

USAFA OFFICE OF RESEARCH

The Office of Research strives to build a positive relationship with K-12 students and educators to encourage recruitment/growth of future cadets and develop skills implicit to national security and the nation's competitive edge.

ON-SITE SERVICES

USAFA Tours

*Other tours available upon request.

Aeronautics Research Center

This lab offers a 45-60 minute tour of 7 wind tunnels, a variety of jet engines, the machine shop, cadet workshop and aircraft design classroom. It is best suited for middle school to adult attendees.

AF CyberWorx

Participants gain understanding of a human-centered methods approach to design thinking as it pertains to Air Force cyber challenges. This tour is best suited for high school attendees.

CAStLE Research Center

This lab provides a visual tour of how Newtonian physics are applied to the design, fabrication and facility of aircraft. Shops included in the tour are wood, metal, fabrication and automotive. This lab also conducts corrosion and metal properties research. Distinguished cadet capstone projects are displayed. This visit is appropriate for middle and high school attendees.

Chemistry Research Center

Elementary and middle school attendees are treated to a Chemistry Magic Show and a hands-on lab activity. High School students receive a 30 minute tour of the Chemistry Labs. The research team focuses on preparing functionalized polymer and hybrid polymer composites directed toward developing next-generation, high performance materials to meet operational Air Force and Department of Defense needs. Attendees of all ages will enjoy this tour.

Computer Science Research Center

After hearing about cadet cyber warfare studies using a city model called "Cyber-city," students interact with virtual and augmented reality goggles depicting the Academy's ten meter diving board, games, and other interesting locations.

Electrical & Computer Engineering Research Center

This visual tour offers a glimpse into a robot maze used in cadet competitions, the MARVL lab where cadets built R2D2 type robots, a virtual reality zone and the neuro-wheelchair operated by transmitter goggles. A separate tour offers insight into the effectiveness of AFA solar panels, a look at 3D printers and interaction with 20 watt hand generators and squishy circuits. Middle and high school attendees are welcome.



Human Performance Lab

The Human Performance Laboratory applies sports science principles to improve Academy athletic teams and individual cadet performance. It also provides subject matter expertise on the Air Force Fitness Program and human performance offering scientific data through research and exercise physiology principles. The AFA Human Performance Lab is one of the top exercise physiology centers in the United States. Upper elementary to adult attendees would enjoy this tour.

Remotely Piloted Aircraft Research Center

This tour offers a glimpse at how cadets learn to program unmanned aircraft and see the inner workings of the operations center. Depending on the date and time, attendees might be able to watch cadets working with drones at Stillman Field.

Space Systems Research Center

This tour allows participants to view FalconSAT satellites and hear a brief history of the program. Other sections of the tour include: the FalconSAT operations center, the machine shop where models and structures are created and the clean room where spacecraft are assembled. A hybrid rocket demo is possible if time and personnel permits. The tour is appropriate for upper elementary to adult attendees.

The War Fighter Effectiveness Research Center (WERC)

This research arm of the Behavioral Sciences and Leadership Department is dedicated to research that enhances warfighter effectiveness. Current research includes: human-robot interaction, trust in automation, concussion research, respect for human dignity and evidence-based leadership. Attendees have the opportunity to interact with virtual reality goggles, Baxter Robot and sensation and perception demo carts.

USAFA Planetarium

School group visits are Tuesdays and Thursdays at 9:30AM. Teachers may choose from a variety of 20-45 minute videos. There is no charge.

Shows include:

Dream Big – exposes students to a variety of engineering fields

Humpback Whales – depicts migration, communication and breaching patterns of these magnificent creatures

IBEX – Search for the Edge of the Solar System – investigates the boundary between our solar system and the rest of the galaxy

Flight Adventures – describes the history of aeronautics and the 4 forces of flight

Robot Explorers – pays tribute to space probes and the discoveries made using them

Experience the Aurora – shares the science behind the Aurora Borealis

Two Small Pieces of Glass – puts you in the middle of a star party

OFF-SITE SERVICES

STEM Presentations / STEM Fridays

When available, Air Force Academy staff and faculty travel to schools and various organizational meetings to present interactive and engaging STEM presentations. The STEM Coordinator will conduct free, hands-on science, engineering or robotics lessons for elementary classrooms on Fridays.

Support for local STEM Events

Cadets are permitted to miss one class per semester so daytime event availability is limited. Events after 4:00PM or on Saturdays are easier to accommodate.

USAFA Points of Contact

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For additional information or to request STEM support, contact:

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USAFA K-12 STEM Outreach Program

The mission of the United States Air Force Academy K-12 STEM Outreach program is to offer a variety of programs and services that effectively engage, inspire and attract the next generation of STEM talent.