

## Effects of State-Mandated Cuts to UC's Research Budget

The University of California's research efforts have helped solve some of the toughest problems facing the state, the nation and the world – everything from improving the water we drink and the air we breathe to creating life-saving advances in medicine and developing technologies that help connect people, places around the globe. UC discoveries in crop management, pest control and agricultural machinery have helped farmers everywhere to feed the world. Today, UC research is taking California's pioneering information technology advancements, especially in wireless broadband telecommunications, into new markets and uses – many of which will change the way we think about and use computers in our everyday lives.

State-mandated cuts to UC's research budget in the early 1990's, in 2002 and 2003 – cuts that have totaled approximately 35% in base funding, not including the effects of inflation – threaten UC's ability to continue this record of achievement and to remain competitive as a public research university. Further reductions to research support will result in profound losses to critical infrastructure and an inability to recruit and retain first-rate faculty scholars, graduate and undergraduate students. Without appropriate facilities and an outstanding faculty and student body, the university will be unable to compete successfully for federal grants – grants that result in the major research discoveries in medicine, technology, transportation and other fields that improve the lives of people in California and beyond.

State support for research at UC is crucial because it is the seed from which larger things grow. The state's investment in science and technology research at UC provides start-up funding that fosters entirely new fields of research often well ahead of federal programs. State funding is used to encourage multidisciplinary approaches to solving some of California's most important problems, from infectious diseases, exotic pests and toxic substances in the environment to energy and transportation. State funds to UC's Systemwide Biotechnology Research and Education Program, for instance, partially supported UC Santa Cruz graduate student Jim Kent as he developed a computer program that helped the publicly funded Human Genome Project win the race to sequence the human genetic code. State agencies look to UC research when making management and policy decisions. Marine and farm advisors apply and disseminate UC's research in our communities on a daily basis. State funds support graduate student research on the coastal environment, earth and space sciences, computer sciences and engineering that affects our ability to prepare for earthquakes, understand and protect fragile ecosystems, to communicate and store data.

Faced with declining budgets, UC has been unable to fund meritorious faculty proposals to establish research centers in leading-edge areas of research that would bring wide benefit to the state. In recent years, outstanding proposals to found an Institute on Global Health, a Neurodegenerative Disease Institute, and a systemwide programs on invasive species threatening California, for instance – proposals with world-class researchers poised to develop major programs to benefit the state and nation – have been turned down due to lack of available funding. With new research areas constantly emerging, UC must retreat rather than play a leadership role in defining and responding to critical issues in California and the world.

Creation of infrastructure is one of the most important uses of state support for research. Faculty and students rely on laboratories, libraries, research collections and state-of-the-art facilities to enable their research across the ten UC campuses and three UC-managed national labs – research that is often conducted at the request of the California legislature and that serves the people of California. These areas include biotechnology, toxic substances, energy, space sciences, marine sciences, transportation, climate change, US-Mexico issues, public health and medicine, agriculture and Latino research, among others. They include, as well, urgent policy-relevant issues, such as the effects of MTBE on the environment and chromium 6 on human health.

The University of California must compete nationally and internationally to attract and retain top scholars to teach in its classrooms and laboratories. It competes with well-endowed private universities and with other strong public university systems in Texas, Michigan, and North Carolina, among others. A measure of UC's quality is its ability to hire its number one faculty choices, a process that requires research support to be an essential component of the recruitment offer. Failure to invest in research will also affect faculty retention. UC will lose top faculty already employed at UC, productive researchers who are constantly courted by other universities. UC already suffers from difficult challenges in retaining faculty, including high costs of living coupled with severely lagging salaries.

The same is true for attracting and retaining the best and brightest graduate students. Without exposure to top faculty who are doing cutting-edge research, or without the resources to pursue their own research training, these students will opt for other universities, resulting in a further brain drain out of the state. Moreover a large percentage of UC graduate students are directly supported through research grants. Further cuts to UC research programs combined with higher tuition will have an immediate negative effect on the affordability of graduate education in California.

Not only does the state's investment in research keep the University of California competitive at the national and international level; it has a direct beneficial effect on its mission to educate undergraduate students. Research stimulates and informs teaching. It invigorates the curriculum, motivates students and makes UC a vital center of learning. UC's undergraduates are California's leaders of tomorrow. An average of 10.5% of UC undergraduates eventually earn either a Masters or Ph.D. degree, a testimony to the long-term benefits of early exposure to research, and a statistic that cannot be matched by non-research-oriented institutions. The impressive rates at which UC undergraduates continue on to graduate school, get hired in responsible positions at major firms or become entrepreneurs have been important drivers of the California economy.

Further cuts to UC's research budget will have a devastating effect on the essential characteristics that define the University of California and make it the finest public research university system in the world.