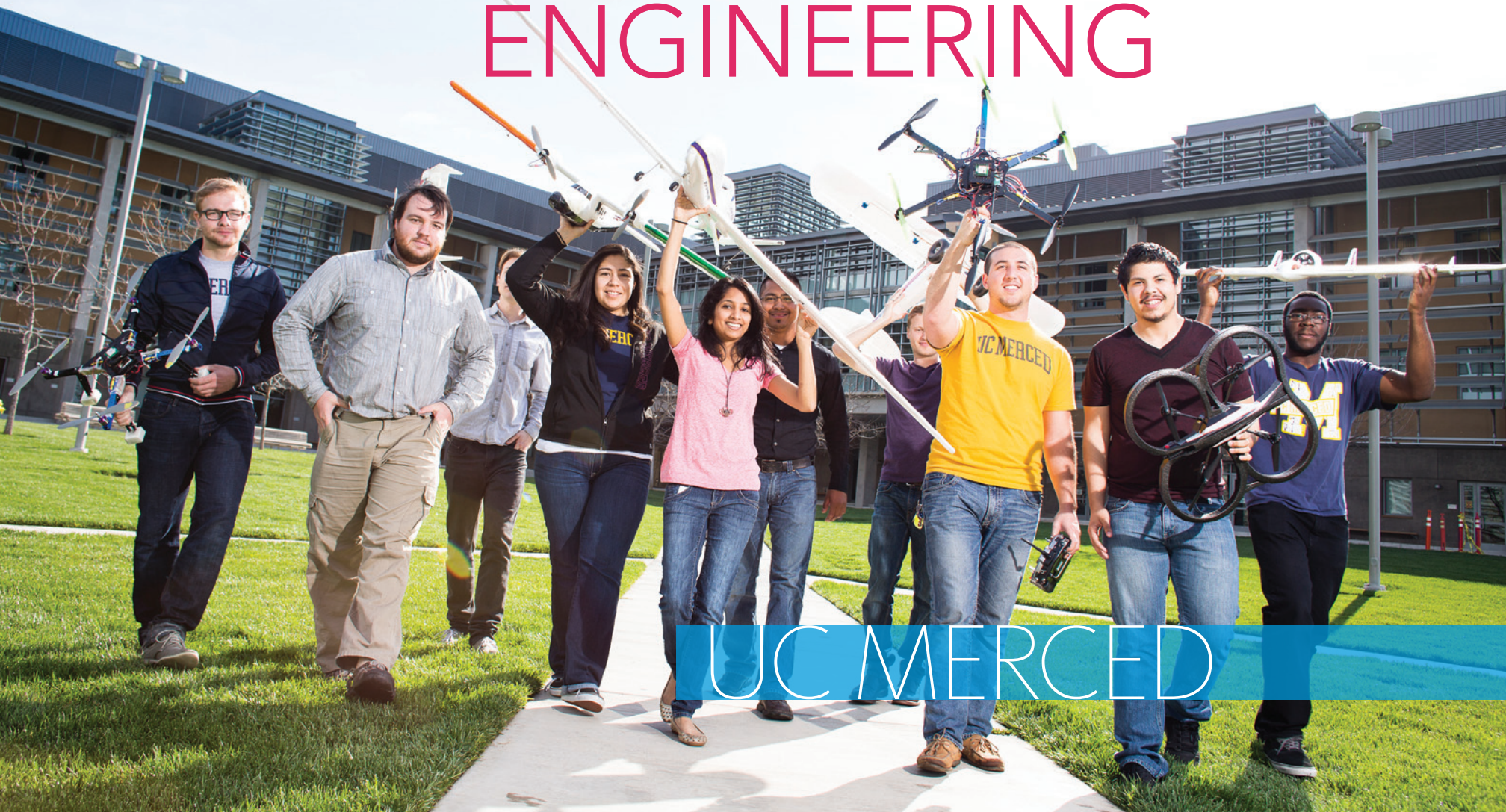


UNIVERSITY
OF
CALIFORNIA

SCHOOL OF ENGINEERING



UC MERCED



Student Marisol Prada gets hands-on experience in the machine shop.

LEARNING WITHOUT LIMITS

What is the School of Engineering?

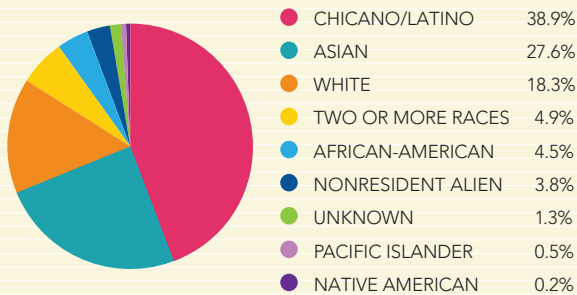
Our engineering majors are on the cutting edge, with programs that combine advanced scientific technology with an understanding of the theory and problem-solving skills key to success in any related field. Each major is interdisciplinary, meaning students receive a balanced education that builds a foundation of math, science, critical reading and writing, as well as decision-making and communication skills.

As a student at the first American research university of the 21st century, you will be exposed to a unique learning environment with relatively small classrooms and a highly interdisciplinary atmosphere. Our school is still small and informal, which provides a rare opportunity to have the advantages of a world-class public research university with the atmosphere of a private college.

THE VISION FOR THE SCHOOL OF ENGINEERING IS TO:

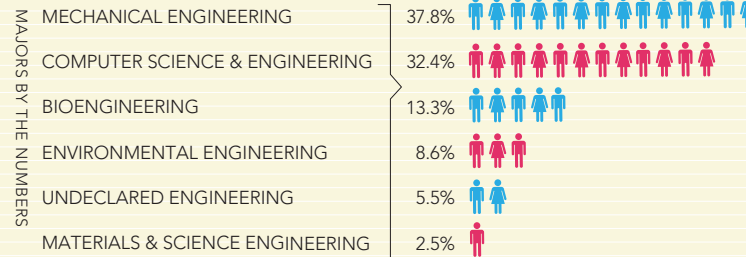
- › Establish a strong and sustainable foundation for student learning, retention and success.
- › Serve as a model of inclusiveness within which our students, our faculty and our staff can reach their highest potential.
- › Leverage the innovation of modern information technology to empower personal and professional productivity of students and faculty.

SCHOOL OF ENGINEERING DIVERSITY

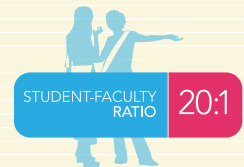
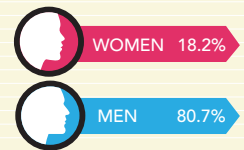


SCHOOL OF ENGINEERING CURRENT ENROLLMENT

TOTAL ENROLLMENT 1,172



Note: percentages are rounded



ASK YOURSELF: WHO CAN I BECOME?

Why engineering at UC Merced?

At any given moment, a student in UC Merced's School of Engineering could be building a drone ... testing a theory ... participating in research ... preparing for a career ...

In the School of Engineering, undergraduates have close interaction with world-renowned faculty members. Together they delve into such innovative topics as gauging the impacts of climate change on water resources, harnessing the power of the Sun in the school's solar field, researching multi-robot systems for urban search and rescue, and understanding individual stem cell behavior and how it affects tissue regeneration. Using the most technologically advanced equipment in state-of-the-art labs, students gain practical experience to match the foundation of theoretical knowledge amassed during their college careers.

AS A GRADUATE OF THE SCHOOL OF ENGINEERING, YOU WILL BE ABLE TO:

- › Create new ideas and transform them into products and services that improve people's lives.
- › Apply mathematics and the principles of science to solve problems and meet society's needs.
- › Design and conduct experiments, as well as analyze and interpret data.
- › Design systems, components or processes to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
- › Function effectively as a member of a team in order to accomplish a common goal.
- › Have an understanding of professional, ethical, legal, security and social issues and responsibilities.
- › Communicate effectively with a range of audiences.
- › Use the techniques, skills and modern engineering tools necessary for a wide variety of engineering-related careers.
- › Recognize the need for an ability to engage in continuing professional development.



This solar-powered tractor is designed to transport the campus's compost in an eco-friendly manner by not emitting any greenhouse gases into the atmosphere.

FIND YOUR CALLING

Majors

- › Bioengineering (B.S.)
- › Computer Science and Engineering (B.S.)
- › Environmental Engineering (B.S.)
- › Materials Science and Engineering (B.S.)
- › Mechanical Engineering (B.S.)

Special Programs

FOSTER FAMILY CENTER FOR ENGINEERING SERVICE LEARNING:

The Foster Family Center for Engineering Service Learning supports UC Merced faculty members as they mentor students through their experiential learning. Through the Center, students work with nonprofit community partner organizations that have specific business challenges. The Center brings together students from all grade levels and disciplines to design compelling solutions that address their community partners' needs.

INNOVATION AND DESIGN CLINIC:

The Innovation and Design Clinic (IDC) is the capstone project experience for cross-functional teams of graduating seniors who collaborate with partner organizations and industries to define engineering problems, discover solutions and demonstrate their results.

PATHWAYS TO INNOVATION

Engineering students are encouraged to think about starting their own companies and patenting their developments, but the new Pathways to Innovation program will focus more effort on fostering that entrepreneurial spirit. It will help the participating universities equip students with critical skills to contribute to regional and global competitiveness.

UC Merced also boasts a collection of modern, state-of-the-art research facilities, equipment and other resources:

- › The Stem Cell Instrumentation Foundry (SCIF)
- › Imaging and Microscopy Facility
- › Sierra Nevada Research Institute (SNRI) Environmental Analytical Laboratory
- › Light Microscopy and Crystallography Modeling Center
- › Mechanical Test Laboratory
- › PG&E Service Learning Laboratory



WE GET YOU READY FOR WHAT COMES NEXT

BIOENGINEERING CAREERS: Biochemist, biophysicist, bioinstrumentation expert, biomaterials expert, cellular, tissue or genetic engineer, orthopedic bioengineer, rehabilitation bioengineer, systems physiologist

COMPUTER SCIENCE AND ENGINEERING CAREERS: Software architect, database administrator, systems engineer, software development engineer, systems analyst, software or web developer, network engineer, .NET programmer, mobile app developer


ENVIRONMENTAL ENGINEERING CAREERS: Agricultural agent, ecologist, environmental consultant or activist, recycling manager, park ranger or naturalist, pollution engineer, parasitologist, range manager, soil scientist, toxicologist

MATERIALS SCIENCE AND ENGINEERING CAREERS: Metallurgical engineer, materials production researcher, manufacturing engineer, architectural and engineering manager, aircraft and space materials expert, integrated circuits materials expert, magnetic and optical materials expert, polymer materials expert

MECHANICAL ENGINEERING CAREERS: Aerospace engineer, fluid dynamics engineer, materials science consultant, robotics engineer, thermodynamics and heat transfer expert, automotive engineer, nuclear engineer, energy conservation engineer, acoustics engineer

GRADUATE AND PROFESSIONAL SCHOOLS, AND MORE ...

Please note: Some of these careers might require education beyond a bachelor's degree.



Unmanned aerial vehicles, like the one Brendan Smith is flying, are being developed for agricultural and environmental research applications. At right, student Ariel Parker conducts research in the electron microscopy lab.

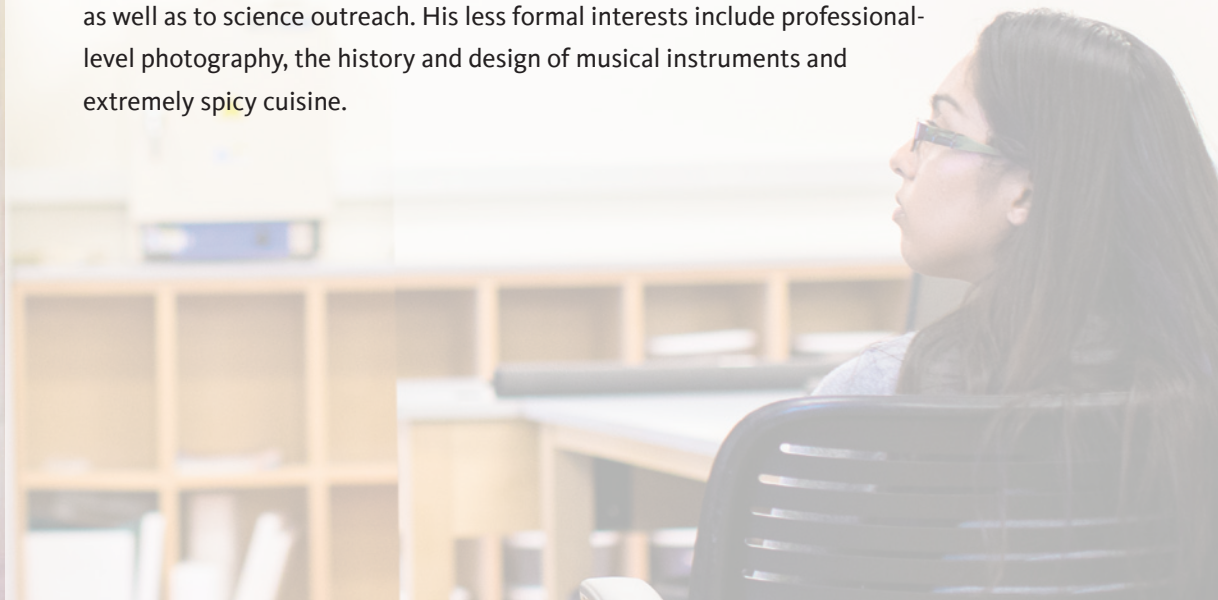


CHRISTOPHER VINEY

PROFESSOR

Ph.D., University of Cambridge

Professor Christopher Viney is one of the founding faculty members of UC Merced and its School of Engineering. **His interdisciplinary research interests include biomolecular materials (using nature to inspire innovation in materials science)**; the relationship between the molecular structure and physical behavior of novel polymers (including studies of how light can be used to change the shape of a material); and fundamental research on the crystallization of materials, which can be applied to processes in the pharmaceutical industry. This work has led Viney in some unexpected directions – for example, an off-the-grid adventure with a National Geographic TV crew in Zambia and attempting to collect sweat samples from hippos. **Viney is a fellow of the Institute of Physics, the Royal Society of Chemistry and ASM International.** He is deeply committed to interdisciplinary and general education, as well as to science outreach. His less formal interests include professional-level photography, the history and design of musical instruments and extremely spicy cuisine.





FACULTY PROFILE

JENNIFER LU

PROFESSOR

Ph.D., University of Michigan

Professor Jennifer Lu is one of the first three faculty members to establish the Materials Science and Engineering discipline at UC Merced. **Her research is focused on molecular design, rational synthesis, and performance characterization of materials that enable energy conversion and storage.** This area is key to a wide variety of applications in life science, energy and machine intelligence. Her research group has consistently published in high impact journals. Lu teaches popular undergraduate courses, including Introduction to Nanoscience and Nanotechnology and Nanofabrication. She is a recipient of the Defense Advanced Research Projects Agency (DARPA) Young Investigator award. She was an invited participant in the Frontiers of Science and Engineering workshop co-sponsored by the National Academy of Engineering and the National Academy of Science. Before joining UC Merced, she acquired a decade of industry experience at IBM and Agilent Technologies. **She holds 18 patents related to semiconducting device fabrication and measurement-instrument design.**



ASHLIE MARTINI

PROFESSOR

Ph.D., Northwestern University

Professor Ashlie Martini is in the Mechanical Engineering group at UC Merced and teaches upper-division courses such as Component Design and Capstone Design. **She and her students perform research in the area of tribology – friction, wear and lubrication – trying to understand how surfaces slide relatively to one another as a means of improving efficiency of mechanical components.**

Martini's contributions in this area have been recognized through various awards, including the American Society of Mechanical Engineers Burt L. Newkirk award and the Air Force Office of Sponsored Research Young Investigator Program award.

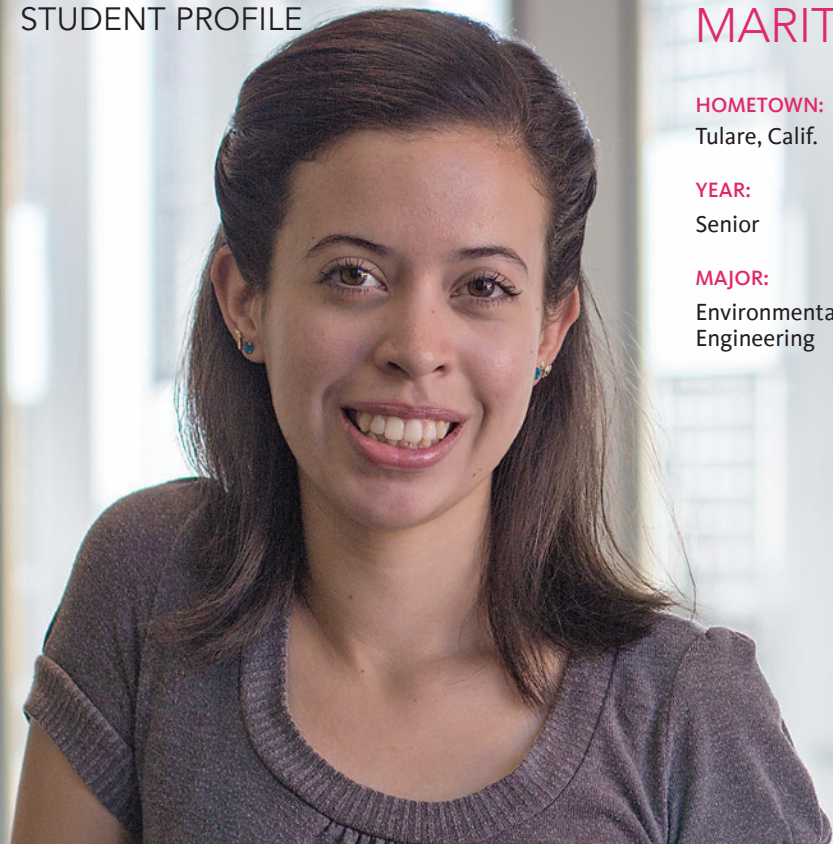
The Mechanical Engineering, Environmental Engineering, and Materials Science and Engineering programs are accredited by the engineering accreditation commission of

ABET

THE SCHOOL OF ENGINEERING BOASTS **12** PROFESSIONAL ORGANIZATIONS

The Beginnings sculpture is the centerpiece of Carol Tomlinson-Keasey Quad, at the heart of the campus.

STUDENT PROFILE



MARITZA FLORES MARQUEZ

HOMETOWN:

Tulare, Calif.

YEAR:

Senior

MAJOR:

Environmental Engineering

ACTIVITIES/ORGANIZATIONS:

I am president of the Bakery Club. I am also a member of the Society for Advancement of Chicanos and Native Americans in Science (SACNAS) chapter, an organization dedicated to fostering the success of Hispanic/Chicano and Native American scientists in attaining degrees, careers and positions in science.

Some of my research experience includes serving as a USDA HSI/CAMP scholar for the 2013-14 academic year. Through this research experience I worked in Professor Peggy O'Day's lab helping quantify the ionic strength and pH dependence of aqueous cadmium and lead ion sorption onto kaolinite and gibbsite, two common environmental solids. During the summer of 2014, I participated in a Research Experience for Undergraduates (REU) session through Re-inventing the Nation's Urban Water Infrastructure (ReNUWit). Through this research experience I worked in Professor Kara Nelson's lab at UC Berkeley, developing an ion-exchange cartridge that may be incorporated into source-separating toilets to recover nitrogen in the form of ammonium from urine, to produce fertilizers from the recovered nitrogen.

PLANS FOR AFTER GRADUATION:

I plan to attend graduate school to pursue a master's degree in environmental engineering or water resource engineering. After earning a master's degree, I would like to work for the state or an environmental consulting firm to address some of the challenges California faces in terms of water quality, water management and/or water allocation.

“UC MERCED IS GREAT! It's my home away from home. It's a place that attracts you for its beauty but makes you stay for the endless opportunities and resources it has to offer! UC Merced has small class sizes, small community, great faculty, cutting-edge research, and lets you build long-lasting relationships with colleagues and professors. My time here has been very enriching!”

STUDENT PROFILE

“One thing I love about UC Merced is that **EVERYTHING IS ACCESSIBLE AND CONVENIENT**. It helps a lot and makes office hours, tutoring and building effective relationships to succeed a lot easier as a college student.”

NATHANIEL BERHANE

HOMETOWN: San Jose, Calif.

YEAR: Senior

MAJOR: Mechanical Engineering

ACTIVITIES/ORGANIZATIONS:

National Society of Black Engineers (NSBE): secretary, academic mentor, finance committee analyst, T.O.R.C.H. member; American Institute of Aeronautics & Astronautics (AIAA): electronic department rocket engineer; XA (Chi Alpha) member; Black Student Union (BSU) member; African Student Union (ASU) member

PLANS FOR AFTER GRADUATION:

After I graduate, I plan to secure a job as a mechanical/design engineer, possibly with PG&E.



COME VISIT UC MERCED AND FIND OUT WHAT MAKES OUR CAMPUS SO SPECIAL.

Schedule a tour online at admissions.ucmerced.edu/tours, or call us to arrange a guided tour of the campus any weekday and on most Saturdays during the year. Visiting UC Merced will give you first-hand knowledge of our academics, housing and student life.



Professor Roland Winston and his students research solar technology through UC Solar.

Tours

209-228-6316

Take a virtual tour at
admissions.ucmerced.edu/virtualtour

Admissions

209-228-7178

admissions.ucmerced.edu

School of Engineering

209-228-4411

engineering.ucmerced.edu



UC Merced Office of Admissions
5200 N. Lake Road | Merced, CA 95343