

NUCATS

Northwestern University Clinical and Translational
Sciences Institute



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UNIVERSITY

The First Annual International Science of Team Science Conference

LAMBERT FAMILY COMMUNICATION CONFERENCE in collaboration with Research Team Support (RTS) at the Northwestern University Clinical and Translational Sciences (NUCATS) Institute on the Science of Team Science

APRIL 22-24, 2010

Wyndham Chicago

The interdiscipline of the Science of Team Science promotes team-based research by empirically examining processes by which research teams organize, communicate, and conduct research. This includes understanding how teams connect and collaborate to achieve scientific breakthroughs that would not be attainable by either individual or additive efforts. Northwestern's Research Team Support (RTS) is a champion of this emerging field of interdisciplinary study.



narities, and Interdisciplinarity (1996), *Transdisciplinarity: Joint Problem Solving among Science, Technology, and Society* (2001), *Interdisciplinary Education in K-12 and College* (2002), the monograph *Mapping Interdisciplinary Studies* (1999), *Humanities, Culture, and Interdisciplinarity: The Changing American Academy* (2005), and *Creating Interdisciplinary Campus Cultures* (2010). She is also Associate Editor of the forthcoming *Oxford Handbook of Interdisciplinarity* (2010), is Co-Editor of the University of Michigan Press series *Digital Humanities@digitalculturebooks*, and is currently writing a book on "Mapping Digital Humanities."



Julia Lane, PhD is the Program Director of the Science of Science & Innovation Policy program at the National Science Foundation. Her previous jobs included Senior Vice President and Director, Economics Department at NORC/University of Chicago, Director of the Employment Dynamics Program at the Urban Institute,

Senior Research Fellow at the U.S. Census Bureau and Assistant, Associate and Full Professor at American University. Julia has published over 60 articles in leading economics journals, and authored or edited five books. She has been the recipient of over \$20 million in grants; from foundations such as the National Science Foundation, the Sloan Foundation, the MacArthur Foundation, the Russell Sage Foundation, the National Institute of Health; from government agencies such as the Departments of Commerce, Labor, and Health and Human Services in the U.S., the ESRC in the U.K., and the Department of Labour and Statistics New Zealand in New Zealand, as well as from international organizations such as the World Bank. She has organized over 30 national and international conferences, received several national awards, given keynote speeches all over the world, and serves on a number of national and international advisory boards. She is one of the founders of the LEHD program at the Census Bureau, which is the first large scale linked employer-employee dataset in the United States. She is also the PI of the NORC data enclave, a remote access collaborative environment for researcher access to sensitive business micro-data. A native of England who grew up in New Zealand, Julia has worked in a variety of countries, including Australia, Germany, Malaysia, Madagascar, Mexico, Morocco, Namibia, Sweden, and Tunisia. Her undergraduate degree was in Economics and Japanese from Massey University in New Zealand; her M.A. in Statistics and Ph.D. in Economics are from the University of Missouri in Columbia. She is fluent in Swedish and German and speaks conversational French.



Gary M. Olson, PhD is Donald Bren Professor of Information and Computer Sciences at the University of California, Irvine. He joined the Department of Informatics at the Bren School of Information and Computer Sciences in July of 2008. Previously he was Paul M. Fitts Professor of Human-Computer Interaction in the School of Information and Professor of Psychology at the University of Michigan. He received his B.A. *summa cum laude* (1967) in Psychology from the University of Minnesota, and an M.A. (1968) and Ph.D. (1970) in Psychology from Stanford University. For more than two decades he has conducted research in the areas of human-computer interaction (HCI) and computer supported cooperative work (CSCW). Of late the focus of his work has been on how to support small groups of people working on difficult intellectual tasks, particularly when the members of the group are geographically distributed. This research has involved both field studies of groups attempting to do such work and lab studies that evaluate specific technologies. He has published more than a hundred and twenty articles and chapters, and has edited four books, most recently *Scientific Research on the Internet* published in 2008 by MIT Press. In 2003 he was elected to the ACM SIGCHI Academy, and in 2006 shared the SIGCHI Lifetime Achievement Award with Judy Olson. In 2008 he was elected a Fellow of the ACM, and in 2009 became a Fellow of the Association for Psychological Science (APS) and the American Psychological Association (APA).



Marta Sales-Pardo, PhD is working in understanding how initiatives such as that of the CTSA are achieving their goal of stimulating the creation of new research partnerships with the aim of tackling basic medical problems that are at the interface between disciplines. The purpose of this research is to pinpoint the mechanisms responsible for the creation of new successful partnerships through the use of Science of Team Science tools, including social and complex networks analysis and agent-based modeling.



M. Scott Poole, PhD is a David and Margaret Romano Professorial Scholar, Professor in the Department of Communication, Senior Research Scientist at the National Center for Supercomputing Applications, and Director of the Institute for Computing in the Humanities, Arts, and Social Sciences at the University of Illinois Urbana-Champaign. He received his Ph.D in 1980 from the University of Wisconsin-Madison. Scott has taught at the University of Illinois, the University of Minnesota, and Texas A&M University. His research interests include group and organizational com-

munication, information systems, collaboration technologies, organizational innovation, and theory construction. He is the author of over 120 articles and book chapters. His articles have appeared in *Communication Monographs*, *Human Communication Research*, *Quarterly Journal of Speech*, *Communication Research*, *Small Group Research*, *Management Science*, *Organization Science*, *Information Systems Research*, *MIS Quarterly*, and *Academy of Management Review*, among others. Scott has co-authored or edited ten books including *Communication and Group Decision-Making*, *Theories of Small Groups: Interdisciplinary Perspectives*, *Organizational Change and Innovation Processes: Theory and Methods for Research*, and *The Handbook of Organizational Change and Innovation*. Scott has been named a Fellow of the International Communication Association, a Distinguished Scholar of the National Communication Association, and is recipient of the Steven A. Chaffee Career Productivity Award from the International Communication Association. Current research foci include team behavior in massive multiplayer online games, utilization and implementation of communication and information technologies, study of the use of information technology in emergency response, and integrating theories of small groups and social networks in the explanation of large, dynamically changing groups and intergroup networks.



John Skvoretz, PhD is Professor of Sociology at the University of South Florida, former Dean of the College of Arts and Sciences at USF, and Carolina Distinguished Professor Emeritus from the University of South Carolina. He earned a B.A. in Mathematics and a B.A.

in Sociology from Lehigh University where he was elected to Phi Beta Kappa and he was an NSF Graduate Fellow at the University of Pittsburgh where he earned a Ph.D. in Sociology. He has been a member of the prestigious (invitation only) Sociological Research Association since 1995. Professor Skvoretz is a mathematical sociologist whose contributions are characterized by the innovative use of mathematics to formulate theory and analyze data. He has published many research articles, edited books, and book chapters and several computer programs used in exchange network research and analysis. He has contributed to several areas in sociology but the current area of greatest activity is social network analysis. Current research uses exponential random graph models and biased net models to address the question of where ties are located in networks as functions of the other ties that surround them and the attributes of the individuals (either persons or groups) who are linked by the connections.



Bonnie Spring, PhD earned her doctorate degree in psychology from Harvard University and is Professor of Preventive Medicine, Psychology, and Psychiatry & Behavioral Sciences, Director of Behavioral Medicine, and Co-Program Leader in Cancer Prevention at Northwestern Uni-

versity. She is the Immediate Past President of the Society of Behavioral Medicine (SBM) and recipient of SBM's Distinguished Research Mentor award. She is also a Fellow of the American Psychological Association, member of the Academy of Behavioral Medicine Research, and holds the American Board of Professional Psychology's Diplomate in Clinical Health Psychology. She is an advisory editor for the *Journal of Consulting and Clinical Psychology*, *Journal of Clinical Psychology in Medical Settings*, and *Journal of Social and Clinical Psychology*, founding editor for *Translational Behavioral Medicine: Practice, Policy, Research*, and serves on grant review panels for the National Institutes of Health (NIH). Dr. Spring's research career has been defined by a proclivity for posing questions whose answers require a multidisciplinary, team science approach. For example, she initiated and Chairs the NIH-funded Council for Evidence-Based Behavioral Practice (EBBP), whose members are experts in medicine, psychology, nursing, public health, nursing, and library sciences. The EBBP Council's mission is to create training resources and tools that help bridge the gap between research and behavioral health practice at the individual and population levels. Funded continuously since 1976, her research intervening on behavioral risk factors (smoking, poor quality diet, physical inactivity, obesity) brings together collaborators in behavioral science, medicine, nutrition, kinesiology, engineering, economics, and social networks science. Within Research Team Support (RTS), Dr. Spring is developing a series of online learning resources to help researchers conduct better team science. The learning modules will convey background knowledge about the science of team science, and will feature lessons learned from the experiences of successful basic, clinical and behavioral science research teams.



Daniel Stokols, PhD is Chancellor's Professor of Planning, Policy, and Design, Psychology and Social Behavior, and Dean Emeritus of the School of Social Ecology at the University of California, Irvine. He is also Professor of Public Health and Epidemiology in the College of Health

Sciences at UCI. Dr. Stokols earned his B.A. degree at the University of Chicago and his M.A. and Ph.D. degrees at the University of North Carolina, Chapel Hill. Dr. Stokols is past President of the Division of Population and Environmental Psychology of the American Psychological Association (APA) and is a Fellow of Divisions 9, 27, 34, and 38 within

APA and of the American Psychological Society. He serves as a Section Editor of the American Journal of Health Promotion, a member of the Editorial Boards of the Journal of Environmental Psychology and the Journal of Architectural and Planning Research. Dr. Stokols was recipient of the Annual Career Award of the Environmental Design Research Association in 1991, the UC Irvine Lauds and Laurels Faculty Achievement Award and the Chancellor's Award for Excellence in Fostering Undergraduate Research in 2003. His recent research has examined contextual factors that influence the success of transdisciplinary research and training programs. Additional areas of Dr. Stokols' research include the design and evaluation of community and work-site health promotion programs, the health and behavioral impacts of environmental stressors such as traffic congestion and overcrowding, and the application of environmental design research to urban planning and facilities design. Dr. Stokols currently serves as Scientific Consultant to the National Cancer Institute, Division of Cancer Control and Population Sciences, for the development and evaluation of NCI's transdisciplinary research and training centers, and as a Team Science Evaluation Consultant for the National Academies of Sciences-Keck Futures Initiative (NAKFI).



Robert Taylor, PhD arrived at Northwestern in December 1991 to found the Instructional Technology Group and to help shape Northwestern's efforts in Smart Classroom development. His focus here has been on moving academic technologies beyond the "early pioneers" stage and into the mainstream of

most faculty members' work in the classroom and in research. Bob worked at the University of Rochester Computing Center from 1982 until 1991. He left there as an Assistant Director of the Center and was in charge of faculty services, the development of relations with the supercomputing center at Cornell, and the creation of new teaching labs. Previously, Bob worked as a research associate in the Community Biology Group at the University of Michigan and owned an award-winning old house restoration finishing business in upstate New York. Bob has a BA in Mathematics.



Jacob Kraemer Tebes, PhD is Associate Professor of Psychology in Psychiatry, Child Study Center, and Epidemiology & Public Health at the Yale University School of Medicine, where he also serves as Co-Director of the Division of Prevention and Community Research and Deputy Director of The Consultation Center.

Dr. Tebes earned a B.S. in Psychology from Georgetown University and a Ph.D. in Clinical/Community Psychology from the State University of New York at Buffalo. He is a

fellow of the American Psychological Association and of the Society for Community Research and Action. Dr. Tebes is also Editor of the American Journal of Community Psychology, and is on the editorial boards of the Journal of Community Psychology and Child Abuse and Neglect. His research has focused on the promotion of resilience in at risk populations, the prevention of adolescent substance use, the evaluation of system-level and community interventions, prevention and evaluation research methodology, and meta-science. Dr. Tebes currently serves as Principal Investigator of the evaluation for the Interdisciplinary Research Consortium on Stress, Self-Control, and Addiction that is funded through the NIH Roadmap Initiative, and is also an advisor to the national evaluation of interdisciplinary research consortia funded through that initiative. At Yale, Dr. Tebes teaches advanced seminars in prevention research methods and clinical methods, and co-directs NIDA training and education programs in substance abuse prevention research and interdisciplinary team science.



William Trochim, PhD, received his doctorate degree from the Department of Psychology at Northwestern University in the area of Methodology and Evaluation Research. His research is in the area of applied social research methodology, with an emphasis on program planning and evaluation methods. He is known for

the development of a number of methodologies in the behavioral, social and medical sciences. He is a prolific writer, including several widely used introductory research methods texts, and articles that have appeared in American Journal of Evaluation, New Directions for Program Evaluation, Evaluation and Program Planning, Evaluation Review, the American Journal of Public Health, Journal of Clinical Epidemiology, Consulting and Clinical Psychology, Controlled Clinical Trials, Performance Improvement, and Medical Decision Making, among others. He is actively engaged in research with the National Science Foundation (NSF) incorporating systems approaches in the evaluation of Science, Technology, Engineering and Mathematics (STEM) education programs. He is working with Dr. Gilbert Botvin, Weill Cornell Medical Center, on an NIH project in studying the use of Life Skills Training and its role in the dissemination, adoption, implementation, and sustainability (DAIS) of this evidence-based program. He is the Director of Evaluation for the Weill Cornell Clinical and Translational Science Center -- a collaboration of Weill Cornell Medical College, Memorial Sloan Kettering Cancer Center, The Hospital for Special Surgery, Hunter College and Cornell Cooperative Extension -- and participates actively in the NIH Clinical and Translational Science Awards national evaluation. He has also served multiple terms on the Board of Directors for the American Evaluation Association, including serving as the 2008 AEA President.



Brian Uzzi, PhD is the Richard L. Thomas Chair in Leadership at the Kellogg School of Management. He is also professor of sociology, and professor of industrial engineering and management science at Northwestern University, where he is also the Co-Director of the Northwestern Institute on Complex Systems. His award winning and highly cited research uses social network analysis and complexity theory to model creativity and innovation, contagion, and outstanding human achievement.

His research on team science focuses on the rise of teams in the production of high impact science, the relationship between scientists networks and their creativity, and the role of on-line communities in creating and sustaining scientific collaboration.



Michael R. Wasielewski, PhD received his Bachelor of Science and PhD degrees from the University of Chicago. Following his graduate work, he was a postdoctoral fellow at Columbia University. He then moved to the Argonne National Laboratory, where he rose through the ranks to become Senior Scientist and Group Leader of the Molecular Photonics Group. In 1994, he joined the faculty of Northwestern University, where he is currently Professor of Chemistry. He served as Chair of the Chemistry Department at Northwestern from 2001-2004. He is currently the Director of the Argonne-Northwestern Solar Energy Research Center, and also holds an appointment as Senior Scientist in the Center for Nanoscale Materials at Argonne. Dr. Wasielewski's research centers on light-driven charge transfer and transport in molecules and materials, photosynthesis, nanoscale materials for solar energy conversion, spin dynamics of multi-spin molecules, molecular materials for optoelectronics and spintronics, and time-resolved optical and electron paramagnetic resonance spectroscopy. His research has resulted in over 330 publications. Dr. Wasielewski was elected a Fellow of the American Association for the Advancement of Science in 1995, and has held numerous distinguished lectureships and fellowships. Among Professor Wasielewski's recent awards are the 2008 Porter Medal for Photochemistry, the 2006 James Flack Norris Award in Physical Organic Chemistry of the American Chemical Society, and the 2004 Photochemistry Research Award of the Inter-American Photochemical Society.



Teresa K. Woodruff, PhD is the Thomas J. Watkins Professor of Obstetrics & Gynecology, Feinberg School of Medicine and Professor of Biochemistry, Molecular Biology and Cell Biology, Weinberg College of Arts and Sciences at Northwestern University. As a reproductive endocrinologist, Dr. Woodruff has spent the better part of her research career focusing on female reproductive health and infertility. To that end, she was made Chief of the newly created Division of Fertility Preservation at the Feinberg School of Medicine. Combining this effort with her work on two R01 NIH grants, a P01 grant and core facility, and her work as director of two NIH funded center grants (The Center for Reproductive Research (U54) and the Oncofertility Consortium (UL1)), Dr. Woodruff has established a team of oncologists, fertility specialists, social scientists, educators and policy makers to translate her research to the clinical care of women who will lose their fertility due to cancer treatment. To describe this effort, she coined the term oncofertility, a word that is now officially recognized as a new 'slang' term in the English language. She edited the first book on this topic called Oncofertility (Springer, 2007) where the scope of the problem and current technology, clinical practice tables, procedural guidelines and patient stories are collected. She has been a tireless advocate for gender specificity in clinical trials in an effort to better understand the effects that technologies and procedures have on women and is the Founder and Director of the Institute for Women's Health Research. As an educator and mentor, she works hard to encourage young women to pursue careers in the sciences, and has developed the Oncofertility Saturday Academy in conjunction with the Young Women's Leadership Charter School as a way to involve high school girls in college level science. She serves on the Endocrine Society Council and the Society for the Study of Reproduction Board of Directors. Her awards include the Distinguished Teaching Award (2000), the Mentor of the Year Award (2009) and the Distinguished Woman in Medicine and Science (2009) from Northwestern University. She was also honored by the Alumnae of Northwestern University with their Distinguished Alumnae Award (2008). She has been honored nationally with awards from the American Women in Science (AWIS) (2008) Innovator Award, the American Medical Women Association (AMWA) Gender Equity Award (2009), and the "Speaking of Women's Health" Distinguished Service Award (2007). She was elected a fellow of the American Association for the Advancement of Science (2005) and awarded the Endocrine Society's Richard E. Weitzman Memorial Award (2000).

Poster Abstracts

- 01 **Where Are You Hiding? Identifying Diabetes Researchers**
Airong Luo, Patricia Anderson, Mark MacEachern
University of Michigan
-
- 02 **Knowledge Integration and Creation in Interdisciplinary Science Teams: The Role of Team Dynamics and Communication**
Maritza Salazar, PhD, Theresa Lant, PhD
University of Central Florida, Pace University
-
- 03 **Engaging Many Minds — An Approach to Crowdsourcing Ideas & Collaborator Discovery**
Katja Reuter, PhD, Rachael Sak, RN MPH, Maninder Kahlon, PhD
University of California San Francisco
-
- 04 **Digital Vita: Designing a Social Infrastructure for Team Science**
Brian Butler, Titus Schleyer, Heiko Spallek, Linda Schmandt
University of Pittsburgh
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- 05 **Harvard Catalyst Profiles — An Open Source Research Networking System**
Griffin Weber, Nick Benik, Paul Gomez, Ken Huling, Kellie Lucy, Rob Piscitello, George Rakauskas, Jeff Rosen, Marlon Violette, John Halamka
Harvard Medical School
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- 06 **Impact of DTMI Regulatory Affairs and DTRI on Translational Science at Duke**
Jelena P. Berglund, PhD RAC, Erin O'Reilly, PhD RAC, Sue Avery, MSN, Victoria Christian, Bruce Sullenger, PhD, Lynn Sutton, PMP, Bruce K. Burnett, PhD RAC, Robert M. Califf, MD
Duke University
-
- 07 **Towards an Applied Communicative Theory of Proposal Development in Interdisciplinary Research**
J Quyen Arana
University of Oklahoma
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- 08 **Effects of Scale, Scope and Team Structure on the Productivity of Academic Labs**
Darren Zinner, Eric Campbell
Brandeis University, Harvard University
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- 09 **Bringing the Social to Team Science**
Stephanie Jo Kent, James Cumming
University of Massachusetts Amherst, Chaos Management, Ltd
-
- 10 **Advancing the Science of Evaluating Team Science Outcomes: The Research on Academic Research (RoAR) Initiative: Part 1 Sociometrics**
Cameron Norman, Tim Huerta, Sharon Mortimer, Alison Buchan
University of Toronto, Texas Tech University, Michael Smith Foundation for Health Research, University of British Columbia
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- 11 **A Bibliometric Comparison of the Characteristics and Productivity of the TTTURCs and Tobacco R01 Grants**
Brooks Stipelman, Annie Feng, Kara Hall, Daniel Stokols, Richard Moser, Glen Morgan, Stephen Marcus, David Berrigan, Amanda Vogel
National Institutes of Health, SAIC Frederick, University of California Irvine
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- 12 **The Impacts of Co-authorship Networks and Citation Networks in Team Science**
Meikuan Huang, Jordan Liu, Annie Wang, Noshir Contractor
Northwestern University
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- 13 **Dynamic Support for Dynamic Challenges: Using Collexis to Support Researchers at the University of Michigan Medical School**
Michael Warden, Marisa Conte
Collexis, Inc., University of Michigan
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- 14 **Leadership and Communication Behavior that is Conducive to Effective Teamwork**
Brian Fitch, PhD
Value Unlimited
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- 15 **Interdisciplinary Research Assessment Tools**
Alan L. Porter, Nils C. Newman, Ismaeil Rafols
Search Technology, Inc., University of Sussex
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- 16 **Advancing the Science of Evaluating Team Science Outcomes: The Research on Academic Research Initiative: Part 3: Bibliometrics**
Sharon Mortimer, Tim Huerta, Cameron Norman, Alison Buchan
Michael Smith Foundation, Texas Tech University, University of Toronto, University of British Columbia
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- 17 **Studying Interdisciplinarity and Transdisciplinarity at the Subfield Level: The Case of Nanotechnology**
Stasa Milojevi
Indiana University Bloomington
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- 18 **Using ScienceWire to Support Research and Policy Development for the Science of Team Science**
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Discovery Logic/Thomson Reuters
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- 19 **Production of Scientific Knowledge in Virtual Organizations**
Maria C. Binz-Scharf, Leslie Paik
City College of New York

Poster Abstracts

- 20 **Supporting Coordination of Interdependent Work: A Network Representation of Dependencies in Innovative Engineering Research Teams**
Laura Dabbish, Jim Herbsleb, Patrick Wagstrom, Anita Sarma
Carnegie Mellon University, IBM Research, University of Nebraska
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- 21 **A Comprehensive, Mixed-Methods Evaluation of the Interdisciplinary Research Consortium on Stress, Self-Control and Addiction**
Jacob Kraemer Tebes, PhD, Nghi D. Thai, PhD, Samantha G. Matlin PhD, Emily C. Cook, PhD, Roy S. Money, MS, Carolyn Mazure, PhD, Rajita Sinha, PhD
Yale University School of Medicine
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- 22 **Laboratree — A Web-based Platform for Team Research Collaboration**
Jack H. Pincus, Jamison R. Hemmert, Joy A Nellis, Brandon J. Peters, Sean D. Mooney
Selican Technologies, Inc., Buck Institute for Age Research
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- 23 **Interrelationship of Cognitive and Social Conflicts in Team-Based Design Classes**
Xaver Neumeyer, Ann F. McKenna
Northwestern University
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Lisa C. Freeman, Debra Street, Michael Ferrell, Sharmistha Bagchi-Sen, Justin Kastner, Abby Nutsch, Sarah Desai
Kansas State University, University at Buffalo SUNY
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- 25 **Characterizing and Assessing Research Groups: A Self-Organizing Approach**
Leonardo Reyes-Gonzales, Francisco M. Veloso, William McDowell
Carnegie Mellon University
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- 26 **nanoHUB: The Evolution of Team Science HUB**
Michael Beyerlein, Pamela Morris
Purdue University
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- 27 **COALESCE: CTSA Online Assistance for Leveraging the Science of Collaborative Effort**
Bonnie Spring, Arlen C. Moller, Holly Falk-Kzesinski, Katherine Silverstein, Christina Anderson, Philip Greenland
Northwestern University
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- 28 **Understanding the Structure and Function of Multidisciplinary Research Teams Using Complexity Science Theory**
N. Arar, A. Abboud, R. Clark
UTHSCSA
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Iftexhar Ahmed
University of Illinois at Urbana-Champaign
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Richard McGee, Mary DeLong
Northwestern University, Emory University School of Medicine
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- 31 **VIVO: Facilitating Collaboration by Developing a National Network of Scientists**
Michael Conlon, Medha Devare, Kristi Holmes, Sara Russell Gonzalez
University of Florida, Cornell University, Washington University in St. Louis, University of Florida, VIVO Collaboration
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- 32 **Studying Teams from Inside Out: A Computational Analysis of Meeting Transcripts**
David André Broniatowski
Massachusetts Institute of Technology
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- 33 **Virtuality and Information Sharing in Teams**
Leslie A. DeChurch, Jessica R. Mesmer-Magnus, Jessica Wildman, Marissa S. Porter, Miliani Jimenez
University of Central Florida
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- 34 **Interactional Expertise: A Research Agenda**
David A. Stone & Evan Selinger,
Northern Illinois University and Rochester Institute of Technology
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- 35 **Advancing the Science of Evaluating Team Science Outcomes: The Research on Academic Research (RoAR) Initiative: Part 2: Social Network Analyses**
Tim Huerta, Cameron D. Norman, Sharon Mortimer, & Alison Buchan
Rawls College of Business, Texas Tech University; Dalla Lana School of Public Health, University of Toronto; Michael Smith Foundation for Health Research; Faculty of Medicine, University of British Columbia
-
- 36 **A toolbox-based approach to negotiating philosophical differences within cross-disciplinary research groups.**
Stephen Crowley, Renee Hill, Chris Looney, J.D. Wulfhorst, Michael O'Rourke, Sanford D. Eigenbrode, Shannon Donovan, Brian Crist & Justin Horn.
University of Idaho, Plant, Soil and Entomological Sciences, University of Idaho, Agricultural Economics and Rural Sociology, University of Idaho, Department of Philosophy, Boise State University, Department of Philosophy, University of Alaska, Anchorage, Department of Geography and Environmental Studies

THANK YOU FOR ATTENDING THE FIRST ANNUAL SCIENCE OF TEAM SCIENCE CONFERENCE

Panelists' presentations and audio recordings of all the panel sessions will be available on the Science of Team Science web site about one month following the Conference

<http://scienceofteamscience.northwestern.edu/>

Dates for next year's Annual International Science of Team Science Conference will be announced via email and on our website by summer



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Lina Cho, Program Assistant; Philip Greenland, Director; Sheila Kessler, Assistant Director, Office of Evaluation, Elizabeth Kollross, Director, Communications; Tyler Smith, Program Assistant; and Meredith Woolard, Program Assistant

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Noshir Contractor, PhD	Northwestern University, Professor, Industrial Engineering and Management Sciences, Communication Studies, and Management and Organizations
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William Trochim, PhD	Cornell University, Director, Office for Research on Evaluation; Director of Evaluation, Weill Cornell Clinical and Translational Science Center; Director of Evaluation for Extension and Outreach
Brian Uzzi, PhD	Northwestern University, Professor, Management and Organizations, Industrial Engineering and Management Sciences and Co-Director, Northwestern Institute on Complex Systems

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- NIH National Cancer Institute, Division of Cancer Control & Population Sciences
- Northwestern Institute on Complex Systems (NICO)

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School of Communication



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Conference Agenda

WEDNESDAY, APRIL 21, 2010

7:00-9:00 PM Welcome Reception

THURSDAY, APRIL 22, 2010

8:00-9:00 AM Registration and Continental Breakfast

8:30-8:45 Welcome and Introduction

[Philip Greenland, MD](#), Northwestern University, Director Clinical and Translational Sciences (NUCATS) Institute

[Holly Falk-Krzesinski, PhD](#), Clinical and Translational Sciences (NUCATS) Institute Northwestern University, Director, Research Team Support, Clinical and Translational Sciences (NUCATS) Institute

8:45-9:30 Setting the Stage: Science of Team Science Concept Mapping Project

[William Trochim, PhD](#), Cornell University, Director, Office for Research on Evaluation; Director of Evaluation, Weill Cornell Clinical and Translational Science Center; Director of Evaluation for Extension and Outreach

9:30-11:00 Perspectives on the Challenges Related to the Science of Team Science

[Stephen Fiore, PhD](#), University of Central Florida, Assistant Professor, Cognitive Sciences; Director, Cognitive Sciences Laboratory

[Daniel Stokols, PhD](#), University of California-Irvine, Professor, Planning, Policy and Design; Professor, Psychology and Social Behavior

[Julie Thompson Klein, PhD](#), Wayne State University, Professor of Humanities, Interdisciplinary Studies Program

11:00-11:15 Break

11:15-1:00 PM Collaborative Dynamics of Teams: Content and Connection

[Jonathon Cummings, PhD](#), Duke University, Associate Professor, The Fuqua School of Business

[Linus Dahlander, PhD](#), Scandinavian Consortium for Organizational Research (SCANCOR) and Stanford University, Postdoctoral Fellow

[Joann Keyton, PhD](#), North Carolina State University, Professor, Communication

[Marshall Scott Poole, PhD](#), University of Illinois at Urbana-Champaign, Associate Director, Center for Computing in the Humanities, Arts and Social Sciences; Professor of Speech Communication; Senior Research Scientist, National Center for Supercomputing Applications

1:00-2:30 Buffet Lunch, Networking & Northwestern Remarks

[Barbara O'Keefe, PhD](#), Northwestern University, Dean, School of Communication

[Morton Schapiro, PhD](#), Northwestern University, President

[Bill Lambert](#), Northwestern University, Board of Trustees

2:00-2:30 Poster Set-up

2:30-4:15 Network Perspectives of Teams

[Luis Amaral, PhD](#), Northwestern University, Professor of Chemical and Biological Engineering and Medicine and HHMI Early Career Scientist

[Katy Börner, PhD](#), Indiana University, Professor, Information Science, Informatics, Statistics; Director, Cyberinfrastructure for Network Science Center

[Noshir Contractor, PhD](#), Northwestern University, Professor, Industrial Engineering and Management Sciences, Communication Studies, and Management and Organizations

[Benjamin Jones, PhD](#), Northwestern University, Associate Professor, Management and Strategy

[Marta Sales-Pardo, PhD](#), Universitat Rovira i Virgili, Tarragona (Catalonia, Spain), Associate Professor, Chemical Engineering, Escola Tecnica Superior d'Enginyeria Quimica and Northwestern University, Adjunct Professor, Chemical and Biological Engineering

4:15-5:45 Poster Session & Reception

6:30-8:30 Dinner at N9NE (For Panelists, Program Committee, and Invited guests)

Conference Agenda

FRIDAY, APRIL 23, 2010

- 7:30-8:30 AM Continental Breakfast
- 8:30-8:45 Welcome back
- 8:45-10:30 Praxis of Team Science
[Holly Falk-Krzesinski, PhD](#), Northwestern University, Research Assistant Professor and Director, Research Team Support, Clinical and Translational Sciences (NUCATS) Institute
[Howard Gadlin, PhD](#), National Institutes of Health, Office of the Director, Ombudsman
[Brian Uzzi, PhD](#), Northwestern University, Professor, Management and Organizations, Industrial Engineering and Management Sciences and Co-Director, Northwestern Institute on Complex Systems
[Michael Wasielewski, PhD](#), Northwestern University, Professor, Chemistry and Director, DOE Energy Frontier Research Center on Solar Energy
[Teresa Woodruff, PhD](#), Northwestern University, Professor, Obstetrics and Gynecology and Biochemistry, Molecular Biology and Cell Biology; Director, Institute for Women's Health Research; Director, The Oncofertility Consortium
- 10:30-11:00 Break
- 11:00-12:45 PM Strategies for Facilitating Team Science
[Michael Conlon, PhD](#), University of Florida, Interim Director, Biomedical Informatics, University of Florida
[Kara Hall, PhD](#), National Institutes of Health, Program Officer, National Cancer Institute, Division of Cancer Control and Population Sciences, Behavioral Research Program
[Gary Olson, PhD](#), University of California-Irvine, Professor of Information and Computer Sciences
[Bonnie Spring, PhD](#), Northwestern University, Professor, Preventive Medicine and Psychiatry and Behavioral Sciences
[Robert Taylor, PhD](#), Northwestern University, Director, Academic and Research Technologies
- 12:45-2:00 Lunch and Remarks
- 2:00-3:50 Emerging Directions for the Science of Team Science and Science Policy
[Janie Fouke, PhD](#), University of Florida, Senior Advisor to the President; Co-organizer of the NIH Catalyzing Team Science Conference
[Nancy Jones, PhD](#), NIH National Institute of Allergy and Infectious Diseases, Planning and Evaluation Specialist, Strategic Planning and Evaluation Branch and NIH Science of Science Management Working Group
[Sara Kiesler, PhD](#), Carnegie Mellon University, Professor, Computer Science and Human-Computer Interaction
[Julia Lane, PhD](#), National Science Foundation, Program Director, Science of Science and Innovation Policy
[Jacob Kraemer Tebes, PhD](#), Yale University, Associate Professor of Psychology in Psychiatry, Child Study Center, and Epidemiology and Public Health
- 3:50-4:45 Related to the Science of Team Science and Closing Remarks

SATURDAY, APRIL 24, 2010

- 7:30-8:30 AM Continental Breakfast
- 8:30-10:00 Workshop Part 1: Basic Methods of Social Network Analysis for Team Science
[John Skvoretz, PhD](#), University of South Florida, Professor Emeritus, Sociology
- 10:00-10:30 Break
- 10:30-12:00 PM Workshop Part 2: Basic Methods of Social Network Analysis for Team Science
[John Skvoretz, PhD](#), University of South Florida, Professor Emeritus, Sociology
- 11:45-12:00 Farewell Remarks

Setting the Stage: Science of Team Science Concept Mapping Project

William Trochim will present the results of an empirical exercise undertaken in preparation for the conference. Conference registrants and other interested parties were invited to participate in a web-based concept mapping project designed to provide a comprehensive taxonomy of issues in the science of team science that can help guide both the conference and this field of inquiry more broadly. Trochim will describe how the conceptual maps derived from the concept mapping study can provide a programmatic foundation for future research in this field.

A Perspective on Challenges Related to the Science of Team Science

Panelists in this session will discuss current developments and emerging directions in the science of team science. Stephen Fiore will summarize recent developments in scientific studies of team-based collaborative processes and outcomes, and discuss how the findings from this research can help guide future conceptual and empirical work in the science of team science. Julie Klein will discuss alternative conceptualizations of interdisciplinarity and transdisciplinarity and their implications for understanding and facilitating intellectual integration and collaboration, as well as translation of scientific knowledge into effective research and educational programs, community interventions, and public policies. Dan Stokols will discuss the changing ecology and structure of interdisciplinary research teams and consider new multi-method strategies for gauging their scientific and societal impacts (e.g., linking quantitative bibliometric assessments of team productivity, scientometric visualizations of collaborative networks, and domain experts' subjective appraisals of the scientific innovation and impact of team science outcomes).

Collaborative Dynamics of Teams: Content and Connection

Panelists in this session will discuss the processes and collaborative dynamics of interdisciplinary teams across the hierarchy of team-to-institutional connections. Joann Keyton focuses directly on the interdisciplinary team in lab and meeting settings. Using observational and interview data from scientists who work in interdisciplinary teams, she makes distinctions between the task and relational activities that comprise team science. Scott Poole examines the multi-team systems through which science discovery occurs. He explores conditions under which effective multi-team systems are likely to form and conditions that militate against their formation. Linus Dahlander reports on his NSF-supported study that evaluates the impact, effectiveness, and consequences of interdisciplinary centers. He also comments on the differences between interdisciplinary and disciplinary-based research, especially institutional reward structures. Jonathon Cummings takes the broadest view of team science dynamics. Using data from 500 NSF projects, he describes the institutional characteristics that inhibit interdisciplinary collaboration and details the coordinating and inhibiting mechanisms.

Network Perspectives of Teams

Panelists in this session will present different perspectives of network views of scientific teams. Noshir Contractor will describe why a network perspective is particularly appropriate to understand and enable team science from a multi-theoretical and multilevel perspective. Ben Jones will discuss the origin and motives of team science, why it is increasing across virtually all fields of science and social science, and why team authored work increasingly tends to produce higher impact work. Marta Sales-Pardo will report on gender differences in teams; her research indicates that women have traditionally been more collaborative than men, producing less papers but of better quality. Luis Amaral will report on a study of mentorship outcomes for 7000+ mathematicians whose careers span a 100 years period and discuss the surprising findings of this unique study. Finally, Katy Borner will present studies that aim to understand and communicate how scholarly network structures evolve over time in geographic and topic space at the individual (micro), institutional/research field (meso), and (inter)national/global science (macro) level.

Praxis of Team Science

Panelists in this session will discuss their experience leading, training, and fostering scientific teams. Holly Falk-Krzesinski will describe her institutional role in research development and team science and experience catalyzing new federally-funded research centers. Teresa Woodruff will discuss her experience leading the NIH Interdisciplinary Research Consortium- (U54) funded Oncofertility Consortium, an interdisciplinary, multi-institutional collaborative team aimed at solutions to intractable problems using team-based science. Mike Wasielewski will discuss his experience leading the DOE Energy Frontier Research Center-funded Argonne-Northwestern Solar Energy Research (ANSER) Center and efforts to develop a team and proposal in response to the recent DOE Hub center program. Howard Gadlin will describe his experience working with investigators engaged in team science and recommendation for team science training, especially for early career investigators. Brian Uzzi will discuss approaches to couple leadership and team science training.



Strategies for Facilitating Team Science

Panelists in this session will share resources and describe tools to support team science in practice. Michael Conlon is PI of the ARRA funded VIVO Consortium on research networking and will describe how the VIVO networking tool can be used to establish and facilitate team science collaboration. Kara Hall will introduce an online "Team Science Toolkit" developed by her team at the NIH National Cancer Institute. The Toolkit will create a dynamic community-driven repository of resources to support the practice and study of team science. Gary Olson will present a new web-based tool that distills expertise drawn from his long experience of facilitating team science; the Collaboration Success Wizard can be used by researchers at various stages in the team science process to glean feedback and advice. Bonnie Spring will introduce a series of web learning

modules that she and her colleagues are developing; the first module introduces a wide audience to team science core concepts, incentives and challenges, team assembly and management skills, and evaluation. Finally, Robert Taylor will discuss institutionally-supported IT and cyberinfrastructure used to enhance collaboration in distributed scientific teams.

Emerging Directions for the Science of Team Science and Science Policy

The panelists in this session will discuss emerging directions in the science of team science as it relates to the impact on team science and science policy more broadly. Janie Fouke will highlight current practices at universities and funding agencies that inhibit scientists from working in teams. Sara Kiesler will discuss the implications of team science for science policy, in particular, the tradeoffs between meritocracy and other criteria of team success. Nancy Jones will discuss emerging themes for the science of team science policy and some key stakeholders and their needs. Julia Lane will discuss the new NIH-NSF-OSTP data infrastructure initiative and STAR METRICS, which will be used to measure the effect of research on innovation, competitiveness and science, in the context of team science. And finally, Jack Tebes will discuss challenges and opportunities for scholarly publication in interdisciplinary team science.

Workshop on Basic Methods of Social Network Analysis for Team Science

Social network analysis is the body of techniques developed to analyze social networks. Social networks consist of a set of actors (individuals – researchers – or groups – research centers and institutions) and a set of ties (links, edges, or arcs) that connect pairs of actors. Basic questions in social network analysis include properties of the total network (is it connected? are there clusters or communities? is the location of ties related to attributes of actors? how cohesive is the population of actors?) and positions of actors in that total network (are some actors more central? are some actors more important to overall connectedness? are positions of actors related to their attributes?). If there are multiple networks or the same network over time, additional questions arise. The workshop is designed to introduce team science researchers to basic concepts of social network analysis and orient participants to the available software packages for SNA. Special attention will be given by workshop presenter, John Skvoretz to methods that are most relevant to the research concerns of participants culled from the literature on team science and the abstracts to be presented at the conference.



Luis Amaral, PhD received his BS (1990) and MS (1992) in Physics from the University of Lisbon. He went on to obtain a PhD from the Department of Physics at Boston University under the guidance of Gene Stanley. From 1995-1996, Amaral was a postdoctoral fellow at Forschungszentrum Juelich in Germany. He successively spent two years as a

Postdoctoral Fellow at the Massachusetts Institute of Technology. In 1999, Amaral became a Visiting Scholar at both the Center for Polymer Studies and at the Margret and H.A. Rey Laboratory for Nonlinear Dynamics in Medicine, and from 2000 to 2002 he held joint Research Associate appointments at these institutions. Since August of 2002, Amaral has served as faculty member at the Department of Chemical and Biological Engineering at Northwestern University.

Dr. Amaral conducts and directs research that provides insight into the emergence, evolution, and stability of complex social and biological systems. His research aims to address some of the most pressing challenges facing human societies and the world's ecosystems, including the mitigation of errors in healthcare settings, the characterization of the conditions fostering innovation and creativity, or the growth limits imposed by sustainability. Professor Amaral has published over a hundred scientific peer-reviewed papers in leading scientific journals. Those papers have been cited in excess of 7 thousand times; ten having accumulated more than 200 citations each. His research has been featured in numerous media sources, both in the US and abroad. Professor Amaral has received a K25 CAREER award from the National Institutes of Health in 2003, was named to the 2006 class of Distinguished Young Scholars in Medical Research by the W. M. Keck Foundation, and has been selected as an Earlier Career Scientist by the Howard Hughes Medical Institute.



Katy Börner, PhD is the Victor H. Yngve Professor of Information Science at the School of Library and Information Science, Adjunct Professor at the School of Informatics and Computing and the Department of Statistics in the College

of Arts and Sciences, Core Faculty of Cognitive Science, Research Affiliate of the Biocomplexity Institute, Fellow of the Center for Research on Learning and Technology, Member of the Advanced Visualization Laboratory, and Founding Director of the Cyberinfrastructure for Network Science Center (<http://cns.slis.indiana.edu>) at Indiana University. She is a curator of the Places & Spaces: Mapping Science exhibit (<http://scimaps.org>). Her research focuses on the development of data analysis and visualization techniques for information access, understanding, and management. She is particularly interested in the study of the structure and evolution

of scientific disciplines; the analysis and visualization of on-line activity; and the development of cyberinfrastructures for large scale scientific collaboration and computation. She is the co-editor of the Springer book on 'Visual Interfaces to Digital Libraries' and of a special issue of PNAS on 'Mapping Knowledge Domains' (2004). Her new book 'Atlas of Science: Guiding the Navigation and Management of Scholarly Knowledge' published by MIT Press will become available in 2010. She holds a MS in Electrical Engineering from the University of Technology in Leipzig, 1991 and a Ph.D. in Computer Science from the University of Kaiserslautern, 1997.



Michael Conlon, PhD is Associate CIO for IT Architecture, Director of Biomedical Informatics in the UF College of Medicine, Associate Director of the university's Clinical and Translational Science Institute, and Principal Investigator for VIVO: Enabling National Networking of Scientists. His responsibilities include develop-

ment of academic biomedical informatics, expansion and integration of research and clinical information resources as well as strategic planning for university information resources. Previously Dr. Conlon served as Chief Information Officer of the University of Florida Health Science Center where he directed network and video services, desktop support, media and graphics, application development, teaching support, strategic planning and distance learning. He earned his Ph.D. degree in Statistics from the University of Florida, undergraduate degrees in Mathematics and Economics from Bucknell University, and is the author of over 150 scholarly publications and presentations. His current interests include enterprise change and organizational issues in the adoption of information technology, large scale data systems integration and enterprise architecture.



Noshir Contractor, PhD is the Jane S. & William J. White Professor of Behavioral Sciences in the McCormick School of Engineering & Applied Science, the School of Communication and the Kellogg School of Management at Northwestern University, USA. He is the Director of the Science of Networks

in Communities (SONIC) Research Group at Northwestern University. He is investigating factors that lead to the formation, maintenance, and dissolution of dynamically linked social and knowledge networks in a wide variety of contexts including communities of practice in business, translational science and engineering communities, public health networks and virtual worlds. His research program has been funded continuously for over a decade by major grants from the U.S. National Science Foundation with additional current funding from the U.S. National Institutes of Health (NIH), Air Force Office of Research Support, Army Research Institute,

Army Research Laboratory and the MacArthur Foundation. Professor Contractor has published or presented over 250 research papers dealing with communicating and organizing. His book titled *Theories of Communication Networks* (co-authored with Professor Peter Monge and published by Oxford University Press) received the 2003 Book of the Year award from the Organizational Communication Division of the National Communication Association. He is the lead developer of C-IKNOW (Cyberinfrastructure for Inquiring Knowledge Networks On the Web), a socio-technical environment to understand and enable networks among communities, as well as Blanche, a software environment to simulate the dynamics of social networks.



Jonathon Cummings, PhD is an Associate Professor of Management at the Fuqua School of Business, Duke University. After completing his dissertation and post-doc at Carnegie Mellon University, he spent three years at the MIT Sloan School of Management as an Assistant Professor. His current research focuses on social networks and teams in corporations and science, and the role of knowledge sharing in work distributed across different geographic locations. His publications have appeared in journals ranging from *Management Science* to *Research Policy* to *MIS Quarterly*.



Linus Dahlander, PhD is a second year post doc at Stanford University investigating how interdisciplinary teams and networks emerge and dissolve. In his postdoctoral work, he works on the Mimir project that explores how networks shapes ideas led by professors Dan McFarland, Woody Powell, Dan Jurafsky and Chris Manning.



Holly Falk-Krzesinski, PhD is the Director of Research Team Support (RTS) within NUCATS Institute, Dr. Falk-Krzesinski works with the RTS team and the rest of NUCATS to catalyze new clinical and translational multi- and interdisciplinary research initiatives; conduct, support, and disseminate research on the science of team science;

and develop resources and tools to promote collaboration. She also serves as a conduit to translate empirical findings from team science research into evidence-based guidance to teams engaged in multi- and interdisciplinary clinical and translational research. Dr. Falk-Krzesinski has experience catalyzing and fostering a number of major cross-disciplinary, team-oriented translational research initiatives spanning structural genomics of infectious diseases to cancer nanotechnology to oncofertility to regenerative medicine.

Dr. Falk-Krzesinski is a Research Assistant Professor in the NUCATS Institute at the Feinberg School of Medicine and a Senior Lecturer in the Department of Biochemistry, Molecular Biology, & Cell Biology in the Weinberg College of Arts & Sciences. She teaches Grantsmanship courses through Northwestern's School of Continuing Studies and conducts grantsmanship, finding funding opportunities, and CV/resume/cover letter courses and workshops as a consultant. Dr. Falk-Krzesinski is also Co-director, along with Professor Katherine Faber, of the Howard Hughes Medical Institute and Burroughs Wellcome Fund-sponsored Navigating the Professoriate Program, a professional development program for early career women faculty in STEM disciplines.



Stephen M. Fiore, PhD is faculty with the University of Central Florida's Cognitive Sciences Program in the Department of Philosophy and Director of the Cognitive Sciences Laboratory at UCF's Institute for Simulation and Training. He earned his Ph.D. degree in Cognitive Psychology from the University of Pittsburgh, Learning Research and Development Center. He maintains a multidisciplinary research interest that incorporates aspects of the cognitive, social, and computational sciences in the investigation of learning and performance in individuals and teams. He is co-Editor of recent volumes on *Macro cognition in Teams* (2008), *Distributed Learning* (2007), *Team Cognition* (2004), and he has co-authored over 100 scholarly publications in the area of learning, memory, and problem solving at the individual and the group level. As Principal Investigator and Co-Principal Investigator he has helped to secure and manage approximately \$15 Million in research funding from organizations such as the National Science Foundation, the Office of Naval Research, the Air Force Office of Scientific Research, and the Department of Homeland Security.



Janie M. Fouke, PhD is the senior advisor to the president for international affairs at the University of Florida, completed her liberal arts degree in biology at St. Andrews Presbyterian College and earned graduate degrees in biomedical mathematics and engineering at the University of North Carolina at Chapel Hill. She served as dean of the College of Engineering at Michigan State University from 1999 to 2005. Prior to that, she was the inaugural division director of the newly created division of bioengineering and environmental systems with the National Science Foundation in Washington, D.C. From 1981 to 1999, Fouke rose through the faculty ranks in the department of biomedical engineering at Case Western Reserve University in Cleveland with teaching and research interests in medical instrument design and development.

Instrumentation that she has built has been critical to the understanding of the etiology of airway diseases such as asthma and the pulmonary effects of insults such as environmental pollutants.

Dr. Fouke has published roughly 100 peer-reviewed manuscripts and conference papers and a dozen book chapters, editorials, and proprietary reports. Her 2000 book, *Engineering Tomorrow*, received numerous awards including The Dexter Prize, given annually by the Society for the History of Technology for the single best book published during the preceding three years.

She currently serves on advisory boards for several universities, the Engineering Directorate at NSF, and the National Institute of Bioimaging and Bioengineering of the National Institutes of Health. She also served two terms as president of the IEEE/Engineering in Medicine and Biology Society, the largest professional society of bioengineers in the world.

Dr. Fouke is a Fellow of the American Association for the Advancement of Science, the American Institute for Medical and Biological Engineering, the Institute for Electrical and Electronics Engineers, and the Biomedical Engineering Society.

Howard Gadlin, PhD has been Ombudsman and Director of the Center for Cooperative Resolution, at the National Institutes of Health since the beginning of 1999. Before that, from 1992 through 1998, he was University Ombudsman and Adjunct Professor of Education at UCLA. He was also director of the UCLA Conflict Mediation Program and co-director of the Center for the Study and Resolution of Interethnic/Interracial Conflict. While in Los Angeles, he served as well as Consulting Ombudsman to the Los Angeles County Museum of Art. Prior to moving to Los Angeles Dr. Gadlin was Ombudsperson and Professor of Psychology at the University of Massachusetts, Amherst. He currently serves as Chair of the Coalition of Federal Ombudsmen. Dr. Gadlin is past President of the University and College Ombuds Association and of The Ombudsman Association (TOA). An experienced mediator, trainer and consultant, he has years of experience working with conflicts related to race, ethnicity and gender, including sexual harassment. At present he is developing new approaches to addressing conflicts among scientists. He is often called in as a consultant/mediator in "intractable" disputes. He has designed and conducted training programs internationally in dispute resolution, sexual harassment and multicultural conflict. He is the author, among other writings, of "Conflict, Cultural Differences, and the Culture of Racism," and "Mediating Sexual Harassment." He is the co-author of the "On Neutrality: What An Organizational Ombudsman Might Want to Know." Recently he was Guest Editor of a Negotiation Journal section entitled "The Many, Different and Complex Roles Played by Ombudsmen in Dispute Resolution."



Kara L. Hall, PhD is a health scientist in the Office of the Associate Director of the Behavioral Research Program in the Division of Cancer Control and Population Sciences (DCCPS) at the National Cancer Institute (NCI) working in the areas of behavioral science, dissemination and implementation science and the science of team science. During her career, Dr. Hall has participated in a variety of interdisciplinary clinical and research endeavors. Her research has focused on the development of behavioral science methodologies such as the design of survey protocols, meta-analytic techniques for health behavior theory testing, as well as on applications of health behavior theory to multiple content areas and the development of computerized tailored interventions to foster health promotion and disease prevention behaviors. Additionally, Dr. Hall leads the DCCPS science of team science team, focused on advancing the field by developing new metrics, measures and models for understanding and evaluating transdisciplinary research, collaboration and training - specifically in the context of large research initiatives. Dr. Hall served as a co-chair for the 2006 conference "The Science of Team Science: Assessing the Value of Transdisciplinary Research" and co-editor for the recent American Journal of Preventive Medicine Special Supplement on the Science of Team Science. Dr. Hall earned her Masters and Ph.D. in Psychology at the University of Rhode Island.



Benjamin F. Jones, PhD is an Associate Professor at the Kellogg School of Management and a faculty research fellow of the National Bureau of Economic Research. An economist by training, his research focuses largely on the relationship between idea production and human capital, with recent work investigating the role of teamwork in innovation and the relationship between age and creativity. He also studies obstacles to growth in poor countries. His research has appeared in journals such as *Science* and the *Quarterly Journal of Economics*, and has been profiled in media outlets such as CNN, the *Wall Street Journal*, and the *Economist*. Ben Jones earlier served as a special assistant to the Deputy Secretary of the Treasury during the Clinton Administration.



Nancy L. Jones, PhD is a Planning and Evaluation Specialist as an LTS Contractor at the National Institute of Allergy and Infectious Diseases (NIAID). She also holds an Adjunct Associate Professor of Public Health Sciences at Wake Forest University School of Medicine (WFUSM) and an Adjunct Professor of Bioethics at Trinity International University.

Dr. Jones has tri-expertise in biomedical research, bioethics and science policy. For seventeen years, Dr. Jones was full-time faculty of WFUSM in the Pathology Department conducting NIH and American Heart Association funded projects on the macrophages' role in atherosclerosis. She spent two years as an 2005-07 American Association for the Advancement of Science (AAAS)/ National Institutes of Health (NIH) science policy fellow. Currently, as a Planning and Evaluation Specialist, Dr. Jones develops policies, manages NIAID clearance of federal agency documents and participates in strategic planning and evaluation projects at NIAID. Dr. Jones assists with designing evaluations on research programs such as a process evaluation for the Division of AIDS policy implementation program and a needs assessment for the Trans-NIH Genetics and Common Diseases Communication Program. She participates on Trans-NIH committees such as the NIH Science of Science Management and Trans-NIH Bioethics Committee. She has spearheaded the creation and implementation of a cross-disciplinary NSF funded project to develop curriculum on ethics and professionalism for science and engineering graduate students entitled, "Problem-Based Learning for Ethics: Graduate Curriculum for Science and Engineering" at WFUSM. While at WFUSM, she served on many university committees such as WFU Bioethics Task Force, WFUSM Core Teaching Faculty, Institutional Review Board, the Clinical Ethics Committee, Committee on Research Ethics, Embryonic Stem Cell Ad Hoc Committee, Pre-Implantation Genetic Diagnosis and the University Senate. Dr. Jones has served on the Health and Human Services (HHS) Secretary's Committee on Human Research Protection (SACHRP) and NC HHS Ad Hoc Living Organ Donor Rules. She also serves as a Fellow and Biotech Ethics Consultant for The Center for Bioethics and Human Dignity.

Dr. Jones received her BS in Biochemistry at Virginia Polytechnical Institute and State University (1981) and her PhD in Biochemistry at WFUSM (1987). She received a Dean's Fellowship and a National Research Service Award for graduate training in Cell Biology and Pharmacology of Cancer and a postdoctoral National Research Service Award in Molecular and Cellular Pathology (1987-88). Dr. Jones received a MA in Bioethics Magna cum laude from Trinity International University (2003).



Joann Keyton, PhD, is the Professor of Communication at North Carolina State University. Her current research examines the process and relational aspects of interdisciplinary teams, the role of training and influence of culture in organizational interventions, and how messages are manipulated in sexual harassment.

In addition to publications in scholarly journals and edited collections, she has published three textbooks

for courses in group communication, research methods, and organizational culture in addition to co-editing an organizational communication case book. Keyton was editor of the Journal of Applied Communication Research, Volumes 31-33. Currently she is Editor of Communication Currents and Editor of Small Group Research. She is a founder of the Interdisciplinary Network for Group Research.



Sara Kiesler, PhD is Hillman Professor of Computer Science and Human Computer Interaction at Carnegie Mellon University. Prof. Kiesler applies behavioral and social science to technology design and to understanding how technology changes individuals, groups, and organizations. She has

co-authored or edited 7 books including "Connections: New Ways of Working in the Networked Organization" (MIT Press), ("Culture of the Internet," Erlbaum), and "Distributed Work" (MIT Press). She continues to study multidisciplinary and complex forms of collaboration, geographically dispersed science and project work, information sharing and collaborative analysis, and the design of human-robot interaction.



Julie Thompson Klein, PhD is Professor of Humanities at Wayne State University in Detroit, Michigan (USA) and an internationally known scholar of the history, theory, and practice of interdisciplinarity. Past president of the Association for Integrative Studies and former editor of the journal Issues in Integrative Studies, she is a member of the Academy of Scholars at Wayne State University and has received several of the University's highest awards for excellence in teaching and research. She also won the final prize in the Eesteren-Fluck & Van Lohuizen Foundation's international competition for new research models and received the Kenneth Boulding Award for outstanding scholarship on interdisciplinarity and the Ramamoorthy & Yeh Transdisciplinary Distinguished Achievement Award. Klein was a Senior Fellow at the Association of American Colleges and Universities, and has held invited posts in Canada, Japan, Nepal, and New Zealand. In addition, she represented the United States at international symposia on interdisciplinarity in Sweden, Portugal, and France, and has lectured on the topic throughout Europe, North America, Latin America, and in Australia. She also served on a number of national task forces in interdisciplinary and integrative studies and has advised committees of the US National Institutes of Health, National Science Foundation, and National Academies of Sciences. Her authored and edited books include Interdisciplinarity: History, Theory, and Practice (1990), Interdisciplinary Studies Today (1994), Crossing Boundaries: Knowledge, Disciplinary

and research. She also won the final prize in the Eesteren-Fluck & Van Lohuizen Foundation's international competition for new research models and received the Kenneth Boulding Award for outstanding scholarship on interdisciplinarity and the Ramamoorthy & Yeh Transdisciplinary Distinguished Achievement Award. Klein was a Senior Fellow at the Association of American Colleges and Universities, and has held invited posts in Canada, Japan, Nepal, and New Zealand. In addition, she represented the United States at international symposia on interdisciplinarity in Sweden, Portugal, and France, and has lectured on the topic throughout Europe, North America, Latin America, and in Australia. She also served on a number of national task forces in interdisciplinary and integrative studies and has advised committees of the US National Institutes of Health, National Science Foundation, and National Academies of Sciences. Her authored and edited books include Interdisciplinarity: History, Theory, and Practice (1990), Interdisciplinary Studies Today (1994), Crossing Boundaries: Knowledge, Disciplinary