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 graduate researchers and 6,400 postdoctoral fellows who are engaged in original research.

UC graduate students tackle issues critical to California, such as identifying sustainable sources of energy, reducing greenhouse gas emissions, protecting against earthquakes, advancing computer technology and improving public health. They shape ideas about our world and cultures, break new ground in the arts, and strengthen the economic and social infrastructure of our communities.

Collectively, 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.

Today, cuts to research — resulting from the sequester, increasing administrative demands on faculty time and reduced funding from the state — mean UC graduate programs are under pressure as never before.

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

UC RESEARCH BENEFITS THE STATE AND BEYOND

UC graduate students advance the theories, pursue the new avenues of inquiry and do the hands-on work that move discovery forward. They are critical to the research that improves our quality of life and brings millions of dollars of investment to the state.

- UC investigators received $4.4 billion in research funding in the 2011–12 fiscal year. For every $1 in research funding provided by the state of California, UC secures $7 more in federal and private dollars.

- UC researchers produced 1,776 new inventions in 2012, an average of nearly five a day.

- UC develops more patents than any other university in the nation. Many of UC’s 4,118 active patents have led to the creation of today’s leading industries.

- To date, more than 640 startup companies have been formed with UC inventions — 61 in 2012 alone.
UC graduate research helped spawn the biotechnology industry; former UC graduate students were pivotal in the development of industries such as electronics, pharmaceuticals, telecommunications, nanotechnology and the special effects film industry, among others. These industries have produced millions of jobs for workers at all levels.

AN UNMATCHED INCUBATOR FOR IDEAS AND INNOVATION

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 nearly 700 master's, doctoral and professional degree programs at its 10 campuses. These range from aerospace engineering to world cultures and history, from bioinformatics to visual arts.

- UC awards 3,600 Ph.D.s a year – 7 percent of the nation’s Ph.D.s. It awards 8 percent of all Ph.D.s that go to students who traditionally are underrepresented in higher education (African Americans, Latinos, Pacific Islanders and Native Americans).

- At least 10 UC Ph.D.s have been awarded Nobel Prizes in chemistry, economics and physics, recognizing achievements that have brought the greatest benefit to humanity.

- In California, UC awards 60 percent of all Ph.D.s, and 70 percent of those awarded in science, technology, engineering and mathematics.

- UC awards 8,000 professional degrees and teaching credentials each year, including 60 percent of all M.D. degrees awarded in California, a quarter of all engineering master's degrees and all the state's veterinary medicine degrees.

- UC graduate and professional programs rate highly in numerous surveys, including U.S. News and World Report's annual rankings. In the National Research Council's assessment of Ph.D. programs, 141 UC programs ranked in the top 10 in their fields.

- Four UC campuses — San Diego, Berkeley, UCLA and Riverside — topped Washington Monthly's rankings of universities that do the most public good for the country. The rankings focus on how well institutions serve as an engine of social mobility, foster scientific and humanistic research and promote an ethic of service.
BUILDING THE BRAIN TRUST TO SUCCED IN THE 21ST CENTURY

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.

- One quarter of all UC and California State University faculty received their Ph.D. from a UC graduate program.
- Over the next 10–15 years, California's public and private four-year universities will need to hire an estimated 25,000 new faculty to teach the growing number of undergraduates and to replace retiring faculty. UC’s doctoral programs will be critical to filling these ranks.
- UC is instrumental in bringing the world’s top thinkers and leaders to California. Most choose to be faculty at UC because of its vibrant graduate programs and the excellence of its graduate students.
- 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.

MAINTAINING RESEARCH AND EDUCATIONAL EXCELLENCE

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 the mentors and future university professors central to maintaining California’s visionary leadership in higher education. And it promotes the development of the workforce that will help our economy grow, attracting industry and investment from around the world.