ASU Facilities and Resources

Arizona State University (ASU) is the largest public university in the United States—with over 103,000 students enrolled in person or online in 2017. With four campuses within the Phoenix metropolitan area (Tempe, West, Polytechnic, and Downtown), it is redefining the culture of twenty-first-century universities, moving away from disparate, discipline-defined departments to integrated, transdisciplinary colleges and schools that emphasize collaboration, outreach, and sustainability.

ASU is also one of the fastest-growing research enterprises over the last five years among U.S. universities with research portfolios exceeding $100 million. Since 2002, ASU has more than quadrupled its research expenditures to $540 million this past year, enough to be placed in the National Science Foundation’s top decile. Its research, education, and training programs include multiple large, interdisciplinary projects supported by multimillion-dollar awards from major federal agencies and nonprofit foundations. These awards, together with ASU’s continuous investment in its students, its research enterprise, and the broader world, earned it *U.S. News and World Report*’s number-one ranking for most innovative school in the country for the past three years.

The university also has a strong track record recruiting and retaining underrepresented students. Just under 22 percent of ASU’s students are Hispanic (the U.S. average is 17.3 percent). Our Native American student population is double the national average and almost triple the national average for graduate students. Minority graduation rates are 63.5 percent, well above the national average of 56.2 percent. *Diverse: Issues in Higher Education* magazine ranks ASU first in the nation in the number of doctorates awarded to Native Americans, sixth in doctorates in math and statistics awarded to all minorities, and fifteenth in doctoral STEM degrees awarded to Hispanics, including third in mathematics.

President Michael Crow is guiding the transformation of ASU into one of the nation’s leading public metropolitan research universities, an institution combining the highest levels of academic excellence, inclusiveness to a broad demographic, and maximum societal impact—a model he terms the “New American University.” Beginning in 2002, he drove measures to completely re-organize ASU from siloed, disciplinary-based departments to more than a dozen interdisciplinary schools focused on intellectual and social challenges facing the world, including sustainability, diversity and inclusion, social change, global exploration, and human health.

# School of Earth and space exploration (SESE)

SESE has brought together all of Earth and space science into one school, breaking the traditional disciplinary boundaries so that we can ask the biggest questions that we have in science. SESE is dedicated to expanding the frontiers of knowledge of Earth, space, matter, time and life, and does so via its signature research areas of astronomy and physics, cosmology, earth systems sciences, planetary sciences, science education and science engineering.

While SESE is located across three buildings, SESE’s headquarters is located in ASU’s largest research building, Interdisciplinary Science and Technology Building IV (ISTB 4), and the School’s research endeavors are spread across seven buildings on the Tempe campus and beyond. The headquarters building, ISTB 4, was designed for education and public outreach programming to reinforce the spirit of scientific exploration in the areas of space and Earth sciences. The lobby of the building is a public gallery space with interactive displays and laboratory views of real-time scientific discovery. In the last academic year, over 5,000 K-12 students visited this building. Current exhibits include the Curiosity Rover Replica; Earthscope, which looks into the past, present and future of the North American Continent through earthquake activity; Magic Planet, a digital video globe using data from NASA, NOAA, and others to present archived and real-time data about the Earth, Moon, Sun and Planets; and the Meteorite Exhibit, a display on the second floor of ISTB 4, which is drawn from the extensive collection of ASU’s Center for Meteorite Studies (the largest university-based collection in the world). Laboratory space open for public viewing includes operations for MastCam-Z (a color panoramic zoom camera for Mars2020) and clean-room space being used to build the Europa Thermal Emission Imaging System (an instrument slated to explore the surface of Europa for thermal anomalies to be launched in 2020).

# Knowledge Enterprise Development (KED)

KED works within ASU’s position as an interdisciplinary, twenty-first-century university to advance research, foster entrepreneurship, and manage its research operations and strategic partnerships.

KED’s research operations are ISO 9001:2015 certified. Issued by the International Organization for Standardization, this certification demonstrates ASU’s ability to consistently meet quality management standards that go above and beyond those required by industry partners, nonprofits, and federal funding agencies and expected by faculty and community leaders. Our repeatable, agile, continuously improving processes assure organizations who invest in ASU research that their contributions are well managed throughout the research lifecycle, from idea to impact.

## Biodesign Institute

The Biodesign Institute fuses the talents of over 900 affiliate faculty, staff, students, and collaborators to promote biology-inspired, transdisciplinary science and push the frontiers of human knowledge to make a major impact on our community, nation, and the world. The Institute’s expertise spans engineering, biosciences, medicine, computing, economics, public policy, and management, allowing its affiliates to weigh the scale, cost, and societal implications of the solutions they pursue. Since inception, Biodesign has recruited more than sixty tenured and research faculty, among them a Nobel Laureate, five National Academy members, and five fellows of the American Association for the Advancement of Science (AAAS).

The Biodesign Institute’s award-winning facilities have been designed for maximum flexibility, while setting aside ample space for specialized laboratories. Fourteen different research centers support a unique repertoire of research capabilities and equipment, with translational challenges ranging from Environmental Biosecurity, from Biosensors and Bioelectronics to Personalized Diagnostics. The Institute has amassed a powerful range of analytical capabilities to pursue diverse, but focused research goals such as identifying biomarkers of disease, using molecular genetics and comparative genomics to answer fundamental questions in biology, developing new vaccines to battle infectious disease, developing bioassays for point-of-care diagnostics, and mimicking nature in the production of materials, catalysts, and sensors. To find answers to these questions and develop solutions to these problems, Biodesign affiliates have access to hundreds of Gigaflops of computing power, equipment and space for microfabrication and nanoimprinting; engineering of microbial reactors, developing high-throughput assays of biologically relevant molecules; and combining nanomaterials, biomaterials, and electronic transducers.