



Research universities enrich state

By Joaquin Ruiz Special to the Arizona Daily Star | Posted: Wednesday, August 12, 2009 12:00 am

The budget for the University of Arizona — considered one of the 25 best research universities in the nation — was cut by the Legislature this year by \$76 million. In discussions with legislators, the question often arises: Why does Arizona need research universities?

The answer is that research universities fulfill three essential needs — all of which provide significant benefits to Arizonans:

- **Knowledge:** Especially at the graduate level, research universities conduct essential research on a wide range of topics, from medicine to history to space. This research provides crucial benefits: curing disease, inventing new products and procedures, learning from history, and understanding our environment, among others.
- **Advanced Training:** That knowledge makes possible advanced training in the professions and other crucial employment sectors, from medicine to the sciences to computer technology to energy exploration to business and the law. It means that Arizonans can see the best medical specialists without leaving the state, can benefit economically from local inventions, and can help lead the nation and the world in countless areas of specialty.
- **Job Generation:** That advanced training, in turn, leads to job generation. It produces patents and start-up companies; it enables small businesses to grow; it creates a highly trained workforce that attracts facilities of major corporations. A recent study by the Arizona Arts, Sciences and Technology Academy revealed that Arizona's astronomy and space-related research industries alone already generate \$250 million annually in direct economic activity and 3,300 jobs.

In the United States, research is conducted primarily at research universities — both public and private. The amount done at federal research laboratories pales by comparison.

In Arizona, the role of research universities is a public one. There are no private research universities in the state. Reducing the public commitment to Arizona's research universities, therefore, amounts to reducing its commitment to knowledge, advanced training, and job generation — and, in effect, delegating those essential needs to other states.

Some jobs would continue to come our way, but only those that California and other states with excellent public university systems could afford to do without.

There's still another advantage for our sons and daughters who attend college at Arizona's research universities: They get extraordinary opportunities to participate actively in research, and studies show that undergraduates who do research also do better in school.

Undergraduate participation in research encourages students to pursue advanced degrees and careers in science, technology, engineering, and mathematics — the so-called STEM disciplines in which many of our nation's best jobs will lie. And it causes all students to perform better — even those who don't participate in the research. We don't fully understand why that is, but it's true.

At the UA College of Science, nearly two-thirds of undergraduates participate in independent research projects, including independent study for college credit and paid research positions. Undergraduate research programs on campus include, among others, the prestigious NASA Space Grant Program and the Undergraduate Biology Research Program. The latter is one of the largest bioscience programs of its kind in the nation, with more than 140 students placed in individual research positions annually.

And, finally, undergraduate students engaged in Arizona-based research are more likely to remain in Arizona. That may be the best reason of all.