

Christine Mirzayan Science and Technology Policy Graduate Fellows
2006 Fall Biographical Sketches



Albert Einstein Memorial Statue © 1978 by Robert Berks.



Gillian Backus (Fall 2006, NAS/Koshland) is passionate about environmental stewardship & human health, science education policy and science for public understanding. As a Mirzayan Fellow in Fall 2006, she explored issues surrounding national science policy and developed ancillary exhibit materials for the Koshland Science Museum. Following her time at the Academies, Gillian worked as a Toxicologist at the US Environmental Protection Agency for three years before taking her current position as Assistant Professor at Northern Virginia Community College, teaching Health Sciences. She is a passionate advocate for science education, and teaching. She earned her Ph.D. in toxicology at the University of North Carolina, Chapel Hill, where she investigated the role of genetic susceptibility in ozone-induced pulmonary inflammation. Prior to graduate school, Gillian served as science faculty at various independent schools including Phillips Exeter Academy (NH), The Lawrenceville School (NJ), and The Shipley School (PA). She received her bachelor's

degree *magna cum laude* from Mount Holyoke College with a biology major and French minor. (Updated 2/2011)

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Erika Bauer (Fall 2006, DBASSE/BOSE) recently earned her PhD in biopsychology at the University of Michigan where she studied the social interactions of complex mammals, including dogs and primates. Specifically, she looked at the factors influencing the balance of competition and cooperation during social play, and conducted both domestic and international field studies of animals in captive and semi-captive environments. During her field work in Zambia, she spent time learning about the cultures of Africa and briefly volunteered as a visiting educator, teaching children from the local villages about chimpanzees and the environment. She received her BS in biology at John Carroll University in 1997, where she developed a growing interest in animal behavior and environmental issues. Between college and graduate school she worked with a variety of animal and conservation related organizations, including the Pittsburgh Zoo and the University of Pittsburgh Primate Research Center, and participated in projects studying such topics as reconciliation in elephants, anxiety in macaques, the scent-marking behavior of cotton-top tamarins, and dolphin intelligence. The Mirzayan Fellowship was Erika's first experience with science policy, a unique opportunity for understanding more about the integration of science in policy formulation at the federal level. [Contact via email.](#)



Brandon Beltz (Fall 2006 PGA/COSEPUP) currently works as an information systems engineer for the MITRE corporation near Washington, DC. He finished his PhD in cognitive psychology at George Mason University in 2009 where he studied how statistical patterns found in languages provide insight into the workings of human memory. He earned a BS in philosophy from the University of Utah where his many interests led him through cognitive science and the philosophy of science. Throughout his undergraduate years he served as a non-commissioned officer in the Army Reserves. Before graduate school he went to Kazakhstan for the Peace Corps to teach ecology to high school students. His experiences in college, the Army, and the Peace Corps sparked his interest in the critical role that science and technology plays in the global influence of the United States. (Updated 9/2010)



Matt Bowen (Fall 2006, DEPS/BPA) is an Associate Deputy Assistant Secretary in the Office of Nuclear Energy at the U.S. Department of Energy (DOE). He previously held senior advisor positions in the Office of Nonproliferation and Arms Control and the Office of Nuclear Energy at DOE. In 2009, Matt was a legislative fellow in Senator Mark Udall's office, on detail from the National Renewable Energy Lab. In 2008, he was a AAAS/APS Congressional Fellow in the Office of Senate Majority Leader Harry Reid. Before working in Congress, Matt was a senior program associate with the Board on Energy and Environmental Systems (BEES) at the National Academies of Sciences, Engineering, and Medicine, and began life in D.C. as a Mirzayan Fellow with the Board on Physics and Astronomy (BPA). Matt received a bachelor's degree in physics from Brown University and a PhD in particle physics from the University of Washington. (Updated 4/2014)



Lisa (Downward) Lakata (Fall 2006, PGA/BHEW) completed her PhD in physics at the University of California, Santa Cruz in March 2008. Her dissertation focused on the relationship between the atomic structure and magnetization of Colossal Magnetoresistant (CMR) materials using Extended X-ray Absorption Fine Structure (EXAFS) spectroscopy. She received a BA in physics from Bard College (May 2001) where she studied the magnetization of Europium compounds. Lisa developed an interest in policy when she was elected as a graduate student representative to the Stanford Synchrotron Radiation Laboratory Users' Organization Executive Committee (SSRL-UOEC), which provides input to the Director on new policies that affect users. In addition, she was involved in the Graduate Student Association (GSA) at UCSC for three years, with the last year as Internal Vice-President. As an officer, she had the opportunity to work closely with the administration, to learn first-hand how a university operates, and to advocate for graduate student issues. Lisa now works at Lattice Engines, a

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business consulting company, as an analytical engineer where she spends most of her time creating predictive models to identify increased sales opportunities. In her free time she can be found playing with her son, reading novels, hiking through forests, traveling to unique places, training for a marathon or knitting gifts for friends and family. (Updated 3/2010)



Charles Fay (Fall 2006, TRB/SHRP 2) is a senior program officer at the Transportation Research Board, specifically with SHRP 2, an integrated research program concerned with a variety of issues from safety to sustainability. Charles received his master's degree from Rensselaer Polytechnic Institute's Lighting Research Center (LRC) in 2003, where his focus was circadian photobiology. After graduating, Charles was a project manager in the R&D division of the New York State Energy Research and Development Authority, working on the development of energy efficient products. Charles returned to the LRC as a research scientist, primarily investigating the effects of light on the circadian system. Charles entered the master's program with a well-rounded education. He earned a bachelor's in biology from the University at Albany and spent four years at the University of Oregon's Fine Arts Department working in the areas of experimental animation, film, installation, painting, and sculpture. He has significant

business experience and spent several years following a "spiritual" journey. (Updated 10/2011)



Peter Jordan (Fall 2006, NAE/CASEE) completed his PhD in physiology and biophysics at Cornell University in December 2006. His doctoral research focused on computational modeling of cardiac arrhythmias. Prior to attending Cornell, he received his undergraduate degree in mechanical engineering from Queensland University of Technology in Australia, and then completed a year of graduate study in biomedical engineering at the University of British Columbia. After receiving his PhD, he was a postdoctoral fellow in the Laboratory of Biological Modeling at the National Institutes of Health, where his research focused on mathematical modeling in human nutrition and whole-body metabolism. (Updated 9/2010)



Jason F. Lee (Fall 2006, IOM/HCS) is a fourth year medical student, who received a BA degree in molecular and cell biology from the University of California, Berkeley, an MPH degree in health management from Yale University, and a certificate from the Institute for Healthcare Improvement. During the Mirzayan Fellowship at the National Academies, he drafted a chapter on healthcare workforce issues in the Institute of Medicine report, Cancer Care for the Whole Patient: Meeting Psychosocial Health Needs. Prior to medical school, he worked as a researcher at Stanford University, World Health Organization, Yale-New Haven Hospital, UCSF, Helen Wills Neuroscience Institute, and City of Hope. (Updated 10/2011)

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Johnalyn Lyles (Fall 2006, PGA/CSTL) is an administrative scientist and policy specialist with the Centers for Medicare and Medicaid Services within the Department of Health and Human Services. She received her PhD in neuropharmacology at the University of Maryland, Baltimore in December of 2006. Her doctoral research focused on the effects of 3, 4 methylenedioxyamphetamine (MDMA, ecstasy), a popular drug of abuse, on brain development in Sprague Dawley rats following in utero exposure. She received a bachelor's in chemistry, summa cum laude from Johnson C. Smith University where she completed her undergraduate thesis in medicinal chemistry on application of the reaction between indole and sodium bisulfite to indoles substituted in the three-position. Johnalyn has worked for the U.S. Patent and Trademark Office as a patent examiner in the Biotechnology Division examining neurobiology-related technologies, including biological products and methods in international and U.S. patent applications and as a technology transfer specialist with the National Institutes of Health. She participated in the Mirzayan Fellowship in the fall of 2006 with the Committee on Science Technology and Law. In her free time, Johnalyn enjoys traveling, running, reading, art and spending time with family and friends. (Updated 2/2012)



Catherine Reyes (Fall 2006, IOM/NCPF) received a PhD in bioengineering from Georgia Tech in August 2006. Her doctoral research focused on designing biomimetic, peptide-based surfaces that promote bone cell mineralization for enhanced integration of orthopedic implants. Through her involvement with educational outreach programs and local non-profit organizations, she has become interested in public dialogues about the impact of biomedical research on public health. She currently serves as the education and communications director for the NSF-funded Research Triangle Materials Research Science and Engineering Center at Duke University, North Carolina State University, University of North Carolina - Chapel Hill, and North Carolina Central University. She also works as a freelance science writer, specializing in biomedical and materials research grant writing and editing for academic and industry clients. (Updated 2/2016)



Rachael Shwom (Fall 2006, DBASSE/CHDGC) returned to Michigan State University after completing her Mirzayan Fellowship, and received her PhD in sociology with an environmental science and policy program specialization in the fall 2008 semester. In January 2009 she became an assistant professor of climate and society in the department of human ecology at Rutgers University. She researches how different groups of people in society make sense of and respond to energy and climate change problems. She understands these processes as not just technological or economic processes, but inherently social and political processes. She has studied public opinion on climate change, non-profits' decisions to partner with business to address energy issues, household energy consumption, long term risk governance, and risk communication. Her work has been published in journals such as *Global Environmental Change*, *Climatic Change* and *Frontier in Ecology and Environment*. In her spare time she likes to cook yummy food and explore the beautiful Jersey shore with her two daughters. (Updated 2/2016)

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Lindsay

No
Photo
Available

Stevenson (Winter 2006, PGA/COSEPUP) graduated from Emory University with a Ph.D. in Microbiology and Molecular Genetics in July 2006. She is currently the Assistant Chief of Microbiology at Walter Reed Army Medical Center. In the future she hopes to supervise a public health laboratory with a strong focus on international health. She remains highly interested in infectious disease related policy. (Updated 9/2010)

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Jeff Watters (Fall 2006, DELS/OSB) is completing a masters of science in limnology and marine science at the University of Wisconsin-Madison. His graduate research focused on the interactions between commercial pelagic longline fishermen and endangered sea turtles in the Hawaiian Pacific. Taking a multidisciplinary approach, his research focused on both the ecological and human dimensions of this unique ocean policy issue. Jeff's undergraduate studies were also completed at the University of Wisconsin-Madison, with a BS in zoology and anthropology. After completing his Mirzayan Fellowship at the Ocean Studies Board at The National Academies in fall of 2006, he received a position working for Sen. Maria Cantwell as a Knauss Marine Policy Fellow. In his capacity working for the Senator, Jeff staffs her chairmanship of the Senate Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard. (Updated 4/2009)



Aaron Weaver (Fall 2006, NAE/CASEE) has been pursuing a PhD in mechanical engineering at the University of Michigan, and having already received his bachelor's degree in mechanical engineering from The Ohio State University. His main research focus involves the repair process of bone after fracture and is aimed at determining the role that external forces and micromotions at the fracture site play in fracture healing. Through coursework and research experiences, Aaron has become interested in the policy of science education. Primarily, his interests involve improving the communication between the public and the scientific community so that the public is better educated on the current state of science, and educating the next generation of scientists so that there is a strong base of enthusiastic scholars to conduct future scientific research. (Updated 4/2009)



Mike Whitaker (Fall 2006, PGA/STS) completed his PhD in civil engineering at the University of Colorado Denver Health Sciences Center as part of the Urban Sustainable Infrastructure Engineering Project, and co-founded [Symbiotic Engineering, LLC](#) with a focus on applying advanced analytics to urban sustainability initiatives. Mike's doctoral research focused on using life cycle assessment to evaluate the environmental impacts of mass transit systems in urban areas of the U.S. and India, and he has since worked with the National Renewable Energy Laboratory to complete a life cycle assessment of Jatropha-based biodiesel for use in the Indian transport sectors. In 2012, Symbiotic Engineering's assets were acquired by ICF International, and Mike currently serves as ICF's Vice President of Emerging Solutions. In that role, Mike is responsible for fostering a culture of innovation whereby creative thinking, experimentation, prototyping, rapid iteration, and deep understanding of markets, clients, and end user needs are used to develop new solutions that drive growth and enhance customer satisfaction in rapidly emerging markets. Mike's Mirzayan Fellowship at the National Academies was with the STS program, focusing on urban environmental sustainability in the developing world with Tanzania, South Africa, and China as the primary countries of interest. Prior to starting his PhD program, Mike completed a B.S. and M.S. in environmental engineering at Stanford University where he played for Stanford's Ultimate Frisbee team that won a national championship in 2002. (Updated 2/2016)

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Shimere A. Williams (Fall 2006, DELS/ILAR) currently holds the position of Associate at Lewis-Burke Associates. Her Ph.D. in neuroscience and pharmacology, combined with six years as a professional policy staff member to the U.S. Congress House of Representatives Committee on Science and Technology, enables her to give clients valuable insight into how federal science policy decisions are made. Her issue portfolio includes drug development; biologics, biosimilars, and biodefense; translative research and translational science; healthcare quality and regulatory compliance; computational and quantitative science and data analytics; and environmental and public health sciences. These areas of expertise span the focuses of agencies such as the National Institutes of Health (NIH), the Food and Drug Administration (FDA), U.S. Department of Health and Human Services (HHS), and the Department of Defense (DoD) enabling her to identify emerging trends and analyze broad-based federal initiatives. In her previous position with the House Committee on Science and Technology, Dr. Williams focused on environmental research and development; energy research, development, and demonstration and projects; commercial application of energy technology, and environmental research; waste management and environment, safety, and health activities; energy and environmental standards; and all activities related to water and water quality, weather, weather services, climate and oceanic research. She also gained invaluable policy experience as a Mirzayan Fellow at the National Academies with the Institute for Laboratory Animal Research and a public health study with the Board on Children, Youth, and Families. Dr. Williams received a bachelor of science degree in civil and environmental engineering from Tennessee State University and a doctor of philosophy in neuroscience, pharmacology/neuropharmacology from Meharry Medical College in Nashville. (Updated 11/2012)



B. Ashley Zauderer (Fall 2006, NAS/NAS EO) completed her PhD in astronomy at the University of Maryland in December 2010 and is currently working as a postdoctoral fellow at Harvard. Her current research focuses on radio observations of gamma ray bursts. Her past research includes a study of the host environment of a special class of interacting and merging galaxies bright in infrared emission (ULIRGs), using data from the University of Hawaii 2.2-meter telescope. Her thesis research includes work related to the commissioning of a recently upgraded radio telescope, CARMA, the Combined Array for Research in Millimeter Astronomy. She is using observations from this telescope and the Arecibo radio telescope to study the nuclear and interstellar environments of ULIRGs. Ashley received a BA in astrophysics in 2002 from Agnes Scott College in Atlanta, where she played two years of college basketball and studied Spanish. Ashley is especially interested in the intersection of science and faith, studying the sources of conflict between the two realms and looking for ways in which constructive dialogues can take place. She is enthusiastic about teaching astronomy in the academic and public outreach setting because astronomy has a widespread appeal even to those usually not interested in science. Her work with the Christine Mirzayan Science and Technology Policy Fellowship was with the National Academy of Science Executive Office, developing communications, outreach, and dissemination strategies for a new version of the book *Science and Creationism: A View from the National Academy of Sciences*. Ashley enjoys dancing, hiking, reading and spending time with her family and friends. (Updated 10/2011)