4th Annual Promoting Undergraduate Research Conference

TAKING OWNERSHIP OF THE RESEARCH EXPERIENCE:
PRESENTING AND PUBLISHING UNDERGRADUATE RESEARCH
April 19, 2013
Presbyterian Health Conference Center

8:00     Registration and Continental Breakfast
8:30     Welcome
         Dr. Blake Sonobe, Vice Chancellor for Academic Affairs, OSRHE
8:40     Oklahoma Higher Education Undergraduate Student Research
         Dr. Linda Mason, Coordinator of Grants, OSRHE
8:45-9:45 Student Panel: Results of Presenting and Publishing Research
         Moderator- Kathryn (Kathi) Schoonover-Redden, Director of Sponsored
         Programs, NSU
         Jacob Jardel, CU          Ciera Keith, OSU
         Josh Belcher, ECU        Wesley Maddux, RCC
         Katharine Stewart, NSU   Carol Saylor-Hefley, TCC
9:45-10:00 Break – Networking and Poster Browse Session
         Mr. Saeed Sarani-Study Abroad Programs in Oklahoma Higher Ed., OSRHE
         Dr. Karl Frinkle & Dr. Mike Morris-Parallel Computing Student Research, SE
         Student Posters:
         Jacob Jardel, CU          Ciera Keith, OSU
         Josh Belcher, ECU         Wesley Maddux, RCC
         Katharine Stewart, NSU    Carol Saylor-Hefley, TCC
10:00-12:00 Presenting Undergraduate Research Panel
            Moderator- Dr. Tony Wohlers, Director of Academic Enrichment,
            Associate Professor of Political Science, CU
            Dr. Amanda Evert, RCC       Mr. Matthew Burrows, SDC
            Dr. Shannon McCraw, SE     Dr. Faye Mangrum, SE
            Dr. Tim Patton, SE         Dr. Melville Vaughan, UCO
            Dr. C. W. Von Bergen, SE
12:00-1:30 Lunch – Developing a Statewide Online Undergraduate Research Journal
            Presented by Tim O’Neil, Director of Freshman Research, OSU
1:30-3:30  Publishing Undergraduate Research Panel
            Moderator- Dr. Linda Mason, OSRHE
            Dr. Thomas Henderson, TCC    Dr. Sundar Madihally, OSU
            Dr. Andrea Holgado, SWOSU    Dr. Muatasem Ubeidat, SWOSU
            Dr. Craig Gifford,
3:30-3:45  Break—Networking and Poster Browse Session (see morning poster list)
3:45-4:00 Undergraduate Research Program Spotlight Award
            Chancellor Glen D. Johnson, OSRHE
4:00-4:30  Closing Call to Action and △ Evaluation
The Promoting Undergraduate Research Conference participants wish to thank the Oklahoma State Regents for Higher Education, and Chancellor Johnson especially, for his unfailing support of research in Oklahoma's colleges and universities.

Chancellor Glen D. Johnson Jr. is the chief executive officer for the Oklahoma State System of Higher Education. Johnson leads a state system comprised of 25 state colleges and universities, 10 constituent agencies, one higher education center and independent colleges and universities coordinated with the state system. He reports to a constitutional board whose nine members are appointed by the governor and confirmed by the senate. Johnson provides leadership on matters relating to standards for Oklahoma higher education, courses and programs of study, budget allocations for institutions, fees and tuition, and strategic planning. He is responsible for an annual higher education budget in excess of $1.9 billion as well as the state endowment fund, with a market value over $200 million.

Dr. Johnson became the 8th chancellor of the Oklahoma State System of Higher Education in January 2007 after a national search. Before assuming the role of chancellor, Johnson served as the 16th president of Southeastern Oklahoma State University in Durant for 10 years.

Dr. Johnson served in the Oklahoma House of Representatives from 1982 to 1996 and was speaker of the house from 1990 to 1996. At the time of his election as speaker, he was the youngest sitting speaker in the United States. Johnson has been recognized both statewide and nationally as a strong, untiring advocate for funding for education, both secondary and higher education, in Oklahoma. He is an honors graduate of the University of Oklahoma, with an undergraduate degree in political science and a juris doctor degree from the OU College of Law. He was a member of Phi Beta Kappa at OU and received the Letzeiser Award as one of OU’s outstanding seniors.

He is the son of former U.S. Congressman Glen D. Johnson Sr. and Imogene Johnson. He was born in Oklahoma City and attended grade school in Washington, D.C. He graduated from Muskogee High School in 1972. Johnson and his wife Melinda, a teacher at Edmond Memorial High School, live in Oklahoma City.
Dr. Blake Sonobe, Vice Chancellor for Academic Affairs for the Oklahoma State Regents for Higher Education, assumed his position in January, 2013. Prior to this appointment, since 2005, Dr. Sonobe served as the Senior Vice President and Provost for Academic and Student Affairs at Southwestern Oklahoma State. He began his tenure at SWOSU in 1990, teaching in the Department of Chemistry, then served as Chair of the Chemistry Department from 1997-99, and Interim Chair/Chair of the Department of Chemistry and Physics from 1999-2005.

Dr. Sonobe is active in the Weatherford community, as a member of Weatherford Rotary Club, and president in 2000-01. He has also been a member of the Gen. Thomas P. Stafford Air and Space Museum board of directors since 2006, and served as president in 2011. Sonobe was a member of the Vision 2020 strategic planning committee for Weatherford and has been active in the Weatherford Area Chamber of Commerce.

Dr. Sonobe holds a bachelor's in chemistry from the U.S. Air Force Academy and a master's in nuclear chemistry from Texas A & M University. He received his doctorate in organic chemistry from the University of California, Davis.

Dr. Linda Mason is Coordinator of Grants and External Funding Assistance for the Oklahoma State Regents for Higher Education, and provides research and grant development assistance to all Oklahoma higher education institutions, focusing on the undergraduate institutions. She has written, assisted in writing and directed projects for hundreds of grants for hundreds of millions of dollars. She earned an Ed.D. in Curriculum and Instruction, in 1974 from Oklahoma State University. Her professional experience includes being a public school teacher, a tenured faculty member at all levels, a department chair, a dean, and a state administrator. Linda is a native Oklahoman from Coweta and a first generation college graduate.
Jacob Jardel, Cameron University, is a senior majoring in psychology who will graduate in May 2013. He was born in Guam but has spent most of his life in Lawton, Oklahoma where he graduated high school. Jacob is a member of the University Honors Program, president of the Honors Students Society, captain of the academic team, and a member of Psi Chi and Phi Kappa Phi. Throughout his undergraduate career, he has pursued a number of scholarly research projects and attended professional conferences to present his research. Recent conference participation include the 2012 Race, Ethnicity, and Place Conference in Puerto Rico and Oklahoma Research Day. His future plans include graduate school where he intends to continue his studies in psychology and counseling. Jacob’s interests include internet culture and studying the effects of various forms of media.

Cierra Keith is a freshman at Oklahoma State University, from Oklahoma City, who intends to pursue a career in evolutionary ecology research. Cierra, a biological sciences major, started her research early as a Freshman Research Scholar and has since been awarded a prestigious Wentz Research Project Grant for her proposal “Hydrogen Sulfide Tolerance in Poecilia Mexicana: Plasticity or Heritability?” that will be overseen by her mentor Dr. Michael Tobler (Zoology). “Long fascinated by science,” Cierra is eager to share in the joy of discovery.

Josh Belcher is a senior molecular biology major at East Central University in Ada, who has been heavily involved in undergraduate research at ECU. Under the mentorship of Dr. Stephen Fields, their research on kleptoplastic algae has been awarded the John C. Johnson award for best research presented in a poster session at both the regional and national Beta Beta Beta Biological Honor Society meetings at OU Biological Station and San Juan, Puerto Rico. He plans to apply to different graduate schools in biomedical sciences, notably the University of Kansas at Lawrence, The University of Oklahoma Health Science Center, and The Mayo Clinic in Rochester, Minnesota and to more deeply study the fields of genomics and the cell cycle. He is president of the local Tri-Beta chapter, Psi Delta, and is currently serving as an intern, through ECU ERAP, at the U.S. Environmental Protection Agency.
Wesley Maddux is currently finishing his Associates in Science, Pre-Professional Science with a dual option in both Life Science and Physical Science from Redlands Community College. He is from Kingfisher, Oklahoma and loves to travel and seek out new learning opportunities. His interest in science started from childhood and has continued to present day; specifically, environmental interactions due to human affects. His past experience in the oilfield has given his desire to continue his education; His inspiration in science comes from Professor Reonna Gossen at Redlands Community College. In the summer of 2012 he was a recipient of an undergraduate research internship through INBRE under the mentorship of Dr. Carol Dionne at OUHSC. He plans to transfer to a four year school to complete a Bachelor’s degree in microbiology with a minor in chemistry. He is a member of Alpha Beta Upsilon chapter of Phi Theta Kappa. He is particularly interested in the toxicological effects of the chemicals that are utilized in current industrial practices and their effects on the quality of life on this planet.

Katharine Stewart (Muscogee Creek), a non-traditional student from Northeastern State University, will graduate in the summer of 2013 with a double major in Biology and Legal Studies. During her undergraduate studies, she has participated in a number of research programs including: biomedical research for the NARCH program at University of Oklahoma Health and Science Center, ecosystem services at the University of Arkansas, and tropical ecology research for NAPIRE at the Las Cruces Biological Station in Costa Rica. Her manuscript on the research conducted in Costa Rica was recently submitted to the Journal of Tropical Ecology. Katharine is also recognized as an OK-LSAMP Scholar at NSU. She will return to Costa Rica this summer as a research associate for the NAPIRE program and plans to attend graduate school this fall to continue her research.

Carol Saylor-Hefley, OSU, was born in Seguin, Texas, and moved to Tulsa as a child. While in high school, she was president of FCCLA- Family Career and Community Leaders of America. She graduated in May 2007. She is attending TCC as a Tulsa Achieves student, and earned Associate's Degrees in liberal arts and psychology in 2009, before enrolling in the biotechnology program. She earned another Associate's degree in Biotechnology in Fall, 2012. While in Biotechnology courses at TCC, she applied for and received a scholarship through the TABERC organization, which provided her with an internship and the opportunity to research Morgellons disease at OSU-CHS. She has applied for the S-STEM scholarship, which will allow her to graduate with a bachelor's
degree in biological sciences in 2014.

Study Abroad Programs in Oklahoma Higher Education
Mr. Saeed Sarani, OSRHE
The Poster provides information about student study abroad experiences available in Oklahoma higher education institutions and the website clearing house that is available.
Saeed Sarani is the Coordinator for STEM Curriculum and Teacher Professional Development at the Oklahoma State Regents for Higher Education. He holds an MS from OSU, and MBA from OCU, and is working toward a PhD in Instructional Leadership and Academic Curriculum from OU. Currently, he serves as the President of the Coalition for the Advancement of Science and Mathematics Education in Oklahoma (CASMEO) a non-profit organization dedicated to closing the gap between education and the workforce. In addition to his current positions, his passion for education led him to become an adjunct professor of Mathematics at Mid-America Christian University in Oklahoma City. He currently resides in Edmond, Oklahoma with his wife and family.

Parallel Computing Student Research, SE
Dr. Karl Frinkle & Dr. Mike Morris, Southeastern Oklahoma State University
Karl Frinkle and Mike Morris are faculty in the Mathematics and Computer Science departments at Southeastern. Karl Frinkle’s main focus outside of teaching is numerical analysis and simulation, while Mike Morris’s main focus is on high-performance computing. Together, they co-teach courses at Southeastern geared towards solving STEM oriented problems in a mathematically rigorous and computationally intensive setting. Karl Frinkle’s main focus outside of teaching is numerical analysis and simulation, while Mike Morris’s main focus is on high-performance computing. Together, they co-teach courses at Southeastern geared towards solving STEM oriented problems in a mathematically rigorous and computationally intensive setting.
A joint venture between the CS and mathematics departments enabled undergraduate research which was centered on the concept of parallel computing. By taking students with little to no computer programming skills and pushing them through two STEM oriented programming courses, we were able to get students involved in research level mathematics located at the intersection of pure mathematics, parallel programming and numerical analysis. Students actively participated at all steps of the process, and were able to achieve results, with the potential for future projects in this area of study.

Student Posters:

Retention and Graduation at the 11 Public Universities with the Worst Graduation Rates, 2004-2010
Jacob Jardel, CU
Our study investigates the relationship between financial aid/cost of attendance variables and retention/graduation rates for the eleven universities in the May 2012 Fiscal Times article titled “11 Public Universities with the Worst Graduation Rate.” Our study has four working hypotheses: the tuition cost variable correlates negatively with total university graduation rates, graduation rates for males and females, and graduation rates for students of the five studied ethnicities (White, African-American, Asian-American, and Hispanic, and Native Americans) at the 11 study universities; financial aid availability will correlate positively with both the overall graduation rate and the graduation rates of the study groups mentioned above; cost of tuition will have a negative correlation with retention rates for the study universities and for Cameron University; and financial aid variables will correlate positively with retention rates for Cameron University. We collected necessary data for each of the eleven study universities and aggregated the data by ethnicity and gender to perform a correlation analysis. We chose Cameron University as a focus university and performed correlations comparing the cost of attendance/financial aid variables and retention rates. Results from the correlation analysis disproved three of our hypotheses; the only hypothesis supported with the correlation analysis was our fourth, which focused on tuition and retention at Cameron.

Characterization of a Temporary Cryptophycean Endosymbiont of the Freshwater Dinoflagellate, Gymnodinium acidotum.
Belcher, Josh, Brent Biddy and Stephen Fields. Psi Delta, East Central University.

Gymnodinium acidotum is a nonphotosynthetic, aplastidic dinoflagellate that ingests blue-green cryptophycean algae. The cryptophyte chloroplasts and other organelles are sequestered for several weeks within the dinoflagellate cytoplasm and remain photosynthetically active in an obligate symbiosis. Drastic ultrastructural and physiological modifications occur in the sequestered cryptophycean organelles during the period of retention in the dinoflagellate and then are digested. We have characterized the growth properties of G. acidotum co-cultured with the blue-green cryptomonad Chroomonas coerulea. The dinoflagellate demonstrates a steady growth rate (~0.1 divisions day\(^{-1}\)) over a 40 day period, with a peak ingestion rate of nearly five cryptomonad cells per dinoflagellate cell per day. Interestingly, growth rates of monocultured C. coerulea are never as high as their counterparts co-cultured with G. acidotum or grown in the presence of G. acidotum-secretions. This raises the possibility that G. acidotum secretes stimulatory compounds for the purpose of “harvesting” cryptomonads. To identify the species of cryptomonad that is ingested by natural populations of G. acidotum, we carried out PCR on G. acidotum from Paul’s Valley Lake samples using primers specific for cryptophycean nucleomorph rRNA genes.

Effects of Increased Temperature on a Trichoptera: Hydropsychidae Species Found in Costa Rica
Katharine Stewart\(^1\), and David Rogowski\(^2\)\(^\dagger\) 
\(^1\)Northeastern State University, Tahlequah, OK
\(^2\)Texas Tech University, Lubbock, TX, USA

Global warming and deforestation are worldwide concerns that have far reaching effects. Increased temperatures affect all types of habitats. This study looked at an aquatic insect, a Trichopteran species, found in premontane forest streams. In areas such as Costa Rica, there has been a lack of research in the area of aquatic habitats as well as aquatic insects, although much is known regarding this order in temperate climates. Also this area has lost nearly fifty percent of its forest due to deforestation. It is known that temperatures can increase up to seven degrees when riparian areas are cleared. This study looked at how increased stream temperature affects aquatic insects, specifically a Trichoptera: Hydropsychidae species found in Coto Brus, San Vito, Costa Rica.

Laboratory experiments were conducted to test the effects of temperature on mortality and behavior (case building) of a Trichopteran species from Costa Rica. The temperatures of three types of streams, primary forest, secondary forest, and urban, were monitored over the length of the experiment. Results of the lab experiment showed this species of Trichoptera had a higher rate of survival at lower temperatures, under 21°C. Trichoptera had a higher rate of case building at these lower temperatures as well. Higher mortality rates and lower incidences of case building were observed at temperatures only a degree higher at 22.3°C, with nearly complete mortality and no case building when temperatures exceeded 25°C. Stream temperature analysis suggests a more stable
temperature in both the primary and secondary forest, whereas the temperatures in the urban stream seem to fluctuate with the air temperatures.

Adaptation to extreme environmental conditions impacts energy metabolism in a livebearing fish (*Poecilia mexicana*, Poeciliidae)

Cierra Keith, L. Tess Doumas & Michael Tobler, Department of Zoology, Oklahoma State University, 501 Life Sciences West, Stillwater, OK 74078

While it is well documented that exposure to physicochemical stressors alters organismal energy budgets, it remains poorly investigated whether extreme environments drive adaptive shifts in energy metabolism. We studied variation in metabolic scope in genetically distinct populations of extremophile fishes (*Poecilia mexicana*, Poeciliidae) living in toxic, hydrogen sulfide-rich springs and caves. Standard and maximum metabolic rates were quantified in common garden raised individuals from four habitats (non-sulphidic surface, sulphidic surface, non-sulphidic cave, and sulphidic cave) to determine metabolic scope. We particularly tested the hypothesis that metabolic scope plasticity varies among populations, with fish adapted to extreme environmental conditions differentially regulating energy metabolism in response to resource limitation (which is more prevalent in extreme habitats). Hence, experimental fish were either subjected to a high or low food treatment prior to metabolic measurements. Our results indicate significant interactions between “food treatment” and population of origin (both in terms of cave vs. surface and sulfidic vs. non-sulfidic habitat), with populations inhabiting the most resource-limited or variable environments showing higher plasticity in metabolic scope. Our results also indicate that adaptation to extreme environments is manifested in striking changes in energy metabolism.

Gait and Work Performance Measures in a Male with Unilateral Transtibial Osteomyoplastic Amputation

Wesley Maddux1, C. Dionne2

1Mechanical Therapy Research Laboratory, Department of Rehabilitation Sciences, The University of Oklahoma Health Sciences Center

Introduction: Measure work-related task performance (2 gaits, lift, carry) in one male with osteomyoplastic transtibial amputation due to a traumatic event.

Methods: Subject (age=28yr; height=188cm; weight=79.5kg) completed the Locomotor Capabilities Index-5 (LCI-5) and Prosthesis Evaluation Questionnaire (PEQ). Applied movement sensors measured self-paced and brisk walking (2MWT); 25-ft carry and floor-to-knuckle lift capacity. Pain (NPRS) and reported exertion (RPE) were recorded. Data were analyzed by the MiniSun IDEEA® system.

Results: LCI-5=56/56; PEQ=14. Distance: self-paced gait=153.619m; brisk gait=388.62m. Lift/carry capacities=42.7kg. No pain NPRS=0 or high level of exertion 6-13RPE were reported during trials. Mean intact limb cadence =120.4 steps/min and residual limb cadence=88.8 steps/min during self-paced gait. Mean cadence of intact=105.0 steps/min and residual limb cadence=179.1 steps/min during brisk gait. During 25-foot carry test intact cadence =72.1 steps/min; residual cadence=148.1 steps/min. During self-paced gait, intact stride=1.72m; residual stride=1.72m. During brisk walk, intact stride=1.86m; residual stride=1.55m. During 25-foot carry, intact stride=1.45m; residual stride=1.24m.

Conclusion: Cadence during gait trials were greater in the residual limb during brisk test and 25 foot carry test, though was greater in the intact limb during self-paced test. Stride during gait trials was less in the residual limb during brisk test and carry test, though was the same in either limb during the self-paced test. The subject lifted/carried at heavy duty physical demand level without reported pain or perceived disability. This project was supported by the National Center for Research Resources and the National Institute of General Medical Sciences of the National Institutes of Health through Grant number 8P20GM103447.
Dr. Amanda Evert joined the Redlands Community College team in 2005. Since coming to Redlands, she has served as a communications specialist, professor, Title III grant manager, academic division director and most recently as the Vice President for Undergraduate Research and Resource Development.

In the last seven years, Dr. Evert has been an advocate for technology-enhanced learning, undergraduate research, and resource development initiatives designed to improve the educational experiences of students. Dr. Evert has authored and assisted in implementing state, private, and federal grant projects.

Recently, Dr. Evert was selected as a 2013 Phi Theta Kappa’s Distinguished College Administrator Award Recipient. Dr. Evert earned her Ph.D. from Oklahoma State University. She and her husband Jeremy are natives of western Kansas. They are both products of the community college system and they are very proud of their Associate of Science degrees. They genuinely believe in the power of community colleges to change lives and improve communities.

Matthew Burrows is a Senior Section Head at South Devon College in the U.K, rated as an "Outstanding" College by the Government Inspection Agency. He is responsible for Sport and Adventure. Recently his division won a National Beacon Award for innovative curriculum delivery, ahead of 345 other UK colleges. He is programme leader for three Foundation Degree programmes, and he has experience of supporting Undergraduate Research Projects in the UK. Prior to working in education, Matt worked for 10 years in the leisure industry, including a role as a Director of a Corporate Wellness Organisation.

Dr. Shannon McCraw is an Associate Professor in the SE Department of Art, Communication, and Theatre, and is in his tenth year of teaching public speaking to students accepted to Southeastern’s Honors program. He directs the A.C.T. public relations program, and teaches courses in communication research methods. A two-time recipient of the School of Arts and Sciences teaching award, Dr. McCraw directed Southeastern’s speech and debate team for fifteen years, and is the former director of the university’s civic engagement initiative. He earned his Ph.D. in Political Communication at the University of Oklahoma.
Dr. Faye Gothard Mangrum, SE, earned a Ph.D. in Communication in 1996 at the University of Oklahoma. She is currently a professor in the Art, Communication, and Theatre Department teaching courses for the Organizational/Strategic Communication and Media Studies options. She has taught interpersonal, group, and organizational communication courses for 28 years as well as the communication research course. Her current teaching interests include organizing students’ civic engagement projects for their communities and workplaces. She has developed numerous courses to help the on-line, working adult by seeking ways they can incorporate their academic experiences in their workplaces. Dr. Mangrum has presented top research papers at national and regional communication conferences and published articles on informal problem solving meetings. Her students have also produced scholarly work and presented top papers at national, regional, and state conferences. Other communication professors from universities in Oklahoma have presented her with the Outstanding Communication Educator Award.

Dr. Tim Patton, SE, received a B.S. in Fisheries and Wildlife Management from Arkansas Tech University, an M.S. and a Ph.D. in Zoology and Physiology from the University of Wyoming. Following that, he was employed as a research associate for the Wyoming Cooperative Fish and Wildlife Research Unit. He came to Southeastern Oklahoma State University in 1998, and is currently a professor in the Department of Biological Sciences. His research emphases are on applied conservation of rare species and biodiversity, especially of aquatic organisms, and most of research efforts are assisted by undergraduates.

Dr. C. W. Von Bergen is the John Massey Professor of Management at Southeastern Oklahoma State University in Durant, OK. He received his Ph.D. from Purdue University in industrial-organizational psychology. He has taught numerous psychology and business courses at both the graduate and under-graduate levels using both online and traditional formats at Purdue University, Louisiana Tech University, and Massey University in New Zealand. Von also has over 20 years industrial and consulting experience across a variety of industries addressing human re-sources, employee relations, and organizational behavior issues. He has over 100 publications in primarily practitioner oriented business and legal journals and periodicals.
Dr. Melville Vaughan, UCO, received a B.S. in Botany at the University of Oklahoma (1987), and a Ph.D. in Anatomical Sciences, studying wound healing with Jim Tomasek at OUHSC (1998). He was a postdoctoral researcher for five years in the Shay/Wright lab at the University of Texas Southwestern Medical Center. What Jerry Shay taught him that has been most helpful was “study everything you possibly can, and delegate responsibility”.

He has been at uco for eight years, building up his undergraduate research team using a peer-mentoring model to study the role of myofibroblasts in wound healing, aging, and carcinoma of the skin. He and his team have mentored 57 undergraduate and three high school students through research projects culminating in 79 presentations at 30 venues over the last six years. He continues to collaborate with Tomasek, Shay and Wright, and other faculty at UCO and OUHSC. Support from UCO, INBRE, and OSRHE have been critical to his research and educational success.

Developing a Statewide Online Undergraduate Research Journal
Presented by Tim O’Neil, Director of Freshman Research, OSU

Tim O’Neil is a graduate student in English literature at Oklahoma State University, where he serves as the Director of the Freshman Research Scholars Program in the Office of Scholar Development and Recognition—a position he has held since 2007. Tim is also the Editor of the OSU Journal of Undergraduate Research, which will issue its inaugural volume this year. In 2007 Tim graduated from OSU with Honors degrees in English, History and Political Science and was named Oklahoma’s first recipient of the Jacob K. Javits Fellowship. He is currently preparing a critical edition of Cotton Mather’s letters to The Royal Society—collectively known as the Curiosa Americana.

Publishing Undergraduate Research Panel
Moderator-Dr. Linda Mason, OSRHE

Dr. Sundararajan V. Madihally is an Associate Professor (with tenure), Graduate Program Coordinator at Oklahoma State University and holds the Edward Joullian Chair in Engineering. He received his Ph.D. from Wayne State University and held a research fellow position at Massachusetts General Hospital/Harvard Medical School/Shriners Hospital for Children.

His research interests are in tissue regeneration and delivery options for therapeutic agents (oral, or transdermal), focused on in vitro functional tissue engineering by mimicking in vivo microenvironments and understanding the cellular behavior (stem cells, co-cultures) in three-dimensional porous structure. He is the author of the textbook "Principles of Biomedical Engineering", and has published 55 peer-reviewed articles, 30 conference proceedings and presented more than 170 times (invited and conference). He has chaired more than 35
sessions in national and international conferences, and serves on the editorial board of many journals and as a reviewer for more than 75 journals and various funding organizations.

Five students received Ph.D. degrees and 12 students received M.S. degrees (with thesis) under his supervision. Currently, five students are pursuing Ph.D.s, two students are pursuing M.S. degrees under his supervision. Forty six undergraduates, eight K-12 teachers, and three high school students have worked in his laboratory. He served as the faculty advisor to American Institute of Chemical Engineers (AICHE) student chapter for seven years and received "Outstanding Student Chapter" award every year. He also served as the advisor to the chem-e-car contest for 8 years and participated in national contest every year. He served as the advisor to OSU Indian Student Association for 5 years.

He has received numerous awards including Undergraduate Student Teacher of the Year in School of Chemical Engineering, Advisor of the Year from College of Engineering Architecture and Technology, Advisor of the year from Oklahoma State University, and Advisor of the Year from National American Institute of Chemical Engineers Organization.

Dr. Andrea Holgado is currently an Associate Professor in the Department of Biological Sciences at Southwestern Oklahoma State University (SWOSU). She received her Biology & Natural Science Education Bachelor’s and Ph.D. degrees from the National University of Cordoba, Argentina. After earning her Ph.D. in Biology and Biophysics in 1997, she performed her postdoctoral work in neuroscience at Northwestern University and the University of Illinois at Chicago. In 2005, Dr. Holgado became a Biology Instructor at Loyola University Chicago, where she received an Excellence in teaching award. Since joining the SWOSU faculty four years ago, she has established collaborations with colleagues at research intensive institutions throughout Oklahoma and used pilot project funding from the Oklahoma INBRE program to secure $1,000,000 in extramural dollars from the NSF, Oklahoma Center for the Advancement of Science and Technology, and the State Regents for Higher Education from the State of Oklahoma.

The funding she has leveraged from the INBRE resources have been instrumental for the development of a neuroscience research program at SWOSU and has allowed her to mentor 33 undergraduates in laboratory projects. Many of the students she has mentored are from underrepresented minority groups or are first generation college students. These undergraduates have presented research posters and talks at various regional and national conferences and many have received prestigious honors at these meetings. More recently, Dr. Holgado was the recipient of the 2012 Sidney A. McNairy, Jr. Mentoring Award presented by INBRE. In 2013, she received a mentoring recognition awarded by the Molly and David Boren Mentoring Initiative sponsored by the Oklahoma Foundation for Excellence and a citation from the Oklahoma House of Representatives, introduced by Rep. Harold Wright.

Dr. Muatasem Ubeidat, SWOSU. Dissemination of undergraduate research is an essential and integral part of the research experience. Thus, several national, regional and local conferences have designed venues for the presentation
of undergraduate research, offering students opportunities to excel early in their career and celebrate their achievements. Our laboratory at SWOSU had produced over 70 presentations to meetings since 2009, these presentations resulted in several awards: first place national and second place national for best presentations at the βββ National Convention, second place at the OK research day at the Capitol, first place at the INBRE symposium, and 7 awards at βββ Regional Conventions.

At SWOSU, we established a Research Club in 2007 and we revived it in 2012. The club is sponsored by Dr. Holgado and Dr. Ubeidat. We believe that a presentation about this club and its function in promoting and publishing undergraduate research will be a great addition to this conference. I initiated this club after attending few of CUR meetings.

Dr. Craig Gifford is a Research Associate in the Department of Animal Science where he conducts research and coordinates research efforts in the Department. As a component of his position, he works closely with several University and Departmental Undergraduate Research Scholars. Craig received his B.S. from the University of Wyoming and M.S. from New Mexico State University. After that, he completed his Ph.D. at the University of Idaho and Post-Doctoral work at Oklahoma State University. Craig's laboratory incorporates Undergraduate Students in all phases of research and evaluates the physiological responses to disease and pregnancy recognition.

Dr. Thomas Henderson is an Associate Professor at Tulsa Community College where he coordinates and teaches Electronics and Alternative energy courses. He is the advisor for the schools amateur radio and electronics clubs. Outside of teaching, he designs radio astronomy systems. Thomas received an AAS in Electronics Engineering Technology from Tulsa Junior College, his BS degree from Northeastern State University and a Masters of Engineering Technology from Pittsburg State University. He worked as an electronics engineer for the Tulsa based Telex Corp. until 1991 before moving into full time instructing at Central Tech, Sapulpa. In 1997 he helped OSU-Okmulgee develop and instruct the Semiconductor Manufacturing program before taking his current position in 2000 at TCC. In 2001 Mr. Henderson received the American Radio Relay League’s Professional Instructor of the Year award and has published several articles in radio frequency design.

Undergraduate Research Program Spotlight Award

Chancellor Glen D. Johnson, OSRHE

Closing Call to Action and +Δ Evaluation
Chair, Dr. Linda Mason (photo and biography above)

Sara Barnett-Flores, (Muscogee Creek), graduated from Northeastern State University with a Bachelor’s degree in Developmental Psychology and Master’s degree in School Counseling. She began her professional career at Oklahoma State University, in a federal TRIO grant program (Educational Talent Search), which serves low income, potential first generation college students in sixth through twelfth grades. Four years later, she returned to her alma mater, now serving as the Institutional Grant Writer for Northeastern State University in the Office of Research and Sponsored Programs. A strong advocate for educational access and support programs, she remains active in the TRIO professional organizations.

Dr. Amanda Evert (photo and biography above)

Tim, O'Neill (photo and biography above)

Kathryn Schoonover is the Director of Research and Sponsored Programs at Northeastern State University. Ms. Schoonover is a member of the Council on Research for Regional Universities and played a critical role in the coordination of Oklahoma Research Day 2009, and continues to serve on the Council. She has also served as a mentor for the Oklahoma State Regents for Higher Education Grant Writing Institute. As a strong supporter of undergraduate research, Ms. Schoonover co-authored, along with regional colleagues, an article that was published in the Summer 2012 issue of the Council on Undergraduate Research (CUR) Quarterly titled “Celebrating Undergraduate Research in Oklahoma: The History and Impact of Statewide Undergraduate Research Conferences”. Ms. Schoonover is a member of the National Council of University Research Administrators (NCURA), Society of Research Administrators (SRA), and the Oklahoma Council of Grantsmanship and Research. She also received certification as a trainer for Responsible Conduct of Research in 2012.

Nancy Thomason is currently the interim director of the Office of Sponsored Programs and Research at East Central University. Prior to this position, she was the executive director of ECU’s Center for Continuing Education and Community Services. In 2000, she was the president of the Association of Continuing Higher Education (ACHE). She earned a B.S. from The Ohio State University in Columbus, Ohio and a M.Ed. from Saint Francis College in Fort Wayne, Indiana.

Dr. Anton Wohlers, Cameron University, is Associate Professor of Political Science and Academic Research Director at Cameron University. His academic work and publishing has focused on aspects of public policy, including e-government, biotechnology’s role in society, and economic development policy. As part of this role as Academic Research Director, he has encouraged undergraduate research on the campus of Cameron University by organizing
Oklahoma Research Day and other events aimed at involving students in research. He holds a Ph.D. in Political Science from Northern Illinois University (2004), where he studied the role of neighborhood groups in local agenda-setting.

**Gerry Cherry**, University of Central Oklahoma, is retired, is a grant writer and reviewer, trainer, and created the proceedings for the 2010-2013 Undergraduate Research Conferences.