT NEWS

January – February 2009

SWOSU Receives Grant to Increase Awareness of Organ & Tissue Donations



Southwestern Oklahoma State University and School of Nursing Instructor **Tamra Weimer** (center) have received \$21,180 from the Oklahoma Organ Donor Education & Awareness Program Advisory Council. Weimer and student nurses will present the developed program and materials to Bachelor of Science nursing programs in Oklahoma. With Weimer are (left) Anita Blankenship, director of the SWOSU Office of Sponsored Programs, and (right) Dr. Barbara Patterson, chair of the SWOSU School of Nursing and associate dean of the College of Professional and Graduate Studies.

The project for this second year grant is for Weimer and the student nurses in the program to present the developed program and materials to BS nursing programs in Oklahoma, for elective course work in their respective institutions and to local high schools to offer a school-based educational program on organ and tissue donation. Weatherford High School started a program in 2008. For more information regarding organ and tissue donation, contact Weimer at (580) 774-7007 or by email at tamra.weimer@swosu.edu.

SWOSU Nursing Students Win Carter Grant for Anxiety Management Program



Southwestern Oklahoma State University senior nursing students Collins Uzuegbu of Enugu, Nigeria, and Meagan Decher of Clinton recently received the Carter Academic Service Entrepreneur (CASE) grant, one of only three in the state of Oklahoma. The grant will enable the students to develop an anxiety management program that focuses on the psychological and emotional needs of pediatric patients at the Weatherford Regional Hospital, the community partner in the project. Uzuegbu and Decher have indicated three focal areas of their project: developing a custom-made statistical anxiety measurement tool; toy/game therapy; and briefing hospital staff on anxiety-reducing therapeutic communication techniques.

The award is sponsored by the W.K. Kellogg Foundation and administered by the Jimmy and Rosalyn Carter Partnership Foundation. The grant competition is offered in countries across the world to students whose proposals represent the most innovative and promising ways to serve the community while applying what is learned in the classroom. The SWOSU pair received a \$1,000 check on behalf of their community partner to fund their project. They also receive a certificate of merit signed by former president Jimmy and Rosalyn Carter.

A service learning project is a part of the leadership course requirement for senior nursing students at the SWOSU. The project and grant proposal are the guidance of their project advisor and leadership course co-coordinator Tamra Weimer. Uzuegbu and Decher drew inspiration to develop the project from the experience they had during their pediatrics clinical rotations. The students recalled seeing sick children in hospitals, already confused by the mystery of sickness, exhibiting obvious sense of fear, confusion, and anxiety while awaiting or receiving medical treatment.

The students are in correspondence with LeaAnne Hume, the WRH representative, as well as with Dr. Ginger Welch of the SWOSU Psychology Department, who is assisting the students in developing the custom-made anxiety measurement tool.

Age-appropriate games and a toy drive are underway, and anyone interested is encouraged to deliver toys to the toy box provided at the nursing office located in the basement of Stewart Hall.

SWOSU GETS GRANTS

Mr. Brad Fitzgerald, Instructor, Department of Industrial & Engineering Technology, received \$13,607 from The Disney Corporation for **SWOSU/Disney RFID Project Phase II – FY09** to support real time learning experiences for SWOSU students, encompassing quality control, manufacturing operations, statistical analysis, and marketing.

Dr. Wayne Trail, Assistant Professor, Department of Chemistry & Physics received \$80,000 from the ExxonMobil Foundation for **Bernard Harris Summer Science Camp 2009** to support an academic residential camp to encourage students to pursue careers in the engineering, mathematics, science and technology fields.

Ms. Tamra Weimer, Instructor, School of Nursing received \$550 from the Oklahoma Lions Sight Conservation Foundation, Inc. for **Increasing Awareness of Organ and Tissue donation Through Education – FY09** to support a program to give university students an opportunity to develop and implement an educational program on organ and tissue donation and to increase the awareness of organ and tissue donation throughout the state.

Dr. Brian Campbell, Professor, Department of Chemistry and Physics, received \$12,141 from the National Science Foundation through Oklahoma State University for the project, **Louis Stokes Alliance for Minority Participation in Science, Mathematics, Engineering, and**

Technology, Phase III, to encourage minority students to pursue advanced degrees leading to research or teaching positions.

Dr. Brian Campbell, Professor, Department of Chemistry and Physics, also received \$38,400 from the Oklahoma State Regents for Higher Education for the **Summer Science and Mathematics Academy** to provide to high school juniors and seniors a two-week campus experience studying the relationship between science, mathematics, technology, and society.

Mr. Dick Kurtz, Instructor, Department of Industrial and Engineering Technology, received \$32,400 from the Oklahoma State Regents for Higher Education for the project, **Oklahoma Giants - Exploring the Science, Math, Engineering and Technology of Oklahoma's Wind and Natural Gas Energy, Year 3**, to provide high school students a look at two of Oklahoma's most valuable resources: wind and natural gas.

Dr. Andrea Holgado, Assistant Professor, Department of Biological Sciences, received \$13,752 from the Oklahoma State Regents for Higher Education for the project, **Release Time for the Development of the Cellular Biology Laboratory** to develop curriculum for a cellular biology laboratory at SWOSU.

Ms. Madeline Baugher, Interim Chair and Instructor, Department of Entrepreneurship and Computer Systems received \$16,605 from the National Aeronautics and Space Administration through The University of Oklahoma for the **Oklahoma Space Grant Consortium – Additional Funding** to provide funding for students to pursue scholarly activities related to NASA programs.

Ms. Madeline Baugher, Department of Entrepreneurship and Computer Systems, and **Mr. Brad Bryant**, Chair and Instructor, Department of Industrial and Engineering Technology received \$4,000 from the National Aeronautics and Space Administration through The University of Oklahoma for the **Oklahoma Space Grant Consortium - Balloon Satellite Project** to give students the opportunity to apply technology, engineering, mathematics, and the natural sciences through the use and study of weather balloons.

Ms. Madeline Baugher, Department of Entrepreneurship and Computer Systems, and **Mr. Frank White**, Instructor, Department of Industrial and Engineering Technology received \$2,000 from the National Aeronautics and Space Administration through The University of Oklahoma for **First Robotics** to introduce western Oklahoma high school students to STEM (Science, Technology, Engineering, and Mathematics) programs and Southwestern Oklahoma State University through a robotics competition.

Cindy Dougherty, Dean of Students, Director of Student Activities received \$500 from the North Carolina Campus Compact for **Martin Luther King – The Dream Continues FY09** to provide partial funding for “MLK Celebration Teacher Kits” for western Oklahoma teachers and support of MLK activities on campus.

Northeastern State University Grants



Mr. Tom Messner (in photo above) received \$6,000 for **Preservation Assistance-John Vaughn Library** from the National Endowment for the Humanities to obtain a consultant to evaluate and report on the current and long term physical and environmental suitability of the facilities that currently house Humanities Collections within the Special Collections and University Archives departments.

Mr. Ray Murphy received \$155,000.00 for the **Center for Rural Development** from the Oklahoma State Regents for Higher Education to provide funding to assist the revival of rural communities in northeastern Oklahoma by supporting energized approaches to economic and community development.

Mr. Michael Wilds received \$13,125 for **Quest for the Treasure Chest** from the Oklahoma State Regents for Higher Education to work with teams of students, academicians to enhance their teamwork, leadership and verbal communication skills while searching for the "treasure chests" strategically located on a fifteen acre challenge course. Students will polish their math/science skills by learning to use a compass, modern day GPS equipment and read topographical satellite imaging maps.

Dr. Chris Burba received \$ 4,787 from the Research Corporation for **RC-Lithium Rechargeable Batteries** to explore a new strategy for designing low-temperature lithium rechargeable battery electrolytes.



Mr. John Blue (in picture above) received \$252,326.00 from the Small Business Administration

through Southeastern State University for **OSBDC-Oklahoma Small Business Development Center** to provide comprehensive services and resources to existing and potential small businesses in Oklahoma

Dr. Kay Grant and Dr. Dale Woody received \$168,578.00 from the Oklahoma State Regents For Higher Education for **No Child Left Behind - PT²-Pulling Together to Enhance Teacher Performance and Student Achievement** to collaborate with local schools to provide research based P-12 professional development through reflection, evaluation and enrichment of teachers' practices that includes intensive student data-driven, site-based and off-site instruction and mentoring.

Dr. Thomas Salmon received \$ 127,478.00 from Cooper Vision for **Cooper Vision- Japan** to perform research for Coopervision Japan (CVJ) by evaluating how well (CVJ) contact lenses correct astigmatism.

Coco-Cola Awards Recycling Grant to Northeastern Oklahoma A&M College

NEO was selected to receive one of the **Coca-Cola/National Recycling Coalition Bin** grants and will receive 75 bins for the campus recycling project. NEO should receive the bins by the end of January. NEO was one of 85 institutions across the country to receive the Recycling Bin Grant through Coca-Cola and the National Recycling Coalition. Collection of recyclable materials, including plastic bottles, aluminum cans, paper, cardboard and printer cartridges, has become a campus-wide effort this semester. Red Cedar Recycling in Miami donated containers for recyclable drop-offs, and members of the Phi Theta Kappa Honor Society and an environmental sciences class, in addition to NEO faculty and staff, volunteer to collect the items on a weekly basis. **Gina Manders**, chair of the Going Green Committee was author of the college's grant application. The program will help many to understand the concerns of global warming, climate change and environmental concerns.

University of Central Oklahoma Grants



Dr. Alaeddin Abu-Abed (in picture above), Assistant Professor of Engineering and Physics at UCO has just received a NASA EPSCoR Research Initiation Grant, titled ***Capacitive Radiation Detector Utilizing Liquid Crystal***, of \$21,000. The funding is through the Oklahoma NASA Space Grant Consortium/NASA EPSCoR. The purpose of the grant is to help develop research ideas and initiate projects related to NASA's Mission Directorates. It is primarily intended to support Post Doctoral Research time, Graduate and Undergraduate Assistants, materials, supplies, and travel to NASA Centers for extended research visits. Dr. Abu-Abed will travel to the George C. Marshall Space Flight Center in Huntsville, AL.

Dr. Glee Bertram, Child Studies Center of the Human Environmental Sciences Department, College of Education and Professional Studies, received a \$9,250 grant for the “**Child Study Intergenerational Project**” from the Oklahoman Foundation to study and foster intergenerational contact and comfort as well as learning and teaching among senior citizens, college students, and pre-school children.

ECU Students Travel Abroad

A \$1,000 gift from an Ada resident will help two East Central University students travel to Russia next spring to learn more about the country and language they are studying. Linda Ainsworth made the gift on behalf of her late husband, Gary Ainsworth, an Ada businessman who had made several trips to Ukraine and had taken Russian language classes at ECU taught by **Dr. Mara Sukholutskaya**, associate professor of English and languages.

Sukholutskaya conducts trips to Russia and Ukraine each spring to help students and others learn more about the countries’ culture and languages. To qualify for the \$500 scholarships, ECU students should be active in ECU’s Russian Studies Program, be good students and understand the importance of experiencing Russian culture at home and in Russia and Ukraine, Sukholutskaya said.

In addition, an account has been opened through the ECU Foundation Inc. to continue funding this new scholarship. Anyone wishing to contribute can contact Dr. Gerald Williamson in the University Advancement Office at 580-559-5590.

RSU, RCB Receive \$18,000 Grant

Rogers State University's Innovation Center and RCB Bank received an \$18,000 Joint Opportunities for Building Success grant from FHLBank Topeka (Kansas), to establish a regional business intelligence center. The JOBS program provides grants to member banks to assist in promoting employment growth in their communities. The grant, although awarded to RCB Bank, requires partnership with the RSU Innovation Center to carry out grant initiatives. The Business Intelligence Center will focus on performing market research and analyses for businesses that need to expand sales of existing products and services into new markets.

Other partners include the Claremore Industrial & Economic Development Authority and the Oklahoma Alliance for Manufacturing Excellence. CIEDA provided \$10,000 in matching funds, while RCB Bank, RSU and the alliance will provide in-kind contributions and matching funds totaling \$64,930 for the project. The Business Intelligence Center will be at the Innovation Center in Claremore; however, services will be available to businesses throughout northeastern Oklahoma. For more information contact **Ray Brown** at (918) 343-7533 or e-mail rbrown@rsu.edu.

Capitol OCAST Grants Go To 7 Research Projects Through the Oklahoma Plant Science Program

The Oklahoma Center for the Advancement of Science and Technology has awarded \$539,879 to seven research projects. Applications submitted for this third annual competition were up 47 percent from last year.

An applied research grant was issued to **Justin Moss, Oklahoma State University**, Stillwater. The research project totals \$73,278 and will target developing turf grasses that are drought-resistant.

Rodney Will, OSU, received a \$54,808 grant for research to determine beneficial and detrimental uses of red cedar mulch for plant growth. Red cedar is not native to Oklahoma and uses large amounts of water while crowding other more desirable plants. Finding a beneficial way to use red cedar mulch would make the clearing of red cedar more cost-effective and add other economic benefits.

Jeanmarie Verchot-Lubicz, OSU, received \$80,682 for a project to characterize the mechanism controlling the long-distance flow of proteins and virus-derived nanoparticles in plants. This project could provide an alternative to transgenic applications or chemical spraying for disease control.

Srinivasa Rao Uppalapati, Samuel Roberts Noble Foundation, Ardmore, received an \$82,467 grant for a project to identify molecular targets of coronatine that can lead to disease in tomatoes, brassicas and soybeans.

Randy Allen, OSU, received an \$83,000 grant for a project to study Abiotic stress, a primary factor limiting crop productivity.

Liuling Yan, OSU, received \$83,000 for a study of nitrogen and its application as a fertilizer in wheat production. Part of the focus will be to develop genetic understanding of nitrogen use effectiveness to enhance efficiency in wheat breeding and production.

Gerald Schoenknecht, OSU, received an \$82,644 grant for research to improve crop yield and quality in acidic environments.

State Regents Announce Awards for Student Volunteer Proposals

The Oklahoma State Regents for Higher Education have announced the students selected for Carter Academic Service Entrepreneur (CASE) grant awards through the Oklahoma Campus Compact program. The awards recognize the best volunteer work of college students, faculty and staff as they partner with community groups.

The recipients of the CASE awards are **Sarah Smith, Northeastern Oklahoma A&M College**; **Cory Steward, Oklahoma State University**; and **Collins Uzuegbu and Meagan Decher, Southwestern Oklahoma State University**. Three community groups will receive \$1,000 each to fund the students' proposals. "The State Regents commend these students for such innovative proposals," said Chancellor Glen D. Johnson. "By fostering academic-service learning, our students will make a difference in the lives of others by consistently giving back to their communities."

Smith's proposal identified the need for updated blood pressure and pulse vital sign machines for the Ottawa County Community Clinic. Because the current equipment is very old, community volunteers do not have the medical background and training to take vital signs such as blood pressure and pulse. Modern state-of-the-art equipment will allow more efficient use of volunteer time, translating into an increase in the number of patients seen, with less patient waiting time. This development will also allow for more efficient use of the medical professionals' time, with better care for the community.

In collaboration with the Central Oklahoma Community Action Agency, **Steward** will work to increase the quantity of food and extend the length of time that the regional food bank can

distribute food to individuals and families in the area. Working with local businesses and the university community, Steward will spread awareness and work for more efficient food collection methods. The grant will be used primarily for food purchases and some advertising.

Uzuegbu and Decher's proposal will provide age- and developmentally appropriate toys and fun activities to pediatric patients in the Weatherford Regional Hospital. The availability of these activities can relieve the pediatric patients by decreasing anxiety and making their hospital stays less frightening.

The CASE grant award is a program of the Jimmy and Rosalynn Carter Partnership Foundation, whose programs recognize excellence in academic-service learning and provide financial support to outstanding examples of campus-community collaboration and innovative ideas to serve the community.

Campus Compact is a coalition of colleges and universities that develops college students' awareness and skills in civic responsibility through service learning, community service and civic engagement. Thirty-four states have Campus Compact offices. In Oklahoma, Campus Compact was formed in 2000 and currently has 33 public and private colleges and universities that participate.

Students Study in Wales as Scholars

Christopher Wyche, a junior at East Central University, is studying British literature in Britain this semester – an opportunity he never imagined before a new scholarship was established in 2008 by the Oklahoma State Regents for Higher Education. He and six other students from Oklahoma's regional universities were named Brad Henry International Scholars by the regents and are participating in an international study and internship program during the spring semester at Swansea University in Swansea, Wales. Wyche, a 2000 graduate of Sulphur High School, is majoring in English at ECU and focusing on 19th century British literature. He wants to become a professor. Wyche, the son of Jerry and Louise Wyche, had never been on an airplane before or traveled outside a 500-mile radius of his hometown of Sulphur until his early 20s.

Other students chosen for the international study program are **Lauren Bennett, Cameron University; Bryan Bozell, Southwestern Oklahoma State University; Leethaniel Brumfield, Langston University; Nancy Pham, University of Central Oklahoma; Jack Test, Oklahoma Panhandle State University; and Keith Watkins, Southeastern Oklahoma State University.**

The State Regents provide a \$10,000 stipend for students selected to participate in semester-long study or research programs affiliated with Swansea University. Academic credit will be awarded by Oklahoma regional universities. "Academic talent, character and leadership are what makes these students stand out from others," said Chancellor Glen D. Johnson. "In today's workplace, graduates need to understand the importance of competing in a global economy, and this program will allow these students to experience it firsthand."

Wyche, Bennett, Bozell, Brumfield and Pham are participating in the study-abroad program at Swansea University. Test and Watkins are participating in the internship with the National Assembly for Wales.

Ethics and Excellence in Journalism Foundation Awards \$1.27M in grants

The Ethics and Excellence in Journalism Foundation announced Wednesday the distribution of \$1.27 million in grants to 19 journalism organizations nationwide. Founded by Edith Kinney

Gaylord, the foundation's mission is to invest in the future of journalism by building the ethics, skills and opportunities needed to advance principled, probing news and information. Grants include \$7,000 to **Oklahoma Christian University** for acquisition of copyrighted materials for the seventh edition of "Media Ethics: Issues and Cases," to be published by McGraw-Hill in 2010.

OU Gets \$2.6M Grant for Nursing Scholarships

The University of Oklahoma's Center of Geriatric Nursing Excellence plans to use a \$2.6 million grant from the Donald W. Reynolds Foundation to provide scholarships for nurses who want to become teachers specializing in geriatrics. Center director **Lazelle Benefield** says nurses trained in geriatrics are in demand as baby boomers get older and require more health services. Benefield says by increasing the number of nursing faculty the school can enroll more nursing students.

OSU-OKC Receives Grant for Wind Turbine Program

Demand from students for Oklahoma State University-Oklahoma City's new wind turbine program is exceeding expectations. The Oklahoma State Regents for Higher Education approved OSU-OKC's program – the state's first wind turbine technology degree program – in October and the first class of students started in January. "We have 56 students in our first class," said **Jerry Nielsen**, OSU-OKC Science and Engineering Technologies division head. The initial class of students is on track to graduate with an associate in applied science degree in 2011.

OSU-OKC's wind turbine program has received a \$1.48 million grant from the U.S. Department of Labor through the President's Community-Based Job Training Grants program to help colleges provide skilled workers for high-growth and high-demand industries. Part of the money from the grant will be used to establish partnerships with technology centers, including Metro Technology Center in Oklahoma City and High Plains Technology in Woodward, said **Larry Edwards**, vice president of academic affairs at OSU-OKC. The partnership could include OSU-OKC offering classes at the technology centers and allowing students to apply the technology center classes toward a wind turbine technology degree from OSU-OKC.

Demand for workers to operate and build wind turbines has been increasing and work force demands are expected to expand. The wind power industry could create an estimated 6,919 jobs across the state with salaries ranging from \$44,900 to \$60,400 within five years, according to the Oklahoma Department of Commerce. Oklahoma is already a major player in the nation's wind generation industry and ranked 12th in the nation in capacity for generating electricity from wind turbines in 2008 with capacity totaling 707.9 megawatts, according to the American Wind Energy Association.

OSU gets space grant

The Oklahoman

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STILLWATER — The Oklahoma State University College of Education was awarded a \$4 million grant to manage the National Aeronautical and Space Administration's Teaching from Space Project for the next five years. OSU and the college have managed the grant since its inception in 1985 and received it again after a competitive, open application process. The program is a national effort that teaches educators and K-12 students about the environment of human spaceflight.

OSU Researchers Make Breakthrough Against Poxviruses

A major breakthrough by researchers at Oklahoma State University could be the first step towards a pharmaceutical medication for smallpox and the emerging human monkeypox. The human immune system is rendered helpless against poxviruses partly because the viruses block a human immune molecule, interleukin-18, known as IL-18, from sending out a signal to the immune system. The body acts as if everything is fine and the deadly disease takes over.

Junpeng Deng, a structural biologist in the Division of Agricultural Sciences and Natural Resources at OSU, and his first-year doctorate student, **Brian Krumm**, joined an ongoing project midway through 2007 and Krumm found what he was looking for in December. They solved a three-dimensional crystal structure of a poxvirus protein in the act of disarming the IL-18. “We capped a lot of others’ research. This is additional information provided,” said Krumm, who is credited as the major contributor to the research. “We also show many things through the structure that can’t be revealed through traditional molecular biology and immunology.”

OSU Gets NSF Grant

Oklahoma State University has received a \$499,372 grant from the National Science Foundation to increase its initiative to promote the representation of women and minorities in agriculture, science, technology, engineering and mathematics to evaluate and implement programs to increase the recruitment and advancement of women in science. **Jean Van Delinder**, associate professor of sociology and core faculty in gender and women’s studies, is the principal investigator for the three-year grant. The grant was awarded through the NSF Advance-Paid – Partnership for Adaptation, Implementation and Dissemination – program. The programs are designed to provide a climate that provides support and facilitates advancement of women at all levels of science. Joining Van Delinder as principal investigators are **Provost Marlene Strathe**; **Robert V. Miller**, professor and head, microbiology; **James Wicksted**, professor and head, physics; and **John Veenstra**, professor and head, civil engineering. Senior investigators are **Lu Bailey**, assistant professor of social foundations in the College of Education, and **Melanie Page**, associate professor of psychology.

OSU will partner with the University of Missouri, which has its own Advance-Paid program, to strengthen each initiative through collaboration, coordination and joint programs. OSU also will share its programs with area colleges: Langston University, a historically black university, and three tribal colleges – the College of the Muscogee Nation, Comanche Nation College and Pawnee Nation College.

Creation, innovation important qualities

POINT OF VIEW OSU Research Week
BY STEPHEN McKEEVER

The Oklahoman

2/15/2009

Starting Monday, Oklahoma State University will celebrate the creative and innovative work of its faculty, students and staff during Research Week 2009. The sixth-annual event will feature distinguished speakers, a student art competition, the annual student research symposium and many other events highlighting the outstanding work of OSU scholars.

Creativity and innovation have never been as important to our way of life as they are today. Our world and our nation face historic economic stresses, extreme pressure to develop alternative energy sources, a pressing need to understand climate and man’s effect on it, increased safety of the water and food supply, and many other technical and social issues. The pursuit of relevant, workable solutions will require an inspired and inventive attitude. This attitude has been, and continues to be, a driving force throughout the OSU system of scholarship and learning.

The production of biofuels from non-food sources remains a major initiative of OSU's Division of Agriculture and Natural Resources. In collaboration with our partners at the University of Oklahoma and the Noble Research Foundation, the work received an additional \$20 million investment recently from the Experimental Program to Stimulate Competitive Research, through the National Science Foundation and the Oklahoma State Regents for Higher Education.

The development of radiation sensors to protect astronauts working in space is the focus of an effort under way in the physics department and school of mechanical and aerospace engineering. Working with funding from NASA, students collaborated to build and launch their prototype sensor into near-space using a weather balloon — and a lot of ingenuity.

As global communication and airline travel speed the spread of infectious diseases, pediatricians at the OSU Center for Health Sciences are developing immunizations for childhood-related diseases like influenza, pneumonia and meningitis. They have already helped with one successful new treatment and a trial for a vaccine against rotavirus or RV (intestinal flu) is complete and the RotaTeq oral vaccine by Merck and Co. is on the market.

Researchers from the College of Education participated in a unique art education pilot program at urban elementary schools in Tulsa in 2008. They found the program, which sought to deliver high-quality academic instruction infused with high-quality arts instruction, improved not only the students' artistic abilities but also enhanced their skills in a variety of other areas, including reading, science and social studies.

These projects represent examples of the many creative and innovative research projects under way at OSU. At the "Creativity Festival," to be held during the first two days of Research Week, you can experience these and many other exciting and novel projects. You also can learn more about OSU research in our 2009 Vanguard magazine. In whatever way you can, I invite you to discover the ways OSU research is impacting and improving the life of Oklahomans.

Our world and our nation face historic economic stresses, extreme pressure to develop alternative energy sources, a pressing need to understand climate and man's effect on it, increased safety of the water and food supply, and many other technical and social issues. The pursuit of relevant, workable solutions will require an inspired and inventive attitude.

McKeever is vice president for research and technology transfer at Oklahoma State University.