

WOMEN IN SCIENCE AT CORNELL

ALTHOUGH IT MAY BE TRUE THAT WOMEN LEAP OVER MORE HURDLES THAN MEN ON THE ROAD TO SUCCESS, FEMALE PROFESSORS AT CORNELL DEFY ANY NEGATIVE NOTIONS ABOUT WOMEN'S SUCCESS IN SCIENTIFIC FIELDS.

For centuries, women have proven themselves sharp and skillful scientists. Yet their place in the scientific community is sometimes challenged. Questions of how much time and energy can women devote to their careers come up again and again. Although it may be true that women leap over more hurdles than men on the road to success, female professors at Cornell defy any negative notions about women's success in scientific fields. They stand as confirmation that women can shine in the sciences, as in every other aspect of life.

Professors Maureen Hanson, Teresa Gunn, Eva Tardos, Chekeshia Liddell, and Michelle Wang are only a few examples of women in the sciences at Cornell.



Maureen Hanson

Maureen Hanson, Molecular Biology and Genetics

Like many scientists, Hanson discovered her passion for her field in the classroom. A high school science teacher sparked her interest in biology by making

assignments exciting and going beyond the basics of the curriculum. Her experience in that class inspired her to major in biology in college, and an undergraduate summer research position at a government lab motivated her interest in becoming an academic scientist.

The lab in which Hanson spent much of her time as a graduate student served as a continual source of inspiration. Working with a host of peers at the Harvard University Department of Biology, she thrived in a cooperative setting. "We were never isolated—people worked as a team and supported each other in their research and personal lives," she says. As she approached the end of her studies, however, she faced the prospect of a bleak future. Hanson remembers this as a challenging time for all graduate students because of a dearth of entry-level academic positions in biology. Fortunately, the biotechnology industry

began to boom and opened up opportunities in the academic and corporate worlds for biologists. Hanson began her academic career at the University of Virginia and later moved to Cornell, where she has been for nearly two decades.

Her research at Cornell concerns how plant genes function in a regulated manner during growth and development. Although her research, at the fundamental level, is intended to increase basic knowledge of genetics, it ultimately has implications for increasing the yield and quality of agricultural products. Asked if she spends as much time researching as she would like, Hanson says that she would prefer 30 hours in a day: "In our department, we were asked to list what percentage of our time we spend on various activities, and whenever any of us does so, we realize that everything adds up to more hours than there are in a week!" Hanson's career keeps her busy, but she would not have it any other way.

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Teresa Gunn, Biomedical Sciences, Veterinary Medicine

Gunn's fascination with science, specifically genetics, began with a high school assignment that asked her to survey her family on a list of inherited traits, so that she could compare herself to her parents and siblings. The assignment stimulated her interest in genetics and put her on the path towards medical school. In college she chose a biology major with a concentration in genetics. By sophomore year, genetics had captured her imagination, and she decided to work towards a Ph.D., rather than an M.D.

Alexis Wenski-Roberts



Teresa Gunn

Growing up in a family of three girls, no one ever told her that she could not do something because she was a girl. As a graduate student, she worked in a lab run by two women, and more than a few women faculty taught in the department where she earned her Ph.D.

Gunn has always enjoyed teaching and sharing information, so to end up in academia seemed natural. She has been at Cornell for more than four years and has reached a point where many of her projects are coming to fruition. She studies mice with mutations that give them a variety of traits. Her goal is to identify the role of certain genes, particularly ones that cause degeneration of the central nervous system: a condition analogous to Parkinson's and Alzheimer's diseases in humans. Gunn also studies the genes of dogs that have heart arrhythmias. Identifying the genes that cause the disease in dogs could have multiple applications to human disease. These studies may lead to the development of better therapeutic strategies for people with heart arrhythmias and may uncover methods of disease prevention.

Gunn's career has not been without challenges. Money poses one of the biggest obstacles to her research. She laments that funding for research has decreased over the last few years, and while she and her colleagues may have lots of great ideas, she says, "Without money, we can't do any of them." Finding a balance between research and other responsibilities can be difficult. She says that she would like to spend more time doing experiments: "It seems like there's always so much to do that it's hard to find enough hours to do what I need and want to do!"

While she may face obstacles of money and time, gender has never posed a problem to Gunn. Growing up in a family of three girls, no one ever told her that she could not do something because she was a girl. As a graduate student, she worked in a lab run by two women, and more than a few women faculty taught in the department where she earned her Ph.D. (University of British Columbia). Gunn refutes the notion that she works in a man's world: "Someone once said to me, how does it feel to work in a male-dominated field? And I asked, 'Is it?' It never occurred to me that if I want to do this, there's any reason I shouldn't." She reflects that at all points in her career, someone stood by encouraging her. She looks forward to continuing her teaching and research at Cornell, without any obstacles holding her back.

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Eva Tardos

Eva Tardos, Computer Science

Tardos pursued an unconventional path to her profession. Growing up in her home country of Hungary, she enjoyed mathematics more than any other subject. She received high marks in it, as well, and decided to study it in college. After her bachelor's degree, she completed a Ph.D. in mathematics—not because she envisioned a future as a professor, but because she thought it would be fun. Arriving in America to pursue postdoctoral studies, she discovered that there was a subject that captivated her more than mathematics. It was computer science. She became interested in exploring the mathematical issues underlying computer science and soon realized that "you can't deal with mathematical issues in computer science unless you have some computer science to go with it!" So she shifted her focus and decided that academia was the place for her.

One of the most memorable moments of her career occurred when she discovered a new algorithm that offers an optimal way of transporting information across networks. Still in Hungary at the time, her finding generated much buzz among the international mathematics and computer science communities. Looking back, Tardos speculates that this was the inspiration for her to pursue computer science in academia. She loved the attention she received from her peers and professors, and she recognized that her accomplishment had advanced the field. She realized the enormity of the computer science community and her potential to make an impact.

Tardos' career has presented unique opportunities and challenges. From her early years in academia, Tardos belonged to multiple scientific communities with her research at the interface of mathematics and computer science. While she was contributing to the field of computer science, her background was nevertheless in mathematics, with little formal training in computer science. She had to work doubly hard to acquire the knowledge and skills that her colleagues in computer science possessed.

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Tardos focuses on computer science theory at Cornell. Her research attempts to develop a mathematical understanding of issues in computer science. She works in the area of algorithms, figuring out ways to solve computational problems: how the traffic on a large-scale website should flow, for example. In doing so, she aims to make the internet more efficient and to understand whether a more organized internet is the key to optimizing the performance of networks.

Tardos has received recognition in her field on many occasions. Maintaining a positive outlook for women in computer science, she hopes to help other women in the field. She says, “There have been many people in my life looking out for me and encour-

aging me because I’m a woman.” She knows that the literature shows that there is a bias against women in the sciences in general, but she says, “It’s much more appealing for me to think about what makes scientists successful and all the positive feedback than to worry that someone has a bias towards me.” As she enters her 16th year at Cornell, Tardos intends to remain at the forefront of computer science.



Chekesha Liddell, Materials Science and Engineering

Liddell’s family knew she was born to go into a field of science and engineering even before she took her first science class. As a child, she enjoyed putting

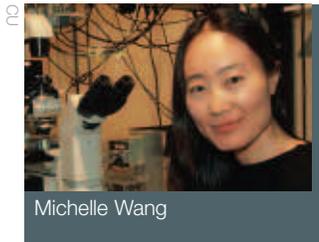
together 1,000-piece jigsaw puzzles, and her father mused that she might grow up to be an engineer. By the time she got to college, she knew she wanted to pursue a career in the sciences. She received a scholarship from NASA targeted at women in science and engineering. This exposed her to chemistry and engineering, two subjects that captivated her more than any others. In search of the department with the most analytical chemistry courses, she found materials science and engineering, and discovered that “it was the right home for me.” She says, “I liked that it was a mixture of physics, chemistry, and several engineering disciplines. The feel was very interdisciplinary and very collaborative; that’s what drew me in.”

In graduate school, she met people with science backgrounds who planned to go into different professions. She found a mentor in a woman who was applying for a professorship in oceans and atmospheric sciences and from her learned the steps to take to earn a faculty position. An internship at NASA introduced her to Martha Williams, a prominent figure in NASA’s materials science division. She showed Liddell that she could succeed in the sciences and have a fulfilling life outside of the lab. She says, “Williams’ level of professionalism and excellence in her work impressed me. But not only did I see her level of expertise in the work environment, I saw that she also had a normal life. I think that’s important for female scientists—to know someone who has a balance between work life and the rest of life and to see how they manage it all.”

In November 2003, Liddell began her career at Cornell’s Department of Materials Science and Engineering. She works with colloidal particles, the building blocks for three-dimensional photonic crystals, designing new chemistries and shapes for them. She organizes the particles into different formations to see how various assemblies of particles control the light that travels through photonic crystals. The whole point of the research, she says, “is to find new means to control light for technological applications.”

Like her colleagues, Liddell sometimes struggles with the many hats a professor must wear. She says, “To be a good teacher requires one set of skills, to be a good manager for a research group requires another set of skills, to serve your profession and inspire and motivate others requires yet another set of skills. That’s a challenge: being able to maintain a focus while multitasking and being good at all these different things.”

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Michelle Wang

Michelle Wang, Physics

Physics is in Wang's blood. With two physics professors as parents, there was little question that she would go into the field as well. Asked how she chose her life's work, she laughs, saying, "It's pretty easy to figure out what it was that influenced

me." After earning her bachelor's degree in her home country of China, she came to America to complete her studies. Wang found the physics department at Cornell to be the perfect fit for her interests and has been at the university for more than seven years. Today, a faculty member, she works in the department's biophysics lab, studying the movement of single molecules and the makeup and expression of genes. Along with her colleagues, she develops physical techniques to study biological questions. Her research provides a foundation for understanding human disease.

She believes a little encouragement can take female science students far.

Wang relishes her career. She says, "I really enjoy it, working with the students, teaching, making new discoveries. That's what this job is all about." Yet she admits that she is sometimes discouraged by what she sees in the classroom. She notices that her female students do not have the same confidence as their male counterparts and wonders if gender bias holds them back from realizing their full potential. She believes a little encouragement can take female science students far. Looking back, she says that she would have liked a female faculty member or researcher to look up to, especially early in her career. She says, "It would have been nice to understand what her experience was, how it was different from those of my male professors, teachers, and co-workers." For the young women in her classroom, Wang aims to be the source of inspiration she never had.

Wang feels at home in Cornell's physics department, which is very supportive of its female faculty. Before she came to Cornell, at times she was not always so comfortable. She says, "I definitely had negative influences as I moved along. I was certainly disturbed by it, but I was determined not to be deterred." By knowing where she wanted to go and staying the course, Wang has ended up in a place where she promises to prosper.

Sheila Yasmin Marikar '05

WITH TWO PHYSICS PROFESSORS AS PARENTS, THERE WAS LITTLE QUESTION THAT SHE WOULD GO INTO THE FIELD AS WELL. ASKED HOW SHE CHOSE HER LIFE'S WORK, SHE LAUGHS, SAYING, "IT'S PRETTY EASY TO FIGURE OUT WHAT IT WAS THAT INFLUENCED ME." AFTER EARNING HER BACHELOR'S DEGREE IN HER HOME COUNTRY OF CHINA, SHE CAME TO AMERICA TO COMPLETE HER STUDIES.

For more information:



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