

The facts: UC graduate research

In a century and a half of public university research, UC has generated new technologies, new industries and the skilled workforce that fuel California's economy.

UC graduate students are central to these achievements.

Through its graduate programs, the University of California trains and supports more than 26,000 Ph.D. students and almost 6,000 postdoctoral fellows who are engaged in original research. Together, these students — among the world's brightest emerging scientists and scholars — represent an unmatched source of research and intellectual capital for the state.

UC graduate students do the legwork that moves research forward. They find and pursue the unexplored avenues of inquiry, leading to new inventions, new knowledge and solutions for issues critical to California and the world.

UC RESEARCH BENEFITS THE STATE AND BEYOND

UC graduate research produces the breakthroughs that advance medicine, create startup companies and lead to the development of entire industries, creating opportunity for millions of Californians — not only those with graduate degrees.

- UC graduate students produced 585 new inventions in 2014, more than 10 per week on average. The new devices and technologies represent innovations in medicine, software, electronics, energy and agriculture.
- Since 1980, more than 300 startup companies have been launched by graduate students or emerged directly from their discoveries. Today, those companies employ more than 3,400 people and bring in \$515 million in annual revenues.
- In 2014 alone, 33 new startup companies were launched based on UC graduate student inventions. Among these is Tortuga Logic, founded by researchers at UC Santa Barbara and UC San Diego, one of the first companies to identify security breaches to hardware rather than software on smart devices. UC Berkeley grad student startup CellScope turns cell phones into mobile microscopes that give parents a convenient way to check kids for ear infections and other common illnesses.
- Graduate students have been fundamental to the creation of UC's 4,448 active patents — innovations that have improved our health, changed the way we do business and enriched our lives. UC patents include vaccines for hepatitis B, drugs to treat prostate cancer, mobility bionics that enable paraplegics to walk, varieties of strawberries, grapes and citrus, and the nicotine patch, to name just a few.

MAINTAINING RESEARCH AND EDUCATIONAL EXCELLENCE

UC advanced degree programs are among the most highly regarded in the nation, attracting top students from the U.S. and around the world.

- UC offers more than 600 master's, doctoral and professional degree programs at its 10 campuses. These range from aerospace engineering to linguistics, from bioinformatics to visual arts.
- UC awards more than 4,000 Ph.D.s a year, 8 percent of the nation's Ph.D.s.
- In California, UC awards 65 percent of all doctorates, and almost 70 percent of those awarded in science, technology, engineering and mathematics.
- More than 20 UC doctoral students have gone on to win a Nobel Prize.
- UC graduate and professional programs rate highly in numerous surveys and rankings, including the U.S. News and World Report's annual rankings. In the National Research Council's assessment of Ph.D. programs, 142 UC programs ranked in the top 20 percent of programs nationally.

THE BRAINPOWER TO FUEL TOMORROW'S WORKFORCE

As mentors and teaching assistants, UC graduate researchers give undergraduates first-hand exposure to the process of unearthing new ideas. Many of our doctoral candidates go on to become the professors who inspire the next generation of students to think critically, explore, discover and lead.

- Approximately one quarter of all UC and California State University faculty received their Ph.D.s from a UC graduate program.
- UC Ph.D. earners also are strongly represented in the workforce in fields outside of academia. Among recent UC graduate degree recipients working in California, roughly half have gone into sectors other than higher education, including private industry, medicine, business and manufacturing, engineering and K-12 education.
- The U.S. Bureau of Labor Statistics estimates that the number of jobs requiring advanced degrees will grow by 2.6 million by 2020. UC's role in educating these students ensures that California will be an important source of this talent.

SUPPORTING THE NEXT GENERATION OF BIG IDEAS

Reduced funding greatly threatens the health of graduate programs. However, state investment in graduate education is not a matter of dollars alone. It also involves a continued commitment to supporting the resources that enable these students to flourish, such as the faculty time required to mentor and train graduate students.

Graduate research is an investment that pays off.

It enables the life-changing discoveries that emerge from the collaboration of dozens of researchers and scholars building off each other's ideas. It develops mentors and future university professors needed to maintain California's visionary leadership in higher education. And it promotes the development of the workforce that attract industry and investment to the state.

The state must do its share to support graduate education if California is to remain a leader in innovation and workforce development.