THE NEW ECONOMY

FY21 BUDGET REQUEST
$11.2 M on-going  |  $9.4 M one-time  |  $10 M Competitive Grant one-time

This initiative provides state funding to Arizona’s public universities to develop a skilled workforce and enhance economic opportunity. Our request leverages existing strengths in Health, Mining and Space & Defense to address critical workforce shortages and establish Arizona as a leader in solving national and global challenges.
State investment will enhance UArizona’s capacity to train and educate students for high demand/high paying careers in national security, space technology and planetary defense.

**WORKFORCE DEVELOPMENT**

Expand undergraduate programs that directly support the aerospace and defense industry by 1,300 additional students.

- UArizona is one of 4 higher education institutions in the nation positioned to fill the research and workforce needs for the defense industry, specifically related to hypersonics.
- Federal funding for hypersonics-related research is expected to grow by over $200M in the next year.
- DoD, Raytheon, and other defense companies have expressed the need for more students graduating with degrees related to hypersonics systems.

**INFRASTRUCTURE: DEFENSE**

State investment will upgrade wind tunnels to meet current hypersonics modeling & simulation needs for testing, research, and training.

- DoD is planning to double its research in hypersonic capabilities from $6.2 billion to $11.2 billion by FY2024.
  - Accessible hypersonics wind tunnels will help UA compete for this research.
  - Companies like Raytheon currently spend millions of dollars per year traveling to the handful of commercially available hypersonic testing facilities in the US.
- Ensuring students are workforce ready requires hands-on training and exposure to state-of-the-art infrastructure.

**OPERATIONS: SPACE**

State investment will help establish the Arizona Space Institute furthering UArizona’s competitiveness for DoD and NASA missions, industry partnerships and other large contracts.

- UArizona is #1 in astronomy and astrophysics, #4 in NASA funding among public universities and growing rapidly in DoD funding.
- NASA’s FY20 budget shows an increase from $9.27 billion to $11.6 billion for “Space Technology”. DoD FY20 indicates $30M for “Space Technology Development”.
- The cost to develop a competitive proposal for a large NASA or DoD contract has escalated dramatically over the last decade.
- Proposal development for a major mission or contract can easily cost $1 million over two years, however the payoff is very large (major NASA mission - $500; major DoD contract - $50-$100M).

**HEALTH SCIENCES**

Additional state investment will address Arizona’s medical workforce shortage to improve health while fueling economic growth and opportunity throughout the state.

**WORKFORCE DEVELOPMENT**

Launch new programs, such as those highlighted below, to create the necessary pipeline of healthcare providers.

- 7-year bachelor/MD Program: Develop a 7-year Bachelor of Science/Medical Degree program.
  - Debt has become a barrier for students interested in medical school, a BS/MD program will reduce debt and accelerate entry into the workforce.
- K-12 Health Sciences Education: Create a high school dual enrollment course in health sciences and develop curriculum and teacher training to prepare K-12 students for STEM and health careers.
  - Addressing the healthcare workforce shortage requires a multifaceted approach, early engagement and education will help build a pipeline.

**IMPROVING HEALTH**

Digital Psychiatry: Develop a program with capabilities to use smart devices and facial and voice recognition to improve behavioral health and identify symptoms of high-risk behaviors. The technologies developed will help better diagnose and monitor individuals suffering with mental illness.

- Only 40.3% of Arizonans living with mental illness received treatment in 2018.
- In 2017, suicide was the eighth-highest cause of death in Arizona and rate per 100,000 that was 24% higher than the national average.
- Native Americans and individuals living in rural areas, who may benefit from remote monitoring, have significantly higher suicide rates.

Telemedicine Expansion: Expand telemedicine for rural communities and develop new sensors for remote monitoring to reduce emergency room visits and hospital readmissions.

- Telemedicine can provide accessible healthcare for Arizonans that must currently drive one to two hours just to see the nearest physician.
- In some rural communities there might only be one doctor for every 10,000 Arizonans living in the area.
MINING FOR THE 21ST CENTURY

UArizona is a world leader in Mineral Resources and Geological Engineering. Additional state investment will develop the future workforce of mining by establishing Arizona’s only School of Mining and create interdisciplinary degree programs across engineering, science, law, and business.

- The demand for copper is expected to rise 275 – 350% by 2050 due to the electrification of energy.
- Remaining mineral deposits that are more difficult to extract as well as new societal expectations requires modernization of the mining workforce.

COMPETITIVE RESEARCH GRANTS FUND

This fund will provide a state match for federal grants pursued by Arizona’s public universities that require matching funds. Below are examples of current federal grants that require matching dollars.

<table>
<thead>
<tr>
<th>Grant</th>
<th>Matching Requirement</th>
<th>Grant Supports</th>
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<tbody>
<tr>
<td>Agriculture and Food Research Initiative</td>
<td>100% match if the grant is for applied research that is commodity-specific and not of national scope.</td>
<td>Research, education, and extension grants to improve rural economies, increase food production, address water availability issues and train the next generation of the agricultural workforce.</td>
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<tr>
<td>Women and Minorities in Science, Technology, Engineering and Mathematics Fields</td>
<td>100% match required if a grant benefits a specific agricultural commodity</td>
<td>Research, education/teaching, and extension projects that increase participation by women and under-represented minorities from rural areas in STEM.</td>
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<tr>
<td>Beginning Farmer and Rancher Development Program</td>
<td>25% match required</td>
<td>Programs that develop and offer education, training, outreach and mentoring programs to enhance the sustainability of the next generation of farmers</td>
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<tr>
<td>Biomass Research and Development Initiative</td>
<td>50% match required for demonstration or commercial projects</td>
<td>Research that demonstrates new ways to refine various types of feedstocks and crops into biofuels or biobased chemical and products.</td>
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<tr>
<td>Community Food Projects Competitive Grants Program</td>
<td>100% match required</td>
<td>Projects designed to increase food security in communities and create systems that improve the self-reliance of community members over their food needs.</td>
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<tr>
<td>Crop Protection and Pest Management</td>
<td>100% match required if a grant benefits a specific agricultural commodity</td>
<td>Projects that will ensure food security and respond effectively to major societal pest management challenges.</td>
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<tr>
<td>Methyl Bromide Transitions Program</td>
<td>100% match required if a grant benefits a specific agricultural commodity</td>
<td>Projects that address the immediate needs and the costs of transition that have resulted from the phase-out of the pesticide methyl bromide</td>
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<tr>
<td>National Integrated Water Quality Program</td>
<td>100% match required if a grant benefits a specific agricultural commodity</td>
<td>Projects that protect and improve the quality of water resources throughout the United States and its territories, particularly in agriculturally managed watersheds.</td>
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<tr>
<td>New Beginning for Tribal Students</td>
<td>100% match required</td>
<td>Programs at land-grant universities and colleges that support Tribal students through tuition fees, recruiting, tutoring, counseling or any service that would increase student retention and graduation</td>
</tr>
<tr>
<td>Smith-Lever Special Needs Projects100%</td>
<td>100% match required</td>
<td>Special needs projects to implement applied scientific programs that serve public needs in preparation for, during and after local or regional emergency situations</td>
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