
2015 UTEP INTERDISCIPLINARY RESEARCH (IDR) SYMPOSIUM: STRATEGIES FOR ENABLING INTERDISCIPLINARY RESEARCH

CONCURRENT SESSIONS – TUESDAY, MARCH 24TH

IDR 101 (Faculty Panel)

Interdisciplinary research is increasingly being sought by a number of funding agencies, in addition to academic administrations at all levels. This session will provide context for understanding why interdisciplinary research is being promoted, how it differs from disciplinary research, and practical guidance for becoming involved. The session will introduce basic terminology commonly used in describing interdisciplinary research; challenges and obstacles that are often encountered; and insights from two experienced faculty members on how to be successful in these endeavors.

Dr. Deana Pennington is Associate Professor in the Department of Geological Sciences at UTEP. She conducts research in three areas: Geospatial approaches to land change and human/environmental systems; emerging technologies in geo- and environmental science; and the science of synthesis and interdisciplinary team science. These three areas are interrelated, and most of her projects incorporate aspects of all three. Dr. Pennington has received grants from the National Science Foundation and published peer-reviewed articles on the topic of enabling research across disciplines.

Dr. Christina Sobin is an Associate Professor in Public Health Sciences, the Director of the Interdisciplinary Health Sciences PhD Program in the College of Health Sciences/School of Nursing, and holds the J. Edward and Helen M. C. Stern Professorship in Neuroscience. Throughout her career, her research has focused on early medical and physiological conditions that alter neurocognitive function and development, and her programs of research have been both translational and interdisciplinary.

Engaging non-academic partners (Faculty Panel)

Engaging non-academic partners, from companies to nonprofits to government leaders, opens unique opportunities to impact social, health, and business structures in communities. We will discuss the successes, challenges, and lessons learned in engaging non-academic partners in our session based on our collective decades of experience. These experience range from assisting start-up companies at UTEP with commercialization to working with communities along the US/Mexico Border on water issues to leading funded interdisciplinary research teams.

Dr. Russell R. Chianelli is a Materials Scientist with a PhD in Chemistry, a minor in Physics, and a strong advocate of Interdisciplinary Research (IDR). He is Director of the Materials Research and Technology Institute (MRTI). MRTI interests includes: Catalytic Materials, Mayan Pigments, Algal Products and Bioremediation. Before coming to UTEP, he worked for the Exxon Corporate Research Laboratories and was the Science Leader for the bioremediation cleanup of the *Exxon Valdez* accident in 1989.

Dr. Ivonne Santiago is a Clinical Professor in the Department of Civil Engineering. She has worked in the government of Puerto Rico as Director of Water Quality in the Environmental Quality Board, in consulting, as well as on research on the development and use of sustainable technologies to remove contaminants from water. She currently serves on the Environmental Protection Agency's Good Neighbor Environmental Board that advises the President and Congress on good neighbor practices along the U.S. border with Mexico, as well as on the EPA National Advisory Committee regarding implementation of the environmental Supplemental Agreements to the North American Free Trade Agreement (NAFTA).

Interdisciplinary Research and Education (IDRE) Student Goals (Graduate Student Panel)

As graduate students involved in interdisciplinary projects, we will discuss the following in our session:

- What does it mean to engage in interdisciplinary research as a student?
- What are some challenges we have faced in conducting interdisciplinary research and how have those challenges been addressed?
- Advice to faculty who are considering the development of an interdisciplinary program

- Why is interdisciplinary research important in a student's development?

Isaac Tapia Martinez is a Critical Latino and doctoral candidate in Teaching, Learning, and Culture. His fields, constructs and theoretical frameworks of interest include Critical Pedagogy, Multiculturalism, Race Theory, Temporal Theories, Social Justice, Social Control Theories, Social Engineering, Fatalism, Conformism, Determinism, Transformative Optimism, Socio-Psychology, Ideology Formation and Grassroots Phenomenon. Tapia is currently theoretically deconstructing social control frameworks and developing transformative and liberating theoretical frameworks through a Sequential Transformative Mixed Methods approach.

Tara Perkins is a second year health psychology PhD student. Her research focuses on stress, coping and resilience in underserved and unique populations using integrative mixed methods. She is currently working as a research assistant in a multisite interdisciplinary study collaborating with epidemiologists from Texas Tech Health Sciences Center and Baylor college of Medicine in Houston, Medical Doctors of OB/GYN in Brookdale University Hospital and Medical Center in New York, Oncologists from British Columbia, and Biostatisticians from MD Anderson in Houston.

Mireya G. Ramos-Muniz is a second semester M.S. student and Research Assistant in the lab of Dr. Charles Spencer where she is currently working on her thesis entitled "Peripheral *Francisella tularensis* Infection Results in Neural Invasion". She recently participated in the Paso Del Norte Venture Competition where a prototype of a diagnostic device that uses carbon nanotube technology in the detection of pathogens in agricultural settings was presented in collaboration with a graduate student from Biomedical Engineering, and an undergraduate student from Business Administration. Ms. Ramos-Muniz hopes to complete a Ph.D. in Pathobiology and continue to conduct interdisciplinary research in the future.

Oscar Veliz is a PhD student studying Computer Science with interests in Artificial Intelligence and Game Theory. He earned his BS in Computer Science from UTEP and is currently working as a Research Assistant for Dr. Christopher Kiekintveld. Oscar was a Senior Microsoft Student Partner and has had interdisciplinary research internships with ExxonMobil and Hewlett-Packard. He has also received the Alpha Phi Omega Social Fraternity Outstanding Engineering Student Award.

Art in Interdisciplinary Projects (Faculty/Staff Panel)

What are the potential intersections of the arts with other disciplines in interdisciplinary projects? Our session will explore this question drawing from experiences in music, improvisation, and the visual arts that span local, national and international collaborative experiences. Fulfilling diverse roles in the university and art world where we have served as educator, performer, CEO, moderator, and Principal Investigator, our question continues to be, what can we create together?

Kerry Doyle is the Director of the Stanlee and Gerald Rubin Center for the Visual Arts. This center draws audiences from both on campus and off with a roster of speakers and events focusing on innovative and interdisciplinary practices in the arts. While promoting excellence in the exhibition of international contemporary art, she is also expanding public programming and audience engagement. She has been active in the Juarez arts community, collaborating with the US Consulate in Juarez, Paso del Norte Health Foundation, and Museo de Arte de Ciudad Juarez.

Dr. Chris Reyman joined UTEP's Music Department as an Assistant Professor of Commercial Piano in 2014. He has performed with acclaimed jazz musicians and is also an accomplished accordionist and has performed with *Compost Q*, a music and dance collective of considerable depth. In addition to performing, Dr. Reyman is a prolific composer, having written works for jazz ensembles, improvising ensembles and orchestras. His research in improvisation and creative music practices led him to become the co-founder of *in2improv*, an organization that fosters group creativity by building environments in which people can explore new ways of relating and creating through performance and collaborative improvisation.

Interdisciplinary Research and Education (IDRE) Programs (Faculty Panel)

Three faculty members who lead interdisciplinary programs will discuss the challenges and opportunities such programs provide. Discussion will focus on how to structure these programs effectively for faculty and for students as well as discussion on notable trends within these programs. The programs represented are Materials Science, Health Sciences, and Environmental Science & Engineering.

Dr. Anupama Kaul joined UTEP's college of engineering this September (2014) as Associate Dean for Research and Innovation in the College of Engineering. Concurrent to her Associate Dean, Dr. Kaul holds the AT&T Distinguished Professorship in the

Department of Metallurgical and Materials Engineering, and also has a joint appointment in the Department of Electrical and Computer Engineering. Prior to UTEP, Dr. Kaul served as a Program Director at the National Science Foundation in the Electronics, Photonics, and Magnetic Devices Program within the Engineering Directorate.

Dr. Christina Sobin is an Associate Professor in Public Health Sciences, the Director of the Interdisciplinary Health Sciences PhD Program in the College of Health Sciences/School of Nursing, and holds the J. Edward and Helen M. C. Stern Professorship in Neuroscience. Throughout her career, her research has focused on early medical and physiological conditions that alter neurocognitive function and development, and her programs of research have been both translational and interdisciplinary.

Dr. Craig Tweedie is an Associate Professor with a split appointment between Biology and the Environmental Science and Engineering Program. He leads an interdisciplinary research team and has numerous funded projects. His research focuses on i) understanding how environmental change impacts the ecosystem, ii) the development and innovation of novel hardware, middleware, and software technologies for the environmental sciences, and iii) the advancement of student learning through lab and field research experiences. He has research sites in the Chihuahuan Desert, the Arctic and Indonesia, and serves on the board/committee for local, regional, and international scientific and/or education initiatives.

Developing Communities of Practice (Faculty/Staff Panel)

Communities of practice are groups of people who organize around a shared domain of interest. Vibrant communities share information and help one another through joint activities and discussions. In this session, we will discuss the role of advocates in a community, organizational components of a community, and lessons for starting communities based on our own experiences of co-leading the Interdisciplinary Research and Education Community and Cyber-Security community, respectively. We will also discuss the technical aspect of registering a community through UTEP's Expertise Connector, an online system <http://expertise.utep.edu/home> that connects people, research stories, centers, and communities.

Dr. Ann Quiroz Gates is a Professor and Chair of the Computer Science Department and past Associate Vice President of Research and Sponsored Projects at the University of Texas at El Paso. Gates directs the NSF-funded Cyber-ShARE Center of Excellence, which was established in 2007 with a mission to advance education and interdisciplinary research through cyberinfrastructures. In addition, she leads the NSF Innovation through Institutional Integration (I3) grant that is building cyber-infrastructure, communication, and connections to broaden STEM participation. An outcome of this project is the Expertise Connector website. Gates is a co-advocate with Dr. Miguel Velez-Reyes of the Cyber-Security community.

Andrea Tirres is the Interdisciplinary Network Manager within the Office of Research and Sponsored Projects (ORSP). Tirres manages the Interdisciplinary Research Enhancement Program which provides seed money to interdisciplinary teams, creates opportunities for researchers to connect with each other in formal and informal settings, serves on the technical support team for UTEP's NSF I3 grant, and elevates the challenges and successes of interdisciplinary efforts on campus. Tirres is co-advocate with Dr. Deana Pennington of the Interdisciplinary Research and Education community of practice.