

UNIVERSITY
OF
CALIFORNIA
MERCED

SCHOOL OF ENGINEERING



I WILL

EXPLORE, CREATE, TRANSFORM

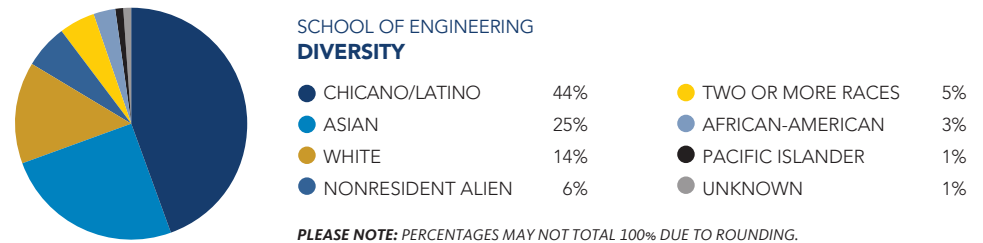


WHAT IS EXCEPTIONAL ABOUT THE School of Engineering?

As part of the first American research university founded in the 21st century and the newest in the premier University of California system, the hallmarks of UC Merced's School of Engineering are innovation, diversity, sustainability and personal interaction. The intellectual environment for education and research within the School of Engineering attract world-class faculty, staff and students who collectively seek to have a transformational impact on the society and the world in which we live.

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.

For those seeking a highly dynamic learning environment that focuses on future technologies and enterprise, please check out the School of Engineering at UC Merced. Come be a part of us.



CURRENT UNDERGRADUATE ENROLLMENT BY MAJOR - TOTAL ENROLLMENT 1,698

COMPUTER SCIENCE AND ENGINEERING	38%
MECHANICAL ENGINEERING	36%
BIOENGINEERING	12%
ENVIRONMENTAL ENGINEERING	6%
UNDECLARED SCHOOL OF ENGINEERING	6%
MATERIALS SCIENCE AND ENGINEERING	2%



UC Merced Ranked No. 5 in the nation out of more than 300 universities for social mobility in the Washington Monthly 2017 College Guide

SOURCE: UC MERCED INSTITUTIONAL RESEARCH AND DECISION SUPPORT, FALL 2016

ALWAYS SEEKING ANSWERS

Undergraduates at UC Merced are offered the unique opportunity to conduct research with some of the most highly regarded faculty members in their fields. This opportunity sparks curiosity in our students, some of whom develop their own research projects, and some who participate in work already being facilitated.

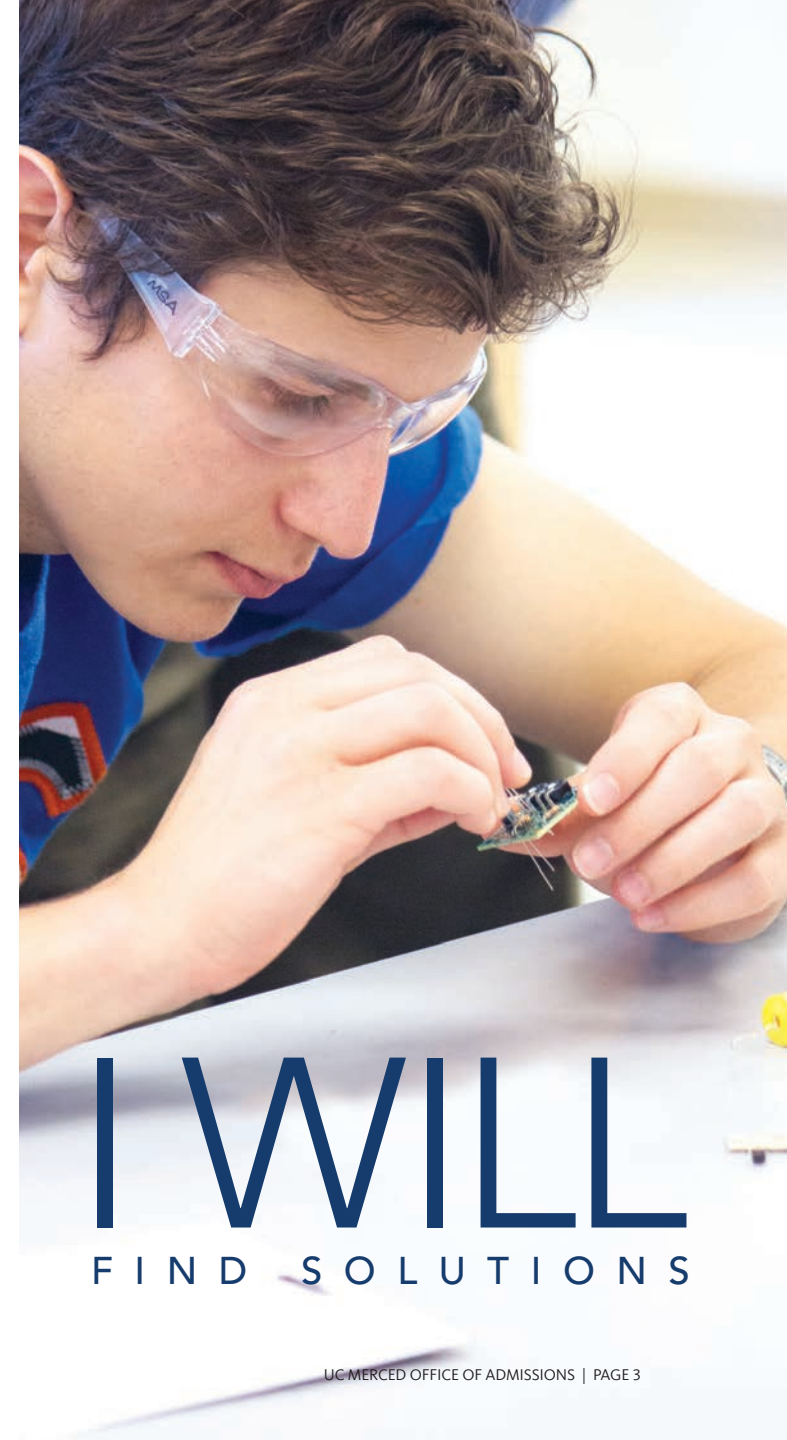
UNDERGRADUATE RESEARCH PROJECTS

- » A team of UC Merced engineering students mentored by Professor Anand Subramaniam made progress during their capstone class recently on developing prototypes of small, portable machines that can be used to diagnose diseases within 20 to 30 minutes of testing. The students won first place out of 24 teams and a \$5,000 prize at the Innovate to Grow Grand Challenge.
- » With the help of a \$10,000 Donald A. Strauss Foundation scholarship, third-year bioengineering student Harkanwalpreet Sodhi started a campus organization called Engineers for COVE, which paired a large group of engineering students with the Merced Center of Vision Enhancement (COVE) to develop new assistive technologies based on visually impaired clients' needs.
- » The federal Defense Advanced Research Projects Agency (DARPA) recognized a team of UC Merced undergraduate engineering students for their design of a device that cools high-powered electronics aboard military aircraft. Led by Professor Yanbao Ma, the eight-member team worked on the project during the yearlong Field-Reversible Thermal Conductor (RevCon) Challenge to develop novel field-reversible, low-resistance thermal connectors that improve on the design now being used.

INTERNSHIP OPPORTUNITIES

Amyris Inc. • BAE Systems • Beyer • Boeing • Chevron • City of Houston • City of Merced • E. & J. Gallo Winery • Frito-Lay (PepsiCo) • Foster Farms • General Electric • Genentech • Heron Innovators • Hetch Hetchy Water and Power • International Paper • Intuitive Surgical Inc. • Jacobs • JPMorgan Chase and Co. • Kaiser Permanente • Lawrence Berkeley National Laboratory • Lawrence Livermore National Laboratory • Macys.com • Microsoft • NASA Ames Research Center • NASA Jet Propulsion Lab (JPL) • National Park Service • Northrop Grumman • Pacific Gas and Electric Co. • PayPal Holdings Inc. • Revitas Inc. • SAP • San Francisco Public Utilities Commission • Sandia National Laboratories • Scholle IPN • Splunk • OLAM International • Opportun • San Francisco International Airport • San Francisco Public Utilities Commission • Siemens Corp. • Tesla Motors • U.S. Department of Agriculture • Workday Inc.

Video: School of Engineering students use ingenuity to aid sweet potato farmers



I WILL
FIND SOLUTIONS

Academics and Research

Majors

Bioengineering, B.S.

Computer Science and Engineering, B.S.

Environmental Engineering, B.S.

Materials Science and Engineering, B.S.
Optional emphasis: Nanotechnology

Mechanical Engineering, B.S.

Undeclared School of Engineering

Special Programs

Special programs in the School of Engineering help facilitate real-world problem solving and understanding the world around us.

INNOVATE TO GROW

innovatetogrow.ucmerced.edu

This annual celebration of student ingenuity and entrepreneurship encompasses these three signature threads:

- » **Innovation Design Clinic (IDC):** 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.
- » **Engineering Service Learning (ESL):** UC Merced's cornerstone engineering experience designed to expose first year students to the power of engineering. Through the Foster Family Center for Engineering Service Learning, students develop partnerships with local nonprofit community partner organizations that have specific business challenges. Students from all grade levels and disciplines design real-world solutions to the challenges their partners face. It is affiliated with the PG&E Service Learning Laboratory.
- » **Mobile App Challenge (MAC):** Over the course of three months, students design, prototype and pitch their ideas for mobile applications that address a need in society. Students can win cash prizes, network, and build their skill sets, all while changing the world for the better.

Research Facilities

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

- » Imaging and Microscopy Facility
- » Light Microscopy and Crystallography Modeling Center
- » Mechanical Test Laboratory
- » Merced Nanomaterials Center for Energy and Sensing
- » Sierra Nevada Research Institute (SNRI) Environmental Analytical Laboratory
- » Stem Cell Instrumentation Foundry (SCIF)



ONE OF THE BEST PUBLIC UNIVERSITIES IN THE NATION

UC Merced is by far the youngest university to appear in the U.S. News & World Report ranking of national universities



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



WILL
FIND MY CALLING

Potential Careers

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:

Air quality engineer, air quality/water/wastewater agency planner/manager, environmental engineer, environmental impact assessor, hydrologist, recycling consultant, remediation engineer, renewable energy planner/manager, solid waste engineer/planner, sustainability consultant, water resources engineer or planner, water/wastewater treatment engineer

MATERIALS SCIENCE AND ENGINEERING CAREERS:

Metallurgical engineer, materials production researcher, manufacturing engineer, nanotechnology expert, aircraft and space materials expert, integrated circuits materials expert, magnetic and optical materials expert, polymer materials expert, biomedical 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.



FACULTY PROFILE

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 the functional material enabled platform for energy conversion and storage as well as for biomedical applications.**

Her research group has been frequently published in high-impact journals. She is now serving as a NASA MIRO Center Director, Merced Nanomaterials Center for Energy and Sensing (MACES). 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 cosponsored 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-instr.**



FACULTY PROFILE

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

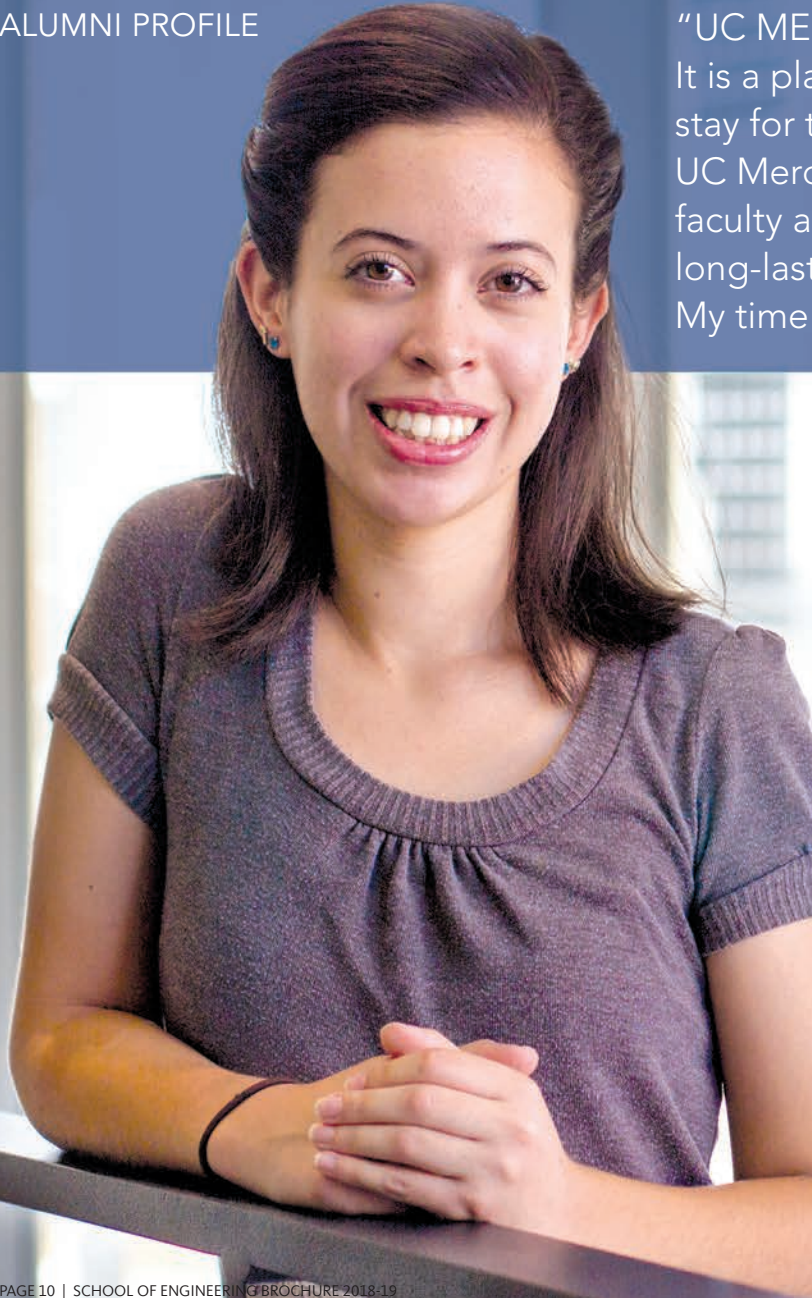
12 PROFESSIONAL ORGANIZATIONS



UC Merced was ranked in 2016 among **107 top universities in the country** as a "higher research" institution by the Carnegie Foundation

I WILL

REACH NEW HEIGHTS



“UC MERCED WAS MY HOME AWAY FROM HOME!
It is 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, a small community, great faculty and cutting-edge research, and lets you build long-lasting relationships with colleagues and professors. My time here was very much enriching!”

MARITZA FLORES MARQUEZ

HOMETOWN: Tulare, Calif.

GRADUATED: 2015

DEGREE: B.S., Environmental Engineering

CURRENT LINE OF WORK: I received my master’s degree in Civil and Environmental Engineering from UC Davis in 2017, with an emphasis in Water Resources Engineering. After graduation, I was hired as an associate water resources engineer/planner at MWH, now part of Stantec. My most recent research project at UC Davis involved creating a groundwater budget model for the Ukiah Valley Groundwater Basin.

ACTIVITIES/ORGANIZATIONS: I was president of the Bakery Club and 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. I served as a USDA HSI/CAMP scholar, where 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. I participated in a Research Experience for Undergraduates (REU) 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, helping develop an ion-exchange cartridge that could be incorporated into source-separating toilets to recover nitrogen in the form of ammonium from urine, to produce fertilizers from the recovered nitrogen.

JOSE MARCELINO GARCIA

HOMETOWN: Santa Paula, Calif.

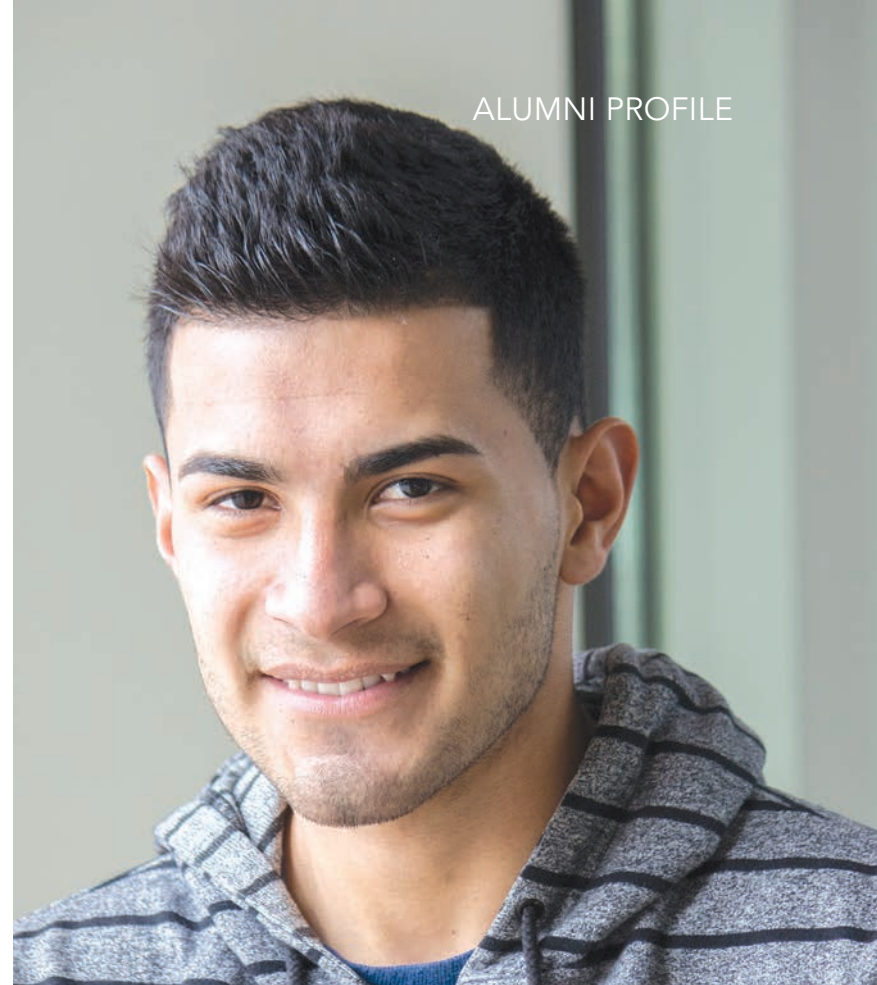
GRADUATED: 2014

DEGREE: B.S., Mechanical Engineering

CURRENT LINE OF WORK: I am a diesel engine calibration engineer at General Motors. As an engine calibration engineer, my role is based on the control of vehicle emissions. A great portion of my work relies on supporting the calibrations of the controls of the after-treatment system responsible for reducing vehicular emissions and ensuring our vehicles meet government standards. A big percentage of the time is spent traveling across the country on development trips, where we aim to discover issues before vehicles reach the production stages. During these trips, we are given the opportunity to test the vehicles in real-world environments. When my group finalizes calibrations, the vehicles are ready to continue to their final development stage, which is manufacturing.

ACTIVITIES/ORGANIZATIONS: I was the founding president of Ingenieros Unidos – Society of Hispanic Professional Engineers Chapter. Today, I continue to be an active member of SHPE through the Detroit Professional Chapter, where I currently play an important role in the planning committee. At work, I have the privilege of being a member of GM's Candidate Care team under the Hispanic Partner Recruiting Team. As a member of this team, my role is to support the organizing and execution of events that aim to retain talent identified from campuses and organizations.

ALUMNI PROFILE



“UC MERCED IS THE TYPE OF CAMPUS THAT LETS YOU EXPLORE PERSONAL GROWTH IF YOU ARE WILLING TO DEMAND CHANGE WITHIN YOURSELF. One of the beauties of our campus is that it finds itself at a stage where we can easily leave a legacy that causes positive change in future students long after we are gone.”

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

Schedule a tour online at tours.ucmerced.edu, 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 academic programs, housing and student life.



Roland Winston, widely considered to be the father of nonimaging optics, is a professor of physics and engineering at UC Merced, a founding faculty member and director of University of California Advanced Solar Technologies.

School of Engineering

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WEB: engineering.ucmerced.edu

Office of Admissions

TEL: 209-228-7178

EMAIL: admissions@ucmerced.edu

WEB: admissions.ucmerced.edu

LOCATION: 5200 N. Lake Road | Merced, CA 95343

Tours

TEL: 209-228-6316

EMAIL: tours@ucmerced.edu

WEB: tours.ucmerced.edu

VIRTUAL TOUR: admissions.ucmerced.edu/virtualtour

