

# HIGHER EDUCATION RESEARCH

*In 2020, higher education research activity provided an estimated \$860M ROI into Utah's economy.*

This was in the form of:

- high-paying jobs (17,616 jobs, \$335M in wages)
- indirect economic growth (\$486M)
- state/local tax funds (\$46M)

**\$860M**

The estimated ROI high-end research activity provided to Utah's economy in 2020

# UTAH BOARD OF HIGHER EDUCATION

# FUNDING REQUEST FOR RESEARCH AND LAB EQUIPMENT REFRESH

The Utah System of Higher Education's research enterprise is an engine for economic growth and development. USHE institutions hit a record high of over \$1.11B in research funding in 2021 that provided advancements in critical areas, including:

- Humanities, communication, and education
- Military health and suicide prevention
- Science computing, technology, and engineering
- Human genetics and precision medicine
- Opioid addiction and chronic pain
- Cancer research and infectious diseases
- Environmental studies and sustainability
- Dance, art, and game design for health

# \$860M

The estimated ROI high-end research activity provided to Utah's economy in 2020

Higher education research has produced hundreds of patent filings, license, and invention disclosures. That intellectual prowess is the foundation for the more than two dozen companies that have been spun out since 2019 in groundbreaking markets.

This high-end research activity in 2020 provided an estimated \$860M ROI into Utah's economy in the form of high-paying jobs (17,616 jobs, \$335M in wages), indirect economic growth (\$486M), and state/local tax funds (\$46M). In addition, the applied and clinical research tied directly to the workforce pipeline across the other six degree-granting institutions provides critical immersive instruction, industry-certified training, and public-private incubation opportunities.

## *USHE equipment refresh and expansion is segmented into three primary areas:*

### **Basic lab equipment maintenance**

USHE institutions consistently face challenges of maintaining basic lab equipment like water deionizing systems, gas connections, and outdated fume hoods. Lab equipment also includes equipment in less common disciplines, including updated digital branding and identification systems in physiology and improved IT infrastructure in cybersecurity.

### **Cutting edge research**

Innovative and cutting-edge research activities, especially at Utah State University and the University of Utah, require specialized and customized equipment to enable new exploration and testing. For example, the first-ever metabolic kitchen in the state at the University of Utah would enable diet research in applied metabolism, physiology, and behavioral interventions. Institutions also require much-needed expansion of high precision and advanced materials equipment like wet bench facilities, nanoscale heat transfer, etching hoods, and enhanced precision ventilation systems.

### **Lab expansions to meet employer demand**

As employers expect prospective employees to have more integrated and hands-on training experience, USHE institutions are constantly working on retrofitting existing instructional space to accommodate the ever-growing demand for physical lab space. Equipment inventory is a primary barrier to these needed expansions.

USHE is requesting \$100M\* in funds from the American Rescue Plan (ARP) to upgrade and expand lab equipment at all eight degree-granting institutions. COVID-19 impacts have hampered these upgrades at a time when programs have been expanding and workforce demand in specialized clinical and science sectors is the highest the state has experienced.

### **DIXIE STATE UNIVERSITY (\$2.6M)**

- Upgrade clinical equipment and instructional laboratories for the health sciences
- Upgrade equipment in creative arts (film, animation, music production, etc.)
- Expand equipment availability in rapidly growing biological sciences programs, including molecular biology, genetics, and bioinformatics
- Equipment to provide virtual and augmented reality learning experiences

### **SALT LAKE COMMUNITY COLLEGE (\$5.9M)**

- Upgrade sterilizer equipment
- Update surgery lighting
- Replace industry lab equipment

### **SNOW COLLEGE (\$2.6M)**

- Equip RN and medical training lab in leased space in Nephi to expand nursing education to Juab and Millard Counties
- Hoods and drains in the chemistry lab to bring to code
- Ventilation system soundproofing
- Upgrade outdated and damaged floor outlets in chemistry and biology labs

### **SOUTHERN UTAH UNIVERSITY (\$2.2M)**

- Laboratory and equipment replacements in biology, physics, geophysics, and engineering labs
- Improve functionality of space, equipment upgrades in theater, commercial music, and crime lab
- Eye tracker and digital branding equipment in physiology labs
- Upgrade kinesiology equipment

### **UNIVERSITY OF UTAH (\$51.6M)**

- Specialized ventilation equipment to accommodate precision materials research
- Replace outdated and damaged lab infrastructure, including flooring, light instrumentation, and freezers
- Increase equipment inventory in outsized programs at Moran Eye Center, biopolymer research lab, engineering, and mining
- Upgrade staging areas with automated equipment to ensure safer lab transfer
- Replace aging clean room and washroom equipment

to address weaknesses in aerosolized allergen contamination

- Replace live support system monitoring, pumps, blowers, and carbon filtration in biology aquatics systems
- Replace vivarium equipment in several labs

### **UTAH STATE UNIVERSITY (\$23.6M)**

- Increase equipment inventory in fast-growing programs at space dynamics, water, animal sciences, and virology labs
- Replace aging lab equipment in several lab spaces
- Upgrade outdated clinical equipment and instructional laboratories in health sciences

### **UTAH VALLEY UNIVERSITY (\$5.5M)**

- Replace student lab benches and fume hoods, add gas connectors
- Replace water deionizing systems
- Equipment to expand cross-discipline laboratories, including fluorescent microscopes and specialized floor replacement
- Expand outdoor observations decks for astronomical sciences
- Mechanical shelving systems for herb and gardening research

### **WEBER STATE UNIVERSITY (\$6.0M)**

- Physician's assistant simulation labs and teaching space renovation
- Upgrade HVAC and lab controls systems in engineering labs with a system to protect students, faculty, staff, and community members from viral contagions
- General lab expansion and equipment to retrofit outdated spaces

**TOTAL RESEARCH AND LAB EQUIPMENT REQUEST: \$100M**