University of Kansas
and
University of Kansas Medical Center

Council of Distinguished Professors

Annual Report

January 2015

Prepared for: The Kansas Board of Regents
By: The Steering Committee of the Council of Distinguished Professors
Council of Distinguished Professors

Named, University, and Foundation Distinguished Professors represent the best in research, scholarship and teaching at the University of Kansas and the University of Kansas Medical Center. The first Distinguished Professors were established at the University of Kansas in 1958. That year, four were awarded. In 1963, the first University Distinguished Professors were announced. In 2014, the first Foundation Distinguished Professors were appointed.

A Distinguished Professorship is awarded wholly on merit. A Distinguished Professor must be truly distinguished as a scholar, ranking among the top scholars in the United States for his or her field of expertise and possessing an international for excellence. However, an exemplary record of research, scholarship, or creative engagement is not enough; a pre-eminent ability to teach must always complement it. Distinguished Professors must have a proven record of interest in the growth and success of their students, colleagues, and institutions. Further, Distinguished Professors are expected to be engaged in interdisciplinary work, and to participate in university affairs. A Distinguished Professor serves not only the university, but the entire state.

Distinguished Professors at the University of Kansas and the University of Kansas Medical Center formed a Council in 1979 and began the practice of electing a Steering Committee to discuss common concerns and issues facing the University. The Steering Committee has collected this set of brief paragraph to highlight the relevance of our research to Kansas, the region, the nation, and the world and convey our own deep excitement for the work we do, and our dedication and commitment to the value of investments in research and scholarship. We, the Distinguished Professors at the University of Kansas and University of Kansas Medical Center, are a resource – “human capital,” to use the economic term – for Kansas. Our areas of expertise encompass the issues facing the state, indeed, the nation and the world. These areas include: economic growth; education; environment, ethics; health care; historical foundations of society, infrastructure development; intellectual property; rule of law; science and technology; and security and terrorism.

Our purpose is to share what we do, in the hope that new ways will be found to use our expertise to address the problems facing Kansas. Toward that end, we have summarized briefly our recent activities and their importance to Kansas.

On behalf of the Council, the Distinguished Professors Steering Committee:
  Susan Kemper, Convener (Psychology)
  Anne D. Hedeman (History of Art)
  Blake Petersen (Pharmacy)
  Edmund Russell (History)
  Paul Selden (Geology and Paleontological Institute)
  Barbara Timmermann (Pharmacy)
<table>
<thead>
<tr>
<th>Name</th>
<th>Professorship</th>
<th>Department/School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrahamson, Dale</td>
<td>University</td>
<td>Medicine</td>
</tr>
<tr>
<td>Alexander, Perry</td>
<td>AT&amp;T</td>
<td>Engineering</td>
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<tr>
<td>Aubé, Jeff</td>
<td>University</td>
<td>Medicinal Chemistry</td>
</tr>
<tr>
<td>Bailey, Victor</td>
<td>Charles W. Battey</td>
<td>History</td>
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<tr>
<td>Barnett, William</td>
<td>Charles W. Oswald</td>
<td>Economics</td>
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<td>Barohn, Richard J.</td>
<td>University</td>
<td>Medicine</td>
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<tr>
<td>Beard, K. Christopher</td>
<td>Foundation</td>
<td>Ecology &amp; Evol. Biology</td>
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<td>Raymond F. Rice</td>
<td>Law</td>
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<td>Music</td>
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7
<table>
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<td>Pharmacology &amp; Toxicology</td>
</tr>
</tbody>
</table>
EMERITI DISTINGUISHED PROFESSORS

Armitage, Kenneth
Asher, Mark
Andrews, Glen K.
Brundage, James A.
Busch, Daryle H.
Casad, Robert C.
Coggins, George C.
Cromwell, Rue L.
DeGeorge, Richard T.
Enos, Paul
Frederickson, George
Grantham, Jared
Green, Don
Hunt, Joan
Joy, Maurice
Kuwana, Theodore
Li, Chu-Tsing
Mackenzie, Kenneth
Mesler, Russell B.
Meyer, Keith G.
Michener, Charles
Mitscher, Lester A.
Orel, Harold
Pickett, Calder
Robison, Richard A.
Rolfe, Stanley T.
Roskam, Jan
Schiefelbusch, Richard
Schowen, Richard L.
Shimomura, Roger
Steeples, Donald W.
Stokstad, Marilyn
Thomas, Arthur L.
Turnbull, Rudd
Van Schmus, W. Randall
Wilson, George
Worster, Donald E.
Yu, Po-Lung

Wm J. Baumgartner
University
Ahmanson-Murphy
Roy A. Roberts
J.H. & J.M. Kane
Frank E. Tyler
M. Erik Wright
University
University
University
Merrill W. Haas
Edwin O. Stene
Statland
Ackers
University
Joyce C. Hall
Regents
Judith H. Murphy
Edmund P. Learned
Warren S. Bellows
E.S. & Tom W. Hampton
Watkins
University
University
Clyde M. Reed
Hedburg
Albert P. Learned
Deane E. Ackers
University
University
University
University
Dean A. McGee
Judith Murphy
Arthur Young
Marianna & Ross Beach
Union Pacific
Takeru Higuchi
Hall Family Foundation
C.A. Scupin
Systematics & Ecology
Medicine
Medicine
History
Chemistry
Law
Law
Psychology
Philosophy
Geology
Public Administration
Medicine
Engineering
Medicine
Business
Chemistry
History of Art
Business
Engineering
Law
Entomology
Medicinal Chemistry
English
Journalism
Geology
Engineering
Speech-Language-Hearing
Chemistry
Art
Geology
History of Art
Business
Special Education
Geology
Chemistry & Pharm. Chem.
History
Business
ALEXANDER, Perry
AT & T Distinguished Professor
Department of Electrical Engineering and Computer Science, School of Engineering

CPUs: Short for Central Processing Units. The heart of every computer, but 98% of them don’t go in PCs. There are 80 of them in your new BMW. They are in your thermostat, your alarm clock and your refrigerator. There are at least 3 in your smartphone and one in your health monitor. There are at least 20 for every person on the planet. They process your music, your video, your tax return, and your health information. They talk to each other over networks both wired and wireless, in your home and office, between your browser and Amazon or your Skype and their Skype or your financial application and your bank. You walk around each day in an invisible sea of data. They are everywhere and quite simply put, we depend on them. From flying eggs in Angry Birds to flying 737s in our airspace, we trust them and often with our lives. My work focuses on verifying and synthesizing systems that are worthy of our trust. I use mathematics - mostly logic and discrete math - to represent critical computing systems and prove properties that ensure correct behavior. My goals are verifying existing systems to determine if they meet critical requirements and synthesizing new systems that are guaranteed to meet requirements. Most of my work is “under the hood” examining hardware components like the Trusted Processor Module (TPM) that is found in most enterprise PCs, the software hypervisor at the heart of virtually all cloud computing systems, the circuitry in radios, and the timing algorithms used to simulate complex digital circuits. I prove things ranging from security properties such as data confidentiality and integrity to functional properties such as timing and correctness. I always prove these things with the intent of establishing that the systems we trust are deserving of that trust. My students work nationally at NASA, Amazon, Apple, Google, and Intel. They work locally at Garmin, Perceptive Software, Sprint, and Cerner. Some work for small Kansas businesses while others are educators and researchers. Many work in support of our national defense. All are busy contributors to our state and national infrastructure.
AUBÉ, Jeffery  
University Distinguished Professor  
Department of Medicinal Chemistry, School of Pharmacy  
I work in the field of chemical biology, which seeks to understand how specialized organic molecules (called “probes”) can be used in the study of biology and contribute to the treatment of disease. Working with numerous collaborators across the world, I and my coworkers in three NIH-funded national centers, custom design probe molecules relevant to biomedical research areas that, in 2012, included cancer, addiction, tuberculosis, and rare and neglected diseases like Leishmania and Gaucher’s disease. A major goal is to make the tools of chemical biology available to researchers throughout the state of Kansas that may wish to use them in their research.
**BAILEY, Victor**  
Charles W. Battey Distinguished Professor of Modern British History  
Department of History, College of Liberal Arts and Sciences,  
and the Hall Center  

Bailey completed two books recently, both of which appeared in 2014. One is *Charles Booth’s Policemen: Crime, Police and Community in Jack-the-Ripper’s London*, which examines the effectiveness of policing in one of the toughest areas of London, the East End, using the papers of Charles Booth, a major ship owner and the most renowned social investigator in late Victorian England, and argues that policing was not the essential force of order. The book explores other factors that helped to maintain social order: economic improvement, community or informal controls, religious and social welfare, education, model housing, and the magistrates’ courts. The second book, *Order and Disorder in Modern Britain: Essays on Riot, Crime, Policing and Punishment*, is a collection of previously published articles that Bailey has written over the past 25 years, with a new introduction to the collection. The essays range from riots against the Salvation Army in the 1880s, to the dramatic abatement of imprisonment in the Edwardian years, to the attempts in post-war Britain to abolish the death penalty. Bailey is currently working on a book that will explore the changes in sentencing and penal policy in England over the entire period, 1890 to 1970.  

In Fall 2014, Bailey received the Balfour Jeffrey Award in Humanities and Social Sciences, a Higuchi-KU Endowment Research Achievement Award, for his exceptional long-term research accomplishments. For the past 15 years, he has also been director of the Hall Center for the Humanities, one of KU’s research centers, whose mission is to help humanities and social sciences faculty remain research engaged and research productive. In 2011, the Hall Center attracted its third Challenge Grant from the National Endowment for the Humanities, which is being used to foster collaborative or interdisciplinary team research in the humanities.
BARNETT, William
Oswald Distinguished Professor of Macroeconomics
Department of Economics, College of Liberal Arts and Sciences
I have completed the book Getting It Wrong: How Faulty Monetary Statistics Undermine the Fed, the Financial System, and the Economy, published by MIT Press in January 2012. The book is on the subject of the sources of the recent financial crisis and Great Recession. The book makes extensive use of my inside knowledge of the Federal Reserve from the eight years I was on the staff of the Federal Reserve Board in Washington, DC and my research on monetary policy over the past 30 years. The book emphasizes the role of the Federal Reserve's supply of low quality, misleading data to the public and to Congress. The book won the American Publishers Award for Professional and Scholarly Excellence (the PROSE Award) for the best book published in economics during 2012. I have been appointed Director of the Center for Financial Stability in New York City. The program I direct there is closely associated with the objectives of the book and provides to the public the high quality data being denied to the public by the Federal Reserve. I have founded a new international society, the Society for Economic Measurement. I am President of the society for a three year term. The society is hosted by Carnegie Mellon University and will hold its first conference at the University of Chicago in May 2014. The second conference was in 2014 at the Sorbonne in Paris.
BAROHN, Richard J.
University Distinguished Professor
Department of Neurology, School of Medicine

I work in the field of rare neuromuscular diseases such as amyotrophic lateral sclerosis (ALS), muscular dystrophies, myasthenia gravis, and other muscle and nerve diseases. At any one time we are involved in about 50 cutting edge clinical trials through our neuromuscular division at the University of Kansas Medical Center. Patients come from throughout the Midwest and Southwest and sometimes from much more distant regions to take part in these clinical trials. The trials that we are involved in are a combination of investigator-initiated studies that we initiate; investigator-initiated studies that my collaborators around the country initiate and we are asked to be a site in; and industry-sponsored trials. We have been very fortunate to receive federal funding to lead three multi-center neuromuscular clinical trials: the first was to study the drug mexiletine for nondystrophic myotonia muscle disorders (the results of this positive trial were published in JAMA in October 2012); a trial of methotrexate for myasthenia gravis involving 20 sites in the U.S. and Canada which we have just completed and are now analyzing the data; and a trial of rasagiline for ALS for which we have just begun to recruit patients around the United States. We also are part of the national NeuroNex consortium which consists of 25 sites that the NIH recognizes for their expertise in neurology clinical trials, and we are one of the co-leaders on the recently funded NeuroNex trial to study the drug rituximab in myasthenia gravis. Finally, we recently received funding from the new Patient-Centered Outcomes Research Institute to do a comparative effectiveness trial of four different drugs for the treatment of painful peripheral neuropathy. We will be the coordinating center for a 400-patient trial with 25 sites which will take place over the next three years. All of these projects are helped in various ways by infrastructure support from Frontiers: The Heartland Institute for Clinical and Translational Research which is funded by our $20 million CTSA grant on which I am one of the two principal investigators (along with Lauren Aaronson, PhD, RN, in the School of Nursing). The CTSA program at the NIH now falls under NCATS, and I was named to be one of the 12 principal investigators to serve on the steering committee that develops new directions for the CTSA program.
BEARD, K. Christopher
Foundation Distinguished Professor
Department of Ecology and Evolutionary Biology, College of Liberal Arts and Sciences

Most of us contemplate our origins at some point in time. Through my field and laboratory research, I investigate the fossil record of early mammal—and specifically primate—evolution. Important goals of this research include understanding how, when, and where such familiar taxa as anthropoid primates (monkeys, apes and humans) evolved. I also focus on reconstructing the evolution and biogeography of early mammals in relation to perturbations of the physical environment. This work has potential applications in fields such as conservation biology, climate change, and invasive species. My recent field expeditions have investigated fossil sites in China, Myanmar, Libya and Turkey. I am a former MacArthur Fellow, and my book The Hunt for the Dawn Monkey: Unearthing the Origins of Monkeys, Apes and Humans won the annual Science Book Award from the Phi Beta Kappa Society and the W.W. Howells Book Award from the American Anthropological Association.
BHALA, Raj  
Rice Distinguished Professor, School of Law  
and Associate Dean, International and Comparative Law  

My two-volume treatise *Modern GATT Law*, and my 50-chapter, 1,450 page book entitled *Understanding Islamic Law (Shari’a)* enjoyed world-wide acclaim. The treatise, published in London by Thomson Sweet & Maxwell, is the first on GATT, which is the “constitution” of international trade law,” in nearly 50 years. Thanks to the treatise, I have engaged in several further publishing and research projects in International Trade Law, including a key article on the GATT public morality exception and its use by Muslim countries. Three eminent law journals published a trilogy of law review articles on the Doha Round, the first of which focuses on agricultural trade. *Understanding Islamic Law (Shari’a)*, published by LexisNexis, is the first English-language textbook written by an American law professor for courses in Islamic Law. The book also is a handy reference for practitioners. The book is used in my Islamic Law course not only at KU Law, but also at the Command and General Staff College (CGSC) at Fort Leavenworth. The CGSC students are Special Operations Forces commanders and senior Intelligence Officers, all of whom had served in Afghanistan, Iraq, or other theaters, and will be posted overseas in the coming years. Thanks to this book, I became the first University of Kansas faculty member ever to lead a National Conference Call for the Council on Foreign Relations, which I did on Islamic Law. All such work has played a role not only in my receiving the Woodyard Award for excellence in international education, but also in my giving major presentations in India, the United Arab Emirates, and Chile, and in Qatar at the Qatar Law Forum.
CASTLE, Joyce
University Distinguished Professor
School of Music
In 2010 I celebrated my 40th year in the world of opera. I have sung all my life. My career has taken me to opera houses and concert halls here in the United States, Canada, Europe, Japan and Brazil. I sang 25 seasons at New York City Opera and 14 seasons at the Metropolitan Opera. My repertoire includes nearly 140 roles. I have sung premiere performances of many song cycles and operas by such renowned composers as: Leonard Bernstein, Dominick Argento, Jake Heggie, William Bolcom...... Among the many conductors I have sung with are James Levine, Seiji Ozawa,, Raymond Leppard, James Conlon, David Zinman, Michael Tilson-Thomas, Kristian Thielemann, Julius Rudel and Edo de Waart. Among my many recordings just released is “The HawthornTree” written by William Bolcom. I received a Grammy for the recording of CANDIDE by Leonard Bernstein. Jake Heggie’s cycle of ‘Statuesque” was commissioned by KU and recorded by Americus Records. I continue to sing as well as “celebrate” in the training of young singers here at KU.
CROMWELL, Rue L.  
M. Erik Wright Distinguished Professor, Emeritus  
Department of Psychology, College of Liberal Arts and Sciences

Over his career, Cromwell supervised 50 doctoral dissertations (plus several M.A., Ed.S. and B.S. theses) primarily in laboratory psychology research. Early work in mental retardation concerned hyperactivity and the impact of failure experience upon an already impaired performance level. Following this came an empirical study of diagnostic classification of 500 emotionally disturbed children in 16 treatment centers throughout the United States and Canada. Early parent rearing practices, type of deviant behavior, and intervention approaches were used to predict each child’s status two years later. Then, by invitation of the National Institute of Mental Health (NIMH) he studied 227 patients admitted to a coronary care unit with acute attacks. Length of stay in the hospital, recurrence of a coronary attack, and death within a 90-day window following initial attack were studied as a function of psychological, electrophysiological, and blood enzyme variables. Also included was a controlled study of “nursing care” variables of “how much to tell the heart patient” about the nature and severity of his illness, how much diversional stimulation (visitors, telephone, TV, reading material) to allow, and what extent the patient should participate in self treatment (e.g., isometric exercises, keeping journal of EKG events), again as they affected hospital stay, recurrence of attack, and death. Throughout the span of this activity an on-going program of research was conducted on how genetic influences and laboratory perceptual measures of the schizophrenic process bore upon the individual prognosis (negative and positive symptoms) of patients. In the area of professional service Cromwell spent 19 years serving on research review committees of NIMH, NIH, and Department of Education. He was Chair of the Mental Health Task Force of the landmark Human Capital initiative (a report to White House and Congress) that led to record funding of psychological research by NIMH and NSF. In year 2000 he was given the Zubin Research Career Award by the Society for Research in Psychopathology and in 2002 the Career Research and Teaching Award of the Constructivist Psychology Network.
DARWIN, David
Ackers Distinguished Professor
Department of Civil, Environmental, and Architectural Engineering,
School of Engineering
I am a structural engineer with a strong interest in materials. My research emphasizes three main areas. Two involve lengthening the service life and improving the cost effectiveness of highway structures with major emphasis on bridges, and the third involves improving the bond strength of reinforcing steel to concrete. All three areas are of prime importance to the nation. For example, it is estimated that the annual cost to eliminate bridge deficiencies over the next twenty years will exceed $10 billion. It is further estimated that the cost to users due to traffic delays and lost productivity is ten times this value. Ninety percent of the cost of bridge deficiencies is due to corrosion. To address these problems, my research involves evaluating and developing corrosion protection systems for reinforcing steel and developing design and construction techniques to improve the life of bridge decks. In the field of bond, my research addresses the development of design criteria for anchoring high-strength reinforcing steel to concrete, an area that is now drawing world-wide attention because of its potential to significantly reduce material and construction costs. KU is one of the top research universities, internationally, in all three fields.
DAVIDMAN, Lynn  
Robert M. Beren Distinguished Professor  
Department of Sociology, College of Liberal Arts and Sciences  
In 2014, Lynn Davidman published Becoming Un-Orthodox: Stories of Ex-Hasidim Becoming Un-Orthodox (Oxford University Press). The book is based on forty interviews she conducted with those who had chosen to leave their Hasidic enclave communities, despite the threats of serious sanctions, such as punishment by God, loss of family and community, and shaming the family, thus hurting siblings’ marriage prospects. The book argues that by studying Hasidim, whose daily life is constituted by following 613 commandments from the Hebrew Scriptures, most of which are rituals of the body (ablutions, fasts, movement in prayer, wearing distinctive clothing and comporting themselves in ways that clearly separate them from the secular society) we are afforded a new understanding of religious defection as well as identity transformation in general. Often, religious transformation or identity change are seen as psychological and cognitive processes; this book demonstrates that major identity transformations (such as religious defection) takes place through the medium of the body. Women and men start wearing clothing that had hitherto been forbidden, they begin eating unkosher food, and not participating in prayer services, among other changes. The book makes a contribution to the sociological understanding of the ways in which identity is performed by routine, embedded, habitual bodily routines. study of human lives, This book, and an interview with me, were published in Publisher’s Weekly, the New York Magazine, NewRepublic.com, LeMonde, and a German newspaper. It sold out of its first printing of 1700 plus 500 were back-ordered, before the book actually shipped from the warehouse.
DE GEORGE, Richard
University Distinguished Professor, Emeritus
Department of Philosophy, College of Liberal Arts and Sciences

In June 2012 I retired after teaching at KU since 1959—a total of 53 years. I received lifetime achievement awards in each of the three areas of teaching, research and service. During those years I published 20 books and over 200 articles. Many of my publications from the mid-70s on were in business ethics—an academic field which I helped create. My book, *Business Ethics*, now in its 7th edition, has been translated into Russian, Chinese, Japanese and Serbian. In response to the current concerns, it contains chapters on the moral justifiability of capitalism, the ethical implications of the globalization of business, the 2008-2009 financial meltdown, and the rights and responsibilities of corporations, employees and unions. Since retiring I have remained active. I have given papers in Warsaw, Paris and the Wharton School of Business at the University of Pennsylvania, among others, and have published three articles on business ethics issues and a book chapter on contemporary democracy.
DRAHOZAL, Christopher  
Rounds Distinguished Professor of Law  
School of Law  

Arbitration is private judging: parties agree to have private judges (arbitrators) rather than public judges resolve their disputes. Arbitration clauses are commonly included in a wide array of contracts, ranging from consumer and employment contracts to highly complex international deals. Through my research, I hope to help lawyers, policymakers, and others better understand how arbitration works, why parties use arbitration clauses, and what sort of legal regime should govern the use of arbitration. Consistent with those goals, I am currently assisting the Consumer Financial Protection Bureau with its statutory-required study of arbitration clauses in consumer financial services contracts. I also am continuing my work on the Restatement, Third, of the U.S. Law of International Commercial Arbitration, a comprehensive analysis and restatement of American law on the enforceability of international arbitration agreements and awards.
FABIAN, Carol J.

University Distinguished Professor and Morris Family Professor of Cancer Prevention
Department of Internal Medicine and the Cancer Center, School of Medicine

As a Breast Medical Oncologist I have dedicated my career to the prevention and treatment of breast cancer and reduction of long term effects of cancer treatment. At the Medical Center I have led the Cancer Prevention Program for many years at the University of Kansas Cancer Center which became a National Cancer Institute designated Cancer Center in 2012. The Cancer Prevention Program is one of the 4 research programs in the Cancer Center. I also direct the Breast Cancer Prevention and Survivorship Center which provides women at increased risk for breast cancer with risk counseling and recommendations for surveillance and risk reduction as well as access to prevention clinical trials. Breast Cancer Prevention and Survivorship research activities are conducted by a group of dedicated basic, translational, and clinical scientists, including the Associate Directors Drs. Kimler and Klemp. In this work we regularly collaborate with researchers throughout the University and from Cancer Centers across the country. I Co-Chair the Survivorship Committee in the Southwest Oncology Group which develops treatment protocols to help prevent late side effects of cancer treatment, such as heart side effects and infertility. On a national level, I am the Immediate past Chair of the American Society of Clinical Oncology Cancer Prevention Committee and still chair a Working Group which is focusing on training more oncologists in prevention and survivorship. I also am on several national guideline committees for the Prevention and Treatment of Breast Cancer. The majority of my research activities have been devoted to developing effective but well-tolerated interventions to prevent breast cancer which will not induce menopause symptoms as do the standard medical treatments for prevention of breast cancer. I am best known for development of the random peri-areolar fine needle aspiration (RPFNA) technique as a comfortable, minimally invasive method of harvesting benign breast tissue to help determine short term risk for breast cancer and of great use in early phase prevention trials to help assess response to a new prevention intervention. We have an ongoing clinical trial in high risk premenopausal women using lignans (anti-inflammatory and mildly anti-estrogenic compounds found in high concentration in flaxseed) funded by the Komen for the Cure Foundation. We have just completed pilot studies with high dose omega-3 fatty acids (to reduce risk for breast cancer in pre and post-menopausal women. These natural products found in fish oil appear to improve breast tissue risk biomarkers. We have submitted several manuscripts regarding results for publication this year. With grants from the Breast Cancer Research Foundation and multiple philanthropic contributions, we are currently combining high dose omega-3 fatty acids with weight loss in overweight and obese high risk women I also conduct research in breast cancer survivorship. We received funding this year from the Breast Cancer Research Foundation to study the possible protective effect of the omega-3 fatty acid DHA on cognition in women receiving chemotherapy.
FROST, Victor
Dan Survey Distinguished Professor
Electrical Engineering and Computer Science, School of Engineering
Frost is currently the chair of the Department of Electrical Engineering and Computer Science and previously was the Director of the KU Telecommunications and Information Technology Center (ITTC) for over ten years. During that time ITTC had external research expenditures averaging about $5.5 Million/year. From 1987 to 1996 Dr. Frost was the Director of the KU Telecommunications and Information Sciences Laboratory. He is a Fellow of the IEEE and received a Presidential Young Investigator Award from the National Science Foundation in 1984. For two years (Feb. 2009-Feb. 2011) he was a Program Director at the NSF in Directorate for Computer and Information Science and Engineering (CISE) - Computer Network Systems Division (CNS). As a Program director Dr. Frost contributed to the creation of NSF’s Future Internet Architecture program. His research interests are in the areas communications systems and networks. With support from NSF he is conducting research to create new techniques for covert communications. The desire to hide the transmission of information has existed since antiquity. This has included the need to conceal the very existence of transmissions; exposing the presence of transmissions may reveal the location of the sender. Research is underway to determine if communications can be hidden in the midst of the RF emissions of current 4G cellular and future broadband packet-based wireless networks. This research is based on our key insight that the adaptive nature of the techniques used in modern wireless systems makes them vulnerable to exploitation. We are discovering those weaknesses and exposing how those vulnerabilities can be used to enable communications by covert users. Government agencies, including, NSF, DARPA, Rome Labs, ORNL, ONR and NASA have sponsored his research. He has been involved in research on several national scale high speed wide area testbeds; he was an investigator on a gigabit testbed (MAGIC) research effort and ACTS ATM Internetwork (AAI). Dr. Frost has been involved in research for numerous corporations, including Sprint, NCR, Nortel, Telesat Canada, AT&T, McDonnell Douglas, DEC, and COMDISCO Systems. He has been principal investigator on over thirty five research efforts and involved as co-investigator on over forty projects. As a result of those efforts he has published over 140 journal articles and conference papers. Dr. Frost was elected to the IEEE Communications Society Board of Governors as a Member at Large for the 2008-2011 term.
GOLDSTEIN, Robert H.
Haas Distinguished Professor
Department of Geology, College of Liberal Arts and Sciences
and Associate Dean for Natural Sciences and Mathematics
Availability of fossil fuel energy currently is essential to modern society. Most of it is produced as oil or natural gas from pores in sedimentary rock deep beneath the surface. Understanding where those pores are preserved without being clogged by mineral precipitates involves studies of very large-scale processes of how and where sediments are generated in tropical seas. In addition, studies at the microscopic scale are required, and involve analyses of the chemical composition of minute mineral crystals and even the droplets of fluid trapped within them. My research has pioneered the integration of regional-scale geology and microscopic-scale chemistry to reconstruct geologic history with the goal of exploring the earth for the pores that might hold significant oil and gas accumulations. My book on fluid inclusions serves as the standard text for any research lab using this technique. I am asked to share my knowledge in seminars and short courses around the world by academia, government, and industry. Currently, I co-lead the Kansas Interdisciplinary Carbonates Consortium, an energy-industry-funded research consortium concentrating on a major class of oil and gas reservoir.
GRANTHAM, Jared J., M.D.

University Distinguished Professor, Emeritus
Department of Internal Medicine and the Kidney Institute, School of Medicine

My interest in kidney disease developed in the 6th grade in Johnson, KS while trading comic books with my neighbor. He casually mentioned that he had cysts in his kidneys, his mother had them and his grandmother had recently died of kidney failure. That remained a vivid memory and I reconnected with kidney cysts in 1970 when I was asked to lead the Nephrology Division at the Kansas University Medical Center and discovered in my laboratory new renal functions that opened the door to innovative research on polycystic kidney disease. My kidney research was continuously funded by the National Institutes of Health from 1970 until 2013. PKD is an inherited disorder and the 4th leading cause of kidney failure, usually striking older adults. With Kansas City business man Joseph Bruening, I developed the Polycystic Kidney Disease Foundation in 1982 which today is the leading international organization supporting research and distributing health information about the disease (www.pkdcure.org). At least 10 clinical trials are now in progress to develop therapy for PKD. I directed the Division of Nephrology at Kansas for 25 years, was co-founder of the Kidney Institute on the campus, which I directed for 5 years, and was founding editor of the Journal of the American Society of Nephrology, which currently has the highest impact factor among 30 Urology and Nephrology titles. A die-hard product of Kansas, I am pleased that the Kidney Disease program at the Kansas University Hospital is rated among the best in the Nation. My career has been detailed in a book: “Why I think about urine -- and a treatment for polycystic kidney disease” available from Amazon.com.
HEAD, John W.
Wagstaff Distinguished Professor of Law
School of Law

International relations – whether they focus on economic competition or political tension, on public institutions or private business – present ever-greater challenges. My scholarly work grapples with those challenges. My book Great Legal Traditions (published May 2011) examines contrasts between European civil law, English and US common law, and Chinese law from both a historical and an operational perspective. The book offers background to practitioners and others in working across legal systems. Adding depth to the Chinese-law portion of that line of inquiry is another recent book co-authored with a Chinese colleague: Legal Transparency in Dynastic China (2013). Similarly, my newly updated Global Business Law (published June 2012), provides a practitioner’s transaction-oriented guide to private-sector aspects of international commerce and investment, with special emphasis on nuts-and-bolts matters such as letters of credit, licensing agreements, the Vienna Sales Convention, and more. I recently turned my attention to international environmental law, focusing first on legal protections for native prairies and grasslands, of the kinds that cover – or, more precisely, used to cover – most of Kansas and other neighboring states. Degradation of those natural grasslands is occurring around the world, with repercussions widely regarded now as no less severe than those resulting from deforestation. My research into this topic has taken me to Turkey and elsewhere. Hence my book, Global Legal Regimes to Protect the World’s Grasslands (published November 2012) explores that aspect of international law and international relations. My current book project studies international law and agriculture – although it was interrupted recently to complete a co-authored revision to my book The Asian Development Bank (2014). In addition to writing books, I take opportunities when they arise to teach overseas. For instance, on my Turkey trip I presented a concentrated course in Istanbul on the policies and operations of key international economic organizations. I presented a similar course to Korean students in the summer of 2011 and did so again in London in March 2013. And I regularly participate in overseas conferences. These various projects and activities contribute to the larger tapestry of my work over the 24 years since I joined the law faculty at KU. Building on ten years in legal practice (both private-sector and public-sector), my work here at the University has concentrated on international business law, international public law, and comparative law – in order to assist both private-sector practitioners and public-sector policy-makers.
HEDEMAN, Anne D.

Judith Harris Murphy Distinguished Professor of Art History
Kress Foundation Department of Art History, College of Liberal Arts and Sciences

As an undergraduate I fell in love with illuminated manuscripts (hand written and decorated books) because holding manuscripts and turning their pages to examine pictures while reading text replicated some of the experience of early owners. As a scholar, I examine the relationships between a text and its images in vernacular late medieval French manuscripts in order to contextualize this experience and gain insight into late medieval ideology and society. In books I’ve analyzed the role images played in the earliest national history of France, showed how a royal secretary sought to use images to capture the attention of the mad king Charles VI, and considered the key role that visual imagery played in translating texts originating in earlier times or in non-French cultures to make them appealing and accessible to fifteenth-century French readers. My recent articles and book in progress, Visual Translation and the First French Humanists, will analyze the role of this visual translation in works owned or made by three French humanists who were instrumental in introducing ancient Roman and contemporary Italian texts to the French court in the early 1400s. I’ve also co-curated an exhibition at the Getty Museum and co-authored its catalogue, Imagining the Past in France, History in Manuscript Painting 1250-1500 which was a finalist in 2012 for the Alfred H. Barr Award for Museum Scholarship. My research has been supported most recently by a Guggenheim Fellowship and recognized by election as a Fellow of the Medieval Academy of America.
Older adults need to communicate with their families, friends, and neighbors, with their lawyers and physicians, through face-to-face interaction and over telephones, the Internet and other devices. Communication is essential if older adults are to maintain intergenerational ties, solicit assistance with daily living activities, fulfill life-long learning goals, or gain access to health and legal information from print, broadcast, or electronic media. Common barriers to communication include the declining sensory, cognitive, and physical abilities of older adults; these challenges reach their most extreme for older adults with dementia and other age-associated neurological conditions but also limit the lives of healthy older adults and restrict their independence and autonomy. I investigate how aging, Alzheimer’s dementia, and other conditions affect older adult’s communication abilities in a wide range of tasks and situations. My research has pioneered the development of new assessment approaches to detect the onset and progression of age-associated declines, led to new ways to diagnose and treat older adults’ communication problems, and resulted in new approaches to intervene and support successful aging. My current interests include how best to communicate health information and treatment options to older adults, especially those at risk for the development of disabling conditions. Like many aging Americans, I am concerned with maintaining my cognitive abilities and reducing my risk for dementia; I lecture widely throughout the community on “Use it or Lose it,” reviewing cognitive and behavioral interventions to slow down cognitive aging.
KERR, Barbara
Williamson Family Distinguished Professor of Counseling Psychology
Department of Psychology and Research in Education, School of Education

One of the privileges of being a distinguished professor is being able to engage in long-term, complex research investigations. For thirty years I have followed a group of bright girls as they grew to womanhood, and engaged in many studies along the way about ways of encouraging the development of female talent. "Smart Girls in the Twenty-First Century," co-authored with Robyn McKay, was just published. I hope it will help teachers, parents, and psychologists understand the unique needs of bright, creative girls. I am also continuing a long term project, "Searching for Tomorrow's Innovators," discovering new ways to identify and guide adolescents with the potential to become inventors, leaders, artists, writers, and musicians. We have learned that creative students not only need guidance toward their goals; they need a place to work on their art and inventions. With members of the Lawrence business and arts community, I co-founded the Lawrence Creates Makerspace, where innovators can prototype and show their work, and it is thriving and self-sustaining as a nonprofit after just one year. There, I and my colleagues can learn how creativity works on an individual and organizational level. Finally, I curated and edited a four-volume collection of the most important works in gifted education and creativity that will allow scholars in developing countries access to critical works in the field. In all these ways, I hope to provide innovative research, community engagement, and international outreach that broadens our understanding of talent and creativity. For me, encouraging creativity and intellectual challenge is a daily, lifelong mission that I infuse into my teaching and service to the university and the global community.
KU & KUMC Distinguished Professors

MANDEL, Rolfe D.
University Distinguished Professor
Department of Anthropology, College of Liberal Arts and Sciences,
and the Kansas Geological Survey
Professor Mandel has spent 35 years working with archaeologists on projects throughout the United States and eastern Mediterranean, focusing on the effects of geologic processes on the archaeological record. Over the past 15 years much of his research has involved the use of geoscientific methods to search for the earliest evidence of humans in the Central Great Plains and Midwest. Also, the National Academy of Sciences recently appointed him Chair of the U.S. National Committee for the International Quaternary Union, so he has turned his attention to international issues, such as global climate change. In 2014, his publications in peer-reviewed journals spanned a wide range of topics, including geoarchaeology, paleopedology, late-Quaternary landscape evolution, isotope geochemistry, and paleoenvironmental reconstruction. For the past two years, with support from NSF, the National Geographic Society, and the Wenner-Gren Foundation, he has been conducting geoarchaeological and paleoenvironmental research at a 9,500 year-old Neolithic site on the island of Cyprus. He will be returning to Cyprus during the summer of 2015 to complete the project. In addition, as Executive Director of KU’s Odyssey Archaeological Research Program, in 2014 he led two major research projects in Kansas: excavation of the Scheuerman mammoth in Scott County, and excavation of Paleoindian and potential pre-Clovis cultural deposits at the Coffey site in Pottawatomie County.
**McAllister, Stephen R.**  
E.S. & Tom W. Hampton Professor of Law  
School of Law

McAllister engaged in a variety of scholarly activities and service to Kansas during 2014. Among his scholarly activities, McAllister participated in or moderated five programs that addressed important constitutional law topics such as federalism, free speech, and same-sex marriage, focusing in particular on the U.S. Supreme Court and constitutional law. He also presented eight programs on recent and pending U.S. Supreme Court decisions in various Kansas venues. McAllister serves as an invited Adviser on two important American Law Institute projects – the Restatement of American Indian Law and the Restatement of Election Law – attending substantive meetings periodically in Philadelphia and Washington, DC. During 2014, McAllister published two scholarly articles, one addressing the United States Supreme Court and the procedures it uses in original jurisdiction cases (cases involving a State suing another State), and one addressing U.S. Supreme Court history, in particular the connections between the U.S. Supreme Court and the country of Turkey (where McAllister has professional colleagues and has spoken and taught many times over the years). He is currently researching in preparation for writing a book on the constitutional immunity of the States from litigation (sometimes referred to as Eleventh Amendment immunity because of the relevant U.S. constitutional provision). During July, McAllister directed and taught in the Law School’s summer abroad program in Ireland, spending two weeks teaching classes at the University of Limerick, and one week at University College - Dublin. Notably, McAllister led the litigation team for the Attorney General’s office in *Kansas v. Nebraska and Colorado*, a major dispute over the States’ use of water in the Republican River basin. McAllister presented oral argument on behalf of Kansas to the U.S. Supreme Court on Oct. 14, 2014. He also is representing the State before the United States Supreme Court in a number of pending capital punishment cases (including the Carr brothers), and he advises state litigation teams in several other pending cases involving federal and Kansas constitutional challenges, including the pending school finance case.
MITSCHER, Lester, A.
University Distinguished Professor, Emeritus
Department of Medicinal Chemistry, School of Pharmacy
In conjunction with Professors Hanson and Oakley, we are exploring novel agents intended for the treatment of systemic fungal diseases of humans. These diseases are fortunately not very common but are severe, often life threatening, increasing in incidence due to decreased immunity due to aging, organ transplantation, AIDS, etc. and are difficult to treat except by toxic agents or those that must be injected and to which resistance is even increasing. Our lead substance was found by screening a tropical plant and not only possesses a novel structure but also inhibits selectively an enzyme vital for fungal growth that is not found in humans. Exploration by total synthesis is leading to novel compounds with enhanced activity by a novel mechanism of action, significant safety, and have a potential for oral use.
NAGEL, Joane
University Distinguished Professor
Department of Sociology, College of Liberal Arts and Sciences
What are the commonalities and differences across societies in how economies are organized, in political structures, in the place of women, in religious, racial, and cultural differences, in patterns of crime and imprisonment, in the experience of aging, in the guiding ideas and interests that shape social life? These are the questions that sociologists ask. My career has focused on the dynamics of racial, ethnic, gender, and sexual differences in the US and abroad: When does ethnic conflict arise? How do notions of masculinity and femininity produce outcomes such as militarism, rates of reproduction, gender equality and inequality? My current work is on the human dimensions of global climate change: Are there gender differences in public attitudes toward environment and climate change around the world? Will expected outcomes of climate change have different impacts on men and women? What is the role of masculine institutions in designing strategies for responding to climate change? The importance of sociologists’ contributions to understanding global climate change has been recognized by the National Science Foundation who asked me to organize a workshop on “Sociological Perspectives on Global Climate Change” at NSF in 2008. I am the director the NSF interdisciplinary graduate training program on Climate Change, Humans, and Nature in the Global Environment (C-CHANGE). C-CHANGE brings together natural scientists, social scientists, and engineering faculty and PhD students to understand all aspects of global climate change.
NUALART, David
Black-Babcock Distinguished Professor
Department of Mathematics, College of Liberal Arts and Sciences

With modern technology, the availability of complex data in economics, engineering and other areas has improved dramatically. To handle these data one needs sophisticated mathematical models that take into account their random character due to measurement errors and unpredictability. My research focuses on the mathematical analysis of these models with the goal of making them appropriate for applications in a variety of scientific areas. More precisely, I work on stochastic analysis, a part of probability theory that studies dynamical systems under the action of random impulses. I am the leading expert in Malliavin calculus, also called stochastic calculus of variations, which is a mathematical theory that extends the calculus of variations from functions to stochastic processes. In the last two decades, I have developed applications of Malliavin calculus to a wide range of topics in mathematics, including regularity of probability distributions, anticipating stochastic calculus, and central limit theorems. My monograph on "The Malliavin Calculus and Its Applications" is a basic reference in this topic. Recently, I have oriented my research to time series possessing long memory and self-similarity properties. Time series with these properties are suitable models for input noises in a variety of physical phenomena including telecommunication networks, turbulence and finance. My research activity was first developed at the University of Barcelona, where I founded a group in probability theory with high international recognition. Since I joined the University of Kansas in 2005, I have continued and expanded my research, making KU a prominent center in probability theory.
My laboratory carries out research in three areas. One is mitosis and the cell cycle. These processes are essential for all life and defects in mitosis or the cell cycle contribute to miscarriages, birth defects and metastatic cancer. We discovered gamma-tubulin, a protein that is central to, and essential for, mitosis. We have found that it also plays an important role in regulating a key cell-cycle regulatory complex, the anaphase-promoting complex or cyclosome. We are now determining how gamma-tubulin regulates the anaphase-promoting complex and we are investigating the role of gamma-tubulin in regulating other aspects of the cell cycle. The second area is fungal natural products chemistry. Fungi produce compounds called secondary metabolites that they use to compete with organisms in their environment. Many of these compounds inhibit important biological processes and are, consequently, useful as drugs or drug precursors. We are using the power of molecular biology and genomics to discover new compounds produced by the fungal genus *Aspergillus*, to elucidate their biosynthetic pathways and increase the production of target compounds. In collaboration with Dr. Chris Gamblin, we have found that natural products produced by *Aspergillus* (and chemically altered derivatives thereof) are effective in preventing the aggregation of a protein called tau. Tau aggregation plays an important role in several types of dementia including Alzheimer’s disease and inhibiting tau aggregation may be of great value in treating or preventing these forms of dementia. The third area is antifungals. Fungi are opportunistic pathogens that cause the deaths of hundreds of thousands of people each year, particularly people whose immune systems are dysfunctional due to chemotherapy or HIV. In collaboration with Dr. Les Mitscher and Dr. Paul Hanson, we are developing novel antifungal compounds based on the structure of a plant natural product that has antifungal activity.
O’LEARY, Rosemary
    Edwin O. Stene Distinguished Professor
    School of Public Affairs and Administration, College of Liberal Arts and Sciences

In 2014, O’Leary won the highest scholarly award in the field of Public Administration in the United States: the Dwight Waldo Award given for “distinguished contributions to the professional literature of public administration and in recognition of a distinguished career as author, educator, and public administrator.” In addition, she served as an Ian Axford Fellow in Public Policy with the government of New Zealand where she worked with the Ministry of the Treasury and the Prime Minister’s office to analyze impediments to collaboration among government agencies in that country. While in New Zealand, O’Leary gave two public lectures on the topic of “Collaboration Across Boundaries” and a third on the same topic in Australia. In 2014, one of Professor O’Leary’s previously co-authored articles was selected as “One of the 75 Most Influential Articles since 1940” by the oldest public administration journal in the field: Public Administration Review. The article that won this prize is “The New Governance: Practices and Processes for Stakeholder and Citizen Participation in the Work of Government,” Public Administration Review, vol. 65, no. 5, pp. 547-558 (2005), co-authored with Lisa Blomgren Bingham, and Tina Nabatchi. Rosemary also published the second edition of her book The Ethics of Dissent: Managing Guerrilla Government. Washington D.C.: Congressional Quarterly Press. She and Distinguished Professor Emeritus H. George Frederickson co-edited a special issue of the American Review of Public Administration on “Local Government Management”. Rosemary had three double-blind peer review articles published in 2014 as well as a chapter in a book. She had 3 additional chapters in 3 different books accepted for publication. She was a key-note speaker at the inauguration of 225 new members of the US Senior Executive Service in Washington DC in December. She served on 4 dissertation committees at the School of Public Affairs and Administration, and currently chairs 4 additional Ph.D. dissertation committees.
PASCO, Allan H.
Hall Distinguished Professor of Nineteenth-Century Literature
Department of French and Italian, College of Liberal Arts and Sciences

I see my role as contributing to the University of Kansas's reputation in the international community. Outstanding students of French literature and culture of the 18th, 19th, and 20th centuries take my classes. One seminar, for example, focused on the changes in the attitudes of French people toward their government during the economic crises caused by fiat money and banking manipulation of the late eighteenth and early nineteenth centuries. A productive five weeks in France at the National Library has led to several historical and literary articles in scholarly journals. My most recent book deals with Balzac's understanding of the financial and social ramifications of the French Revolutions of 1789 and 1830. I continue to serve on eight editorial boards of scholarly journals. Other recent books include *Revolutionary Love*, which considered the shift that took place in attitudes toward affection during the late eighteenth century, and *Inner Workings of the Novel*, *which* offered fresh insights into cultural and literary analysis in novels.
PETerson, Blake
Regents Distinguished Professor
Department of Medicinal Chemistry, School of Pharmacy

Only about one in 10,000 drug candidates successfully makes the transition from a laboratory discovery to a marketed therapeutic. This low success rate is primarily a consequence of our limited understanding of how to design drugs capable of efficiently controlling specific target proteins in human patients. To improve our ability to create small molecules that function effectively in biological systems, personnel in my laboratory pursue research in the fields of organic chemistry and chemical biology. We synthesize compounds designed to illuminate aspects of physiology, understand mechanisms of disease pathways, and discover new therapeutic agents. To gain greater access to targets involved in human disease, we are investigating a new delivery platform inspired by natural biological pathways that deliver the nutrient cholesterol to every cell of animals. This platform is based on our discovery that synthetic mimics of cholesterol can mimic the trafficking of receptors on cell surfaces and promote the cellular uptake of drugs and diagnostic probes. Other projects currently underway include the synthesis of fluorescent molecular probes, phenotypic drug discovery, and the identification of targets of biologically active small molecules. Because our focus is on early drug discovery and delivery, we evaluate the biological activities of compounds against cells in culture and optically transparent model organisms to identify the most promising candidates for further development.
PETERSON, A. Townsend  
University Distinguished Professor  
Department of Ecology and Evolutionary Biology, College of Liberal Arts and Sciences, and the Biodiversity Institute  
This year was a year spent dealing with the implications of disease outbreaks around the world. Close to home, the arrival of chikungunya in the Americas adds one more significant zoonotic disease to the panorama of the region, and my lab has been closely involved in modeling and predicting its potential for spread. Much more in the news, of course, has been the Ebola outbreak in West Africa—this outbreak has had two roles in my life this year: it complicated the West African courses that were planned as part of my Biodiversity Informatics Training Curriculum program for 2014-2015, and again my lab got involved in developing predictive models of outbreak potential (which I debuted for Ebola back in 2004). My book entitled Mapping Risk of Transmission of Zoonotic Diseases was published by Johns Hopkins University Press, and funding from the Provost’s Office’s Research Investment Council continues supporting development of an online identification facility for Chagas bugs. I taught a month of courses in Santiago, Chile, with support from the Fulbright Specialists Program this summer, and taught two short courses in Ghana as well in January.
PICKING, William  
Foundation Distinguished Professor  
Department of Pharmaceutical Chemistry, School of Pharmacy, and  
Director, Higuchi Biosciences Center  

Dr. William Picking was hired in 2014 as a Foundation Distinguished Professor in the Department of Pharmaceutical Chemistry. Dr. Picking a native Kansan having grown up in Abilene. He received in BS in Microbiology from Kansas State University and his PhD with Dr. David Paretsky in the Department of Microbiology at the University of Kansas. He established his research program on the molecular basis for bacteria pathogenesis at Saint Louis University where he first received national recognition for his groundbreaking approaches in the study of bacillary dysentery. His international reputation was firmly established when he was a faculty member in the Department of Molecular Biosciences at KU where he received awards in teaching, mentoring and research. It was also at this time that he became a regular invitee for service on review panels at the National Institutes of Health. In 2009, Dr. Picking became head of the Department of Microbiology and Molecular Genetics at Oklahoma State University where, over a five year period, he directed a three-fold increase in undergraduate enrollment and nearly doubled the external funding per FTE within the department. In 2014, Dr. Picking returned to KU where he is in the process of establishing the Kansas Vaccine Institute (KVI) and is now director of the Higuchi Biosciences Center. His research in the area of microbial pathogenesis continues to be recognized internationally and his goal for the KVI is to increase partnerships within the region and globally to allow for the generation of new vaccines for humans and animals and the increase public awareness of the importance of childhood vaccinations.
RICE, Mabel
Merrill Distinguished Professor of Advanced Studies
Department of Speech, Language & Hearing, College of Liberal Arts and Sciences,
and the Merrill Advanced Studies Center

Language is a unique human cognitive ability that appears spontaneously early in childhood. The source of this ability is not identified although genetic influences are known to play a role in the development of brain structures and functions essential to language. Some otherwise healthy children do not develop language in the expected timeframe, and are likely to have problems with reading in middle childhood. My lab investigates the ways in which grammar and vocabulary are affected, and possible genetic influences of language impairment. We identified a candidate gene, KIAA0319, that appears to contribute shared influences to language and reading impairments in healthy children and members of their families. We are funded by the National Institute of Deafness and Communicative Disorders for a large scale longitudinal study of children with language impairments and their families in Kansas and Missouri, a study underway for almost 20 years, and a longitudinal study of twin children and their families who live in Western Australia, underway for 10 years. We identified early clinical markers to help diagnose young children, and we are moving forward in genetics discoveries. I also direct the Merrill Advanced Studies Center, which sponsors scientific conferences.
ROCKHILL, Dan
Constant Distinguished Professor of Architecture
Department of Architecture, School of Architecture, Design, and Planning,
and Studio 804
Through Studio 804, Inc., a not for Profit Corporation, my students and I have been producing sustainable demonstration projects in the region for the last several years. Prior to this we had been working in transitional neighborhoods in Kansas City in an attempt to re-ignite interest in urban living and promote sustainable design and building practices. We have done one build project every year for the last twenty years. Over the last six years, we have designed and built seven LEED (Leadership in Energy and Environmental Design) Platinum buildings in Kansas; the 5.4.7.Art Center for tornado ravaged Greensburg, KS, (the first LEED Platinum in the state - the highest award achievable), two LEED for Homes in Kansas City, the Center for Design Research, the Center for Sustainability at Johnson County Community College, the EcoHawks building on the KU west campus and our most recent; the Marvin Hall Forum, an addition to the KU School of Architecture Design and Planning. We weigh heavily the environmental impact of our design decisions and take pride in leading the conversation about the need for environmental stewardship. Universities are about ideas and service to communities. Our role is to demonstrate the ideas and concepts that will propel us into a future that builds on the successes and mistakes of the past. The Studio is a model for architectural education and few, if any professional firms have equaled our number of completed LEED Platinum buildings. More than half of the funding for these projects comes through industry partnerships forged on Studio 804’s international reputation, widespread publications and awards. In addition, I was recognized as one of the thirty most admired educators in architectural education last year according to the Design Intelligence annual rankings.
ROEDIGER, David
Foundation Distinguished Professor
Department of American Studies, College of Liberal Arts and Sciences
Roediger is most recently the author of Seizing Freedom: Slave Emancipation and Liberty for All (Verso Books, 2014), written to celebrate the 150th anniversary of the emancipation of U.S. slaves, which unfolded mainly between 1863 and 1865. Styled for popular and university audiences, this book offers an account of the stunningly sudden achievement of freedom that emphasizes the actions of the slaves themselves. Finding their ways to Union camps from the first days of the war, and offering their services, enslaved people insisted that the Civil War was about their emancipation long before the government did. Their dramatic role in self-emancipation inspired others to dream of the impossible so that in the space of five years massive movements for women’s suffrage and for an eight-hour working day matured. Much of this history, especially regarding votes for women, unfolded in Kansas. The book also argues that disabilities of Civil War veterans profoundly reshaped struggles for freedom in the U.S. In addition, Professor Roediger was elected president of the American Studies Association in 2014.
ROHRSCneider, Robert
Worcester Distinguished Professor of Political Science
Department of Political Science, College of Liberal Arts and Sciences
My work examines the way that people think about democracies in Europe—East and West. I examine why publics support or oppose the European Union, why so many people distrust politicians all over the world, and how political elites respond to these views. I have recently published a book, entitled The Strain of Representation, which was published by Oxford University Press. It examines how strongly the opinions of citizens in Europe affect the choices and programs of political parties. I am now studying how the economic crisis in Europe enhanced the electoral success of Euro-skeptic parties in the 2014 election to the European parliament. Several leading scholars from Europe’s top Universities will travel to the Lawrence campus in the spring of 2015 for a workshop. They will present their interpretations of the outcome of the European parliamentary elections. During 2014, I have also been invited to present this research at universities in the US (e.g., Washington University) and Europe (e.g., the Dutch Royal Academy).
RUSSELL, Edmund
  Hall Distinguished Professor of U. S. History
  Department of History, College of Liberal Arts and Sciences
Russell's research synthesizes environmental history, American history, global history, history of technology, and science. His first major project focused on the environmental history of warfare. It culminated in a pair of books (War and Nature, Cambridge University Press, and Natural Enemy, Natural Ally, co-edited with Richard Tucker, Oregon State University Press). His second major project focused on evolutionary history, or the study of ways in which people have altered the traits of populations of non-human species and how these alterations have circled back to change human experience. He has published one book on this topic (Evolutionary History, Cambridge University Press) and has another under contract. His most recent book is Sally K. Fairfax and Edmund Russell (editors), CQ Guide to U. S. Environmental Policy (Washington, DC: CQ Press, 2014). Russell's research has received prizes in environmental history, history of technology, and history of science. He has received three teaching awards. Russell is co-editor of the Studies in Environment and History series for Cambridge University Press, distinguished lecturer for the Organization of American Historians, life member of Clare Hall at Cambridge University, and extraordinary member of the Human Sciences Center of the Ludwig Maximilians University in Munich. He has been a Carson Fellow at the Rachel Carson Center in Munich and a visiting scholar at Cambridge University.
SHENOY, Prakash P.

Ronald G. Harper Distinguished Professor of Artificial Intelligence
Department of Finance, Economics, and Decision Sciences, School of Business

Shenoy’s research interests are in the areas of risk analysis, and making decisions when risk is a major factor, using probability models. He has been on the faculty of the School of Business for the last 37 years (since Fall 1978). He served as a consultant to Missile Defense Agency in the Department of Defense from 2000–2006. He has published articles in top-tier journals such as Management Science, Operations Research, Artificial Intelligence, Decision Analysis, International Journal of Approximate Reasoning, and European Journal of Operational Research. Shenoy leads the Center for Business Analytics Research in the Business School, whose mission is to advance research with “big data,” teaching business analytics to undergraduates and graduate students, and outreach with corporations needing help with their data. He is currently working with companies such as KU Hospital, Kansas City, KS; American International Group, Inc., New York, NY; and Lockheed Martin Space Systems Co., Sunnyvale, CA. Shenoy serves as an Associate Editor of International Journal of Approximate Reasoning, and as an ad-hoc referee and program committee member for over 30 journals and conferences in Artificial Intelligence and Management Science/Operations Research. He has served as associate editor for Operations Research and for Management Science.
**SPENCER, Paulette**  
*Ackers Distinguished Professor*  
Department of Mechanical Engineering, School of Engineering,  
and Director, Bioengineering Research Center  

Building on her education and experience, Paulette Spencer leads a research program that is driven by clinical need, and integrates engineering principles with the clinical practice of dentistry. Paulette is a pioneer in the development of non-destructive techniques to characterize structure/property relationships at tissue/tissue and material/tissue interfaces. Although it has been recognized for decades that the failure of reconstructed tissues and joints using synthetic and/or tissue-engineered materials starts at the interface, mechanistic evaluation of interfacial failure remains limited. Paulette’s research team employ multi-scale structure/property imaging and mathematical modeling to provide insight into mechanistic behavior of native, as well as reconstructed tissue/material interfaces. The experimental tools are state-of-the-art, while the modeling and analytical techniques bridge scales from the molecular- to the system-level. These complementary and synergistic capabilities elucidate the reactions that initiate the failure of biomaterials. Armed with an understanding of the reactions that lead to failure, we are engineering a new generation of multi-functional materials. Peptides are engineered to integrate with these materials and provide critical properties including enzymatic resistance and anti-microbial activity. Working with a diverse, interdisciplinary research team, Paulette is developing durable biomaterials to replace skeletal or oral tissues lost because of age, disease or trauma. Paulette was recently selected for an award through the Fulbright-Brazil Scientific Mobility Program. This award was based in part on Paulette’s proposal titled, “Driving Biomaterials Discovery through KS-Brazil Bridge“.
SOBERÓN, Jorge L.

University Distinguished Professor

Department of Ecology and Evolutionary Biology, College of Liberal Arts and Sciences, and the Biodiversity Institute

I am an ecologist, with a B. Sc. and M. Sc. form the National University of Mexico (UNAM), and a Ph. D. (1982) from Imperial College in the United Kingdom. I started my career as researcher at the Instituto de Biologia of UNAM, working in Theoretical Ecology. In 1992 I was seconded from UNAM to act as the Executive Secretary of the newly created National Commission of Biodiversity of Mexico (CONABIO). This federal level agency had the mandate of compiling the inventory of Mexico’s biodiversity and maintain it updated. For 13 years I was the Executive Secretary of CONABIO, reporting directly to the Minister of the Environment, and on several occasions to three Presidents of Mexico. During my tenure in CONABIO, its original concept was successfully implemented and CONABIO is now one of the three or four leading national biodiversity information agencies in the world, serving Terabytes of data to thousands of users in Mexico and in the world. Its services are used by many branches of the Mexican Federal Government (Ministries of Environment, Agriculture, Health and Foreign Affairs) but also by schools, universities and NGOs. As Executive Secretary, I was the de facto representative of Mexico to all international conferences and negotiations on biodiversity, in two occasions I acted as the Head of the Mexican Delegation to international negotiations. I keep attending international conferences and acting in the board of a number of major national and international organizations. In 2012 my work in CONABIO was recognized by the President of Mexico, Felipe Calderon, in a public ceremony where I and four other scientists, Mexican and American, were awarded a special prize for our work in benefit of the biodiversity of Mexico. Organizing CONABIO required compiling very extensive databases in a variety of subjects (taxonomy, biogeography, genetics, economic value and others,) and also to develop very sophisticated computational and statistical tools to extrapolate from incomplete data. The theoretical problems of doing this, and of biodiversity governance from international levels all the way to very local levels are now my main research topics. Since joining KU in 2005 I have co-authored a book, edited another, and published more than 60 scientific papers, with more than 5,000 citations to my work. I contribute to KU an unusual perspective, since I have an interest in policy, and have been directly involved in it at international and national levels, but I am also working on the theory of some fundamental problems in biogeography that also are of very practical value for the United States and for Kansas. At KU I have taught courses in environmental policy, in biodiversity informatics, in conservation biology and in theoretical ecology. During my time at KU I have obtained around 1.5 million dollars in grants, including one from Microsoft Research, and from NSF. I am extremely aware that working for a public university is a privilege and a responsibility, and I strive to teach to the best of my capacity, and to do research that is important academically but also useful to the state of Kansas and to the country. Kansas is the state where my mother attended college more than 60 years ago. Her stories of snow, of her school (Saint Mary, in Leavenworth), and of her life-long American friends weighted at the time of taking the decision of coming to work here. We have never regretted this decision.
STELLA, Valentino
University Distinguished Professor
Pharmaceutical Chemistry, School of Pharmacy
My research involves novel ways of formulating and delivering to the body, problematic drug candidates, especially drugs used to treat cancer and AIDS. I am also the inventor or co-inventor of the drugs fosphenytoin (Cerebyx®), Viread®, Lusedra® and Captisol® the solubilizer used in the injectable forms of Vfend®, Geodon®, Abilify®, Nexerone® and the veterinary product Cerenia® and helped formulate the novel anticancer drug Velcade®. I helped found three Kansas companies, Cydex Pharma, Crititech and ProQuest Pharma. All of the products are helping Kansans and others throughout the world live healthy and productive lives. I also helped establish the biosciences incubator in Lawrence and I am involved with the effort to get National Cancer Center designation for the University of Kansas.
TAYLOR, Thomas N.
Roberts Distinguished Professor
Department of Ecology and Evolutionary Biology, College of Liberal Arts and Sciences, and the Biodiversity Institute

Research in my laboratory focuses on ancient life, especially fossil plants and microbes that are preserved so that it is possible to investigate cellular detail. I study the diversity of past life, interactions with other organisms, and how these interactions have changed to the present day. I collect and study plants that lived 250–220 million years ago in Antarctica when the continent supported a lush vegetation, and when the world was rapidly warming.

The collection of Antarctic fossil plants at the University of Kansas is the largest in the world and I use it to understand how plants existed under a polar light regime (24 hrs of light in summer, followed by winter darkness), and how organisms adapted to these unique environmental circumstances and the changing climate. These deep-time proxy records of climate change provide an opportunity to test models of the type of plant adaptations that will occur in the future. My laboratory also studies fungi and other microbes that lived with these plants, and how the complex associations they formed influence plant and animal life.

My textbook, *Paleobotany: The Biology and Evolution of Fossil Plants* is the standard in the discipline. I am a member of the National Academy of Sciences, currently serving a six-year term on the presidentially appointed National Science Board, where I am involved with a variety of science policy issues ranging from K–12 education to support for major infrastructure investments designed to make the U.S. more competitive in research and public science literacy.
**TIMMERMANN, Barbara**  
Distinguished Professor of Medicinal Chemistry  
Department of Medicinal Chemistry, School of Pharmacy

Plant biodiversity enables me to continue to strive to develop new therapeutic leads for the improvement of human health. I am dedicated to the exploration, discovery and development of new drug leads from natural sources, by conducting field work, sophisticated chemical isolation and characterization procedures, screening and testing methodologies and by explaining the biological activities through structural studies and molecular design. Major efforts in my laboratory include a program to discover biologically active compounds from native medicinal plants in the Great Plain with the objective to develop and commercialize therapeutic agents and botanical dietary supplements. In the past two years, we have isolated and characterized from several species of the Solanaceae over 80 natural products new to science thus showing the importance of plant biodiversity of Kansas as a source of unknown molecules. These compounds as well as their semi-synthetic derivatives are currently being evaluated in pre-clinical models of various forms of cancer and their synergistic effects with currently used anticancer drugs in order to reduce the doses of highly cytotoxic anti-cancer therapies. An indication of the attention that our research is receiving by our peers was the feature of our results on the cover of the American Chemical Society publication Journal of Natural Products for six consecutive months (January-June 2013). Other projects include studies to determine whether turmeric dietary supplements are effective in preventing and treating the skeletal complications that occur in up to a third of women diagnosed with breast cancer and studies to determine whether ginger dietary supplements can be efficacious in the treatment of rheumatoid arthritis, and to identify the chemical composition of the ginger root that must be present in a dietary supplement to provide the desired biological effect. Based on my lifelong accomplishments in the natural products sciences and my contributions to the American Society of Pharmacognosy (ASP) as President in 2012, I have been named a 2014 Fellow of the ASP, a distinction awarded to fewer than five percent of this professional organization’s members. I have also been elected to serve for a three-year term as a Council Delegate (Pharmaceutical Sciences) for the American Association for the Advancement of Science (AAAS), the world’s largest general scientific society.
VITTER, Jeffrey S.
Roy A. Roberts Distinguished Professor
Department of Electrical Engineering and Computer Science, School of Engineering, and Provost and Executive Vice Chancellor

In my research, I seek to exploit the rich interdependence between theory and practice. My main field is the design and analysis of computer algorithms. An algorithm is a “recipe” that a computer uses to solve a particular problem. I am especially interested in solving problems that deal with massive amounts of data (or so-called, big data). I am perhaps best known as a founder of the field of external memory algorithms, which focuses on alleviating the I/O communication bottleneck between a computer’s fast internal memory and the very slow external storage (such as disk drives). The goal is to design algorithms that exploit locality of reference and parallelism in order to reduce I/O costs, which is important in a variety of data-intensive applications, such as in geographic information systems, databases, and on the Web. My recent book serves as a reference for the field. A second key area of big data is the design of compressed data structures. Since the data size may be immense, the goal is to operate directly upon compressed representations of data, yet still achieve fast response time. The wavelet tree data structure I co-developed is an elegant structure for coding sequences of characters from a multicharacter alphabet; it has become a key component in modern indexing and compression. Until this century, fast data structures for full text indexing (such as suffix trees and suffix arrays) required much more space than the data being indexed! The analogy would be a library in which the card catalog was several times bigger than the library itself. Based upon a recursive decomposition of the suffix array, I recently co-developed a theoretically optimal yet practical solution. The net effect is that the text can be completely replaced by an index structure that has the size of compressed text but can be queried quickly. Another way to look at it is that we seek to develop structures that are as efficient in time and storage resources as what Google uses for word searches, but that offer additional search capabilities that Google does not.
WEATHERLEY, Laurence R
Albert P Learned Distinguished Professor of Chemical Engineering
Department of Chemical and Petroleum Engineering, School of Engineering

My research interests are in the area of environmental process engineering with a focus on the intensification of chemical reaction and separation processes involving liquid mixtures and solid/liquid mixtures. Intensification involves development of small, highly efficient process equipment which reduces plant footprint, reduces the inventory of hazardous solvents in chemical processes, and provide opportunities for the application of new green chemistry. Environmental process engineering is not only focused on cleaning up waste but also on innovations for cleaner, energy efficient, safer and more intensive chemical processes with the goal of avoiding generation of waste. Environmentally friendly development of new chemical processes based on feed-stocks such as cellulosic biomass, soy, and shale gas which are abundant in Kansas, require such innovations. Recent personal research projects include development of new miniaturization technology for biodiesel synthesis based on high gravity fields, optimization of biogas production from blended agricultural and municipal wastes, application of natural zeolites in combination with bacteria for enhanced waste water treatment, and the development of new intensive processing based on electrostatic spraying in liquid-liquid systems. To amplify on the latter, an everyday example of a liquid-liquid system is in a bottle of vinaigrette dressing where there are two immiscible liquids – a light oil phase and a heavy aqueous (vinegar phase). The efficient mixing and separation of liquid-liquid mixtures are of great importance in many industries, including oil and petrochemicals, pharmaceuticals, biodiesel, nuclear fuel processing, and metal extraction. We have significantly advanced understanding of the physical factors and the mathematics which describe drop size, spraying phenomena and drop motion, together with diffusional phenomena when two immiscible liquids are contacted in an intensive environment. The research is underpinned by an understanding of the fluid dynamics when liquid-liquid mixtures are processed under intensive conditions including high gravity or in the presence of high voltage electrical fields. Our work in this area provides computer simulation tools for the design and scale-up of novel equipment operating under these conditions. These tools enable low cost design innovation, optimization, and will reduce risks in full scale application. Based on my interests in these areas, it was a special honor for me to be invited to be executive co-editor of the Chemical Engineering Journal, a position I held for 10 years until 2010. The Chemical Engineering Journal is a leading high impact international research journal (18/333 worldwide in Chemical Engineering - SCImago rankings 2013). I currently retain a position on the Board.
Mitochondrial and synaptic dysfunction is the early pathological feature of neurodegenerative diseases including Alzheimer’s diseases (AD). The underlying mechanism and strategies to rescue them are not well understood. Our research focuses on identification cellular and molecular targets of mitochondrial and neuronal degeneration. Our research is going very well and made a significant progress. The outcome of our research is highly significant and has a positive impact on the research field of neurodegenerative disease including AD and diabetes in particular mitochondrial and neuronal degeneration. First, we have filed several applications (patent) for the small molecules potential for treatment of neurodegenerative diseases including AD at KU. In our preclinical study (in vitro and in vivo animal research), our results demonstrated that administration of these small molecules significantly improved mitochondrial respiratory function and synaptic plasticity as well as learning memory in AD animal model, suggesting a great potential of these compounds for AD therapy. Second, we have recently generated novel transgenic mice targeting mitochondrial function. These transgenic mice are unique tools for our study and scientific community on mitochondrial and neuronal function to explore new mechanisms underlying neuronal and cognitive dysfunction related to neurodegeneration. Third, we have recently demonstrated for the first time that abnormal mitochondrial dynamics contributes to synaptic dysfunction in type II diabetes (Huang et al., Diabetes, November 20, 2014, the top of Journal in diabetes, impact factor 8.5). The results of this paper strongly support that mitochondrial function and dynamics are key players for diabetes-induced synaptic injury and dementia. As stated by reviewers, the study is timely and comprehensive analysis, and this work provides a novel and significant insight into the mechanisms underlying changes in the brain function associated with diabetes. Finally, our research project receives a continuing support from NIH to investigate the role of mitochondrial function and dynamics in neurodegeneration and memory disorder (to 2019).
Contact information
Named, University, and Foundation Distinguished Professors

Dale Abrahamson
dbrahimson@kumc.edu
Perry Alexander
palexand@ku.e
Jeff Aubé
jaube@ku.edu
Victor Bailey
vbailey@ku.edu
William Barnett
barnett@ku.edu
Richard Barohn
rbarohn@kumc.edu
Kenneth Beard
c143b471@ku.edu
Raj Bhala
bhala@KU.edu
George Bittlingmayer
bittlingmayer@ku.edu
Michael Blum
mblum@ku.edu
Ronald Borchardt
rborchardt@ku.edu
Kristin Bowman-James
kbjames@ku.edu
Joyce Castle
jcastle@ku.edu
Raghunath Chaudhari
rvc1948@ku.edu
Shih-I Chu
sichu@ku.edu
J. C. D. Clark
jcdclark@ku.edu
Bernard Cornet
cornet@ku.edu
Ann Cudd
acudd@ku.edu
David Darwin
daved@ku.edu
Lynn Davidman
Lynndavidman@ku.edu
Don Deshler
ddeshler@ku.edu
Robert DeYoung
rdeyoung@ku.edu
Martin Dickinson
mbd@ku.edu
Christopher Drahozal
drahozal@ku.edu
Charles Eldredge
cc@ku.edu
Steven Epstein
ae@ku.edu
Joseph Evans
evans@ku.edu
Carol Fabian
cfabian@kumc.edu
Stephen Fawcett
sfawcett@ku.edu
Victor Frost
frost@eeecs.ku.edu
Prasad Gogineni
pgogineni@ku.edu
Robert Goldstein
gold@ku.edu
Maryemma Graham
mgraham@ku.edu
Susan Harris
skh5@ku.edu
John Head
JHead@ku.edu
Anne D. Hedeman
adhedeman@ku.edu
Michael Hoeflich
hoeflich@mail.ku.edu
Susan Kemper
skemper@ku.edu
Barbara Kerr
bkerr@ku.edu
Dennis Lane
lane@ku.edu
Richard Levy
rlevy@mail.ku.edu
Sue Lunte
slunte@ku.edu
Joseph Lutkenhaus  jlutkenh@kumc.edu
Rolfe Mandel  mandel@ku.edu
Stephen McAllister  stevemac@ku.edu
Eli Michaelis  emichaelis@ku.edu
Russ Middaugh  middaugh@ku.edu
Joane Nagel  nagel@ku.edu
David Nualart  nulart@ku.edu
Berl Oakley  boakley@ku.edu
Rosemary O’Leary  oleary@ku.edu
Allan Pasco  apasco@ku.edu
Townsend Peterson  town@ku.edu
Blake Petersen  brpeters@ku.edu
Bill Picking  picking@ku.edu
Mabel Rice  mabel@ku.edu
Dan Rockhill  rockhill@ku.edu
David Roediger  droediger@ku.edu
Robert Rohrschneider  roro@ku.edu
Edmund Russell  eprussell@ku.edu
Christian Schöneich  Schoneic@ku.edu
Elinor Schroeder  eschroed@ku.edu
Paul Selden  selden@ku.edu
Prakash Shenoy  pshenoy@ku.edu
Michael Soares  msoares@kumc.edu
Paulette Spencer  pspencer@ku.edu
Jorge Soberón  jsoberon@ku.edu
Valentino Stella  stella@ku.edu
Bala Subramanian  bsubramaniam@ku.edu
Karan Surana  kssurana@ku.edu
Thomas Taylor  tntaylor@ku.edu
Barbara Timmermann  btimmer@KU.edu
Ann Turnbull  turnbull@ku.edu
Jeffrey Vitter  jsv@ku.edu
David Volkin  volkin@ku.edu
Doug Walker  walker@ku.edu
Laurence Weatherley  lweather@ku.edu
G. Paul Willhite  willhite@ku.edu
Judy Wu  jwu@ku.edu
Shi Du Yan  shidu@ku.edu