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Celebrating Women at Rauser College, Past & Present

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<https://escholarship.org/uc/item/42p214fk>

Author

Smith, MacKenzie

Publication Date

2024-07-23

Celebrating Women at Rausser College, Past & Present

By Mackenzie Smith (with additional entries by Anjika Pai)

Throughout the history of the Rausser College of Natural Resources, women have contributed to its diverse and comprehensive research and discoveries, including many “firsts,” both within their respective fields and at Berkeley. In 1874, the university’s first female graduate, Rosa L. Scrivener, earned a degree in agriculture from the College of Agriculture, Rausser College’s predecessor. Since that time, Rausser College has continued to champion and support the work of women scientists and thinkers. Explore a sampling of the College’s trailblazing women below and look for more features that illuminate their research as Rausser College celebrates 150 years of women at Berkeley. Learn more about the university-wide celebration at the [150 Years of Women at Berkeley website](#).



Note: This feature was originally published in 2018 in honor of the UC Berkeley sesquicentennial celebration. As part of the [UC Berkeley celebration of 150 years of women on campus](#) in 2020, additional women have and will continue to be added.



Rosa Scrivener
Agriculturalist

“If every ‘co-ed’ were an equally ‘powerful, purposeful personality’ and made an equally good use of the results of college discipline there could be no opposition to co-education.”

Rosa Scrivener (1851-1914) traveled to California from Missouri in a covered wagon at age seven. Along the way, she lost an arm as a result of wounds she suffered during a gunfight between the settlers and a Native American tribe. Sixteen years later, Scrivener became Berkeley’s first female graduate after receiving her Agriculture degree. Her senior thesis studied development in the San Joaquin Valley. Following her graduation, Scrivener received a Life

Diploma, a permanent form of teacher certification, and taught school in Stockton. She later moved to Modoc County with her husband, where she managed a cattle ranch and became a well known agricultural advisor. As a result of her efforts, Scrivener was recognized by the San Francisco Chronicle as “a woman of influence and great usefulness in her community.”

Read more:

- [The first women students in science](#)



Zinmay Renee Sung

Plant Biologist

Department of Plant and Microbial Biology

“Glass ceiling was a term coined to depict the barriers women face in their career advancement.

Well, there is another term, bamboo ceiling, that describes the barriers Asians face in their career advancements. Asian women face both ceilings.”

As an emeritus professor, Zinmay Renee Sung has turned much of her attention from plant biology to equity and experience. In 2018, she was awarded the Chau Hei Shuan Foundation grant to promote women in Science in China. In 2020, she was awarded the inaugural Scheiber Emeriti Faculty Research Grant, which supported her research on Asian American women’s experiences and representation at the university. With historical records and journalistic interviews, Sung assessed the evolving social, cultural, and familial environments of Asian American women throughout Berkeley’s history, partnering with the 150 Years of Women at Berkeley campaign to produce a video uplifting Asian women voices across campus. “By sharing our experiences, we hope to better understand ourselves, our identity, and our unique presence in our society,” says Sung in the video.

Sung first came to Berkeley to pursue her PhD in plant physiology, which she received in 1973. Later, as a faculty member, Sung focused her research on flowering and seed development, including the role of epigenetics in plant development. She was also active in university government, serving as associate dean in the Graduate Division and on the Academic Senate’s

Committee on Faculty Welfare. When the state Proposition 209 Affirmative Action Initiative of 1996 was implemented, she and her staff took a strong lead to make the graduate admissions policies more inclusive, and from 1993 to 1995, Sung served on the Executive Committee of the College. Currently, she serves on the Departmental Diversity Committee and co-hosted a virtual conversation on anti-AAPI racism.

Read more:

- [Professor emerita receives Scheiber Emeriti Faculty Research Grant](#)
- [Why I Do Science: Zinmay Renee Sung](#)
- [Extracurricular Honors](#)
- [Asian American Women Student and Faculty Project \(video\)](#)



Katharine Milton

Primatologist

Environmental Science, Policy, and Management

“I spent months living with a group of wild woolly spider monkeys in Brazil. They were fascinated by my presence: they waited until I was watching to go about their daily rituals, always aware of my observing them.”

Katharine Milton studies the dietary ecology of primates, including monkeys, human ancestors, and modern humans. Her research has led her to the jungles of Panama to study howler and spider monkey populations and to remote stretches of the Amazonian rainforest to document Brazilian tribes' use of plant and animal forest products. As a doctoral candidate, she spent months observing groups of howler monkeys and gathering data that helps scientists understand primate foraging behavior and the micro-ecosystems in which wild monkeys live. While in Panama, she also began collecting the skulls of wild monkeys, a personal archive that now includes more than 500 specimens and has been used to study changes in Panamanian monkey size over the last 40 years. To learn more about the evolution of human diets, she spent more than a decade researching indigenous peoples in Brazil's Amazon Basin. During the course of her research, she lived with six different tribal communities, all of which grew and

harvested sustenance crops of corn or cassava, as well as hunting and foraging for leaves, nuts, and fruits. Many of these sites took weeks to reach by boat and Milton often spent months with a tribe as a solo researcher. Additional research trips took her to the forests of New Guinea and the Yerkes Primate Center in Atlanta. Her research at the Primate Center helped demonstrate that as access to quality food declines, both humans and chimpanzees are evolutionarily programmed to respond by increasing the rate at which food moves through the digestive tract, meaning that when nutritious food is scarce, primates must consume more food to meet their dietary needs. Milton's current research analyzes the impacts of diminishing food sources in Panama on the size and number of howler monkey groups.

Read more:

- [Diet and primate evolution](#)
- [Katharine Milton discusses evolution and the human diet](#)



Mary Firestone

Soil Microbiologist

Department of Environmental Science, Policy, and Management

“When I was an Assistant Professor, it felt like I was the only woman in soil science in the country.”

Even from a young age, Mary Firestone was known for her ability to take apart faulty instruments and put them back together. This skill served her well when she began to work as a lab technician in college, then later as she went on to doctoral studies at Michigan State University. After earning her PhD in 1979, Firestone became the first woman to receive the Emil Truog Soil Science Award in honor of her dissertation. Unfortunately, the certificate read “To Mary Firestone, for his excellent research in soil science.” (The Soil Science Society later apologized and updated their certificate template.)

After first being hired at UC Berkeley as a lecturer, Firestone became the first female faculty member with a tenure-track position in the Department of Soil Science in 1980. She has spent

her career researching soil microbial ecology—in particular, how microbes thrive in the dry solid matrix of soil and how they process carbon and nitrogen in support of plant growth.

When Mary was pregnant with her first son in the early 1980s, there was no maternity leave policy for faculty at Berkeley. What she negotiated for herself at that time, was then essentially adopted by the academic senate five years later as the UC Berkeley maternity leave policy for faculty. Firestone has contributed significantly to University governance. Her administrative positions included chair of the Soil Science Department, an early chair of the Department of Environmental Science, Policy and Management, and chair of the UCB Academic Senate. Firestone is a Fellow of the American Academy of Microbiology, the Ecological Society of America, the American Geophysical Union, the Soil Science Society of America, and she is a member of the National Academy of Science. In 2012, she received the Berkeley Faculty Service Award for her lasting and significant impact on the excellence of the Berkeley campus.

Read more:

- [Mary K. Firestone: Groundbreaking Journey of a Microbial Matriarch](#)
- [Microbiologist elected to National Academy of Sciences](#)



Inez Fung
Climatologist
Environmental Science, Policy, and Management

“Our climate is a giant, important puzzle. The climate changes of the last 100 years have been small; they’re comparable to natural changes. During the next 100 years, though, we don’t expect the changes to be that small.”

Using computer and mathematical models, Inez Fung studies our planet’s changing climate. Fung grew up in Hong Kong—her early fascination with the climate began on the city’s beaches as she observed the clouds, winds, and tides. She completed her undergraduate and graduate studies at MIT, where she became the second woman at the university to earn a doctorate in meteorology. Her research focuses on understanding how atmospheric CO₂ and the climate

co-evolve and how CO₂ sources and sinks are changing over time and contributing to climate change. Fung contributed to the reports of the Intergovernmental Panel for Climate Change, which was awarded the Nobel Peace Prize in 2007, together with former US Vice President Al Gore. Currently, she is part of a team of scientists who are developing the detection skills of the Orbiting Carbon Observatory 2 (OCO-2), a satellite launched in 2014 by NASA's Jet Propulsion Laboratory. Since the launch of the satellite, her research group has developed powerful mathematical-analysis tools that use the satellite data to help determine if actual emissions match a country's pledged target for reductions under the Paris Climate Accord. Fung is an elected member of the National Academy of Sciences, the American Academy of Arts and Science, American Philosophical Society, California Academy of Sciences, Academia Sinica (Taiwan), as well as a fellow in both the American Geophysical Union and the American Meteorological Society.

Read more:

- [Climate series: how do we verify climate treaties?](#)
- [Berkeley professors contribute to Nobel-winning climate work](#)
- [National Academy of Sciences interview with Inez Fung](#)
- [Trust but verify: the science of climate treaty verification](#)
- [Making the esoteric pertinent: a talk with Inez Fung](#)



Jill Banfield

Earth scientist

Environmental Science, Policy, and Management

"There's no way of overestimating the importance of creativity in science. Being able to link concepts and ideas that may not obviously connect at first glance, recognizing objects and images and patterns—all of these skills are elements of creativity."

Jill Banfield studies the biological, chemical, and physical forces that shape the earth's surface. Her environmental biogeochemistry and nanogeoscience research has uncovered mechanisms of reactions that impact the form, distribution and reactivity of finely particulate minerals found in

soil, water, and sediments. In 2004, her lab pioneered the “shotgun metagenomics” approach, which reconstructs genomes from microbial DNA extracted directly from environmental samples, ranging from the earth’s deep subsurface to soil to the human body. One ongoing project looks at microbial colonization of the guts of premature infants. Metagenomic sequencing carried out by her lab enabled the discovery of many major new groups of bacteria and archaea and led to a new rendering of the tree of life. Her work on natural microbial communities showed how microbe-viral interactions are mediated by CRISPR-Cas systems. In collaboration with biochemist Jennifer Doudna, a founding developer of CRISPR genome-editing technology, Banfield and her lab recently discovered new systems similar to CRISPR-Cas9 in previously unexplored bacteria. If these new systems can be reengineered for genome editing as CRISPR-Cas9 has been, their small size could make them easier to insert into cells to edit DNA, expanding the gene-editing toolbox available to researchers and physicians. Banfield now leads the microbial research program at the Innovative Genomics Institute at UC Berkeley. Reflecting on her career, Banfield noted, “Our research is made possible by a dedicated team of researchers, including lab technicians, graduate students, and postdoctoral fellows. Without this team, none of our discoveries would be possible.” She is a member of the National Academy of Sciences and a former MacArthur “Genius Grant” Fellow. In 2017, Banfield received a V.M. Goldschmidt Award from the Geochemical Society—the highest honor awarded by the Society—for her achievements in geochemistry.

Read more:

- [CRISPR research institute expands into microbiology. led by Jill Banfield](#)
- [Wealth of unsuspected new microbes expands tree of life](#)
- [Compact CRISPR systems found in some of world’s smallest microbes](#)
- [‘Riskiest ideas’ win \\$50 million from Chan Zuckerberg Biohub](#)
- [The never-ending quest to rewrite the tree of life](#)
- [L’Oréal-UNESCO Awards profile of Jill Banfield](#)



Agnes Morgan
Biochemist

Founding co-chair, Department of Home Economics

Agnes Fay Morgan (1884-1968) joined UC Berkeley's faculty in 1915; the following year she became a founding co-chair of the Department of Home Economics. Two years later she was sole chair of the new Department of Household Science within UC Berkeley's College of Agriculture, the predecessor of the College of Natural Resources. During her more than 40 years of service at CNR, she was a pioneer among women in American science. Her goal was to validate or debunk common household customs of cookery, clean living, and good order by scientific means, and in that way promote sound practices in this tradition-bound arena. Those who studied under Morgan were well qualified to teach science and nutrition courses, along with the cooking and sewing classes one might expect of a home economics graduate. Morgan's service to the University has been recognized in many ways, including a special symposium held on the 50th anniversary of her joining the faculty, and the naming of Agnes Fay Morgan Hall, now home to the Department of Nutritional Sciences and Toxicology, in her honor.



Doris Calloway

Nutrition pioneer

Nutritional Sciences and Toxicology

“From Doris I learned it was possible to be true to myself and be effective and respected. She showed me how to work effectively as an administrator in what was then a man's world.”

—Chancellor Carol Christ

Doris Calloway (1923-2001) was a groundbreaking nutrition scientist whose research helped set worldwide dietary standards. In her 27 years at Berkeley she served as the chair of the Department of Nutritional Sciences and Toxicology (NST) and was the first woman provost of the university. When she joined the NST faculty in 1963, she transformed the “Penthouse”—a model three-bedroom home on the top floor of Morgan Hall previously used for home economics studies—into a nutrition laboratory. In that lab and in the field, she studied the dietary requirements of pregnant and menstruating women, astronauts, Navajo women, and military personnel, as well as the general public. Her early research demonstrated that standards for protein consumption were much higher than needed, and that excess protein is excreted from

the body. In the late 1980s, she led a research project in Egypt, Kenya, and Mexico that documented the causes and effects of moderate malnutrition. At the conclusion of the study, Calloway and her team cited the poor education and low status of women as one of the central causes of malnutrition in developing countries. Through this study and her research on protein and energy requirements, her work helped shape nutrition policy and programs, improving the quality of life for people around the world. During her pioneering career, Calloway received many awards and fellowships, including election to the American Institute of Nutrition and the National Academy of Sciences' Institute of Medicine. Of her many accolades, she prominently displayed a plaque in her office of her award from the Quartermaster Institute in Chicago: in 1959 the Institute named her its Man of the Year.

Carol Christ quote adapted from the Berkeleyan story, [Celebrating Women Role Models](#).

Read more:

- [Doris Calloway helped set nutrition standards \(NY Times\)](#)
- [Doris Calloway, 78; nutrition expert \(LA Times\)](#)
- [A pioneering nutritional scientist and UC Berkeley professor emerita, Doris Calloway, dies at 78](#)



Carolyn Merchant

Ecofeminist philosopher

Environmental Science, Policy, and Management

“The College of Natural Resources was the best possible place for me as a humanist. I never could have done what I did at Berkeley at any other university.”

Carolyn Merchant is an ecofeminist philosopher and historian of science whose foundational book, *The Death of Nature: Women, Ecology, and the Scientific Revolution*, examines how the exploitation of nature led to unrestrained commercial expansion, and a culture that often subordinates women. Merchant’s writing is considered part of the essential canon of ecofeminist literature and *The Death of Nature* is taught as one of the notable works of the movement. Merchant is also the author of eight other books, including her most recent title, *Science and*

Nature: Past, Present, and Future, as well as numerous articles on the history of science, environmental history, and women and the environment. She is a former president of the American Society for Environmental History and has served on the executive and advisory boards of the History of Science Society, the Association for the Study of Literature and the Environment, and the journals of *Environmental History*, *Environmental Ethics*, *Ethics and the Environment*, *Organization and Environment*, and the *International Journal of Ecoforestry*.

Read more:

- [Five Key Lessons: Environmental Philosophy and Ethics](#)
- [VIDEO: Environmentalism—From the control of nature to partnership with Carolyn Merchant](#)
- [An interview with Carolyn Merchant](#)



Barbara Allen-Diaz
Rangeland ecologist

Environmental Science, Policy, and Management

“What I was looking for—it was the 1970s—was to help save the world. To help save the world, whatever that meant, as an applied ecologist.”

Barbara Allen-Diaz is a woman of many firsts, both as a researcher and as an administrator. These firsts began when she joined the faculty in the Department of Environmental Science, Policy, and Management (ESPM) in 1986, becoming the first woman in the United States to hold an academic appointment in range management, and continued with her appointment as the first woman to lead UC Agriculture and Natural Resources (UCANR)—a position equivalent in responsibilities to that of a chancellor in the UC system. In 2015, she also became the first woman to receive the Society for Range Management's highest award, the Frederick G. Renner Award. That award recognized her research career examining the impact of climate change on rangeland species and landscapes, and the effects of livestock grazing on natural resources

and ecosystems in the Sierra Nevada. Allen-Diaz was among 2,000 scientists recognized for their work with the Intergovernmental Panel on Climate Change (IPCC), when the Nobel Peace Prize was awarded jointly to the IPCC and Vice President Al Gore in 2007. Her work for the IPCC focused on the effects of climate change on rangeland species and landscapes. During her decades of service at Berkeley, she served as chair of ESPM, and while leading UCANR, she established two institutes addressing the critical issues of water and nutrition.

Read more:

- [Barbara Allen-Diaz: A career applying research to solve California's problems](#)
- [Trailblazer Barbara Allen-Diaz first woman to receive SRM Renner Award](#)
- [Barbara Allen-Diaz speaks on a groundbreaking career](#)
- [UC Berkeley honors Barbara Allen-Diaz](#)



Isha Ray

Gender and water rights advocate
Energy and Resources Group

"Gender equality is a public good and a commitment that needs public investment—in both physical and social infrastructures."

While interviewing local farmers for her dissertation research on water irrigation in Maharashtra, India, Isha Ray noticed a theme in participants' responses. Although community members readily discussed their agricultural irrigation concerns, drinking water emerged as a key issue for farmers and their families. From that initial observation, the importance of water resources became a focal point of Ray's research as a social scientist and development advocate. Her research has taken her across the globe in an effort to provide agency, dignity, and community-driven development solutions to populations facing political and technological barriers to water and sanitation facilities. In 2013, she contributed to the UN Women's annual report, which the agency uses to guide development policy and support non-governmental organizations' economic and outreach programs. Beginning in 2016, she helped launch a major gender and sanitation initiative at UN Women and served as the lead author of a UN Women

paper that has informed the development practices of several aid organizations and countries, including the governments of Germany and Singapore. She is an advocate of community-driven development—the practice of incorporating local knowledge and resources into infrastructure projects—and a proponent of clean and safe toilets in schools and workplaces to promote gender equality.

Read more:

- [Isha Ray's TedX Talk, "Gender equality: a view from the loo"](#)
- [CNR's Master of Development Practice program's interview with Isha Ray](#)
- [Isha Ray at the 2017 Berkeley India Conference](#)



Louise Fortmann

Rural sociologist

Environmental Science, Policy, and Management

“I opened the door to my lab and created spaces for students to learn and thrive. My research and teaching has always been a collective enterprise.”

In 1984, Louise Fortmann became the first female faculty member in forestry at UC Berkeley. Prior to coming to Berkeley, she spent over a decade in east and southern Africa, researching agricultural and water management practices, gender, and property rights. Her research experiences in Tanzania and Botswana would become fundamental to her belief in collaborative research and equitable resource access for women. Upon joining the faculty at Berkeley, she began to research Northern California forest communities' claims to the rights to use government-owned forestry lands for livelihoods and subsistence, finding similarities to use rights in African systems. During her 1991-92 sabbatical she studied Zimbabwean women's property access to trees—a key source of food, fiber, and income for many subsistence farmers. Fortmann is an advocate for crediting local research partners and indigenous peoples with co-authorship of scientific articles, and has published articles and edited book on the subject. Beloved by many students, she is the recipient of a Sarlo (now Carol D. Soc) Distinguished

Graduate Student Mentoring Award, and the Rural Sociological Society Distinguished Rural Sociologist Award.

Read more:

- [When human illness increases in natural resource-dependent areas, the environment suffers](#)
- [Where are the missing coauthors? Authorship practices in participatory research](#)



Irma Adelman

Development economist
Agricultural and Resource Economics

"Because women have traditionally been discriminated against, they in their bones know the meaning and mechanisms of discrimination."

Irma Adelman (1930-2017) was Romanian-Israeli-American economist whose research on development and growth economics and their impacts on international political structures continues to be studied today. As one of the leading development economists of the 20th century—and one of the first women to hold an economics appointment at a university—she pioneered the use of a large general equilibrium economy-wide model for policy analysis. Her work on South Korea's economic and political development helped shape the country's economic policy and demonstrated that increasing capital among the poor can be a key to fostering country-wide economic growth with equity. She was an elected fellow of the American Academy of the Arts and Sciences, as well as a member of the Econometric Society and the American Economic Association.

Read more:

- [Irma Adelman: A leading economist and outstanding Berkeley faculty member](#)
- [Video: Irma Adelman reflects on her career](#)
- [A conversation with Irma Adelman](#)
- [In memoriam: Irma Adelman](#)



Peggy Lemaux
Crop biotechnologist
Plant and Microbial Biology

“Today’s generation of scientists understand that they must not only be scientists in the lab but also translate the message of their research for the public.”

Cooperative Extension Specialist Peggy Lemaux has dedicated her career to creating innovative science communication tools and using those to educate the public about the genetic approaches being used to modify plants and the foods made from them. In the 1980s, before joining the Department of Plant and Microbial Biology (PMB), Lemaux was a researcher at DeKalb Plant Genetics, where her research team was the first to successfully engineer corn, using the then revolutionary “gene gun,” which allowed scientists to insert DNA into a corn cell to modify its traits. At PMB, Lemaux’s lab performs both basic and applied research focused on improving the quality and performance of cereal crops such as sorghum, wheat, rice, and barley. She also works with colleagues at PMB and two federal labs to study and improve bioenergy feedstocks—especially drought-tolerant sorghum. As a Cooperative Extension Specialist, Lemaux is also responsible for developing educational resources on food and agriculture that are communicated to the media, educators, and consumers. These resources include an [award-winning website](#) that features after-school curricula for middle school students, educational displays and games, videos, PowerPoint presentations, and factsheets. In 2015 Lemaux co-founded the science communications and outreach program, [CLEAR](#) (Communication, Literacy, and Education for Agricultural Research), which focuses on mentoring graduate students and postdoctoral fellows on how to engage in science-based communication with the media, legislators, and the general public. As a science educator, Lemaux continues to be an advocate for understanding the role of science in employing genetics to modify crops to help meet the needs of future global food challenges.

Read more:

- [GMOs might feed the world, if only investors weren’t so scared](#)

- [Scientists-in-training learn to tell a CLEAR story](#)
- [Bioengineering of wheat still faces significant challenges](#)



Loy Volkman

Virologist

Plant and Microbial Biology

“That is the moment that research is most exciting: the moment of scientific discovery, when the hairs on the back of your neck stand up and you see something new.”

As a young virologist on her first postdoctoral fellowship, Loy Volkman learned about a family of viruses that astounded her: Baculoviridae. These ancient viruses infect caterpillars and are believed to be between 200 and 250 million years old. This is a staggering time scale, given that the viruses that seek human hosts are often thought to be no more than 60,000 years old. Volkman’s interest in learning more about baculoviruses sparked a respected research career that examined the pathology induced by these viruses. Her discoveries helped scientists understand how baculoviruses infect their hosts, including research that revealed that a virus that infects caterpillars features a two-particle pathway that attacks its hosts first in its gut before moving onto the insect’s entire system. Understanding how these viruses function has led to important advancements in the manufacturing of vaccines, which can now be produced by editing a baculovirus gene. Using baculovirus technology, producing a flu vaccine only takes 12 weeks instead of the widely-used method of growing influenza viruses in chicken embryos—a process that takes a year or more. In addition to her research and teaching, Volkman helped design and launch one of CNR’s most popular undergraduate majors, Molecular Environmental Biology. As a professor, she noticed that many students had in-depth knowledge of a particular organism at the molecular level, but were unaware of how the organism functioned and persisted in nature. The major seeks to introduce students to the operating principles of how biology is studied at different levels of organization.



Janet King

Nutrition scientist

Nutritional Sciences and Toxicology

“After decades of research, we are finally beginning to find reliable indicators to trace zinc deficiency—the most common mineral deficiency in the world.”

Throughout her distinguished career, Janet King has made substantive contributions to human nutrition research, application, and policy development. After studying dietetics as an undergraduate student and working at a US Army research facility in Colorado, she came to Berkeley to study nutritional sciences. Upon completing her doctorate, King joined the Department of Nutritional Sciences and Toxicology as a faculty member, where she studied the dietary needs of pregnant women. Building on this research, she began to study zinc deficiencies and requirements. Zinc deficiency—which affects an estimated two billion people worldwide—can lead to increased susceptibility to disease, diarrhea, and stunted bone growth in children. King, whose passion for chemistry began in high school, partnered with chemistry faculty to devise a novel method for using stable isotopes to track zinc levels in various body compartments. In addition to her decades of zinc-related research, King has conducted studies into malnutrition, protein intake requirements, and public health policy. In 2005, she served as Chair of the USDA/HHS Dietary Guidelines Advisory Committee, a panel of 13 scientists who write recommendations for what people should eat to reduce their risk of chronic disease. She is a member of the National Academy of Sciences' Institute of Medicine, and in 2007 she was inducted into the US Department of Agriculture Research Hall of Fame.

Read more:

- [The double burden of malnutrition: an interview with Janet King](#)



Esther Parsons Perry

Soil scientist

Environmental Science, Policy, and Management

“Esther had a quiet determination that shone through all the bias she had to endure as a female scientist, typical of the sciences back then.” —Professor Gary Sposito

In 1939, Esther Parsons Perry became the first woman to receive a doctorate in soil science in the United States. From reading her dissertation, "Profile Studies of the More Extensive Primary Soils Derived from Granitic Rocks in California," Professor Gary Sposito says that Perry—with whom Sposito worked when he was a PhD student at Berkeley—was one of the first soil scientists to use x-ray diffraction to study clay mineralogy in soils. From 1939 until her retirement in 1965, she worked in and managed the California soil survey lab in Hilgard Hall. According to Professor Ronald Amundson, Perry also played a unique role in the soil science summer field course, SS105, which was taught at Berkeley beginning in the 1910s and continues to be offered at UC Davis today. This course was initially open only to men, but, in the early 1950s, a female honors student, Eva Esterman, asked to join the class. After initially refusing, the then College of Agriculture ultimately decided to offer a section of the course solely for Esterman. Perry was asked to serve as the instructor for what the College called SS105W. During the field course, Perry and Esterman were made to follow along separately behind the men in the class. Segregated sections of the course were taught once or twice more before the class was fully integrated.



Jean Lanjouw

Development economist

Agricultural and Resources Economics

“Lanjouw was always a heroine of mine—with her boundless energy, positive outlook, and the effort she devoted to the crusade for generic medications in the developing world.” —Professor Emeritus Bronwyn H. Hall

Jean Lanjouw (1962-2005) was a development economist whose research focused on assessing and addressing the plight of the poor in developing countries, both through methodological work in poverty measurement and through detailed study of how specific mechanisms—such as intellectual property rights in the pharmaceutical sector—impact access to services and goods like prescription drugs. In addition to her appointment in the Department of Agricultural and Resource Economics, Lanjouw was awarded fellowships at the Brookings Institution, the Center for Global Development in Washington, DC, and the National Bureau of Economic Research. She consulted for the World Bank, the United Nations Development Program, and statistical organizations in South Africa and Brazil. She advised trade negotiators for a wide variety of countries and participated in a number of international debates on drug access in developing countries. Working with colleagues, including her husband, economist Peter Lanjouw, she worked to understand and counteract poverty in developing countries by quantifying poverty and inequality in neighborhoods or towns, and studying the role of property rights in these areas. Lanjouw passed away from cancer in 2005 at the age of 43.



Angela Little
Nutrition scientist
Nutritional Sciences and Toxicology

“Many excellent women scientists were promised support for their research, ideas, and teaching and when that support never came they would disappear into the dark night. But I kept asking and kept going.”

When Angela Little graduated from high school in 1935 at the age of 15, she knew that she wanted to study science—a choice that she called “unusual for girls at the time.” A San Francisco native, she enrolled in UC Berkeley after high school graduation, when annual tuition was just \$27.00. After studying bacteriology and biochemistry, Little worked as a lab technician and research chemist throughout the Bay Area, including working in laboratories at UC San Francisco’s medical school and Stanford University’s Department of Medicine. She was also among the first three women to be hired as a chemist at Standard Oil of California’s Research and Development office. Little returned to Berkeley in 1951 to earn a master’s degree in food science while working as a research assistant. Upon completion of her PhD in agricultural chemistry in 1969, she became a faculty member in the Department of Nutritional Sciences, which in 1992 would become the Department of Nutritional Sciences and Toxicology. Little’s research interests focused on the human sensory system and our relationship to food and color. She published studies on topics that examined color in fish and wine and wrote a book titled *The Color of Food*, which she co-authored with her doctoral advisor, professor Gordon Mackinney. Little was an advocate for undergraduate education, developing the undergraduate course Human Food Practices and contributing to the formation of the Conservation and Resource Studies major, which remains a thriving study area at the College of Natural Resources. She also served as chair of the Senate Committee on the Status of Women and Ethnic Minorities and chair of the Committee on Undergraduate Scholarships and Honors, and

was a founding member of a campus organization that supported women returning to university study and work after maternity leave called the Reentry Women's Program. After her retirement in 1985, she established the Angela Little Graduate Student Support Fund, which supports high-achieving graduate students in CNR. Now age 99, Little continues to live in San Francisco and is an active member of the CNR community.

Read more:

- [As A Young Scientist, Angela Little Battled Sexism at Every Turn](#)
- [2 Galileo 'born and raised' graduates look back on century of SF memories](#)
- [Five Decades Later, an Inner-City Eichler Village Thrives](#)



Danica Chen

Metabolic Biologist

Department of Nutritional Sciences & Toxicology

“I’d like to find ways to help women and minorities aim high, to create workspaces that are safe, inclusive, and family friendly, so that people of all backgrounds can succeed as scientists.”

Danica Chen grew up in China during the Cultural Revolution. While she naturally took a liking to science and technology, she entered the field of biology by chance, applying to Xiamen University as a cell biology major when the international accounting spaces had been filled. At Xiamen, Chen took a class on American culture and was inspired to leave for the United States, at a time when Chinese citizens were not free to travel abroad. At Berkeley, Chen entered the Biology PhD program, training in biochemistry and molecular biology. Afterwards she became a faculty member and established her own research group in the Department of Nutritional Science & Toxicology.

Chen’s research aims to understand the molecular and cellular mechanisms that underlie aging-associated conditions. Her lab studies pharmaceutical interventions in aging, focusing on calorie restriction, stem cell renewal, tissue maintenance, and metabolic diseases. Her recent work on the molecular “switch,” a mechanism which reverses chronic inflammation and aging,

was featured [in *Berkeley News*](#). From 2001 to 2004, Chen worked under the Department of Defense Congressionally Directed Medical Research Programs, where she won the Breast Cancer Research Program Predoctoral Traineeship Award. Chen was named a Kavli Fellow of the National Academy of Sciences in 2012.

Read more:

- [Danica Chen: From early learning to aging research](#)
- [Molecular 'switch' reverses chronic inflammation and aging](#)
- [Why I Do Science](#)



Marjorie Hoy
Molecular Geneticist
Department of Entomology

“For women 30 years ago, I used to say that they had to be better than the average man to make it—just to be blunt—because there were real discriminations. I don’t think that’s the same now; things have gotten somewhat better, but they’re still not perfect.”

Marjorie Hoy was a pioneer in insect molecular genetics, in particular as it applied to biological control and agricultural acarology. Hoy was the first woman faculty member in the former Berkeley Department of Entomology, where she had previously earned both her Master’s and PhD, setting a record for the completion time of her PhD—a remarkable one and a half years. After leaving briefly for a postdoctoral position in Connecticut, Hoy returned to the College as an assistant professor of entomology in 1976, achieving the rank of full professor six years later. Hoy’s publications are prolific, with her book [Insect Molecular Genetics](#) widely considered a classic. She published at least 159 peer-reviewed articles and 53 book chapters and books, and by some estimates, Hoy has been cited more than 12,000 times. During her long and productive career, she received many special recognitions and awards, including the Entomological Society of America Founders Memorial Award and a fellowship of the American Association for the Advancement of Science (AAAS). A knowledgeable and dynamic instructor, Hoy was also an advocate for increasing diversity among students and academic hires in her field.

Read more:

- [In Memoriam, Marjorie Ann Hoy](#)
- [Marjorie A. Hoy: Undaunted Pioneer, Eminent Scholar](#)



Sarah Hake

Plant Biologist

Department of Plant and Microbial Biology

“I haven't experienced sexism personally in science, and I think that plant biology is good for that—and developmental biology is really good for that. I always end up at conferences where there's such a powerful women presence and I love it.”

On trips to the Bio Preserve at Grinnell College, Sarah Hake discovered that she could make a career in plant biology and spend her life hiking outdoors. Later, she found that her true passion was genetics—and that she would spend more time walking through cornfields. Hake is now a plant biologist studying the genetic basis of morphological diversity. Serving as the Center Director at the USDA Plant Gene Expression Center, she gained notoriety for first cloning a maize gene that led to morphological discoveries in many species, which was the first developmental body gene identified in the plant kingdom. Hake is a member of the USDA Agricultural Research Service Hall of Science and was named Agricultural Research Service Senior Scientist of the Year in 2011. She is a fellow of the American Association for the Advancement of Science, a member of the National Academy of Sciences, and has won the American Society of Plant Biology Stephen Hales Prize and the Botanical Society of America Jeanette Siron Pelton Award, among other distinctions. In addition, Hake and her husband started a diversified farm in Bolinas, growing organic vegetables and flowers.

Read more:

- [Plant biologist, farmer, and grandmother: an interview with Sarah Hake](#)
- [Q&A: Sarah Hake](#)



Geri Bergen
Forester

"I was fortunate to have many opportunities to prove myself and my abilities and to savor the rewards of my efforts. In both my career and my professional accomplishments, I feel I really did achieve my goal of being a practicing conservationist."

At the time that Geri Bergen attended UC Berkeley, from 1958 to 1962, Berkeley was home to the only forestry school in the country that accepted women. She was the first woman to attend Forestry Field Camp at Cal. Out of 2,500 students, Bergen was also one of four runners-up for the coveted University Medal. Bergen went on to earn a Master of Arts in Botany from Berkeley in 1965, and following her graduation, she began her career with the Forest Service in 1967. She was active in many local conservation groups, including Save San Francisco Bay, People for Open Space, and Richmond Recreation and Parks Commission. In 1978, Bergen was selected as the first woman Deputy Forest Supervisor in the nation, assigned to the Tahoe National Forest. Bergen was posthumously awarded the Francis H. Raymond Award by the California Board of Forestry and Fire Protection in November 2019, for her many significant contributions to the management of California's natural resources.

Read more:

- [Remembering Geraldine "Geri" Bergen](#)



Sheila McCormick

Plant Biologist

Department of Plant and Microbial Biology

“I tell students that a cool thing to do is to read reviews from 20 years ago and see what they say are the unanswered questions... frequently they’re still unanswered, but now maybe you’ve got techniques or ways to get at them.”

Sheila McCormick, an adjunct professor emerita in the Department of Plant and Microbial Biology (PMB), has long been intrigued by the inner workings of research and the “behind the scenes” aspects of science. After receiving her PhD from the University of Missouri in genetics in 1978, she completed two postdocs before leaving academia to work in the biotechnology private sector, where she conducted groundbreaking research to develop tomato plants with resistance to herbicides, insects, and viruses, before working on plant reproductive biology. From industry, McCormick brought a tomato pollen project that she developed to the then newly-formed USDA-ARS/UC-Berkeley Plant Gene Expression Center (PGEC) at Berkeley. At the PGEC, she conducted research on pollen development and function, genomics and proteomics of pollen, and gamete biology. She retired from the PGEC after 29 years in 2016 and has been an adjunct professor in PMB since 1987. In that role, she places special emphasis on training the upcoming generations of researchers in grant writing and research presentations. McCormick has been an editor for *The Plant Journal* (TPJ), *Plant Physiology*, *Frontiers in Plant Sciences*, *BMC Plant Biology*, and *eLife*, among others. In 2011, she was named a fellow of both the American Association for the Advancement of Science and the American Society of Plant Biologists, and in 2002 she won the Judith Pool Award for Mentoring, Northern California Chapter, from the Association of Women in Science.

Read more:

- [Celebrating Sheila McCormick \(The Plant Journal\)](#)