

Tours

Aeronautics Research Center

This lab offers a 30 minute visual tour of four different wind tunnels and an explanation of the cadet capstone design project. A 45 minute-1 hour tour allows attendees to view 7 wind tunnels, a variety of jet engines, the machine shop, cadet workshop and design classroom. This tour does not offer hands-on activities and the machines are not operational during tours. It is best suited for middle school, high school and adult audiences.

Air Force CyberWorx

After viewing a model city called "Cyber-city," 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 and adult groups.

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.

USAFA Observatory

Once a month, Dr. Della-Rose and cadets from the Astronomy Club host groups for 1 to 2 hours after the sun sets. Participants use telescopes to observe constellations.

Chemistry Research Center

Elementary and middle school attendees are treated to a Chemistry Magic Show and a hands-on lab activity. High School students and adults 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.

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 simulator room, 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.

Physics Research Center

This tour offers a PowerPoint presentation of the 5 physic research centers: Astronomical Research Group and Observatory (ARGO), Laser Optics Research Center (LORC), Center for Space Situational Awareness (CSSAR), Space Physics and Atmospheric Research Center (SPARC), and the Center for Physics Education Research (CPER). If time permits, attendees are invited to view the labs.

interaction with 20 watt hand generators and squishy circuits.

Human Performance Lab

The Human Performance Laboratory (HPL) 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.

Computer Science Research Center

This visual tour offers a glimpse into the workings of a human-sized, man-machine interfaced BAXTER robot, a robot maze used in cadet competitions, the MARVEL lab where cadets build 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

Computer Science Demonstrations

Dr. Hadfield and cadets demonstrate the NAO robots. The robots are programmed to exercise, dance, tell stories, play games and control other robots. Audience members are chosen to interact with the robots.

meetings to present Chemistry Magic Shows, robotics demonstrations, Girls in the Middle events and informational talks. They are sometimes available to serve as judges at science and engineering fairs.

Lending Library

Individuals, organizations or groups may check out STEM related equipment for a 6 week period. Current items in the STEM Lending Library include Lego Mindstorms EV3 kits and portable spectrometers. Updates to the Lending Library will appear in the quarterly STEM Newsletter.

Cadet Clubs

Cadets can only miss one class per semester so daytime events are sparsely supported. Events after 4:00PM or on Saturdays are easier for cadets to accommodate. Cadet clubs supporting STEM outreach include the Physics Club that performs Physics is Phun Shows, Girls in the Middle events, the STEM Outreach Club and the Astronomy Club.

Academy Faculty

When available, Air Force Academy staff and faculty will travel to schools and various organizational

USAFA Point of Contact

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