

The Irvine Division of the Academic Senate of the University of California
is pleased to present its Distinguished Faculty Awards for 2010-2011

THURSDAY, DECEMBER 2, 2010

7:00 p.m.

UCI University Club

John C. Avise

Professor of Ecology and Evolutionary Biology

The recipient of the Distinguished Faculty Award for Research
will present a lecture:

A NATURALIST IN THE AGE OF GENETICS

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In addition, the following Senate Awards for 2010-2011 will be presented:

Michael Franz

Professor of Computer Science

Distinguished Mid-Career Faculty Award for Research

Candice Odgers

Professor of Psychology and Social Behavior

Distinguished Assistant Professor Award for Research

Peter Bowler

Professor of Ecology and Evolutionary Biology

Distinguished Faculty Award for Teaching

Michael J. Montoya

Professor of Anthropology, Chicano/Latino Studies, and Public Health

Distinguished Assistant Professor Award for Teaching

Frank LaFerla

Professor of Neurobiology and Behavior

Daniel G. Aldrich Jr. Distinguished University Service Award

Sandy Irani

Professor of Computer Science

Distinguished Mid-Career Faculty Award for Service

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Chancellor Michael V. Drake cordially invites you
to a reception immediately following the lectures.

Distinguished Faculty Award for Research

John C. Avise
Professor of Ecology and Evolutionary

I came to UCI in 2005 after a 30-year career at the University of Georgia. My research entails the use of molecular markers (proteins and nucleic acids) to analyze ecological and evolutionary processes in nature. My research covers a spectrum of topics: genetic parentage, reproductive modes, spatial population structure, speciation, hybridization, phylogeography, systematics, and phylogenetics. I have conducted research on diverse animal taxa, the main objective being to unveil ecological or behavioral features of the organisms themselves, but with another goal being to illuminate molecular and evolutionary properties of various classes of genetic markers. The theory and practice of evolutionary genetics are relevant to conservation biology, which provides an emotive framework for much of my research. My life as a geneticist in the wild is described in my autobiography published in 2001: *Captivating Life-- A Naturalist in the Age of Genetics*.

My graduate training at the University of Texas and at U.C. Davis in the early 1970s allowed me to be among the first to recognize that molecular markers could open the entire biosphere for genetic scrutiny, and I later encapsulated this emerging worldview in a key textbook: *Molecular Markers, Natural History and Evolution*. Within the field of molecular ecology and evolution, my most notable career achievements have been the introduction of mitochondrial DNA to population biology in the 1970s and the ensuing development and elaboration of the field of phylogeography. This ongoing phylogeographic revolution is helping to build empirical and conceptual bridges between the microevolutionary sciences (such as ecology and population genetics) and the macroevolutionary sciences (such as molecular evolution and phylogenetic biology). My love of nature has always come from the heart, but my passion for genetics is an acquired intellectual taste. This nexus of heart and mind has kept me enamored with my peculiar brand of interface science.

I have also written extensively on the relevance of genetics and evolutionary biology to human affairs such as genetic engineering, conservation, educational outreach, and the science-religion juncture. I have published 20 books (11 since arriving at UCI) and more than 310 scientific articles (including >50 at UCI). Among the books that I have solo-authored are: *Molecular Markers, Natural History and Evolution* (1994 & 2004 editions); *The Genetic Gods: Evolution and Belief in Human Affairs* (1998); *Phylogeography: The History and Formation of Species* (2000); *Captivating Life* (2001); *Genetics in the Wild* (2002); *The Hope, Hype and Reality of Genetic Engineering* (2004); *Evolutionary Pathways in Nature: A Phylogenetic Approach* (2006); *A Field Guide to Little Known Genetically Engineered Organisms* (2007); *On Evolution* (2007); *Clonality: The Genetics, Ecology, and Evolution of Sexual Abstinence in Vertebrate Animals* (2008); *Inside the Human Genome: A Case for Non-intelligent Design* (2010); and *Hermaphroditism: The Biology, Ecology, and Evolution of Dual Sexuality* (in press).

I am a Fellow of the American Association for the Advancement of Science, American Academy of Arts and Sciences, American Ornithological Union, Pew Program in Marine Conservation, and the National Academy of Sciences. I have served as President of the American Genetic Association, Society for the Study of Evolution, and the Society for Molecular Biology and Evolution. I have given hundreds of lectures in 50 states and 37 countries, and I have received career awards for contributions to genetics, marine biology, ornithology, molecular ecology, wildlife conservation, and biogeography.

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Distinguished Mid-Career Award for Research

Michael Franz Professor of Computer Science

I was born and grew up in Germany, spent some time at a boarding school in the United Kingdom, then returned to Germany to finish secondary school. After military service, I moved to Switzerland, initially only for an undergraduate education at ETH Zurich. I turned down a Fulbright Fellowship that would have sent me to the U.S. for a Ph.D. and instead started graduate studies at ETH under Turing Award winner Prof. Niklaus Wirth, one of the giants of computer science. After obtaining a doctorate, I stayed on for two additional years as a Post-Doctoral researcher—all the while still living in the same apartment that I had rented when I started as an undergraduate, 12 years in all.

I moved to the United States in 1996 to join UCI as an Assistant Professor of Computer Science—into a condominium in University Hills that I had purchased via the just emerging internet without actually seeing it in person. I was given a week to decide whether or not I wanted to buy that condo, while I was still in Switzerland. Luckily, digital cameras were just appearing, and two of my future UCI colleagues actually had access to one. They were kind enough to send a few photos to me via email, in a resolution measured in pixels rather than the megapixels of today. The photos sealed the deal, and I purchased my home for the next 14 years. This past March, I moved to a new home in University Hills, the first time in my life to move houses inside the same country.

At UCI, I thrived. I found some really good Ph.D. students. I graduated some of them. I bought my first car (I still own it and it still runs). I received some substantial grant funding. I was given tenure and promoted to Associate Professor. I found and graduated some more excellent Ph.Ds., 13 of them so far and counting. I was promoted to Full Professor. I became a U.S. citizen. I received some more grants and gifts, close to \$9M in total to date and most of it, I am proud to say, as sole PI. I received the Dean's Award for Graduate Student Mentoring. The undergraduate class of 2007 named me their Outstanding Professor of the Year. The EECS Department in the Henry Samueli School of Engineering gave me a courtesy appointment. And somewhere along the way, I even managed to get married.

Throughout all this activity, I worked on interesting, challenging, and rewarding research problems. Most of my research in the past 15 years has focused on making computer programs run faster, run safer, or both. In particular, I have been studying ways of achieving these goals without requiring any changes in the computer hardware, by analyzing and transforming the computer programs themselves, potentially even while they are already executing—computer scientists call this “dynamic code optimization.” My students and I have made some key contributions to this field, contributions that have been adopted very rapidly and widely. For example, we collaborated with the non-profit Mozilla foundation to integrate our technique into their Firefox web browser, leading to a seven-fold speed improvement in web applications. You may have noticed that web applications such as Gmail, Facebook, and Google Maps run much faster in Firefox than they do in Internet Explorer—our work has made a difference and I am proud of this fact. Over 500 Million people using Firefox are running optimization routines that were developed at UCI.

Thank you, Academic Senate, for the recognition that this reward represents.

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Distinguished Assistant Professor Award for Research

Candice Odgers Professor of Psychology and Social Behavior

For the first time in recent history we are entering a period where the average life expectancy of the population may drop as adolescents and young adults begin to exhibit signs of chronic diseases. Childhood obesity has reached epidemic proportions, binge drinking among young adolescents is on the rise and the detrimental effects of health-risk behaviors on adolescents' brains and bodies are now well documented. My research focuses on how adverse childhood experiences, such as growing up in poverty, child maltreatment and early-onset mental health problems contribute to the mounting burden of disease among young people, with an eye towards developing effective intervention and prevention strategies.

My interest in promoting positive child and adolescent health began while completing a Masters Degree in Criminology and working as an advocate for children in the juvenile justice system. The pathways that delivered these young people into the justice system highlighted the need to understand how exposure to toxic family, school and neighborhood conditions can alter lifespan trajectories. In 2005, I completed my PhD in developmental and quantitative psychology at the University of Virginia while conducting research with justice-involved youth. I then continued my training overseas at the Social Genetic and Developmental Psychiatry Centre in England, where I was able to leverage population-based longitudinal and genetically informative research designs to address key questions related to child health. It was with my mentors Terrie Moffitt and Avshalom Caspi that I began to understand the benefits of receiving training across disciplines and traveling from "neurons-to-neighborhoods" in building explanatory models of child development.

My work on the Dunedin Multidisciplinary Study was the first to prospectively link early-onset antisocial behavior to biomarkers of poor physical health in young adulthood, emphasizing the need to recalculate the economic and social costs of childhood behavior problems. Related research, presented to the National Academies of Science Panel on Law and Justice and covered by the *London Times* and *US News and World Report*, provided support for a causal link between early substance use and later physical health, even among children with no existing behavioral problems. As a co-investigator on longitudinal studies in Australia, Britain, Canada, New Zealand, and the United States, I have had the opportunity to work with diverse teams of scientists and test the generalizability of research findings across contexts. For example, this type of cross-national perspective has been invaluable when exploring the role that social inequalities play in children's development, with recent findings from our team identifying community-level strengths that may protect children growing up in some of our most deprived neighborhoods.

I was drawn to UCI and the School of Social Ecology due to the emphasis placed on cross-disciplinary scholarship that addresses important social problems. The ability to take intellectual risks and integrate macro-to-micro levels of analysis within this environment has allowed me to design a novel study that maps the lives of young adolescents in real time using cell phone technology. In 2007, I was fortunate to receive an Early Career Award from Division 41 of the American Psychological Association and to be selected as one of four young scholars from across disciplines in the United States to receive a William T. Grant Foundation Scholars Award. With support from the Canadian Institutes of Health Research, the National Institute of Child Development, the National Institutes of Aging, the William T. Grant Foundation and the Economic and Social Research Council in the United Kingdom, I have been able to build the capacity for trans-disciplinary scholarship among my research team and stretch into areas of child health that have traditionally not been focused on by social scientists.

I am extremely grateful for the recognition and support that I have received from the School of Social Ecology and the larger scientific community and humbled to be recognized with the Distinguished Assistant Professor Award for Research by the Academic Senate and community of scholars at UCI.

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Distinguished Faculty Award for Teaching

Peter Bowler Professor of Ecology and Evolutionary Biology

Having grown up on the Snake River in southern Idaho five miles from the nearest tiny town, I have always loved nature and biology. So for me, having a field experience in classes is central to bringing home how to think about ecology, ecosystems, and biology. Before coming to UCI for my doctoral work in Biological Sciences in 1970, I attended Bard College, a liberal arts school that stressed critical thinking and had small class sizes. Since my graduate experience here forty years ago, our area of Orange County has seen incredible growth and habitat loss. In the late 1980's and early 1990's UCI was expanding housing, research and teaching facilities. I began working with students to rescue or salvage plants that lay in the path of planned development. We were able to demonstrate that it was feasible to "salvage" coastal sage scrub plants and move them to protected areas. My first papers in this area were published in the early 1990s, and one in 1994 had 17 student coauthors. These techniques were improved over time and are now endorsed by the California Department of Fish and Game and the U.S. Fish and Wildlife Service. This has contributed to the many courses I have designed and offer to undergraduates, including Restoration Ecology, Limnology and Freshwater Biology, Field Freshwater Ecology, Mediterranean Ecosystems: Biodiversity and Conservation, Environmental Ethics, and a three course sequence in Global Sustainability, among others.

I have always truly enjoyed teaching, and it means a great deal to me to have been awarded teaching recognitions by students, the Division of Undergraduate Teaching, and now by the Academic Senate. I am a big fan of David Orr ("What is education for?"), and here are some of my reflections about teaching directed to my undergraduate students in response to several Outstanding Professor awards: Recognition and appreciation by students is one of the capstone prizes any faculty member can receive, and it is a generous reward that an instructor never forgets. Education is a joint venture - an exchange and experience of shared growth for both student and mentor. Frankly, I love teaching and cannot imagine not doing it - I have to show restraint in not trying to do too much of it. I teach much more than my assigned load each year simply because I enjoy it so much, and my style of linking field, lecture and laboratory experiences is immediately attractive as well as being an effective conveyor of what I teach. The experience of fieldwork in natural environments stays with both teacher and student, regardless of where students go in life - as B.F. Skinner once said, "Education is what remains after what has been learned has been forgotten." My students often return to our restoration sites, and we share both the "restoring the restorationist" and the ecological heritage aspects of that which we co-create.

My most fulfilling experiences over the past thirty years at UCI have been with students at Natural Reserve System sites and at the UC White Mountains Research Station. As Kenneth Norris, founder of the UC Natural Reserve System stated, "The most basic rules of the world - the ones we all live by - are ecological rules. You can't study them or even perceive them very well in a classroom or laboratory. It is imperative to go out on the mountainside, watch the rain fall over a valley, dig into the earth beneath a fallen tree, or wade a creek for cobbles with sources upstream. The best work in natural disciplines all starts with observations in nature. We need those wild places where we can study nature first hand, places where all the intricacy and marvel of the natural world is intact." Aldo Leopold or David Orr could not have said it better, but for me it certainly embraces the heart of the matter!

I love engaging students in the dialogue of education, and without the continuous reward of student thought and friendship, my own growth would never progress with the speed it does thanks to the students with whom I work, teach, and play. Teaching is a way of life, an ongoing interaction in which I learn at least as much as my students. For me it never stops. It is an intellectual seduction and fulfillment that becomes a source of renewal. Teaching and learning are two sides of the same coin, which reflect each other and are inextricably linked - shared by both the student and teacher. Each year I am excited to have new student friends come into my life - forming relationships that often last forever. It is exciting to rethink what I teach as I lecture anew, and there is a vibrant level of honesty and an exchange of communication giving rise to new ideas and perspectives - the ultimate reward for an instructor. This co-evolutionary

exchange shows me what I thought I knew in novel ways, and often I'm the student as I see my topics through different perspectives. Quite honestly, for me teaching is a way of life - my way of life - to which I will always be married, and I am certain it will continue to fulfill me. Education is never completed, as my student friends and colleagues teach me every day.

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Distinguished Assistant Professor Award for Teaching

Michael J. Montoya
Professor of Anthropology, Chicano/Latino Studies, and Public Health

On some days I'm an optimist. As a mentor and teacher, I am always an optimist. I don't focus on what is left to be done. I don't dwell on what students are not understanding. I simply apply more pressure where needed and have faith that the students will exceed my expectations. How could I orient my self otherwise? Dwell on shortcomings and expect them to fail? I suppose, it is this energy, this ethos that garnered me this humbling teaching award.

I think of teaching like a gardener. In fact I think of research like this as well. For teaching, I try to discover, with my students, just what kind of plant they are - what their passions are, what drives them. I help them assess the conditions of their soil, their background and preparation, and then work with them to add amendments where needed. When we get it right, it's abundantly apparent. I learned this from mentors and teachers who did this for me. People who, for no obvious reason, worked with me to assess and amend my ecology so I could thrive.

My teaching and research are strategically undisciplined. That is, I want to engage with ideas, ask questions, design studies, and discuss concepts generatively. I cannot countenance the rigid and conservative approach of a single disciplinary approach. This squelches imagination. Many students thrive in this environment. My work group, The Community Knowledge Project, is a space where we can take a big question like, "What is health?," and explode it in to many different methodological and theoretical problems. Where sociological, anthropological, physiological, clinical, molecular, historical, philosophical, ecological and political approaches collide.

I cultivated this approach to teaching and research out of necessity. The world does not conform to the theories, variables, and constructs created by our disciplinary training. It is infinitely more interesting. Human health is an especially undisciplined phenomenon. This is why I find it so inspiring and irritating. I am tremendously fortunate to work with so many talented students and colleagues who, like me, thrive in this space of conceptual totipotency: People in and out of the university who respond to my passion, and people who are willing to join me on the journey of discovery.

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Daniel G. Aldrich Jr. Distinguished University Service Award

Frank La Ferla
Professor of Neurobiology and Behavior
Professor of Neurobiology and Behavior and
Director, Institute for Memory Impairments and Neurological Disorders

I am privileged to be part of a great university such as UC Irvine, having begun my career here in 1995 as an assistant professor. Over the years, I have been fortunate to train and work with many outstanding graduate students and postdoctoral fellows. Together, we have made numerous significant discoveries into understanding the neurobiology of Alzheimer's disease, the most common cause of dementia, as well as developed several critical new tools for the field. My research program has progressed in ways that I could not have imagined 15 years ago, and as a result, I have had the honor of being a previous recipient of the Distinguished Mid-Career Research Award and appointed a Chancellor's Professor of Neurobiology and Behavior in 2008.

I believe that it is incumbent upon each member of the campus to do their part to help ensure that the University progresses. Teaching, research, and service are the pillars by which UC faculty are evaluated and each of these areas offers its own rewards and challenges. Service to the campus, however, provides a unique opportunity to help change our immediate environment, improve policies and ensure that the campus (faculty, students, and staff) and the local community are the beneficiaries.

Since 1995, I have played several major roles on the campus, including serving as the founding director of the Interdepartmental Neurosciences Program. In 2009, I was appointed as the director of the Institute for Brain Aging and Dementia (IBAD). Shortly thereafter, I initiated an effort to change the name to Institute *for* Memory Impairments *and* Neurological Disorders (UCI MIND). UCI MIND is a translational research center, converting scientific discoveries into practical applications to improve human health. Our vision is encapsulated by our new motto: Researching ways to make memories last a lifetime.

Since becoming Institute director, I have made outreach and partnerships with the local community one of the highest priorities for UCI MIND. One of the more popular programs I initiated, which was cited by the County of Orange, is a new community-oriented forum called "Ask the Doc", in which a panel consisting of a neurologist, neuropsychologist and research scientist addresses questions from lay audience members about neurological disorders. In addition, under my leadership, UCI MIND has developed a new Spanish-speaking website to help the Latino community learn more about dementia, and we have invited the community to visit the UCI MIND research and clinical labs to learn firsthand about dementia and UCI's efforts in fighting this disorder.

I am particularly proud of our efforts to increase the educational experience for the graduate students and postdoctoral fellows in the Institute by starting a young scholars group called ReMIND, which stands for Research and Education in Memory Impairments and Neurological Disorders. One exciting new activity is the establishment of an annual "Emerging Scientist Symposium", which gives students and postdoctoral fellows a platform to orally present their research. This type of program ensures that we are training the next generation of scientists and clinicians so that ultimately we can succeed in making memories last a lifetime!

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Distinguished Mid-Career Award for Service

Sandy Irani
Professor of Computer Science

My interest in computer science came out of my love for math in high school. As an undergraduate, I was unsure whether to follow that interest or listen to my father who was encouraging me to pursue engineering. I was delighted in college to discover the area of theoretical computer science which combines both of these disciplines by using mathematical tools to understand computation and analyze computer algorithms. For most of my career, my research focused on designing and analyzing algorithms that govern resources in computing systems. In the last few years, my research interests have shifted dramatically and I now work in quantum information and computation. One of the central goals of my research agenda (and quantum information theory in general) is to understand quantum systems from the standpoint of computational complexity. Physicists have been using computers for decades to understand various aspects of quantum systems, but we still don't fully understand what kinds of systems can be simulated efficiently and which are beyond the limits of computation. Meanwhile, there has been a great deal of excitement recently at the prospect of harnessing the power of quantum mechanics to build computing devices that could potentially be much more powerful than their classical counterparts. One of the most exciting aspects about the research taking place at this boundary between physics and computer science is that the influence is going both ways: quantum mechanics may be used to develop a powerful new type of computing device and our new information-theoretic understanding of quantum systems has led to novel computational methods.

I still marvel at the fact that I have a job with the kind of freedom in which I can decide to work on something completely different than what I have done in the past and I don't need to ask anyone's permission. Even though the change required a significant learning period during which I was not yet producing new results, the decision to work in a new area was up to me.

My interest in service comes from a sense of gratitude for the many benefits of an academic life. I thoroughly enjoy the diverse aspects of my job, the flexibility in work hours, the academic freedom and being a part of an interesting and vibrant community. For all these reasons, I like to support the institution that enables this. As an assistant professor, I was always impressed with my more senior colleagues who took the time from their own research programs to support this enterprise. I recognized the importance of many different contributions, all the way from the details of a carefully planned curriculum, to the diversification of our faculty and student population, to communicating the research accomplishments of our faculty outside the campus. I have enjoyed being a part of many of these kinds of activities over the years and it continues to be a pleasure to give back to the institution which I feel has given me so much.

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