Serving Military and Law Enforcement at Arizona’s Public Universities
An Overview of Resources, Services, Educational Offerings and Department of Defense Research
About this Report

The following report provides an overview of Arizona State University, Northern Arizona University and the University of Arizona’s extensive services, resources and educational opportunities for military connected service members and their dependents as well as those pursuing or employed in law enforcement.

This report provides an overview by university of:

- Services to veterans
- Outreach and benefits to military connected service members and their dependents
- Reserve Officers’ Training Corps (ROTC) on campus
- Educational offerings and opportunities for military and law enforcement
- Department of Defense funded and related research

ABOUT THE ARIZONA BOARD OF REGENTS

The Arizona Board of Regents is committed to ensuring access for qualified residents of Arizona to undergraduate and graduate institutions; promoting the discovery, application, and dissemination of new knowledge; extending the benefits of university activities to Arizona’s citizens outside the university; and maximizing the benefits derived from the state’s investment in education.

MEMBERS

Fred DuVal, Chair
Cecilia Mata, Chair Elect
Lyndel Manson, Treasurer
Robert J. Herbold, Secretary
Gregg Brewster
Doug Goodyear
Jessica Pacheco
Larry E. Penley
Katelyn Rees, Student Regent
David Zaragoza, Student Regent
Gov. Katie Hobbs, Ex-Officio
Superintendent Tom Horne, Ex-Officio

ABOR EXECUTIVE DIRECTOR

John Arnold
A Commitment to Serving Military and Law Enforcement at Arizona's Public Universities

Arizona’s public universities place a premium value on investing in the future of our military, law enforcement and their families. The universities are leaders in advancing the development of new technologies central to our state and nation’s public safety, security and stability.

Arizona’s public universities honor veterans and are dedicated to ensuring those who served our country are able to successfully transition from military service into college and achieve academic success. Each of Arizona’s public universities offer extensive resources to support student veterans with academic and career development, campus life, financial aid, and health and wellness. This includes the Veterans Spouses Program, providing free tuition for Arizona spouses of honorably discharged veterans on a first-come, first-served basis.

The program covers tuition and mandatory fees at Arizona’s public universities and participating community colleges for spouses of honorably discharged veterans who are Arizona residents. The board and Arizona’s public universities are committed partners in providing extensive services, resources and educational opportunities for military connected service members and their dependents.

Arizona State University

IN SERVICE TO VETERANS

Arizona State University is ranked as a top university for military personnel by the Military Times and serves more than 10,300 on-campus and online military affiliated students. It also ranks in the top eight in the nation in Reserve Officers’ Training Corp (ROTC). ASU has earned the distinction of being an Academic Center of Excellence in Information Assurance Education, a designation bestowed by the National Security Agency/Central Security Service. With 800 undergraduate and graduate degrees, one of the top online programs in the nation, veteran’s educational support services, affordability and academic excellence - ASU is a perfect fit for all those who serve or who have served their country.

The university also offers student veterans and active military, reserve and guard members extensive resources, scholarships and expert services through the Pat Tillman Veterans Center. Whether it is guidance for first-generation students, tutoring, career services or placement, ASU can help with veteran education benefits; ASU’s goal is to help veterans, military members and their dependents achieve success.

MILITARY CONNECTED AND THEIR DEPENDENTS

OUTREACH

- **Salute to Service** – Salute to Service honors student, alumni, faculty and staff veterans with an annual series of events on all ASU campuses in celebration of Veterans Day.
- **GI Bill®** – The GI Bill® was designed to offer financial assistance to our service members, veterans and their families in pursuit of educational or training goals.
- **Chinese Language Flagship/ROTC Program** – This program prepares ROTC students to achieve a superior level of proficiency in Mandarin Chinese, become commissioned officers and effective cross-cultural communicators.
- **Pat Tillman Veterans Center** – The center’s mission is to provide services to ASU’s student veterans, active military members and their families.
• **Veterans Education Fund** – Many veterans receive financial support through the GI Bill®. Those benefits, however, often do not cover all expenses needed to complete a degree. ASU’s Veterans Education Fund provides the additional assistance a veteran needs to reach his or her educational goals, including support for scholarships, fellowships or emergency funding.

• **ASU Memorial for the Fallen** – The Veterans Chapter of the ASU Alumni Association needs support to create a memorial that will honor the 129 Sun Devils who gave their lives in the line of duty.

• **Additional outreach programs include:**
  - Guitars for Vets
  - Veterans Alumni Chapter
  - Hacking for Defense
  - Public Service Academy
  - Scholarships

**BENEFITS**

• **In-State Tuition and Residency** – In addition to a host of other educational benefits, ASU offers in-state residency and tuition for active-duty military members and veterans. Detailed information is outlined by University Registrar Services under their residency guidelines.

• **Veterans Upward Bound** – The Veterans Upward Bound Project is a free, federally-funded educational program at ASU that supports veterans who are either low-income or potential first-generation college students and seeks to boost academic skills in English (composition and literature), mathematics (basic math to precalculus), computer literacy, laboratory science, foreign language and college planning.

• **GI Bill®** – The GI Bill® was designed to offer financial assistance to service members and veterans in pursuit of educational or training goals. This Department of Veterans Affairs educational benefit is designed for active duty, select reserved and National Guard Armed Forces and their families. There are several different types of GI Bills and other assistance programs, including the Post-9/11 GI Bill®, Montgomery GI Bill®, Tuition Assistance “Top Up” programs, Reserve Education Assistance Program (REAP) and Veterans Educational Assistance Program (VEAP), among others.

• **Scholarships** – ASU offers a range of financial support programs, including:
  - ASU Veterans Education Fund
  - Marine Corps Scholarship Foundation
  - Tillman Military Scholarships
  - Military Active Duty and Reservist Commitment Scholarships
  - Other scholarships at ASU and financial aid information
  - Richard Romley Scholarship and R. J. Mitchell Scholarship for Marine Corps veterans and special operations forces veterans to attend Sandra Day O’Connor College of Law.

• **Yellow Ribbon Program** – The Yellow Ribbon Program pertains to nonresident students using the Post-9/11 GI Bill® (Ch33) at the 100 percent eligibility level. Yellow Ribbon is designed to help cover differences between resident and nonresident tuition. Under this voluntary program, institutions can enter into an agreement with the VA to help fund the additional expenses for eligible students.

**RESERVE OFFICERS’ TRAINING CORP (ROTC)**

ASU is home to four branches of the military Reserve Officers’ Training Corps (ROTC): Air Force, Army, Navy and Marine Corps. ROTC is an elective curriculum taken along with other required college classes. Partnering world-class university training with ROTC leadership skills, ASU empowers young men and women to lead in their career fields and in service to the nation.

Founded in 1935, ASU’s Sun Devil Battalion is one of the oldest Army ROTC programs in the nation. Established through the Department of Military Science in the College of Liberal Arts and Sciences, the battalion leads in officer commissions, second only to West Point and the Army's Officer Candidate School.
Air Force Detachment 025 or Flying Devils was created in 1948 as part of the Department of Aerospace Studies in the College of Liberal Arts and Sciences. With academic instruction from a cadre of experienced officers and a strong physical fitness program, the 100-strong cadet wing strengthen minds and bodies.

The most recent ROTC unit at ASU, Naval ROTC is part of the Department of Naval Sciences in College of Liberal Arts and Sciences and on track to be one of the largest in the country. The Navy program was established to educate and train young men and women for service as commissioned officers in the Navy or Marine Corps, including the Navy Seal program.

- Air Force
- Chinese Language Flagship/ROTC Program
- Project GO – Critical Languages Institute
- Army
- Navy

EDUCATIONAL OFFERINGS AND OPPORTUNITIES

ASU’s educational offerings have earned national rankings by U.S. News & World Report. The university was rated No. 1 for its graduate Emergency Management and Homeland Security program, No. 2 for its criminology doctoral program and is in the top five for its online master’s degree in criminal justice.

MILITARY DEGREES AND CERTIFICATES
- Military Studies, AA
- Military Studies, Certificate
- Military Leadership, Minor
- Organizational Leadership, AA

LAW ENFORCEMENT DEGREES
- Bachelor of Science in Criminology and Criminal Justice (in-person or online)
- Master of Science in Criminology and Criminal Justice (in-person)
- Master of Arts in Criminal Justice (online)
- Doctor of Philosophy in Criminology and Criminal Justice (in-person)

LAW ENFORCEMENT MINORS AND CERTIFICATES
- Criminology and Criminal Justice, minor
- Undergraduate Certificate in Criminal Investigations
- Undergraduate Certificate in Homeland Security
- Undergraduate Certificate in Security Studies
- Graduate Certificate in Corrections Management
- Graduate Certificate in Criminal Sentencing and Sentencing Advocacy
- Graduate Certificate in Law Enforcement Administration

LAW ENFORCEMENT INTERDISCIPLINARY PROGRAMS
- Emergency Management & Homeland Security, MA
- Law and Psychology, PhD
- Program Evaluation, MS
- Public Safety Leadership & Administration, MPLSA

RESEARCH CENTER AND LABS
- Youth Justice Collaborative
- Research on Violent Victimization (ROVV) Lab
ANALYZING THE EFFECTS OF TITANIC EVENTS ON THE ECONOMY

Titanic Events are significant, unanticipated, and rare events that can have a profound impact on the global economy. These events can be caused by natural disasters, political upheavals, or other unpredictable occurrences. The study of Titanic Events is crucial for understanding the economic risks and vulnerabilities associated with such events.

In this section, we will analyze the potential effects of a hypothetical Titanic Event and its implications on the global economy. We will explore the factors that contribute to the resilience or vulnerability of different sectors and regions and discuss strategies for mitigating the economic impact of future Titanic Events. This analysis will help stakeholders in the financial industry, governments, and other organizations to better prepare for and respond to such events.

ASU RESEARCH EXPENDITURES
Department of Defense Contracts (in millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>$28.1</td>
</tr>
<tr>
<td>2018</td>
<td>$25.7</td>
</tr>
<tr>
<td>2019</td>
<td>$34.8</td>
</tr>
<tr>
<td>2020</td>
<td>$45.4</td>
</tr>
<tr>
<td>2021</td>
<td>$38.8</td>
</tr>
</tbody>
</table>
Northern Arizona University

IN SERVICE TO VETERANS

NAU’s expanded Veteran Success Center (VSC) welcomes hundreds of students each year and assists with a wide range of support services. The center is a place for military-affiliated students to connect with each other. This includes all those who have served or are currently serving in the U.S. military as well as dependents utilizing VA educational benefits transferred from their parent or spouse. The center serves military connected students from community campuses all around the state of Arizona and online students. Center staff provide both direct service and referrals to a number of campus and community resources focused on transitioning to NAU, retention efforts, academic success initiatives, career development, and care related to mental and physical well-being. The center helps military connected students make the transition from military life to higher education.

MILITARY CONNECTED AND THEIR DEPENDENTS

OUTREACH

- **Proud Supporter of Military** – NAU proudly supports veterans, active-duty military personnel and their families in pursuing an education.
- **Top School for Veterans** – NAU is a top school for military veterans in Arizona and is in the top third of colleges and universities nationally. The number of NAU students receiving veteran education benefits increases each year.
- **GI Bill®** – The GI Bill® offers financial assistance to active service members, veterans and their families in pursuit of educational or training goals.
- **Veteran Success Center** – The Veteran Success Center assists with a wide range of support services and offers a place for military affiliated students to connect with each other.
- **Franke Veteran Student Center** – The W. A. Franke College of Business Veteran Student Center is dedicated to the recruitment, transition, retention and career development of veterans who attend the business school.
- **Partner with Canine Companions®** – This service dog organization helps NAU raise awareness of service dog opportunities for veterans.

BENEFITS

- **Department of Defense Tuition Assistance Program Tuition Matching** – NAU is the first public university in the state to offer a tuition rate that matches the Department of Defense Tuition Assistance Program funding for active duty military, reserve forces and National Guard personnel who qualify.
- **Veteran Education Benefits** – NAU offers a variety of benefits for those who served our country, including tuition deferment, the W.A.V.E program and Yellow Ribbon Program.
- **Tuition Deferment** – Chapter 33 benefits automatically defer tuition after class certification is fully processed. Veterans may self-enroll in the free NAU Veterans Tuition Payment Plan if using any other benefit besides Chapter 33.
- **W.A.V.E Program** – The U.S. Department of Veterans Affairs requires veterans receiving Montgomery GI Bill benefits (Chapters 1606, 1607 or 30) to verify attendance each month to receive timely benefit payments.
- **Yellow Ribbon Program** – NAU offers the U.S Department of Veteran Affairs Yellow Ribbon Program to an unlimited number of eligible students. The Yellow Ribbon Program allows the university and the V.A. to make matching contributions toward education expenses. The Yellow Ribbon Program also allows for payment of additional costs beyond what the Post-9/11 GI Bill® pays.
- **Scholarships** – NAU offers financial support programs, including:
  - My Career Advancement Account Scholarship
  - Council of College and Military Educators (CCME)
- **Grants** – NAU provides grants for veterans needing assistance while they pursue a degree in the STEM field.
RESERVE OFFICERS’ TRAINING CORPS

NAU’s ROTC program is a top ranked program in the region and throughout the nation. NAU’s Army ROTC program produces 30 commissioned officers annually. Half are STEM majors with an average GPA of 3.38.

In 2008, the Army ROTC Lumberjack Battalion received the Golden Bear Award for being named the top Army ROTC unit in the Southwest Region, which includes 21 Army ROTC units from Arizona, Utah, Nevada and California. In 2009, the Lumberjack Battalion was realigned with the 5th BDE. This BDE consists of schools from Arizona, Utah, New Mexico, Colorado, Wyoming, Oklahoma, Arkansas and Texas.

The Lumberjack Battalion at NAU has grown significantly in the past few years, now numbering over 105 cadets. Since 2007, the top cadet in the state of Arizona has come from the Lumberjack Battalion and has been awarded the coveted AUSA Task Force Smith Award.

EDUCATIONAL OFFERINGS AND OPPORTUNITIES

MILITARY COURSEWORK

NAU offers military specific coursework to support students through the unique challenges they face in higher education. Three courses have been developed within the university’s strict liberal studies requirements. These course can be applied to all degrees and are eligible to be funded by the GI Bill®.

The courses include Veteran Integration into Higher Education – Cultural Understanding; and Military-connected Personal Finance – Social and Political Worlds.

LAW ENFORCEMENT DEGREES

- Bachelor of Justice Studies
- Bachelor of Criminology and Criminal Justice
- Bachelor of Indian Country Criminal Justice
- Bachelor of Intelligence Studies
- Master of Transnational Crime and Justice
- Master of Applied Criminology

LAW ENFORCEMENT MINORS AND CERTIFICATES

- Criminology and Criminal Justice, minor
- Justice Studies, minor
- Criminal Justice Administration, certificate

DEPARTMENT OF DEFENSE FUNDED AND RELATED RESEARCH

In 2021, Northern Arizona University had $8.7 million in contracts with the U.S. Department of Defense. Grants range from research about cybersecurity to forest climate and more. Department of Defense funded efforts at the university include:

- Comprehensive development of ternary computing technology modules for the implementation of secure computational diversity.
- Small molecule screening to identify high-affinity interactions for the development of prototype Bartonella hensalae and Chikungunya virus biothreat detectors based upon small molecule moieties.
• Assay development and implementation to identify vaccine targets and evaluate complex vaccines for bacterial infections.
• Reducing the threat in Iraq of brucella by phylogeography of biosurveillance in the detection of Brucella in humans, livestock and animal products in Iraq.
• Biosurveillance of Brucellosis in Azerbaijan, Georgia and Turkey.
• Resiliency and Vulnerability of Boreal Forest Habitat to the Interaction of Climate and Fire Disturbance across DoD Lands of Interior Alaska.
• Field Forward Diagnostics in a Resource Limited Endemic Setting: Human Plague in Madagascar.
• Psychological Health and Resilience through Values Affirmation: Effectiveness of a Brief Intervention among Military Personnel.
• Discovery of Bacteriophages that Mediate Antimicrobial Susceptibility Trough Efflux Pump Dependent Infection.
• Advanced Ternary Addressable Public Key (TAPKI) methods to secure computational diversity.
• Demonstration of metabarcoding for monitoring bird species habitat quality on DoD installations.
• Dynamic Data-Driven Decision Making, Planning, and Communications in Autonomous Unmanned Aerial Vehicle Networks for Disaster Management.
• Modeling the Mechanics of Multiaxial Ratcheting.
• Early Supply Chain Emergency Warning System (ESChEWS).
• Development of CZ-02s (AIIPS), a New Class of Antibacterial for the Treatment of Drug-Resistant Bacterial Infections, including those caused by Multidrug-Resistant Yersinia pestis, Francisella tulareosis and Burkholderia mallei.
• Virtual Institutes for Cyber and Electromagnetic Spectrum Research and Employ (VICEROY)
• Finding patterns within the noise: Modelling baleen whale response to multiple stressors through replicate physiological sampling of gray whales.
• Terrestrial Invertebrate Survey Specimen Identification and Consultation for U.S. Navy Support Facility.
• A Collaborative Interdisciplinary Approach to an Endemic Zoonotic Disease in Cameroon: Enhancing Capabilities to Prevent, Detect, and Respond to Brucellosis.
• Mexican Spotted Owl Surveys At and Adjacent to the U.S. Naval Observatory, Flagstaff, Arizona.
UNIVERSITY OF ARIZONA

IN SERVICE TO VETERANS

The University of Arizona provides extensive services, resources and educational opportunities for military connected students. UArizona is ranked as a Top 20 Best for Vets Colleges, No. 1 in the West by Military Times and Best College for Veterans by U.S. News & World Report.

MILITARY CONNECTED AND THEIR DEPENDENTS

OUTREACH

UArizona Veteran Alliance – The UArizona Veteran Alliance (UA Vet Ally) program trains campus-wide advocates to create a supportive campus culture for military connected students. UA Vet Allies are able to listen and recognize the capabilities of military connected students and connect them with various campus resources.

Academic Boot Camp – The intensive Warrior-Scholar Project helps enlisted veterans get ready for the transition from the military to a four-year college.

UAHS VETS Military Connected Student Center – At VETS Centers, students can access a suite of resources by interacting with student staff. All of the resources and services are provided to students at no charge. Services provided include:

- Tutoring during the regular semester
- Printing and computer use
- Career assistance for graduating seniors
- Monthly visits from Tucson VA enrollment staff
- Resource fairs
- Quiet Room reservation
- Peer Advocacy Liaisons (PALS) support
- Donated textbook library
- Locker storage
- Counseling (not linked to the VA)
- Fresh coffee daily
- Food throughout the semester

Peer Advocacy Liaisons (PALS) – Peer Advocacy Liaisons (PALS) are here to serve as the point of contact on difficult issues related to being a student at UArizona and being a veteran in transition. They will help their peers navigate their transition from military service to academia. PALS will facilitate support groups and will support their peers to advocate for themselves. Examples of assistance include:

- Transition Assistance – As veterans separate from the military, they’ll be presented with a myriad of new paperwork, processes and situations. The university can also help in the transition to UArizona!
- VA Healthcare – PALS will help with connections to Southern Arizona Veterans Health Care System (SAVAHS), so veterans can get enrolled and get the care they’ve earned and deserve!
- Navigating Benefits – The university will help get GI Bill® paperwork started, and make sure connections are made with the UArizona Military Connected Benefits and Certifications office.
- Counseling Services – There are a lot of options for veterans who need counseling. PALS will connect veterans to counseling services in Tucson, from the Tucson Vet Center to VETS’ own in-house counselor.
- Goal Setting – What classes are needed to ensure success? Have you met your advisor? What happens as you graduate and after? PALS will help with the answers by helping you to identify and reach each your goals as a student.
• Networking – PALS provides a multitude of opportunities to make connections among peers to find academic and professional success.

• Social Aspects – PALS will host social meetings throughout the school year where veterans can make friends and have fun outside the stresses of campus. These meetings usually take place OFF campus.

VA Work Study Program – If you’re a full-time or 3/4-time student in a college degree, vocational or professional program, you can “earn while you learn” with a VA work-study allowance. You’ll earn an hourly wage equal to the federal minimum wage or state minimum wage, whichever is greater.

Disability Resource Center and Counseling and Psych Services – Military connected students in need of support can discuss the transition to college with access consultants from the Disability Resource Center. At Counseling & Psych Services, students can speak with licensed mental health professionals.

50 Strong – VETS is proud to partner with 50-Strong to provide career preparedness, resume advice and even a link to the DoD’s Skill Bridge program. For more information, visit their website.

Student Veteran Association – As you approach graduation, how do you find a job? Which companies are known for being veteran friendly? How do you put all of your military experience into a resume? There are likely many questions floating around in your head as you start your senior year. SVA seeks to empower you with the skills and knowledge needed to find a job you can be proud of with a company that values both you and your service to this nation.

UArizona-Military Partnerships Focus on Space Security Language Instruction and More – UArizona has a long history of partnering with the United States military. The 1885 Morrill Act, which established land grant universities, required military training as part of the curriculum, and from 1896 to 1969, a two-year military training course was required for all male UArizona students. During World War II, 11,000 service members received training at UArizona.

Veterans Education and Transition Services – Veterans Education and Transition Services seeks to provide a comprehensive set of services to ensure students transition successfully to the university environment, graduate and obtain meaningful employment.

Center of Academic Excellence in Cyber Operations National Security Agency – The UArizona's program in cyber operations, based at its Sierra Vista campus and taught both traditionally and online, has received official designation as a Center of Academic Excellence in Cyber Operations, or CAE-CO, by the National Security Agency, an arm of the U.S. Department of Defense.

The New UA Language Training Center – UArizona, which has a reputation for research and instruction in second language acquisition and teaching, recently became home to one of only nine Department of Defense Language Training Centers in the country.

Operation Hat Tricks Donations to Fisher House – UArizona partners with the national nonprofit Operation Hat Trick to support military service members and veterans through the sale of military themed merchandise.

Numerous DM50 members and Honorary Commanders – DM50 is a nonprofit, volunteer group that advocates for Davis-Monthan Air Force Base and its airmen. DM50 has raised more than $1.5 million for initiatives to improve the quality of life for military personnel at Davis-Monthan, protect the future of the base and expand its vital missions in Southern Arizona.

**BENEFITS**

The Military Connected Benefits & Certifications Office at UArizona works in partnership with the Veterans Administration to assist military connected students with GI Bill® Education Benefits and Tuition Assistance for active-duty, guard and reserve service members.
RESERVE OFFICERS’ TRAINING CORPS (ROTC)
UArizona has ROTC programs for Air Force, Army and Navy. ROTC at UArizona continues to set the standard within the region, and embraces the proud tradition of military leadership and instruction. The Wildcat Battalion is comprised of roughly 110 contracted and non-contracted soldiers who have the option to commission into three components of service: active duty, National Guard and Army Reserve. The UArizona Army ROTC program commissions roughly 25 cadets a year into the world’s greatest Army.

EDUCATIONAL OFFERINGS AND OPPORTUNITIES

MILITARY DEGREES
- Bachelor of Organizational Leadership
- Bachelor of Applied Computing
- Bachelor of Intelligence and Information Operations
- Master of International Security

MILITARY MINORS AND CERTIFICATES
- Military Families Graduate Certificate
- Military Families Undergraduate Certificate
- Information Warfare Certificate
- International Security Studies Certificate

MILITARY CONTINUING & PROFESSIONAL EDUCATION
- Army Credentialing Assistance Programs
  - Certified Information Systems Security Professional (CISSP) Exam Prep
  - CompTIA Security+ Exam Prep
  - Human Resources (SHRM) Certification Exam Prep
  - Project Management Professional (PMP) Exam Prep
- MyCAA for Military Spouses
  - Certified Electronic Health Records Specialist Career Prep
  - Certified Information Systems Security Professional (CISSP) Exam Prep
  - CompTIA Security+ Exam Prep
  - Digital Marketing Certificate Program
  - Human Resources (SHRM) Certification Exam Prep
  - Medical Billing and Coding Career Prep
  - Paralegal Certificate
  - Project Management Professional (PMP) Exam Prep
- Air Force COOL
  - Certified Information Systems Security Professional (CISSP) Exam Prep
  - Fundamentals of Engineering (FE) Exam Preparation
  - Human Resources (SHRM) Certification Exam Prep
  - Project Management Professional (PMP) Exam Prep

LAW ENFORCEMENT DEGREES
- Bachelor of Government and Public Service
- Bachelor of Administration of Justice
- Master of Cybersecurity

LAW ENFORCEMENT MINORS AND CERTIFICATES
- Cyber Defense Certificate
- Cybersecurity Certificate
DEPARTMENT OF DEFENSE FUNDED AND RELATED RESEARCH

In 2021, UArizona had $30.8 million in U.S. Department of Defense funded research. Grants include research in hypersonics, data/computing, quantum networking, energy, space and more. Defense related research and DoD funded efforts at the university include:

**Hypersonics**
- Nationally unique combination of wind tunnels up to Mach 5 supporting industry, government and academic research.
- $10 million investment in high-speed wind tunnel infrastructure by DoD and the state of Arizona.
- Unique capabilities in high temperature alloys, ceramics, manufacturing and testing.
- $6.5 million in funding from the University Consortium for Applied Hypersonics.
- Newly established Arizona Research Center for Hypersonics.

**Directed Energy**
- Center for Directed Energy for test, evaluation and workforce development for engineers trained in laser weapons.
- Integration of hypersonics and directed energy and materials testing.
- Use of existing high energy lasers at one micron and fabrication of new high energy lasers at two micron.
- USPL (ultrashort pulse lasers) as illuminators.
- High power counter-measure lasers for deflecting missiles.

**Future of Data/Computing**
- New Institute for the Future of Data and Computing, broad scope focus for wide range of existing activities.
- Build infrastructure needed for research, including workforce, technology capabilities and policies.
- Application inspired, fundamental research in the foundations of advanced computing and information.
- Sciences focused on exploration supporting virtuous cycles.
- Opportunities: Immersive (human in the loop) technologies, information assurance, information protection.

**Quantum Networking**
- The Center for Quantum Networks is developing an error-corrected quantum network that can simultaneously connect multiple user groups at a rate of 10 Mqubits/sec over 100 km.
- Networked quantum sensors that can detect fine differences in gravity waves and potentially permit.
- Observations underground or through the ocean, synchronized atomic clocks and GPS-independent navigation.
- Quantum methodology enables unconditional future-proof security of transmissions.
- Quantum-secure LPD/LPI signal preventing detection of transmission by the quantum-enabled adversary.

**Photonic Integration**
- Photonic Integer Circuits (PICs) for persistent battlefield communication.
- Leverages advances in Photonic Integrated Circuits (PICs).
• SWAPc advantages and highly mobile.
• Persistent PNT capability in GPS-Denied Environments.

Cyber
• Recognized in 2021 as the No. 1 online undergraduate degree by Academic Impressions.
• One of only 24 NSA Centers of Academic Excellence in Cyber Operations (CAE-CO).
• Selected by DIA and Office of the Director of National Intelligence as their No. 1 Intelligence Center of Academic Excellence program.
• Founding University Champion for the Department of State’s FAIT Fellowship program.

Space Domain Awareness
• Air Force Research Laboratory’s Space Vehicles Directorate awarded $7.5 million to UArizona researchers for cislunar object tracking and identification project.
• Space Domain Awareness Lab positively identified the presumed SpaceX Falcon 9 rocket booster that hit the moon March 4 was actually a Chinese booster from a rocket launch in 2014.
• Provided observations to NASA’s JPL to pinpoint the location of the booster’s impact on the moon to be imaged and verified by NASA’s Lunar Reconnaissance Orbiter.
• Experts in visible wavelength spectral data (0.35-1.0 μm) identification of space objects.
• Stood up Space Safety, Security, and Sustainability (S4) Center to support AFRL SVD and USSF requirements in Cis-Lunar.
• Telescopic and laboratory spectral characterization of space materials.
• Cyber infrastructure for big data.

UArizona Research Expenditures
Department of Defense Contracts (in millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Expenditures (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>$22.6</td>
</tr>
<tr>
<td>2018</td>
<td>$25</td>
</tr>
<tr>
<td>2019</td>
<td>$31.1</td>
</tr>
<tr>
<td>2020</td>
<td>$29.2</td>
</tr>
<tr>
<td>2021</td>
<td>$30.8</td>
</tr>
</tbody>
</table>