**Special Bulletin**
AGRICULTURE, LIFE & VETERINARY SCIENCES
& COOPERATIVE EXTENSION

# Celebrating Women's History

Women's History Month gives us a chance each March to commemorate and celebrate the impact women have made on our society - in the workplace, in our families, in every profession, as changers of the course of history.

Today, leaders in the Division of Agriculture, Life and Veterinary Sciences, and Cooperative Extension share some reflections about women they admire.

**Now it's your turn:** Tell us about a woman who has shaped your career. Somebody who mentored you or who you admire… somebody well known or who should be well known… from here in Arizona or anywhere in the world. Share your own Women's History Month reflection on Twitter using **#ALVSCEWomensHistory**.

*As a mother of two daughters, it is my utmost priority to show them that any door is open to them and find role models who can inspire them. Ms. Johnson is a shining example that women can break down barriers and inspire young girls to pursue STEM careers.*

ASSISTANT DEAN KIRSTEN LIMESAND
CALS Graduate Education

Katherine Johnson

## Katherine Johnson

**Mathematician and NASA pioneer (1918-2020)**
**Calculated rocket trajectories and Earth orbits by hand.**

"Katherine Johnson was a mathematician on NASA's early space missions before there were computers and featured in the book and movie *Hidden Figures*. I deeply admire Ms. Johnson's fortitude in demonstrating her talents and having confidence in herself. As a mother of two daughters, it is my utmost priority to show them that any door is open to them and find role models who can inspire them. Ms. Johnson is a shining example that women can break down barriers and inspire young girls to pursue STEM careers."

**Kirsten Limesand**
Assistant Dean, Graduate Education
College of Agriculture and Life Sciences

Learn more about the life and career of Katherine Johnson.

*Anna has been the national leader in elevating the stature and visibility of the importance of personal financial literacy… At considerable risk to her own professional growth, she focused on this research and cracked the top economics journals with the results.*

ASSOCIATE DEAN MICHAEL STATEN
CALS Career & Academic Services

Annamaria Lusardi

## Annamaria Lusardi

**University Professor of Economics and Accountancy**
**George Washington University School of Business**

"I've known Anna for more than a decade and worked closely with her in developing the annual Cherry Blossom Financial Education Research Institute held in Washington, DC each April since 2015.

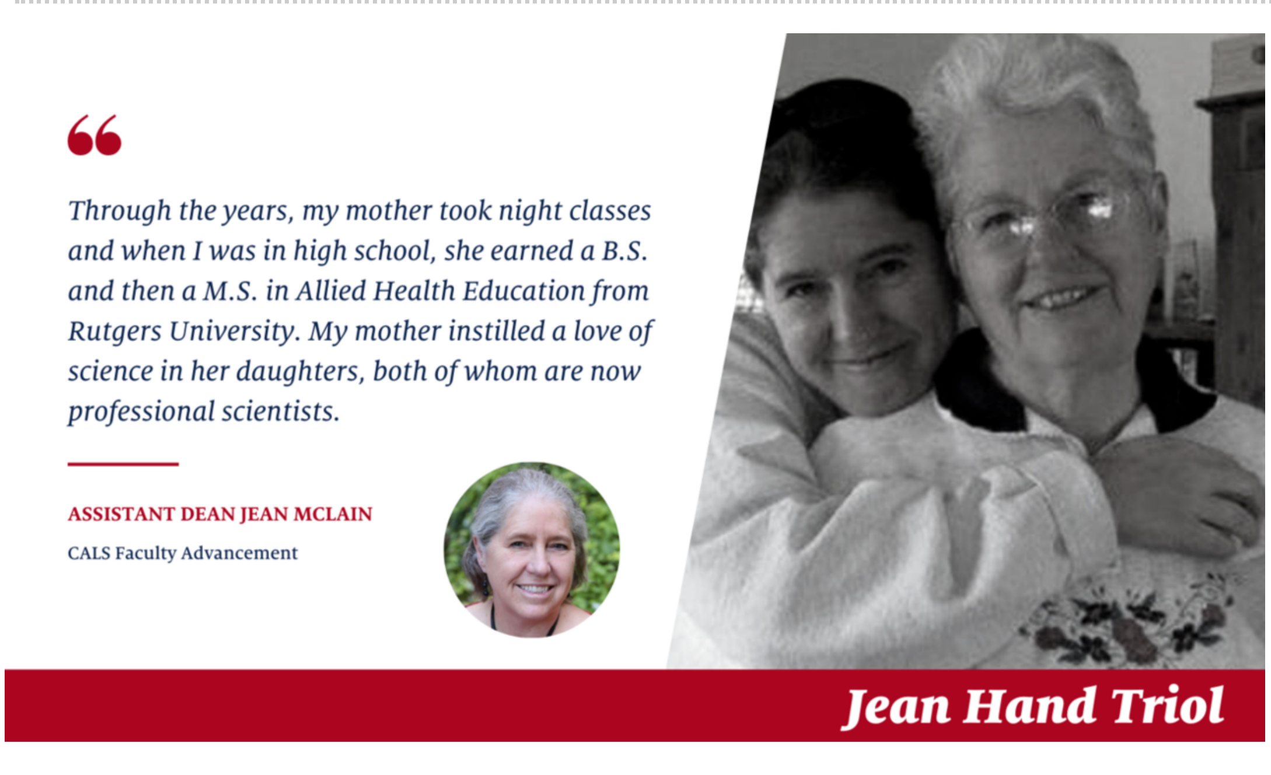
Anna has been the national leader in elevating the stature and visibility of the importance of personal financial literacy. She made the empirical study of the effectiveness of financial education (does it work? what works and what doesn't?) into a sub-area within economics, fighting considerable resistance from many in the behavioral economics camp (including a Nobel Prize winner) who dismiss any role for financial education in schools, in favor of 'rules of thumb' to guide personal savings and spending decisions.

Most economists readily endorse education as a driver of upward economic trajectory for individuals. Anna recognized early that this sentiment didn't extend to financial education offered in schools. And, she saw that the only way to get those same mainstream academic economists to endorse the role of financial education was through rigorous and painstaking research, accepted in the best journals, that showed the association of poor financial literacy with financial distress, failure to save for retirement and many other undesirable financial outcomes (including racial disparities in income and wealth).

At considerable risk to her own professional growth, she focused on this research and cracked the top economics journals with the results. Now her Global Financial Literacy and Education Center at GWU is the international leader in the field. Pretty impressive courage and dedication to an idea that was considered to be intellectually passe."

**Michael Staten**
Associate Dean, Career and Academic Services
College of Agriculture and Life Sciences

Dr. Lusardi's faculty profile at George Washington University



*Through the years, my mother took night classes and when I was in high school, she earned a B.S. and then a M.S. in Allied Health Education from Rutgers University. My mother instilled a love of science in her daughters, both of whom are now professional scientists.*

ASSISTANT DEAN JEAN MCLAIN
CALS Faculty Advancement

Jean Hand Triol

## Jean Hand Triol

**Hospital cytotechnologist highly skilled in cellular diagnosis of breast and cervical cancers. Renowned expert in identifying mesothelioma.**

"My personal role model and mentor is a woman scientist who I've known since before the day I was born, Jean Hand Triol.

My mother and father met while students at Montana State University, started a family quite young and had four children by the time Mom was 26. Though she was unable to continue schooling at the time (for obvious reasons), she worked as a Cytotechnologist at local hospitals in PA and NJ, becoming highly skilled in the cellular diagnosis of breast and cervical cancers, while at the same time becoming a renowned expert in identifying mesothelioma, which was at that time a very rare form of cancer but was prevalent in central NJ, due to the proximity of the Johns-Manville asbestos plant.

Through the years, my mother took night classes and when I was in high school, she earned a B.S. and then a M.S. in Allied Health Education from Rutgers University. My mother instilled a love of science in her daughters, both of whom are now professional scientists. Mom is now retired and enjoying her 'next career' as a watercolor artist, and you can view her incredible art here – unfortunately, I have inherited zero of her artistic talent."

**Jean McLain**
Assistant Dean, Faculty Advancement
College of Agriculture and Life Sciences

View a portfolio of works by Jean Hand Triol.

*She was relentless in her efforts to improve organizations starting with leadership in the College of Natural Resources at UC Berkeley… I have admired and learned from her since our days as students at UC Berkeley in the 1970s and 1980s.*

DIRECTOR MITCH MCCLARAN
Arizona Experiment Station

Barbara Allen-Díaz

## Barbara Allen-Díaz

**Former Vice President for Agriculture and Natural Resources, University of California System. Professor Emeritus at UC Berkeley.**

"Dr. Barbara Allen-Díaz developed and performed fantastic leadership and organization skills, and she was relentless in her efforts to improve organizations starting with leadership in the College of Natural Resources at UC Berkeley, then her Vice President role. She was a PhD student in front of me when I was an undergraduate student at UC Berkeley. I have admired and learned from her since our days as students at UC Berkeley in the 1970s and 1980s."

**Mitch McClaran**
Director
Arizona Experiment Station

Read more about the career of Barbara Allen-Díaz.

*My grandmother became an elementary school teacher, receiving her hands-on training in a one-room schoolhouse… an inauspicious start to what would become a fifty-year teaching career, culminating in her selection as the Teacher of the Year in 1966.*

ASSOCIATE VICE PRESIDENT JEFFREY RATJE
Finance, Administration and Operations
Division of Agriculture, Life and Veterinary Sciences, and Cooperative Extension

Pauline Keene

## Pauline Keene

**Born and raised on Montana sugar beet farm. First-generation college student. Mother, grandmother, world traveler, teacher. (1914-2014)**

"Hardin, Montana inspired big dreams. Can't spell Hardin without 'hard.' My grandmother, Pauline Keene, was born in Hardin to an indefatigable homesteading family of 12, growing sugar beets, a garden to feed the family, as well as raising chickens, cows, and pigs. The fifth of 10 children, she had a full list of chores each morning before walking to school, and a full list of chores when she got home.

She was the first in her family to attend college, earning a teaching degree. My grandmother became an elementary school teacher, receiving her hands-on training in a one-room schoolhouse in Toluca, about half-way between Hardin and Billings. This was an inauspicious start to what would become a fifty-year teaching career, culminating in her selection as the Teacher of the Year in 1966. She raised a family of four children and seven grandchildren and traveled the world in retirement, a life unimaginable given her humble beginnings.

Whining was not acceptable in her house, although I tested that rule frequently. Grandkids were expected to play outside, think deeply, engage in the adult conversations at the dinner table, and be industrious with chores.

She passed away at 100 years old in 2014, with the blessings of a long life and the feelings of loss for outliving her siblings, her oldest child, husband, and friends. I admired her pioneering spirit, tenacious work ethic, and sense of adventure and risk taking. The societal and technological change that occurred in her lifetime required an impressive amount of flexibility, too.

I fondly remember shopping with her at the local Albertson's. Strangers would approach her with reverence.

'Hello, Mrs. Keene. Maybe you remember me, John Preston,' gesturing to himself. 'I was in your 1st grade class and you also taught my daughter.'

'Yes, of course I remember you, John. How are you? I remember your daughter, Lisa, too. She must be 20 years old now.'

'Well, we are all well. Just wanted to say hello and thank you.'

After the stranger left, she bent down to me and said with a wink and a smile, 'he was a troublemaker.'"

**Jeffrey Ratje**
Associate Vice President, Finance, Administration and Operations
Division of Agriculture, Life and Veterinary Sciences, and Cooperative Extension

*Margaret is an inspirational scientist, but for me her most impactful action isn't published in the Congressional Record or Science… She is also among our pioneering graduates and faculty in home economics who have taken long, hard, and very public social justice actions and stands.*

VICE PRESIDENT SHANE C. BURGESS
Division of Agriculture, Life and Veterinary Sciences, and Cooperative Extension

Margaret Cammack Smith

## Margaret Cammack Smith

**UA nutrition scientist. Pioneer in research on fluorine in water and its effects on human teeth. (1895-1978)**

"Margaret Cammack (Ph.D. Chemistry, Columbia University) arrived in Tucson in 1925 to be associate professor of home economics. In 1927, she left the Department of Home Economics to take a primary appointment with the Arizona Experiment Station and by 1935 she was back in a UA department as head of the Department of Human Nutrition.

Margaret published widely in several disciplines, including plant sciences, agronomy, agriculture production, food science, home economics, public health, pathology, environmental toxicology, epidemiology, chemistry and nutrition. She was a national figure in nutrition research. Contemporary documents cited her as 'Arizona's leading nutrition chemist'.

Margaret's transformational medical science impact included identifying gender differences in utilizing dietary iron to form hemoglobin. Before her late 1930s findings, results from laboratory animal studies were confounded by the variance induced by using variably gender-mixed animal groups.

She is most famous though for linking fluorine levels in drinking water with serious tooth enamel and bone pathology, especially that high levels of fluorine in water cross the human placenta and cause lifelong enamel and bone pathology ("fluorosis"; *Science*, 18 Jan 1935: Vol. 81, Issue 2090, pp. 77). She also identified fluorine compounds in agricultural insecticides introduced in the 1930s as causing fluorosis in local human populations.

Concurrently biochemist Gerald J. Cox (Mellon Institute, Pittsburgh) reported in a series of papers that adding fluoride to drinking water increased resistance to tooth cavities. The U.S. Public Health Service then recommended a national water fluoridation campaign to prevent tooth cavities. Notably, Margaret also recognized fewer cavities in people with fluorosis, but she'd also identified that when cavities did appear in these people, they were virtually impossible to repair because the pathology meant teeth broke when dentists tried to anchor fillings.

Margaret warned that any national water fluoridation campaign should be done discriminatingly, i.e., not at all in places that already had adequate fluoride levels, and to decrease water fluoride levels in places where it was in excess. She advocated a data-informed approach. In 1945 Margaret also patented a process to decrease water fluoride below toxic levels.

Reminiscent of today, water fluoridation became very political. At March 1952 Congressional committee hearings, Margaret testified. The committee recommended a 'go slow' and research to identify optimum fluoride levels for human food and water.

If you read her scientific papers or read about our enterprise's history, you will see that Margaret was also an extremely dedicated mentor and perpetual collaborator. She was a team scientist. One of her collaborators was an agricultural chemist, Howard V. Smith. In 1927, long before their shared Science paper, Margaret and Howard married.

I've highlighted Dr. Margaret Cammack Smith, one of the enormous number of inspirational female scientists I could have chosen from, not only because of her scientific impact and that she walked in the same places we do today but because Margaret and Howard were part of a 1938-39 court case against ABOR seeking the right for married partners to be employed at the same university. Margaret is also among our pioneering graduates and faculty in home economics who have taken long, hard, and very public social justice actions and stands.

Both Dr. Smiths took a big risk—academic freedom and tenure were not norms until after the American Association of University Professors and the Association of American Colleges jointly published the '*1940 Statement of Principles on Academic Freedom and Tenure*'. Just think how many faculty married to each other are working at the UA today… and what else has changed and is changing because of those living Margaret's example."

**Shane C. Burgess**
Vice President for the Division of Agriculture, Life and Veterinary Sciences, and Cooperative Extension
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