

January
2016

Council of Distinguished Professors

Annual Report

KU THE UNIVERSITY OF
KANSAS

KU MEDICAL
CENTER
The University of Kansas

Prepared for: The Kansas Board of Regents
By: The Council of Distinguished Professors, University of Kansas
and University of Kansas Medical Center

University of Kansas
and
University of Kansas Medical Center
Council of Distinguished Professors

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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, creative activities, and scholarship 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 Professor is 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 reputation for excellence. However, an exemplary record of research, scholarship, or creative engagement is not enough; a pre-eminent ability to teach and mentor 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 inter-disciplinary 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 paragraphs 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 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)
- Victor Bailey (History and the Hall Center)
- Anne D. Hedeman (History of Art)
- Edmund Russell (History)
- Paul Selden (Geology and the Paleontological Institute)
- Barbara Timmermann (Pharmacy)

AGADJANIAN, Victor

Foundation Distinguished Professor

Department of Sociology, College of Liberal Arts and Sciences

My research, funded by the National Institute of Health, the United States Agency for International Development, and other agencies, has dealt with migration, health, and wellbeing in a variety of international settings. Specifically, I have explored such themes as causes and consequences of migration for migrants and their families, access to and use of sexual and reproductive health services, determinants of marriage and childbearing, women's autonomy and empowerment, and gendered meanings and implications of religious participation. I have worked in sub-Saharan Africa, Latin America, Russia, the Caucasus and Central Asia. Whatever the topic of my research or the place where I conduct it, I strive to convey to my audiences, both in and outside academia, that "international" does not mean "foreign." On the contrary, the more we learn about other countries around the globe the better we understand the challenges we face in our own country, state, and community, and the better we are equipped to successfully deal with those challenges. The world's problems are, then, our problems—and they are more and more so in an increasingly globalized and interconnected world.

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 smart phone 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.

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 several multi-center neuromuscular clinical trials: the first was to study the drug Mexiletine for non-dystrophic 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 a trial of rasagiline for ALS which we have just finished enrollment of 80 patients begun to recruit patients around the United States. We are just starting to initiate two multi-center trials. One is the drug memantine for ALS and the other is the experimental drug arimoclomol for inclusion body myositis. All of these have been funded through the FDA Orphan Products discussion grant program. We also are part of the national NeuroNEXT 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 NeuroNEXT trial to study the drug rituximab in myasthenia gravis. Finally, we receive 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 are the coordinating center for a 400-patient trial with 40 sites. The Greater Plains Collaborative is also funded by PCORI and links 14 academic centers in the Midwest and Texas. I lead the rare disease component and of the GCP and we are currently studying ALS patients at these sites. 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 when, where and how such familiar taxa as anthropoid primates (monkeys, apes and humans) evolved. Working with colleagues at KU and elsewhere, I also assess how major perturbations of the Earth's physical environment have impacted the evolution and geographic distribution of early primates and other mammals. This work has potential applications in fields such as conservation biology, climate change, and invasive species. My recent expeditions have investigated fossil sites in Wyoming, 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.

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.

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 ongoing work on the use 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.

FROST, Victor

Dan Servey 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

Fossil fuel energy is essential to modern society and to the Kansas economy. 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 occluded by mineral precipitates involves studies of chemical alteration of rocks and environments of sediment deposition from the geologic past. Research on oil and gas reservoir rocks is required at the microscopic scale, and involves analyses of the chemical composition of tiny mineral crystals and 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 a text for any research lab examining the chemical alteration of rocks. I teach seminars and short courses around the world for 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.

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 25 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.

KEMPER, Susan

Roberts Distinguished Professor
Department of Psychology, College of Liberal Arts and Sciences,
and the Gerontology Center, Life Span Institute

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.

LEVY, Richard

J. B. Smith Distinguished Professor
School of Law

I am a teacher and scholar in the field of American public law, including constitutional law, administrative law and legislation. I joined the KU Law faculty in 1985, having received my law degree with honors from the University of Chicago Law School. Before joining the faculty, he served as a clerk for Judge Richard Posner of the U.S. Court of Appeals for the Seventh Circuit. As a teacher, I emphasize active learning and strive to integrate the development of analytical and problem-solving skills into the coverage of substantive material using a variety of innovative teaching methods. I have published several books on constitutional and administrative law (including a leading Administrative Law textbook), and numerous articles in prominent law journals on a wide array of topics, including pioneering work applying collective action theory to federalism and seminal articles on judicial review of administrative agencies. I was named the inaugural J.B. Smith Distinguished Professor of Constitutional Law in 2007. I give extensive service to the state, including work on comprehensive reform of the state's administrative procedure and child-in-need-of-care codes, as well as offering expert testimony for various legislative committees. In recognition of this service, I received the Steeples Award for Service to Kansas in 2010. Within the university, I have occupied various positions of leadership, including service as president of the Faculty Senate, chair of the University Judicial Board and leadership of various successful committees and task forces charged with policy reform. I have studied in Germany and served as exchange professor at the University of Vienna and a guest professor at the University of Trento.

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.

MENJÍVAR, Cecilia

Foundation Distinguished Professor

Department of Sociology, College of Liberal Arts and Sciences

My work has primarily centered on how the immigration laws of the receiving country shape the lives of immigrants, how such laws create different paths of incorporation for immigrants, and how laws also have more intimate and immediate effects through families and communities. For instance, I have researched how immigration laws impact the kind of jobs immigrants can obtain and therefore their incomes and future economic prospects; how laws create different legal statuses that channel some immigrants into successful paths of incorporation while excluding or marginalizing others; how immigration laws and policies affect the composition of immigrant families; and how laws dictate access to goods and services, such as higher education and health care, as well as to opportunities for productive participation in society. My new book, *Immigrant Families* (2016), provides one example of how I approach the study of immigration law and its effects. Although I have primarily studied these topics among immigrants from Central America—Guatemala, El Salvador, and Honduras—I also have conducted similar research in other parts of the world. For this work I have received a career award from the Latino/a Studies Section of the American Sociological Association, and research and book awards from several professional associations. Last year, I was named a John Simon Guggenheim fellow. I am thrilled to have come to Kansas to study immigration and to co-direct the center for immigration/migration research at KU. Although I have conducted research in several cities across the country, including San Francisco, Los Angeles, Washington DC, and Phoenix, studying immigration patterns and dynamics in the geographic center of the country, the heart of the nation, provides exciting new angles from which to examine how immigration continues to shape U.S. society and how the United States receives and transforms the immigrants who make it their home.

NAGEL, Joane

University Distinguished Professor

Department of Sociology, College of Liberal Arts and Sciences

What are the human dimensions of global climate change? Will men and women be affected differently by rising temperatures and sea levels predicted by climate scientists? How do economic interests shape belief or disbelief in climate science? Who shapes US public opinion about the importance of climate change? Where will the ideas and funds come from to respond to climate change? The importance of social science in answering such questions about 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 and funded a five-year interdisciplinary graduate training program at KU on Climate Change, Humans, and Nature in the Global Environment (C-CHANGE). C-CHANGE brought together faculty and PhD students in the natural sciences, social sciences, and engineering to collaborate on understanding and responding to global climate change. My book, *Gender and Climate Change: Impacts, Science, Policy* (2016) is one of the many outcomes of KU’s interdisciplinary climate change programs, and just one example of the dozens of KU researchers who are leading scientific efforts to address climate change in Kansas and around the world.

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.

OAKLEY, Berl R.

Irving S. Johnson Distinguished Professor of Molecular Biology

Department of Molecular Biosciences, College of Liberal Arts and Sciences

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 and breaking down tau aggregates that have formed previously. Tau aggregation plays an important role in several types of dementia including Alzheimer's disease and inhibiting tau aggregation or disassembling tau aggregates 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. 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 2015, O'Leary was chosen as President-Elect of the Public Management Research Association, the most highly respected and elite research group of its type in the world. This is a 6 year appointment: She will serve on the board as President-Elect for 2 years, then President for 2 years, then Past-President for 2 years. O'Leary also co-edited special issues of two esteemed journals: The first was a special issue of *Public Performance and Management Review* on "Collaboration and Performance" (with co-editors from Europe, Australia, and the USA); the second was a special issue of *Conflict Resolution Quarterly* honoring Christina Sickles Merchant, a pioneer in the field of conflict resolution and a former colleague. O'Leary won a \$1,000 award for a teaching simulation she wrote titled "To Collaborate...Or Not?" given by the Program for the Advancement of Research on Conflict and Collaboration at Syracuse University (www.e-parcc.org). In addition, O'Leary was invited to join the editorial board of *Public Integrity Journal*, and continued as the editor of the "Public Administration and the Disciplines" feature of *Public Administration Review*. She also is on the boards of 3 other scholarly journals. Professor O'Leary gave 7 invited lectures (including one keynote lecture in New Zealand via video and Skype) and was an invited participant at a University of Texas LBJ School of Government NSF-funded workshop on communicating the results of social science research to the public and elected officials. She published 4 peer-reviewed book chapters and 3 double-blind peer reviewed scholarly journal articles in 2015. At KU, O'Leary served on the KUCR Executive Committee as well as its Board of Directors, was a member of the COAS Promotion and Tenure Committee, and was a Provost's Administrative Fellow. She served on 4 dissertation committees at the School of Public Affairs and Administration, and currently chairs 5 additional Ph.D. dissertation committees. She taught both Ph.D. and MPA courses, and continued her work assisting government organizations with their collaboration challenges.

OREL, Hal

University Distinguished Professor, Emeritus

Department of English, College of Liberal Arts and Sciences.

During my forty years as an active faculty member of KU (1957-1997) I published thirty books with Macmillan [London], Cambridge University Press, Farrar, Straus, University Press of Kansas, and Everyman Press. Professor William Albrecht, Chairman of the English Department, hired me as an Associate Professor, and asked me to publicize among our students the richness of the newly-acquired library of the late P. S. O'Hegarty, Postmaster General of Ireland, which consists of several thousand volumes purchased after Robert Vosper, Director of KU's Libraries, negotiated directly with O'Hegarty's widow. I was delighted to do so, since my interest in Irish history and culture had been deep and wide-ranging for years before I came to Lawrence. During my tenure I originated and taught classes in Irish fiction, poetry, and drama; also, organized teams of colleagues in several departments who shared similar interests and welcomed the opportunity to discuss related subjects (for example, mythology, folklore, music, political controversies, painting and other arts). I was co-founder of the American Committee on Irish Studies (since re-named the American Council) in the late 1950s. It has since acquired several thousand members, most of them holding academic appointments, who report on their research at annual conferences held independently or under the auspices of the Modern Language Association. My books deal mostly with writers who wrote mostly during the Victorian period and the first half of last century; they include such figures as William Wordsworth, the Brontes, Gilbert and Sullivan, Thomas Hardy, Rudyard Kipling, and Rebecca West. The book on Charles Darwin, I am pleased to say, has evoked kind words from scientists who know their field better than I can ever hope to do. May I add, not in a self-congratulatory way but only for the record, I was invited to deliver an oration on two occasions honoring Thomas Hardy in Poets' Corner, Westminster Abbey

KU & KUMC Distinguished Professors

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. I am bringing my tenth book to a conclusion. It deals with Balzac's understanding of the financial and social ramifications of the French Revolutions of 1789 and 1830. I continue to serve on seven editorial boards of scholarly journals and presses. 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. The United States government has awarded me the Outstanding Civilian Service Award, and I am included in the Marquis *Who's Who in America*.

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.

PICKING, William

Foundation Distinguished Professor

Department of Pharmaceutical Chemistry in the School of Pharmacy

and Director, Higuchi Biosciences Center and the Kansas Vaccine Institute

Dr. Picking was hired in 2014 as the Foundation Distinguished Professor of Pharmaceutical Chemistry. He is 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 has established the Kansas Vaccine Institute (KVI). He now directs the KVI and works collaboratively with members of the KU research community and the regional Animal Health Corridor. He is also director of the Higuchi Biosciences Center, which is the leading research center at KU-Lawrence for biomedical research. His work 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.

ROCKHILL, Dan

Constant Distinguished Professor of Architecture
Department of Architecture, School of Architecture, Design, and Planning,
and Director, 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-one years. Over the last seven years, we have designed and built eight 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

In 2015 my 2014 book *Seizing Freedom: Slave Emancipation and Liberty for All*, won the Byron Caldwell Smith Book Prize as the Best Nonfiction Book by a Kansas Author and was a finalist for the Tamara and Isaac Deutscher Prize and the C.L.R. James Prize of the Working Class Studies Association. I served as president of the 5000-member American Studies Association, delivering my presidential address in Toronto in October, and I was chosen as a member of the prestigious writers' group PEN America. My coedited volume *The Construction of Whiteness* is in production at University of Mississippi Press. In May I served as Distinguished Visiting Professor and University of London's Queen Mary University, which hosted a roundtable of international scholars on *Seizing Freedom*. A major symposium on my work has just appeared in the British journal *Ethnic and Racial Studies*.

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*.

SKRTIC, Thomas M.

Williamson Family Distinguished Professor

Department of Special Education, School of Education

Skrctic specializes in disability policy and politics, focusing primarily on the formation and implementation of anti-discrimination special education policy and institutional resistance to it. Grounded in the political philosophy of classical pragmatism, his work questions the social construction of difference as disability in schools and society. The second of two national symposia on his work was held last spring at the annual meeting of the American Educational Research Association (AERA), arguably the premier educational research conference in the world. The first symposium, *Inquiry in Special Education: Three Perspectives on Tom Skrtic's Adoption of Critical Pragmatism*, took place in 1992 and focused on two early influential works, his book, *Behind Special Education: A Critical Analysis of Professional Culture and School Organization*, and *Harvard Educational Review* article, "The Special Education Paradox: Equity As the Way to Excellence." The 2015 symposium, *Beyond the Nod to Justice in Disability Studies in Education: A Symposium Revisiting the Scholarship of Thomas M. Skrtic*, considered his entire body of scholarship on disability policy and politics, including his 1995 book, *Disability and Democracy: Restructuring Special Education for Postmodernity*, and his 2005 co-edited policy text, *Special Education Policy and Practice: Accountability, Instruction, and Social Challenges*. The symposium papers will be published as a book in a series on leading contributors to disability studies in education. Currently Skrtic is pursuing two lines of related research with KU colleagues. The first line, funded by the National Science Foundation, uses institutional theories of organization to address the long-standing problem of racial/ethnic and social class bias in special education. The second line is an interdisciplinary effort to develop a theory of justice that includes individuals with significant intellectual disabilities as primary subjects. Skrtic was recognized in 2004 in the *Encyclopedia of Educational Leadership* as one of the most influential figures in reconceptualizing special education policy and practice. In 2009 he received two awards: Syracuse University's William Pearson Tolley Medal for distinguished leadership in adult learning, and the Senior Scholar Award of AERA's Disability Studies in Education interest group for his pioneering work in disability studies.

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. from 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 Biología* 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 70 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 (Mexican) 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.

SPENCER, Paulette

Ackers Distinguished Professor

Department of Mechanical Engineering, School of Engineering,
and Director, Bioengineering Research Center

Paulette Spencer is an internationally recognized scholar whose research involves the design and development of durable biomaterials. Her work represents some of the earliest examples of Raman spectroscopic analyses of materials/tissue interfaces. She is among the pioneers in the development of non-destructive techniques for *in situ* characterization of 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 starts at the material/tissue interface, mechanistic evaluation of interfacial failure remains very limited. Her research employs multi-scale structure/property imaging and mathematical modeling to provide insight into mechanistic behavior of reconstructed tissue/material interfaces. The analytical results coupled with the modeling provide understanding of interfacial behavior at scales ranging from molecules to centimeters. Armed with an understanding of the reactions that lead to failure, Paulette and her research team are engineering a new generation of multi-functional biomaterials. Paulette leads a research program that is driven by clinical need, and integrates engineering principles with clinical practice. Building on her education and experience, she has developed a unique research program based on “practice-inspired advances in understanding tissue-material interfaces,” to drive biomaterials discovery.

SUBRAMANIAM, Bala

D. F. Servey Distinguished Professor, Department of Chemical and Petroleum
Engineering
School of Engineering

Sustainable technologies for making chemicals: The modern day refinery relies primarily on fossil-based feedstock (such as petroleum, natural gas and coal) to produce the essential chemical intermediates for everyday products (medicines, packaging materials, synthetic fibers, detergents, coolants, etc.). To meet the sharply increasing global demand for such products, alternate feedstocks such as plant-based biomass and shale gas are also being considered. Our research is focused on developing novel, resource-efficient technologies to make petrochemical equivalents from such emerging feedstocks. Working in collaboration with several industry partners of the Center for Environmentally Beneficial Catalysis (CEBC), we are developing technologies for making “renewable” chemicals from plant-based biomass. One such technology for making ethylene oxide (a plastic precursor) received a prestigious award from the American Chemical Society. Archer Daniels Midland (ADM), a global leader in agricultural processing, recently opened research operations in Lawrence, KS to work closely with University of Kansas CEBC researchers to develop technologies that convert ADM’s myriad plant-based feedstocks to value-added products. Such collaborations have been augmented by funding from federal agencies (US Department of Agriculture, National Science Foundation and Environmental Protection Agency) to the tune of nearly \$18 million since 2011. The development of such technologies has significant economic implications for the State of Kansas given its unique mix of natural resources that include not only plant-based biomass but also natural gas, crude oil and wind energy potential. A manufacturing sector built around these resources can be thriving and make Kansas among the global leaders in the manufacture and export of “renewable chemicals”. Subramaniam’s honors include the American Society for Engineering Education’s (ASEE) Dow Outstanding Young Faculty Award, Indian Institute of Chemical Engineers’ Chemcon Lectureship Award, and KU’s Higuchi Research Achievement Award. Subramaniam is founding director of the Center for Environmentally Beneficial Catalysis, a unique University/Industry consortium. He also co-founded CritiTech, a pharmaceutical company based in Lawrence, KS. Subramaniam holds 27 U.S. patents, authored 160+ research publications, edited 2 books, and is associate editor of *ACS Sustainable Chemistry and Engineering* journal. He is a member of the U.S. National Academy of Inventors, and a Fellow of the American Institute of Chemical Engineers and the American Chemical Society Industrial & Engineering Chemistry Division.

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 several years, we have isolated and characterized from several species of the Solanaceae over 100 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 (2015-2018) as a Council Delegate (Pharmaceutical Sciences) and as a member of the Committee on Council Affairs (2015-2017) for the American Association for the Advancement of Science (AAAS), the world's largest general scientific society. In 2014, I was inducted into the KU Women's Hall of Fame.

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.

VOLKIN, David B.

Ronald T. Borchardt Distinguished Professor

Department of Pharmaceutical Chemistry, School of Pharmacy

Therapeutic biological drugs and vaccines produced by biotechnology can be very effective as human medicines, but often lose their potency because they are not stable at the molecular level. This loss of potency can occur during manufacturing, storage, distribution or even during patient administration, and is a particularly challenging problem in developing countries, where the temperatures are higher and cold storage may be lacking. Our research objective is to understand the changes in physical and chemical properties that accompany this loss of potency, and to develop new analytical methods to monitor these changes at the molecular level. A detailed understanding of the causes and mechanisms of instability will guide the design of more potent and stable dosage forms for biological drugs and vaccines. I joined the KU faculty in 2010, after a 20-year R&D career in the vaccine and biopharmaceutical industry, and was awarded the Eminent Scholar Grant by the Kansas Bioscience Authority. I am also the Director of KU's Macromolecular and Vaccine Stabilization Center, which specializes in the characterization, stabilization and formulation of vaccines and biological drugs.

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, 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 (ranked 13 of 268 journals worldwide in Chemical Engineering). I currently retain a position on the Board. My research has benefited from significant international collaboration with universities in Poland and in New Zealand which has also opened up opportunities for KU undergraduate students to study abroad in both these countries.

YAN, Shirley ShiDu

Howard Mossberg Distinguished Professor, Department of Pharmacology and Toxicology

School of Pharmacy

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 a total of 21 publications in 2013 to June, 2015. We have filed several 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. 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 2020).

**COUNCIL OF DISTINGUISHED PROFESSORS
2015**

<i>Name</i>	<i>Professorship</i>	<i>Department/School</i>
Abrahamson, Dale	University	Medicine
Alexander, Perry	AT&T	Engineering
Aubé, Jeff	University	Medicinal Chemistry
Bailey, Victor	Charles W. Battey	History
Barnett, William	Charles W. Oswald	Economics
Barohn, Richard J.	University	Medicine
Beard, K. Christopher	Foundation	Ecology & Evol. Biology
Bhala, Rakesh (Raj) Kumar	Raymond F. Rice	Law
Bittlingmayer, George	Wagnon & Harold Otto	Business & Economics
Blum, Michael	Ritchie	Geology
Borchardt, Ronald T.	Summerfield	Pharmaceutical Chemistry
Bowman-James, Kristin	University	Chemistry
Castle, Joyce	University	Music
Chaudhari, Raghunath V.	Deane E. Ackers	Engineering
Chu, Shih-I	Watkins	Chemistry
Clark, Jonathan C.D.	Hall Family Foundation	History
Cornet, Bernard	Charles W. Oswald	Economics
Darwin, David	Deane E. Ackers	Engineering
Davidman, Lynn	Robert M. Beren	Sociology
Deshler, Donald	Williamson	Special Education
DeYoung, Robert	Capitol Federal	Business
Dickinson, Martin B.	Robert A. Schroeder	Law
Drahozal, Christopher	John Rounds	Law
Eldredge, Charles	Hall Family Foundation	History of Art
Epstein, Steven	Ahmanson-Murphy	History
Evans, Joseph	Deane E. Ackers	Engineering
Fabian, Carol J.	University	Medicine
Fawcett, Stephen	Kansas Health Foundation	Applied Behavioral Science
Frost, Victor S.	Dan F. Servey	Engineering
Gogineni, Prasad	Deane E. Ackers	Engineering
Goldstein, Robert	Merrill W. Haas	Geology
Graham, Maryemma	University	English
Harris, Susan	Hall Family Foundation	Am. Literature & Culture
Head, John	Wagstaff	Law
Hedeman, Anne D.	Franklin D. Murphy	History of Art
Hoeflich, Michael H.	John H. & John M. Kane	Law
Kemper, Susan	Roy A. Roberts	Psychology
Kerr, Barbara	Williamson Family	Psych. & Research in Edu.
Lane, Dennis	N.T. Veatch	Engineering
Levy, Rick	J.B. Smith	Law

KU & KUMC Distinguished Professors

Lunte, Susan	Ralph N. Adams	Chemistry
Lutkenhaus, Joe	University	Medicine
McAllister, Stephen	E.S. & Tom Hampton	Law
Michaelis, Elias	University	Pharmacology & Toxicology
Middaugh, (Russ) Charles	Takeru Higuchi	Pharmaceutical Chemistry
Nagel, Joane	University	Sociology
Nualart, David	Black-Babcock	Mathematics
Oakley, Berl	Irving Johnson	Molecular Biosciences
O'Leary, Rosemary	Edwin O. Stene	Public Affairs & Administration
Pasco, Allan H.	Hall Family Foundation	French & Italian
Peterson, A. Townsend	University	Ecology & Evol. Biology
Peterson, Blake	Regents	Medicinal Chemistry
Picking, William	Foundation	Pharmaceutical Chemistry
Rice, Mabel	Fred and Virginia Merrill	Speech-Language-Hearing
Rockhill, Dan	J.L. Constant	Architecture
Roediger, David	Foundation	American Studies
Rohrschneider, Robert	Sir Robert Worcester	Political Science
Russell, Edmund	Hall Chair US History	History
Schöneich, Christian	Takeru Higuchi	Bioanalytical Chemistry
Schroeder, Elinor P.	Paul E. Wilson	Law
Selden, Paul	Gulf-Hedberg	Geology
Shanmugan, K. Sam	Southwestern Bell	Engineering
Shenoy, Prakash	Ronald G. Harper	Business
Soares, Michael	University	Medicine
Soberón, Jorge	University	Ecology & Evol. Biology
Spencer, Paulette	Deane E. Ackers	Engineering
Stella, Valentino	University	Pharmaceutical Chemistry
Subramaniam, Bala	Dan F. Servey	Engineering
Surana, Karan	Deane E. Ackers	Mechanical Engineering
Taylor, Thomas	Roy A. Roberts	Ecology & Evol. Biology
Timmermann, Barbara	Distinguished Professor	Medicinal Chemistry
Turnbull, Ann	Marianna & Ross Beach	Special Education
Vitter, Jeffrey S.	Roy A. Roberts	Engineering
Volkin, David	Takeru & Aya Higuchi	Pharmaceutical Chemistry
Walker, J. Douglas	Union Pacific Resources	Geology
Weatherley, Laurence	Alfred P. Learned	Engineering
Willhite, Paul	Ross H. Forney	Engineering
Wu, Judy	University	Physics & Astronomy
Yan, Shi Du	Howard Mossberg	Pharmacology & Toxicology

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Armitage, Kenneth	Wm J. Baumgartner	Systematics & Ecology
Asher, Mark	University	Medicine
Andrews, Glen K.	University	Medicine
Brundage, James A.	Ahmanson-Murphy	History
Busch, Daryle H.	Roy A. Roberts	Chemistry
Casad, Robert C.	J.H. & J.M. Kane	Law
Coggins, George C.	Frank E. Tyler	Law
Cromwell, Rue L.	M. Erik Wright	Psychology
DeGeorge, Richard T.	University	Philosophy
Enos, Paul	Merrill W. Haas	Geology
Frederickson, George	Edwin O. Stene	Public Administration
Grantham, Jared	Statland	Medicine
Green, Don	Ackers	Engineering
Hunt, Joan	University	Medicine
Joy, Maurice	Joyce C. Hall	Business
Kuwana, Theodore	Regents	Chemistry
Li, Chu-Tsing	Judith H. Murphy	History of Art
Mackenzie, Kenneth	Edmund P. Learned	Business
Mesler, Russell B.	Warren S. Bellows	Engineering
Meyer, Keith G.	E.S. & Tom W. Hampton	Law
Michener, Charles	Watkins	Entomology
Mitscher, Lester A.	University	Medicinal Chemistry
Orel, Harold	University	English
Pickett, Calder	Clyde M. Reed	Journalism
Robison, Richard A.	Hedburg	Geology
Rolfe, Stanley T.	Albert P. Learned	Engineering
Roskam, Jan	Deane E. Ackers	Engineering
Schiefelbusch, Richard	University	Speech-Language-Hearing
Schowen, Richard L.	Summerfield	Chemistry
Shimomura, Roger	University	Art
Steeple, Donald W.	Dean A. McGee	Geology
Stokstad, Marilyn	Judith Murphy	History of Art
Thomas, Arthur L.	Arthur Young	Business
Turnbull, Rudd	Marianna & Ross Beach	Special Education
Van Schmus, W. Randall	Union Pacific	Geology
Wilson, George	Takeru Higuchi	Chemistry & Pharm. Chem.
Worster, Donald E.	Hall Family Foundation	History
Yu, Po-Lung	C.A. Scupin	Business

KU & KUMC Distinguished Professors

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