

U.S. Air Force Academy: Historical and Contemporary Information Resources

FDLP Academy-May 6, 2021

Professor Bert Chapman

Government Information, History, and Political Science Librarian
Purdue University Libraries & School of Information Studies



Libraries and School
of Information Studies

U.S. Air Force Academy www.usafa.edu/



VIRTUAL TOUR

APPS

RADIO

PODCASTS

PARENTS

GRADUATES

PREP SCHOOL



APPLY TODAY

ACADEMICS

ADMISSIONS

NEWS

RESEARCH

CADET LIFE

MILITARY

ATHLETICS

ABOUT

CORONAVIRUS UPDATES: THE LATEST DEVELOPMENTS

LIFE AT A DIFFERENT

ALTITUDE

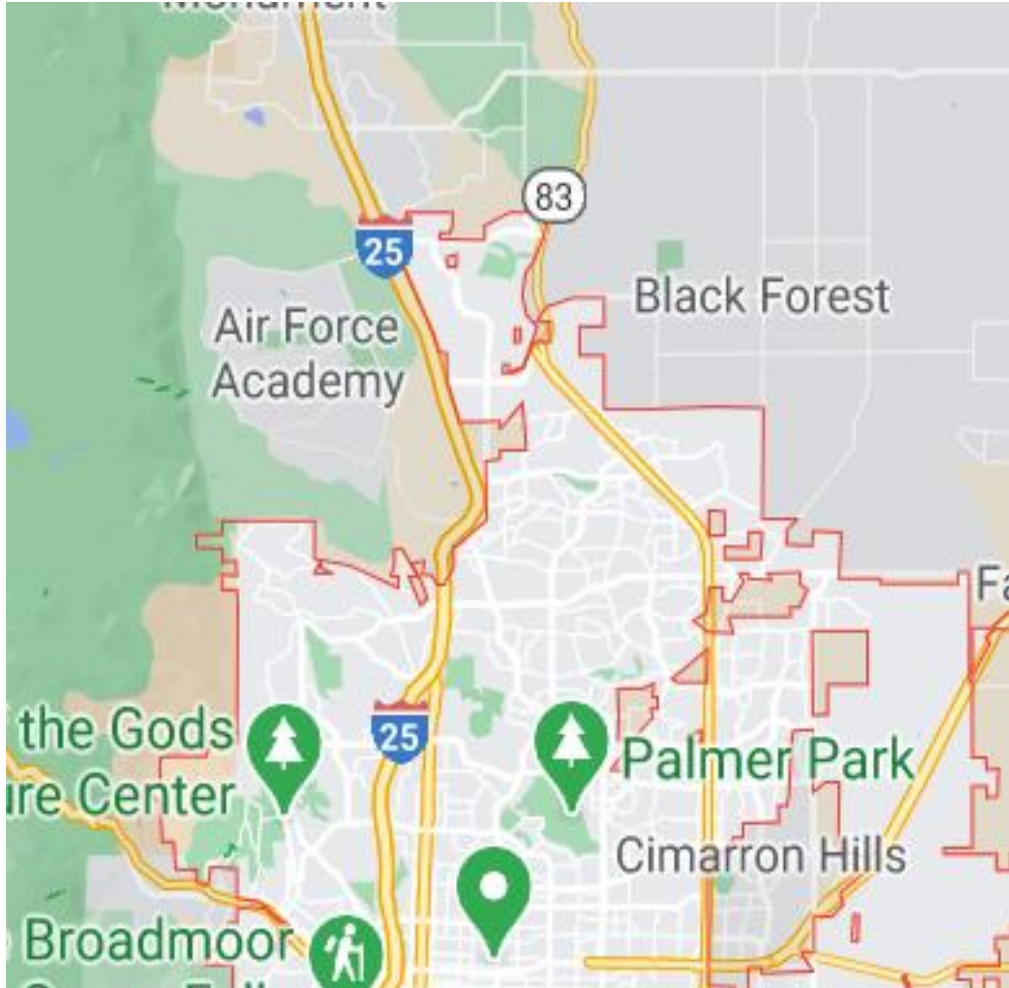
The U.S. Air Force Academy isn't just a premier higher-education establishment. It's an unparalleled academic and military institution that provides young men and women with rewarding opportunities to transform into the leaders of tomorrow. It's life at a different altitude.

Coronavirus Policies

- Public health emergency declared by installation commander March 23, 2020-extended to May 6, 2021.
- Cadets, faculty, and staff are on-campus and responsible for maintaining safety.
- Ca. 750 cadets, faculty, and staff randomly tested each week. Has proven effective in controlling virus spread. Pfizer vaccine is being used.
- 4,400 cadets use hybrid learning. Outdoor classes, larger rooms, and using smaller groups for labs and coursework is occurring.
- Gatherings limited to 50 people, masks and physical distancing required.
- Planetarium and athletic events closed to outside visitors.

Background Information-Located at Colorado Springs, CO

INTEGRITY, SERVICE, EXCELLENCE



The Academy's mission is to educate, train and inspire men and women to become officers of character motivated to lead the United States Air Force in service to our Nation. The Academy's Center for Character and Leadership Development (CCLD) is at the heart of accomplishing that mission. CCLD helps align academic, athletic and military efforts—for faculty and staff and across all four years of the Academy course of instruction—to develop leaders of character.

The U.S. Air Force Academy defines character as: "One's moral compass; the sum of those qualities of moral excellence which move a person to do the right thing despite pressures to the contrary."

Cadets Post-Graduation Commitment-Eligibility Requirements

- Commissioned as 2nd Lieutenants in Air Force upon graduation.
- All graduates serve at least five years on active duty and three years on inactive duty in the Air Force.
- Graduates completing pilot training have longer service commitment which is currently ten years.
- Must be nominated by congressional Representatives, Senators, and Vice-President. Maximum of five nominees for each member of Congress.
- Academy education currently valued at \$416,000 and paid for by taxpayers.

Selected USAFA Demographics

- 11% acceptance rate!
- 64.2% White
- 10.8% Hispanic
- 7.43% two or more races
- 6.55% Black/African American
- 0.511% Native Hawaiian/Pacific Islander
- 0.256% American Indian/Alaskan Native
- Bachelors Degrees: 2019
 - General Business Administration/Management 228
 - Behavioral Sciences 82
 - Aerospace, Aeronautical, & Astronautical Engineering 72
- Full Time Enrollment 100%
- Retention Rate 94%
- Source: Database/IO-Deloitte/Datawheel

<https://purlreports.usgpo.gov/30111stones-ref/>

U.S. Air Force Academy Leadership



Lieutenant General
Richard M. Clark
Superintendent

[Profile](#)



Colonel Otis C. Jones
Vice Superintendent
(719) 333-7731

[Profile](#)



Major General Michele
C. Edmondson
Commandant of Cadets
(719) 333-4390

[Profile](#)



Brigadier General Linell
A. Letendre
Dean of Faculty
(719) 333-4270

[Profile](#)

USAFA History



UNITED STATES AIR FORCE ACADEMY

- Process of establishing Academy began after 1947 establishment of U.S. Air Force as separate military branch.
- 580 proposed sites in 45 states considered including Alton, IL; Lake Geneva, WI; and Colorado Springs, CO.
- 1954 Congress authorizes Academy establishment with Colorado Springs as location.
- July 11, 1955-construction begins. First class of 306 men sworn in at temporary site of Denver's Lowry Air Force Base.
- Academy ready for occupancy in 1958.
- As early as 1965, an undergraduate astronautical engineering major is offered.
- Public Law 94-106 (1975) signed by President Ford admits women to service academies. 157 women join cadet wing June 28, 1976.

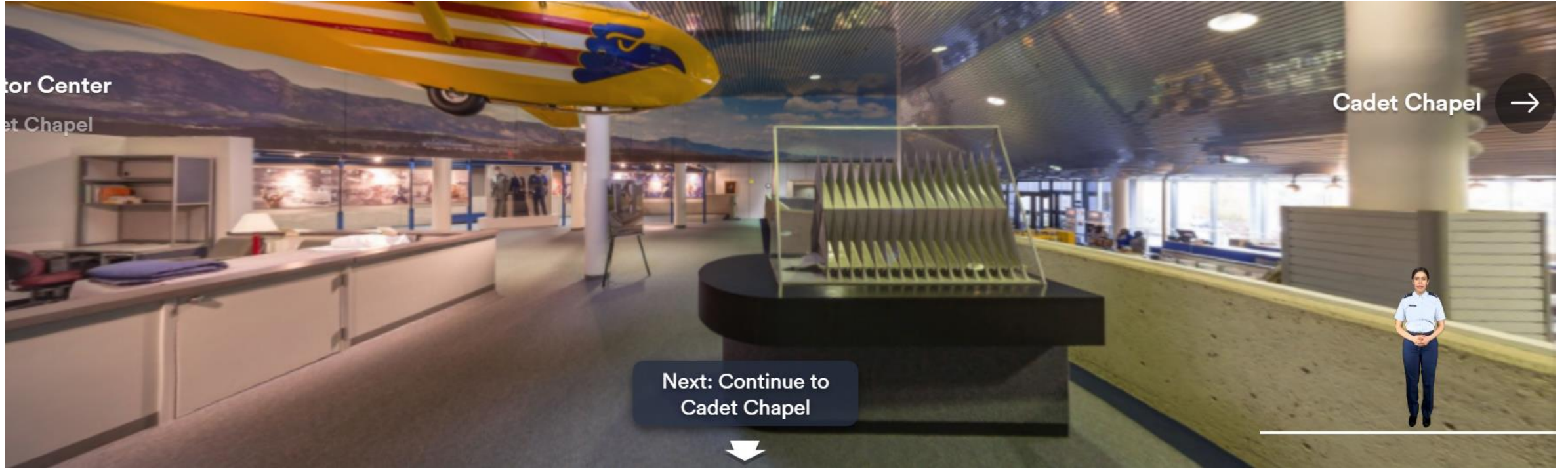
Sample USAFA Buildings



Air Force Academy Chapel, Classroom Buildings, and Cadets in Formation



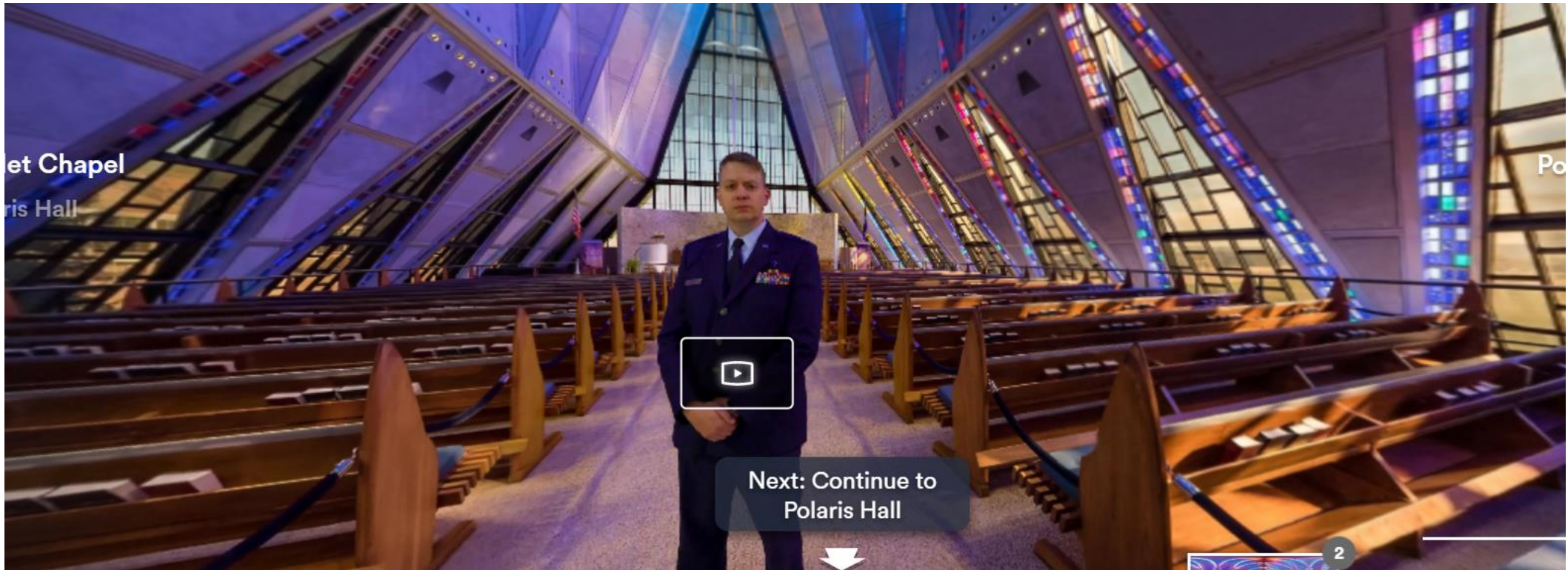
Barry Goldwater Visitor Center



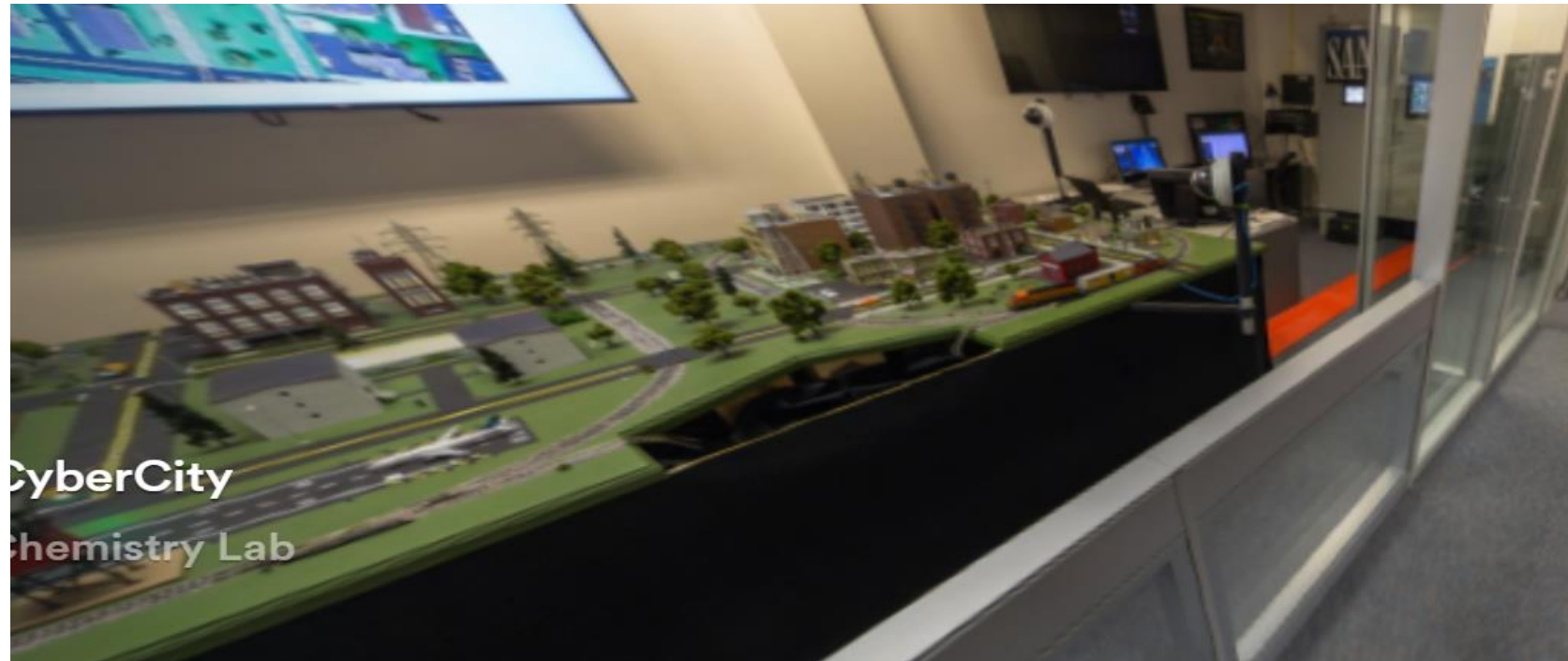
Cadet Battle Lab-Replicates global conflict scenarios for cadets to analyze, examine, and respond to.



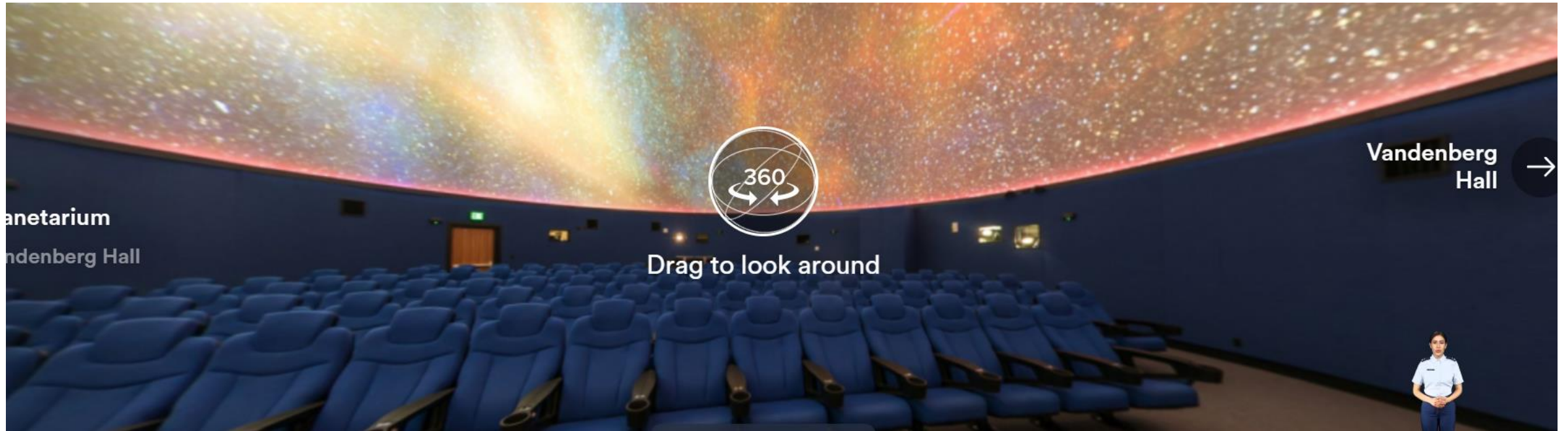
Cadet Chapel



Cyber City-Enables cadets to see how cyber attacks on cities impact critical infrastructures



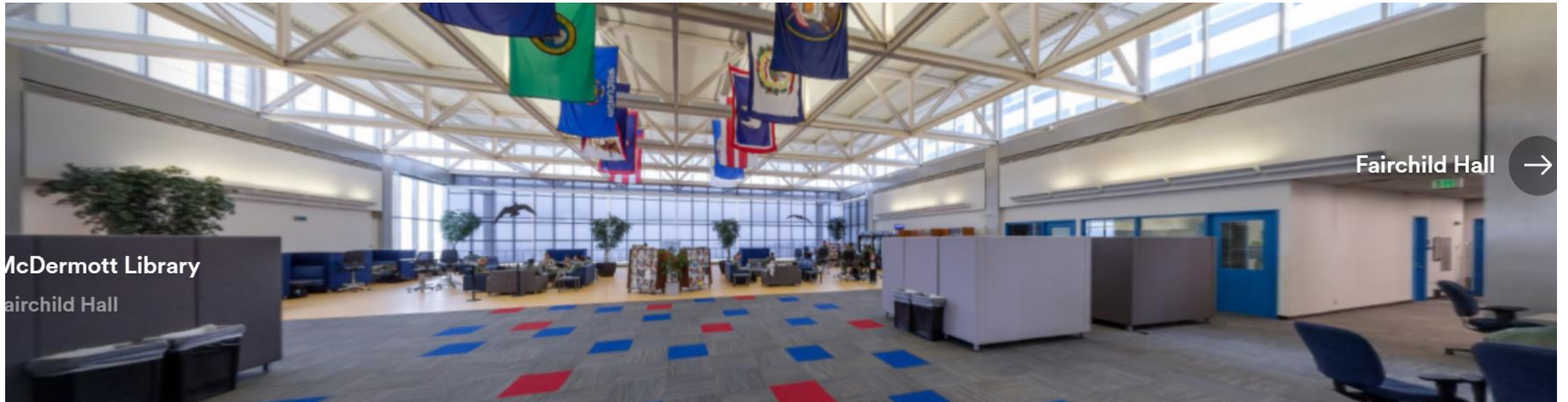
Planetarium



Vandenberg Hall Dormitory



McDermott Library-Depository 0067-A SuDoc D 305's



Prominent U.S. Air Force Academy Graduates

- Lance Siljan-1965-Only USAFA Congressional Medal of Honor Recipient-Shot down over North Vietnam-refused to divulge U.S. military secrets to captors.
- Heather Wilson-1982-U.S. Secretary of Air Force 2017-2019- Pictured on right.
- Jaspreet Singh-2018-Rhodes Scholar
- Eric Boe-1987-NASA Astronaut-39 total astronauts

- 6 Air Force Chiefs of Staff.



Core Curriculum-Institutional Outcomes

Outcome	First Year	Second Year	Third Year	Fourth Year
Critical Thinking	Econ 201	Law 220	Statistics Option	Majors Courses
Clear Communication	English 111	English 211		Majors Courses
Engineering	Comp Sci 110	Engr Mech 220	Aero Engr 315	Astro Engr 310 ECE 315
Principles of Science	Math 141 & Math 142 Chem 100	Physics 110 Chem 200, Physics 215, or Bio 215 (must take 2 of 3)		1 or 2 upper level STEM basket options in either Principles of Science or Engineering outcomes
Ethics & Respect	Beh Sci 110	Philos 310		
Human Conditions	For Lang 1 & 2	History 300		
National Security	Econ 201	Pol Sci 211	Soc Sci 311	
Warrior Ethos	Basic Cadet Tng History 100 Phys Ed	MSS 251 (4.5) Phys Ed	Phys Ed	Phys Ed
Leadership	Officership 100	Officership 200	Officership 300	Officership 400

CRITICAL THINKING

Upon graduation, our graduates will be required to identify and solve complex problems and effectively respond to situations they have not previously confronted. Acting responsibly in an ever-changing world of ill-defined problems requires critical thinking. At USAFA, critical thinking is defined as: *The process of self-aware, informed, and reflective reasoning for problem-solving and decision-making even in the absence of ideal conditions.* Cadets' critical thinking is developed in an intentional manner across the USAFA experience, promoting the use of appropriate critical thinking processes within a discipline or context..

USAFA GRADUATES WILL BE ABLE TO:¹

Self-aware Reasoning

Proficiency 1: Describe their own assumptions and contexts.

Proficiency 2: Explain how their own assumptions and contexts influence approaches to problem solving and decision making.

Informed Reasoning

Proficiency 3: Identify relevant information that is needed to solve a problem or make an effective decision.

Reflective Reasoning

Proficiency 4: Identify the assumptions and contexts that underlie an argument.

Proficiency 5: Evaluate the strength of an argument in support of an idea or interpretation.

APPLICATION OF ENGINEERING METHODS

Graduating cadets will recognize the engineering and technical challenges of the Air Force mission and the physical capabilities and limits within their assigned career fields and weapon systems. These officers need to not only be “operators,” but to become problem solvers that use engineering principles to devise enhanced capabilities essential to achieving and maintaining Air Force dominance in air, space, and cyberspace. Proficiencies are organized into two broad categories:

- Fundamental Domain Knowledge (i.e., knowledge of basic engineering principles across a variety of physical domains relevant to Air Force missions in air, space, and cyberspace, and the infrastructure within which they operate).
- Problem-Solving Process (i.e., using a top-down, systematic problem-solving method, shown via italicized steps, to address the kind of ill-defined problems they will encounter across domains in their USAF careers).

USAF GRADUATES WILL BE ABLE TO:

Fundamental Domain Knowledge

Proficiency 1: Describe and apply the principles governing the performance and capabilities of aerospace vehicles and cyber systems, and their possible effects.

Proficiency 2: Describe and apply principles governing the performance, capabilities, and defense of USAF’s critical communication, sensing, control, and physical infrastructure.

Problem-Solving Process

Proficiency 3: Formulate a *problem definition* from an incongruous set of requirements and constraints.

Proficiency 4: Create a viable *design* using robust and accepted engineering principles that considers

THE HUMAN CONDITION, CULTURES, AND SOCIETIES

Following their four-year course of study at the Air Force Academy, our graduates will be required to interact successfully with a wide range of individuals, to include those representing cultures and societies different from their own. To foster their success in these interactions, the Academy has created a three-phased approach to help cadets better understand the human condition, cultures, and societies. The first phase has to do with knowing oneself, where cadets are required to examine their own identity as human beings, citizens in a republic, and officer-statesmen in the United States Air Force. The second phase has to do with knowing others, where cadets begin to examine the identity of others, to include those from cultures and societies different from their own. Each of these first two phases is necessary to accomplish the third phase, which involves constructive engagement with others. Being able to prudently interact with individuals from different milieus resides at the heart of intercultural or cross-cultural competence and includes both domestic and international environments.

USAFA GRADUATES WILL BE ABLE TO¹:

Know Oneself

Proficiency 1: Describe key elements of their own identity as human beings, citizens of a republic, and officer-statesmen in the United States Air Force.

Proficiency 2: Explain historical, cultural, societal, and political developments that have shaped their own identity.

Proficiency 3: Distinguish between objective (universally true) and subjective (biased) elements of their own identity.

Proficiency 4: Defend or critique both objective and subjective elements of their own identity.

Know Others

Proficiency 5: Describe key elements of an identity different from one's own.

Proficiency 6: Explain historical, cultural, social, and political developments that have shaped

Majors

<u>Aeronautical Engineering</u>	<u>Economics</u>	<u>Meteorology</u>
<u>Astronautical Engineering</u>	<u>Electrical Engineering</u>	<u>Military & Strategic Studies</u>
<u>Behavioral Sciences</u>	<u>English & Fine Arts</u>	<u>Operations Research</u>
<u>Biology</u>	<u>Foreign Area Studies</u>	<u>Philosophy</u>
<u>Chemistry</u>	<u>Geospatial Science</u>	<u>Physics</u>
<u>Civil Engineering</u>	<u>History</u>	<u>Political Science</u>
<u>Computer Engineering</u>	<u>Legal Studies</u>	<u>Space Operations</u>
<u>Computer Science</u>	<u>Management</u>	<u>Systems Engineering</u>
<u>Cyber Science</u>	<u>Mathematics</u>	
<u>Data Science</u>	<u>Mechanical Engineering</u>	

AERONAUTICAL ENGINEERING

In the aeronautical engineering major, Cadets study aerodynamics, propulsion, flight mechanics, stability and control, aircraft structures, materials and experimental methods. As part of their senior year capstone, Cadets select either of the two-course design sequences, aircraft design or aircraft engine design. A design-build-fly approach enables cadets and professors to dive deep into the aeronautics disciplines while providing a hands on learning experience. Cadets will work on real-world design problems in our cutting-edge aeronautics laboratory, featuring several wind tunnels and jet engines. Many opportunities exist for cadets to participate in summer research at various universities and companies across the country. The rigors of the aeronautical engineering major prepare Cadets to pursue successful engineering and acquisition careers in the Air Force.

POTENTIAL JOB ASSIGNMENTS

Within the Air Force

- 11X – Pilot
- 11EX – Experimental Test Pilot
- 18X – RPA Pilot
- 21A/M – Aircraft/Munitions Maintenance
- 61A – Operations Research Scientist
- 62E – Acquisitions, Developmental Engineer
- 62EXF – Flight Test Engineer
- 63A – Acquisitions, Program Manager

Perform duties at

- Special Programs Office
- Test & Evaluation
- Research & Development
- USAFA Instructor

Outside the Air Force

- Aeronautical Engineer
- Aerospace Engineer
- Research Scientist
- Program Manager
- Program Engineer
- Aircraft Maintainer
- Pilot

DATA SCIENCE

Data Science focuses on planning for acquisition, management, analysis of, and inference from data. Government and industry alike are experiencing a massive growth in the volume, velocity, and variety of available data. As a result, a competitive advantage is available to those with Data Science knowledge, skills, and abilities. In fact, according to Forbes, Data Scientist was the #1 Best Job in America for four consecutive years from 2016-2019.

Military leaders with Data Science education and training will be critical to winning the wars of the future. The 2018 National Defense Strategy identified advanced computing, “big data” analytics, and artificial intelligence as new technologies that are changing the character of war. All of these technologies, and more, are incorporated into the Data Science major. Graduates of the Data Science program will be armed with the expertise necessary to transform data into actionable insight for faster and more effective decision making. As stated by the Chief of Staff of the Air Force, General David Goldfein, “It’s not enough to have more data than our adversaries. It’s how we understand the information and use it at the speed of relevance that

POTENTIAL JOB ASSIGNMENTS

Within the Air Force

- 14F – Information Operations
- 14N – Intelligence
- 15A – Operations Research Analyst
- 17D – Cyberspace Operations

Outside the Air Force

- Data Scientist
- Data Analyst
- Data Engineer
- Operations Analyst

SAMPLE COURSES

- Artificial Intelligence
- Applied Statistical Modeling
- Business Data Analytics
- Data Ethics

HISTORY

Understanding history is critical for an Air Force officer. The study of history involves critical thinking, analysis, writing, and oral presentations—all essential skills for any Air Force officer regardless of AFSC. In addition, studies of foreign cultures, evolution of technology, and military history directly relate to many “real world” duty situations. Most importantly, History provides a natural forum for discussion of great leaders and their decisions, past and present. Their lessons are invaluable to future Air Force officers. Consider: the current CSAF’s recommended reading list is almost all history and biography (i.e. personal history).

The Department of History offers four options of study, as well as the flexibility to build a customized study program. The four options are: American, General, International, and Military History.

Majoring in **history** prepares a student to:

- 1) Acquire knowledge and comprehend factually accurate historical data, with particular attention to understanding the evolution of leadership, the profession of arms, the warrior ethos, and the role of the military in American society and the world,
- 2) Analyze historical data and concepts critically; define problems and assess solutions; practice intellectual curiosity and agility; employ judgment; overcome ambiguity; think critically and independently,
- 3) Apply critical analysis of historical data and concepts to historical and modern contexts using professional standards of research, evidence evaluation, and synthesis; evaluate continuity and change; appreciate historical context in relation to causation; comprehend culture and its implications for the modern world; generate substantive, open-ended questions about the past and develop research strategies to answer them, and
- 4) Communicate the application of historical data and concepts effectively; read intelligently; create and effectively communicate historical arguments and narratives verbally and in writing. These enhanced communication skills serve as a foundational pillar for all successful Air Force officers.

Supplemental Information:

1. Airpower History Option: Either of the following two courses:

History 320 Winged Defense: The History of Airpower

History 322 Conquest of the New Frontier: The History of Space Power

2. Regional History Option: Any course from the following fulfills this requirement:

History 230 Bastille to Brexit: Introduction to Modern European History

History 240 Steppes, Stalin, and Sputnik: Introduction to Russia and Eurasia

History 250 Introduction to the History of the Middle East

History 260 Historia Pasada y Presente: Introduction to Modern Latin American History

History 270 Modern East Asian History

History 280 Africa South of the Sahara

History 290 Global Contact and Local Responses in South and Southeast Asia

Hum 430 The Holocaust

MILITARY & STRATEGIC STUDIES

A major in Military & Strategic Studies prepares you to lead and operate across the spectrum of conflict throughout the world. This program explores the uniquely demanding context of the military profession—morality and the human face of war, the future of the Air Force profession, comparative air forces, hybrid threats, societal and technical innovation, operational concepts, intelligence, and military strategies for joint, coalition, and interagency operations across diverse cultures.

The MSS major strengthens problem solving and decision making skills and directly prepares cadets to excel at the Air Force mission and beyond. MSS majors learn to think as strategists, framing the battle space, and evaluating theories, models and perspectives for the artful future application of military and strategic power.

During their third-class (or sophomore) year, cadets select a research topic in our research methods course. With the help of an advisor, they design what will become their senior thesis or final Cadet Battle Laboratory project. During their first-class (or senior) year, cadets author their capstone project with guidance from a faculty advisor and have an opportunity to publish their findings in a peer-reviewed journal, including our Airman-Scholar Journal.

MSS majors have a variety of summer research programs and internships available to them—cadets have worked at Arizona State University, the Air Force Special Operations School, the Naval Postgraduate School and White Sands Missile Range.

POTENTIAL JOB ASSIGNMENTS

Within the Air Force

- 11X – Pilot
- 11UX – Remotely Piloted Aircraft Pilot
- 12X – Combat Systems Officer
- 13BX – Air Battle Manager
- 13C1 – Special Tactics
- 13D1 – Combat Resuce
- 13L1 – Air Liaison Officer
- 31PX – Security Forces Officer
- 14NX – Intelligence Officer
- 13NX – Nuclear and Missile Operations Officer
- 17X – Cyberspace Operations Officer

Outside the Air Force

- Military Analyst
- Defense Contractor
- Security Contractor
- Department of Defense
- Strategy Manager
- Strategic Planning Director

SAMPLE COURSES

- Weapons, Warfare, and Mass Disruption
- Wargaming Airpower
- Special Operations in Eurasia
- Space as an Element of National Power
- Irregular Warfare in Africa and the Middle East

Space Operations

General Information

- Build and operate a satellite with real DoD missions
- Interdisciplinary coursework prepares cadets to lead in the growing and dynamic space domain
- Understand the threats we face in space and how we can protect U.S. interests
- Graduates well postured for rewarding post-Air Force careers in the space industry
- Numerous opportunities for hands-on experience

Research/Summer Research

- Each year the Astro Engr department sends several cadets to do summer research projects
 - Projects: Small Satellite Development, Satellite Tracking, Classified Programs, etc.
 - Organizations: Johnson Space Center, Kennedy Space Center, Air Force Space Command, MIT – Lincoln Labs, and commercial space industry partners

Space Operations Careers

- 13S: Space Operations
 - The USAFA Space Ops major is the best possible jumpstart to this exciting career field
- 14N: Intel
- Pilots
- Any operational AFSC
- Those that take additional math or engineering may be eligible for 62X: developmental engineer

Graduate School

- Space Operations is a STEM degree and qualifies graduates for graduate school opportunities through the Air Force Institute of Technology
- For increased graduate school opportunities, cadets are encouraged to take additional math (Calc III or Linear Algebra) courses as electives
- Graduate school opportunities are available every year, not just immediately following USAFA

Depth Option (pick 1)

Geo 482	Advanced Remote Sensing & Image Analysis
Physics 370	Upper Atmospheric and Geo-Space Physics
English 340	Technical Writing and Communicating
Mech Engr 330	Mechanics of Deformable Bodies
Aero 241	Thermodynamics
Math 243	Calculus III
Math 344	Applied Linear Algebra

Depth Option (pick 1)

Chem 325	Space Chemistry
Astro 351	Rocket Propulsion
Engr 341	Linear Systems Analysis and Design
Engr 342	Linear Control Systems Analysis and Design
Astro 335	Human Spaceflight*
Astro 422	Advanced Astrodynamics
*Astro 335 Human Spaceflight taught by former USAFA Astro Engr Major – Astronaut Gary Payton	

USAFA Research

RESEARCH OVERVIEW

ENHANCING CADET EDUCATION

Research is a critical component of the innovative spirit our cadets must foster when they graduate. Whether cadets are involved in laboratory research in one of our 27 Research Centers and Institutes, participate in a capstone research project, take part in the Cadet Summer Research Program, or present their research at a scientific conference, every single cadet now has the opportunity to participate in research during their four-year program.

Our future leaders must be prepared to make difficult decisions using reliable data, sound scientific principles, and innovative best practices. This is what the research program at the United States Air Force Academy provides. These skills will prepare cadets to be more adaptive, innovative, and successful leaders. Our Air and Space Forces will be better as a result.

To see information from the Office of Research see [here](#).

RESEARCH FACTS

27

Research Centers and
Institutes

450

cadets in Cadet Summer
Research Program (CSRP)

217

National and International
Research Agreements

300

PhDs

CSURF

**Colorado Springs
Undergraduate Research Forum**

2020

Book of USAFA Abstracts

Dean of the Faculty Letter	1
Department of Biology	2
Department of Civil and Environmental Engineering	8
Department of Computer and Cyber Sciences	9
Department of Electrical and Computer Engineering	15
Department of English and Fine Arts	21
Department of Foreign Languages and International Studies	25
Department of History	27
Department of Law	41
Department of Management	49

Utilizing Falcon Microbiomes to Aid Conservation

C1C Kaila L. Baca Faculty

Mentor: Erin A. Almand

Abstract:

The objective of this study was to survey and compare the gut microbiomes present in six falcon species maintained in the Falconry Program at the United States Air Force Academy. Samples of fecal material provided microbial DNA, which was amplified by PCR for 16S rDNA sequencing. Data will be analyzed for trends related to age, oral medication, and time in captivity in order to draw conclusions about their effect on raptor health. The falconry and conservation communities hope research in raptor gut microbes will improve the health of their birds, allowing better preservation of these apex predators and increasing the success rate of raptors as they are released back into their natural habitat.

**Field Demonstration of Colloidal Silica
Concrete Pavement
C2C Eric Long and C2C Clay Madson**

Abstract:

Upkeep of airfield pavements is of critical importance to Air Force civil engineers. Deteriorating airfield pavements create a severe risk to the Air Force's ability to execute aircraft missions safely and effectively. Due to the large dynamic loading on airfield pavements and the potential deterioration due to chemical and physical factors, both airfield pavement strength and durability are of utmost importance. A Colorado company, Intelligent Concrete, has developed a colloidal silica Portland cement concrete that can improve airfield pavement strength and durability. For this research project, cadets from the United States Air Force Academy will work with Intelligent Concrete to test their colloidal silica concrete. The team will create a mix design, then perform required laboratory tests including compressive strength of cylinders, flexural strength, resistance to rapid freezing and thawing, and abrasion resistance. Additionally, cadets will assist in placing multiple concrete slabs at the United States Air Force Academy's Field Engineering and Readiness Laboratory (FERL) site. These concrete slabs will include strain gauges and serve as a field demonstration of the colloidal silica concrete pavement. The FERL site will allow a controlled traffic environment that can include normal automobile traffic as well as heavy

Defending Democracy in Cyberspace

C1C Katherine Scheibner

Faculty Mentor: Lt Col Cynthia Brothers and Dr. Joel Coffman

Abstract:

On November 3rd, 2020, millions of Americans will head to their local polling stations to participate in the event most symbolic of our democracy: the presidential election. The presidential election demonstrates both great power and trust, empowering the American people to have a say in their governance, while demonstrating and reinforcing the people's faith that the government will protect, value, and honor their will. However, the presidential election also draws attention to a major issue facing democracies around the world. As many of the activities surrounding democratic elections, from campaign advertisement, to voter registration, to vote casting and

counting, increasingly take place electronically, states are struggling to safeguard the integrity of democratic elections from the growing number and diversity of cyberspace threats, both domestic and international. This research analyzes election security methods and concerns in

Mixed Reality Post-Flight Debrief

C1C Evan Gabrielsen, C1C Jacob Dimmit, C1C Helen Landwehr, C1C Joe Laniado

Abstract:

Taking advantage of emerging technologies in the virtual and augmented reality industry, this project utilizes Microsoft's Mixed Reality HoloLens platform to create a post-flight debriefing tool for U.S. military pilots. Wearing the HoloLens headset, the user is presented with a holographic projection of the terrain over which his or her sortie was flown. The pilot, along with anyone else wearing a headset, can then

replay the sortie at various speeds to analyze flight patterns, maneuvers, and enemy behaviors. The flight data for the review is pulled directly from the aircraft's flight recording system and will enable the program to accurately recreate pitch, roll, yaw, velocity, and location. Expanding on the idea of an inclusive debriefing mechanism, the MRPFD will enable reviewers located in remote locations to join in on the debrief and watch the sortie replayed along with the rest of the flight crew. This way, if a general in Washington DC wants to be able to see the outcome of a mission in Afghanistan he will be able to do so from the comfort of his office while wearing one

Exploring Robotics and Coding with Elementary School Children

C1C Maya Slavin, C1C Heath Hilton, C1C Dominic Buraglio, and C1C Rodney Adams

Faculty Mentors: Dr. Steve Hadfield, Marissa Hadfield, Becky Moulden, and Dr. Steve Fulton

Abstract:

Introducing children to robotics and computer programming early and with age-appropriate activities and challenges help them to become STEM (Science, Technology, Engineering, and Math) cognizant and can motivate further interest in STEM studies. This Software Engineering capstone effort developed and employed new capabilities for the NAO, Pepper, and Misty II robots for use with elementary school students. The developed capabilities included Reader's Theater robot participation, interactive games, coordinated dances, face and emotion recognition, student programming challenges, creation of a new Blockly-based programming environment, and remote control mechanisms using computers and tablet devices. Engagements with local elementary school students helped to refine the capabilities and gain insights into the students' impressions of the robotics and computer programming.

Chasing Antiquity

C2C Maria G Gasparovich

Abstract:

Most would not recognize Imperial Russia as a powerhouse of Hellenistic antiquity. Reaching its peak at the height of the 18th century, European nations scrambled in what is now referred to as an art war for great antiquities coming out of Italy and Greece. At a time where Russia was seen as technologically and culturally inferior to their contemporaries, Russian rulers used antiquity and later the production of art as a way to elevate their presence globally despite their internal setbacks. This paper will analyze the relationship between Moscow royalty and Russian politics from leaders such as Peter the Great and Catherine the Great, in an attempt to show the curiously deceptive relationship Russian reagents had with art. It is hard to say whether or not Russian aristocracy understood the lasting effects the art war between European nations would have on the lives of antiquities they collected. The geographical location of Russia compared to the origin of its Hellenistic and later artworks provides a lure of mystery and awe to visitors of the crown's first gallery, The Hermitage. The colossal amount of funding from the crown to bring in great works and establish education in the arts seems jarring to some when compared to the meager and poor lives of the majority of Russia at this time. At the same token, the artworks created out of the academy in St. Petersburg up until the end of the aristocracy of Russia never reflected the lives of the majority, which exemplifies the real attitudes of the crown during this period of Russian history. If art was to serve any purpose, it was to serve the crown and represent Russia as a global superpower. While the stereotype of Russian culture is bleak and uninviting, this narrative will explain the presence of works from da Vinci in the Winter Palace and how it shaped foreign diplomacy under Imperial Russian rule.

HYPERSONIC VEHICLE SIMULATION INSTITUTE (HSVI)

The Hypersonic Vehicle Simulation Institute (HVSI), sponsored by the Department of Defense High Performance Computing Modernization Program, is a national effort managed from the U.S. Air Force Academy. The vision of this effort is to bring together disparate DOD, DOE, NASA, academic and industry hypersonic research to address current shortcomings and advance the state-of-the-art in hypersonic vehicle simulation.

This program will enable academic and research institutions around the country to pursue advances in the ability to simulate the challenging aerothermodynamic and propulsion system phenomena—such as boundary layer transition, shock-shock and shock-boundary layer interactions, ablation, non-equilibrium chemistry and fluid/thermal/structural interactions—of hypersonic flight in order to accelerate technology development and transition into superior defense capabilities for the United States. Faculty and cadets associated with USAFA Research Centers may compete for funding through this effort in areas such as development and evaluation of hypersonic turbulence models, and creation of experimental data sets to enable verification and validation of new simulation capabilities.

Core Competencies

- Access to DOD supercomputing resources
- High-speed network access and local storage systems
- Partnerships with universities throughout the country for hypersonics research
- Supersonic/hypersonic experiment and computation
- Gas turbine and internal combustion research

Major Projects

- The first area for funding was chosen to be development of improved turbulence models for use in hypersonic flight simulations, including design and conduct of experiments that could provide validation data for these models.

Contact Us

Dr. Russ Cummings

719-333-9223

Russ.Cummings@usafa.edu

The Center for Aircraft Structural Life Extension (CAStLE) has a two-fold mission that supports aging structures and material degradation.

First, is to perform a wide range of research and technology development projects focused on delivering critical science and technology (S&T) products required to understand material degradation in structures and systems to various government, academic and commercial sponsors.

Second, but no less important, is to educate, train, inspire and otherwise prepare future generations that might become the core of the S&T community within the government and the general professional population.

CORE COMPETENCIES

- Structural testing and analysis (full-scale, component level and coupon)
- Material degradation (corrosion, cracking, etc.)
- Material processing, testing, and development
- Structural teardown analysis and root-cause analysis
- Educational outreach and curricula development
- Service loads and environment measurement and structural impact analysis

MAJOR PROJECTS

- USAF Aircraft Structural Integrity Program support; component & full-scale testing, teardown analysis, flight data acquisition, root-cause analysis, modeling, etc.
- Structural re-design, material substitution, prototyping, and validation testing
- Basic research in material degradation prevention and control, OSD sponsored Technical Corrosion Collaboration between university, DOD, and commercial research groups
- Multiple educational outreach programs: courses, videos, science center exhibits, student design challenges, college readiness programs, etc.

— The USAF Institute for National Security Studies (INSS) is located within the USAFA facility. From its inception in 1992, INSS has focused on strategic security, arms control, and strategic stability, advising the Air Force strategic policy and arms control communities on current and emerging issues of interest.

— The mission of INSS is to promote national security policy research for the Department of Defense within the military academic community, to foster the development of strategic perspective within the United States Armed Forces, and to support national security discourse through outreach and education.

— Air Force sponsorship to INSS comes from the HAF/A10, Deputy Chief of Staff for Strategic Deterrence and Nuclear Integration. Other core sponsors include the Defense Threat Reduction Agency (DTRA) and the broader Defense strategic research community.

STRUCTURAL CHANGE IN EUROPE: IMPLICATIONS FOR STRATEGIC STABILITY

Schuyler Foerster, CGST Solutions



EXECUTIVE SUMMARY

This study focuses on the rapidly changing strategic environment in Europe and seeks to identify the crucial variables that would define a 21st century model of strategic stability in Europe. It concludes, first, that strategic stability in Europe cannot be taken for granted and, second, it will require a comprehensive political, economic, social, diplomatic, and military strategy by the United States and its European Allies designed to achieve that end.

Traditional notions of strategic stability in Europe focused on the post-World War II bilateral, bloc-to-bloc structure defined by NATO and the Warsaw Pact. In its military dimension, the post-Cold War model still bears many of the hallmarks of that legacy. However, that narrower Cold War model presumed an over-arching geopolitical stability, which is now being challenged on at least four fronts:

- First, Russia has, especially within the past decade, pushed back, notably in Georgia and Ukraine, and asserted its right to a sphere of influence on which the West is seen to be encroaching. Putin's regime protests the incursion of "Western" institutions and values into the former Soviet space and views this as a direct threat to Russian national interests.
- Second, while Russian military capabilities have been enhanced in ways that are themselves potentially destabilizing, Russia's political operations have targeted—with alarming effectiveness—the resilience of Western democratic institutions.
- Third, the refugee crisis and broader debates about immigration in European societies have engendered a rise of nationalism and "nativism," which—on a societal level—runs counter to the integrationist ethos of the "European project" and—on a policy level—fuels the political appeal of efforts to regain national sovereignty at the expense of European cooperation, for which "Brexit" is but one example.
- Fourth, during the tenure of this research effort, the Trump Administration's equivocation regarding the United States' commitment to transatlantic security has raised serious doubts among European Allies about the durability of that commitment, which only exacerbates already centrifugal forces that challenge Alliance cohesion.

The Future Nuclear Arms Control Agenda and Its Potential Implications for the Air Force

Dr. Lewis A. Dunn



INSS OCCASIONAL PAPER
AUGUST 2015

70



TABLE OF CONTENTS

I. Introduction: The Future Nuclear Arms Control Agenda and Its Potential Implications for the Air Force	1
II. The Arms Control Context Today	1
The Obama Administration’s Arms Control Agenda.....	1
The Political Make-up of the Next U.S. Administration.....	3
U.S.-Russian Political-Economic-Military Confrontation.....	3
Heightened Need for Nuclear Assurance of U.S. Allies.....	3
The U.S.-China Strategic Relationship at a Turning Point.....	3
An Institutionalized Humanitarian Consequences Movement.....	4
The Lack of Consensus Agreement at the 2015 NPT Review Conference.....	4
Growing Risks from New and Aspiring Nuclear Weapon States.....	5
Continued Controversy over U.S. Nuclear Modernization.....	5
Domestic Partisan Political Divisions.....	5
III. The Future Nuclear Arms Control Agenda – Looking out to the 2020s	6
U.S.-Russia Nuclear Arms Control – From New START Implementation to Beyond New START....	6
U.S.-China Strategic Engagement – Toward Greater Confidence-Building, Reassurance, and Mutual Restraint?.....	11
The 2015 Nuclear Non-Proliferation Treaty Review Conference – What’s Next?.....	16
The P-5 Process in an Evolving Arms Control Future.....	20
National and International Verification Initiatives – Adapting Existing Capabilities, Breaking New Ground.....	22

WARRIORS. THINKERS. DOERS. IN AIR, SPACE, CYBER & BEYOND.

STRATEGY AND WARFARE CENTER (SWC)

Advancing Warfighter and Security Horizons...Through Research and Experiential Learning. USAFA's Strategy and Warfare Center develops agile warfighter-leaders for the U.S. Air and Space Forces through education and research of strategic and Joint All-Domain Operations concepts across all levels of war.

Overview The Department of Military and Strategic Studies (MSS) hosts the Strategy and Warfare Center (SWC) in order to provide a venue for experiential learning and cadet opportunities to engage in policy-relevant research with prominent faculty, think tanks, and agencies. The two pillars of the SWC are Research and Experiential Learning. Using a holistic approach to multidisciplinary problems, the SWC is staffed by interdisciplinary faculty from the MSS department. The SWC collaborates with research centers at the Academy and other external agencies to solve the Services' most pressing concerns.

Purpose First and foremost, SWC enriches cadet learning of military and strategic studies in preparation for their future roles as officers. The center is a learning enterprise where air, space, and cyber warfighters explore their profession,

Research Agenda


Our Lines of Effort


- Air and Space Power and the Joint Force in a Multi-Domain World
- Defense Institutional Effectiveness: Organizational and Cultural Adaptation
- Wargaming as Professional Development
- Great Power Competition: Strategic Foresight for the Future Fight


Author is a current USAFA cadet-Class of 2021



YOUR HAMBURGER AND NATIONAL SECURITY: VEGANISM, FOOD INSECURITY AND AMERICAN POWER

 Kerrilee Berger

 August 6, 2020

 [Leave a comment](#)

National security experts rarely consider the complexities of the American diet and food systems being tied to United States (U.S.) military readiness and effectiveness. Similarly missed is the link between food insecurity and environmental damage or climate change, which contribute to second- and third-order effects that could undermine U.S. national interests. Most views only [narrowly](#) focus on the end states of Western profligacy as threats to American national security. They especially note the [medical costs](#) of unhealthy military personnel and how [obesity levels](#) undermine military readiness. In some cases, they note relationships between food insecurity, insurgency, and political instability; however, policy prescriptions are more reactive to, than proscriptive of, the root causes fueling such issues.

Published in *Other the Horizons* journal- Author is USAFA Class of 2021

Deepening the Cut: How China's Genetic Warfare is Affecting International Relations

📅 May 26, 2020 💬 2 Comments

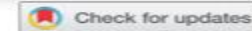
By: Kathryn Koonz

Estimated Reading Time: 13 minutes


Warfare is a rapidly changing front, evolving as technology grows. It has seen many advancements throughout history, ranging from ground combat, the use of long-range firearms, the introduction of airpower, and the development of long-range missiles. Most weapons, when designed and constructed, aim to limit daily human activity and infiltrates the state economic and governmental elements. The effect of a modern bioweapon containing a deadly disease is enough to eradicate security measures and disarm entire regions. However, what would happen if scientists were able to meld technology with naturally occurring biological agents and tweak a granular detail in a human's molecular composition to prevent disease?

Faculty Publication (Matissek is a USAFA faculty member) *Defence Studies* 2021

ARTICLE



Military advising and assistance in Somalia: fragmented interveners, fragmented Somali military forces

Colin D. Robinson and Jahara Matissek 

ABSTRACT

Southern Somalia has attracted substantial military aid and assistance for decades. As the state disintegrated in the late 1980s, clan dynamics became more critical, warlords emerged, and power bases shifted. Since 2008, the number of foreign military forces and advisors (including private military contractors) has substantially increased, as has the creation of numerous Somali security units. Such actions are symptomatic of broader trends concerning multilateral attempts to rebuild security forces in fractious states, where security assistance activities lack unity or common national interests. This has resulted in various Somali military forces with different loyalties (domestic and international), capabilities, and priorities in each Federal Member State (FMS). Uneven foreign military training programs in the context of survival politics fuels the fragmentation of various security forces. Locally appropriate military forces in each FMS potentially appear to be more effective at resisting Al-Shabaab. However, locally appropriate military forces contribute to further fragmentation, as security donors bypass the Federal Government of Somalia (FGS) to directly assist these localized forces. This accelerates devolution of military forces outside of FGS control. These assessments are based on fieldwork and interviews with security officials in East Africa.

ARTICLE HISTORY

Received 6 September 2020
Accepted 2 February 2021

According to the United Nations (UN), funding to support the African Union Mission in Somalia (AMISOM) will cease in December of 2021. Moreover, the Trump Administration removed all United States (US) military forces from Somalia in early

The U.S. Air Force Academy's Eisenhower Center for Space and Defense Studies is named in honor of Dwight Eisenhower, the first American president to establish a national policy shaping U.S. engagement in space for both military and peaceful purposes.

The Eisenhower Center provides cadets and faculty with unique opportunities to participate in research and policy discussions on the future of American security through first-hand contact with senior leaders and experts in the military, civilian government and private sector from the United States and major space-faring nations. Building on this foundation, the Eisenhower Center examines challenges to America's national security across other frontiers of technology development to include cyber security and developments in hypersonic delivery vehicles.

Through its journal, "Space and Defense," the Eisenhower Center promotes an ongoing discussion of space and security policy issues from a broad range of professional and intellectual perspectives among academic experts and defense policy makers.

CORE COMPETENCIES

- National security policy, with an emphasis on deterrence theory, particularly in the space and cyber domains
- Supports research and scholarship related to challenges to U.S. security
- Collaborates with the Office of the Secretary of Defense, U.S. Strategic Command, U.S. Northern Command, Air Force Space Command and Sandia National Laboratory

MAJOR PROJECTS

- The Eisenhower Center Cyber Forum, a one-day conference bringing together national experts from the cyber security and space communities for discussions of current policy issues relevant to cadets as future officers
- [59th Academy Assembly, focused on the future of America defense policy](#)

SPACE AND DEFENSE ARCHIVES

[Space and Defense Issue – Volume Twelve – Number One – Winter 2021](#)

[Space and Defense Issue – Volume Eleven – Number One – Spring 2019](#)

[Space and Defense Issue – Volume Ten – Number One – Spring 2017](#)

[Space and Defense Issue – Volume Nine – Number One – Spring 2016](#)

[Space and Defense Issue – Volume Eight – Number One – Spring 2015](#)

[Space and Defense Issue – Volume Seven – Number One – Winter 2014](#)

[Space and Defense Issue – Volume Six – Number One – Fall 2012](#)

[Space and Defense Issue – Volume Five – Number One – Summer 2011](#)

[Space and Defense Issue – Volume Four – Number Two – Summer 2010](#)

SPACE & DEFENSE

Volume Twelve

Number One

Winter 2021

Successful Deterrence in the 21st Century
Eaker Lecture: Gen John E. Hyten

Duffer's Drift and Space Operations
Roger Wortman

Deterrence in Cyberspace
Abderrahmane Sokri

Essay

Cadet Voice

Artificial Intelligence and Stability in Nuclear Crises

Marshall D. Foster

The following USAFA cadet independent study, with the exception of minor grammatical corrections, is produced as presented at the winter conference of the Project on Nuclear Issues (PONI), Center for Strategic and International Studies, Washington, D.C., Dec. 11, 2019 (<https://www.csis.org/events/poni-2019-winter-conference>).

Technological advances in artificial intelligence (AI) by the United States, China and Russia jeopardize the longstanding nuclear peace that the world has enjoyed since the end of the Cold War.¹ The desire to obtain AI capabilities for the purpose of strengthening defense and security postures could spur a new arms race among these powerful nuclear states, and the United States,

on nuclear crises stability by defining relevant terms, reviewing relevant existing literature and relevant historical cases, forecasting how asymmetry will affect stability, and formulating a methodology to predict how asymmetry may arise in the future.

Ultimately, it concludes that the likely forthcoming asymmetry will decrease nuclear

CONCLUSION AND SUGGESTIONS

To reiterate, the method presented in this study demonstrates how crisis stability will decrease as great-power states asymmetrically acquire AI-enhanced technologies and incorporate them—in qualitatively different ways—into their nuclear weapons systems. For policy, this introduces the desire to limit asymmetry between major-power states.

In order for the United States to achieve this goal and preserve nuclear crisis stability, it could pursue three distinct actions. First, it might enhance its intelligence gathering methods that allow it to better understand adversaries' intentions and capabilities regarding AI-enhanced systems. By doing so, the United States will increase its ability to accurately predict AI paths of its adversaries. The United States should then aim to limit asymmetry between itself and adversaries by increasing its own capabilities in the same areas as adversaries. Using strengthened intelligence from the first step would allow

Icarus: A Cadet Journal of the Arts (published since 1965)



ESSAY

French writer Michel de Montaigne penned the first creative essays in the 16th century and writers have been in love with the form ever since. From sharing personal experiences to navigating complex social, political, and ecological issues, essays open up a world of nonfiction writing to readers everywhere.

MARIA GIANNA GASPAROVICH

—

AN OPEN LETTER:

To Anyone Who Will Listen

Maria Gianna Gasparovich

I do not think I have ever felt so supported and alone in my entire life. Who would have predicted that I would have made it into one of the hardest schools in the country, but life would decide to unpack my darkest moments all when the finish line is just skimming the horizon? I am gray in a world that begs for black and white. You see, I'm not a fan of categories, but that does not mean I don't understand their purpose. What a predicament it is when you are an oval trying to fit into the perfectly symmetrical circle that the black-and-white world so desperately wants you to fit in. I am a survivor, this is true, just not of the variety that catches headlines here. My innocence was taken from me at twelve years old. The tragedy being that I had no idea the gravity of what had happened to me. So like anyone I packed it in a box. Then I took that box and threw it in a trunk. I wrapped it with steel chains and the biggest padlock I could find. As anyone would expect, I threw that trunk into the river I so effortlessly call my mind. But like any river, the things we throw in eventually make their way to the top. The lock rusts as the chains loosen. We could perform an infinite number of experiments, but scientists around the world still couldn't tell you exactly when that box reaches the surface.

"SONG OF MYSELF" BY ALEXANDER CAREY



Meredith Hickman-Toby-Acrylic on Matboard



Falconry Programs

Experts once said falcons could not be trained to perform before huge crowds because they would panic and flee. Since 1956, cadets have shown and flown these majestic birds before thousands of cheering spectators. Audiences across the country have been intrigued and delighted by the aerobatics of the falcon, flying mascot of the U.S. Air Force Academy. Trained and handled by cadet falconers, the birds soar and dive, sometimes zooming low over the heads of captivated spectators.

While their public performances are limited to outdoor venues, such as football games and cadet wing parades, the falcons appear at many other athletic contests and civic events. Cadet falconers currently use Gyr-Saker and Gyr-Peregrine falcon hybrids in flying demonstrations, although they have also historically used Prairie falcons. Hybrids are used because they combine size and flying ability. The birds are flown throughout the year, weather permitting, to keep them in top condition.

Falconry is a fantastic and rewarding extracurricular activity offered to cadets. There are usually 12 falconers, with four chosen from each new class at the end of the year to replace graduating seniors. The new falconers begin training in February under the leadership of experienced upperclassmen, the officer-in-charge and a

MEET OUR LINEUP OF

STAR PERFORMERS



Ace

Ace is a 12 year old Gyr-Saker hybrid that performs at halftime of Air Force Academy football games. Ace is actually short for his full name, Achilles, but is fitting with the flying culture of the Academy. Ace is notorious for his love of flight, always eager to fly off the glove and play in the wind. His flying pattern is characterized by sharp turns, climbing high so that he can dive with fantastic speed. Falcons prey on other birds, making them experts at air to air combat. We affectionately call them nature's fighter pilots, making them a fitting mascot for the U.S. Air Force Academy.

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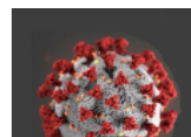
Text and Chat are available during the hours that the library is normally open.

Breaking News

Attention:
All Cadet Library
book due dates will
be extended to the
end of May.



Library Updates
for Remote Access Users



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Library research databases organized alphabetically by name



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Quick link to McDermott Library's website.



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Special Collections

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Gimbel Collection

Stalag Luft III

Falconry Collection

Eagle Squadrons

World War I

Oral History & Audio-Video
Collections

Manuscript Collections and
Personal Papers A-Z

About Clark Special Collections Branch

Clark Special Collections Branch serves the traditional function of a college and university archive and operates as a repository for historical materials which document the origin and development of the U.S. Air Force Academy as well as its continued growth and development. Holdings include photographs, oral histories, yearbooks, building plans, reports, and other papers and publications. Several rare book collections are also housed in Special Collections including the Gimbel Aeronautical Library and the Falconry Collections.

IMAGE NOTE: Lt. General A.P. Clark, for whom Special Collections Branch is named, from a print hanging in Clark Special Collections Branch



Special Collections Home

Gimbel Collection

Stalag Luft III

Falconry Collection

Eagle Squadrons

World War I

Oral History & Audio-Video
Collections

Manuscript Collections and
Personal Papers A-Z

Colonel Richard Gimbel Aeronautical Collection (SMS 337)

The Gimbel Collection contains over 20,000 items tracing the history of human flight from Babylonian cuneiform seals to the Wright brothers aviation developments and beyond. Included in this collection are 5,000 year old seals carved from semi-precious stones, rare coins and medals commemorating great aviators and their achievements, manuscript materials, and thousands of published volumes from the late 15th century to the present day. The collection also contains more than 2,000 prints, portraits, engravings, etchings, woodcuts, lithographs, and photographs creating a unique pictorial history of flight. Additionally there are posters, dime novels, sheet music, children's toys and games, collector's cards, postcards, and postage stamps including first day covers. For more information, consult the links below.

IMAGE NOTE: Photograph from Clark Special Collections Branch of Colonel Gimbel, seated, during a visit to the U.S. Air Force Academy. The Academy's library director, Lt Col (later Brig Gen) George Fagan, is standing behind him.



- [Selected Items from the Gimbel Collection](#)

Welcome to the Aeronautical History Collection of Colonel Richard Gimbel at the United States Air Force Academy!

Please tap a button to indicate how you prefer to visit the collection.

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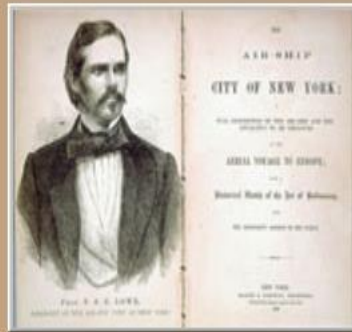
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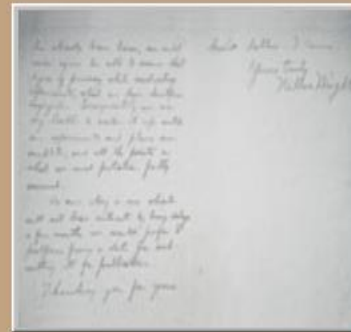
Illustrated Holdings of the Collection



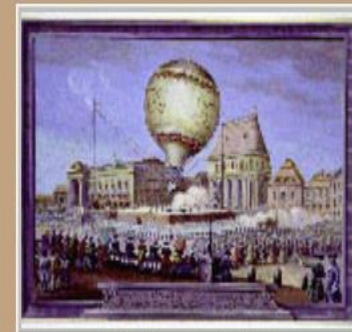
Printed Books, 1489 - 1850
Scholar: Clive Hart



Printed Books, 1851 - 1914
Scholar: Tom D. Crouch



Manuscripts
Scholar: Clive Hart



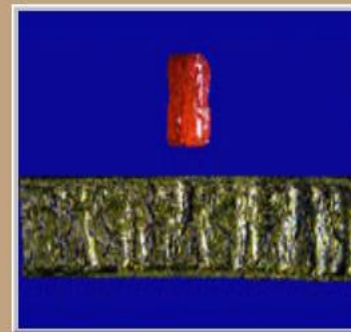
Prints, Part 1
Scholar: Paul Marvelas



Prints, Part 2
Scholar: Paul Marvelas



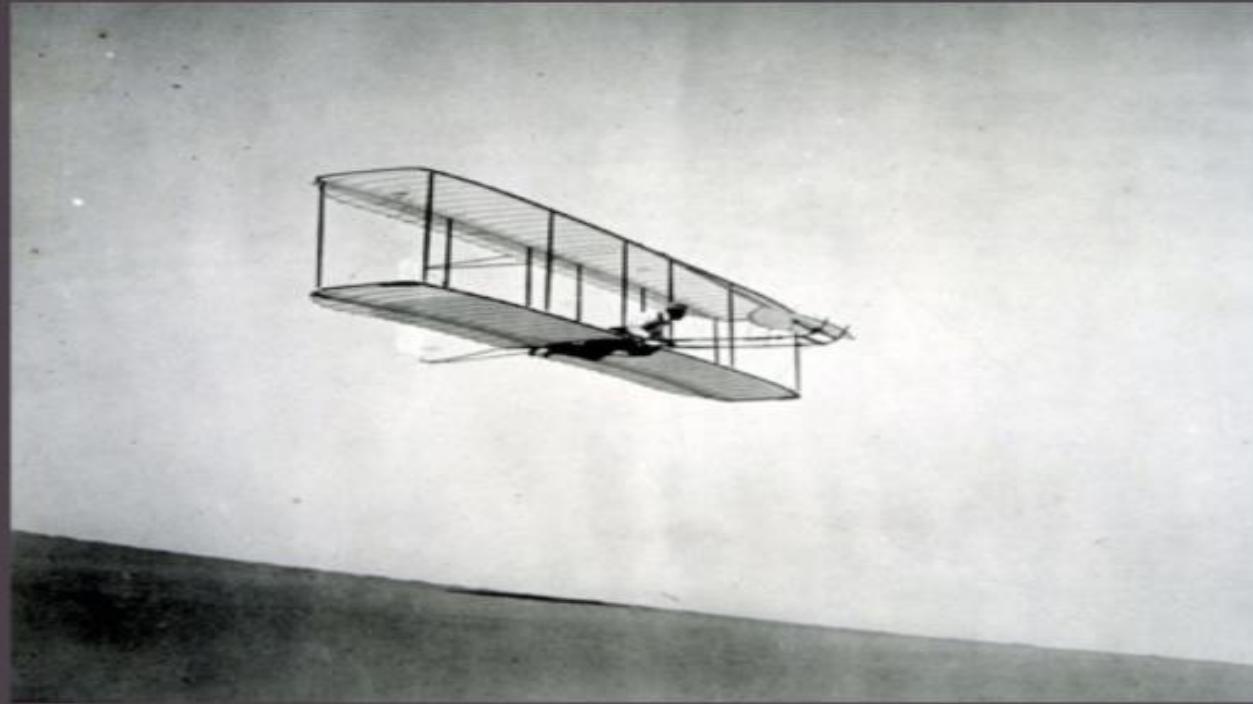
Other Holdings
Scholar: Dominick A. Pisano



Seals
Scholars: Ellen Morris
and Holly Pittman



Numismatics
Scholar: Edward Rochette



Chapter 5: Prints II

To learn more about the print in this image, see

Special Collections

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Stalag Luft III Collections

Stalag Luft III was a prison camp run by the German Luftwaffe to hold Allied prisoners captured from downed aircraft during World War II. It was located in current day Poland. Almost 1,000 separate donations of personal papers and memorabilia make up these collections and the Air Force Academy was designated as the official repository of the records for the "Prisoner of War of Stalag Luft III" organization when it disbanded in 1998.

IMAGE NOTE: Photograph of a patch from a Stalag Luft III ex-POW reunion based on a sketch made in camp by Emmet E. Cook.



The story of

STALAG LUFT III

"A Legacy Website"

Follow the links on the right to view one of the Air Force Academy's first digital humanities projects. The content in this web site, which still resides in the Clark Special Collections at the Academy's McDermott Library, was selected, organized, and processed by three Academy cadets taking a series of independent study courses from the English Department in the mid 1990s:

- Jenn Askins, Class of 1998.
- Chris Backus, Class of 1999.
- Ed Rivera, Class of 1999.

The HTML files they produced using a simple text editor went online and remained available from the Academy's web server until March, 2017. As the 21st Century dawned, the Air Force Humanities Institute arranged for the material to be included in an attempt to create a virtual museum. Creating a virtual museum back then was a daunting project, which never quite reached completion, except for its Stalag Luft III wing, which is reproduced here.

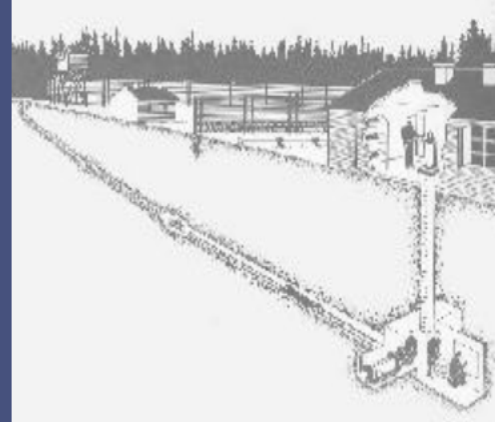


- [Stalag Home](#)
- [The Air War](#)
- [Capture](#)
- [Stalag Luft III](#)
- [The Americans](#)
- [The Germans](#)
- [Food](#)
- [YMCA](#)
- [Escape](#)
- [The March](#)
- [Moosburg](#)
- [Liberation](#)
- [Going Home](#)
- [The Next 50 Years](#)

- [About This Project](#)

Part VIII - ESCAPE

The Great Escape of March 1944 triggered a tragically severe reaction from the Germans. The diversion from Germany's desperate war effort necessary to recapture the 76 men who got away through the escape tunnel reached Hitler's personal attention and he ordered 50 of the recaptured men to be shot. After this event, escape became more dangerous but attempts continued. In the confusion in Germany as the end of the war approached, especially after the Stalag Luft III Kriegies reached Moosburg, escape became easier and less dangerous. When it became obvious that the end was near, even the most ardent advocates of escaping decided to wait it out.



Artifacts & Recollections

Escape by Impersonating

To learn more about this technique, click on the Play button.



- [The Air W](#)
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Special Collections

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Manuscript Collections in Clark Special Collections Branch

Clark Special Collections Branch holds over a thousand collections of donated personal papers. Key subjects include the development of the Air Force Academy, and development of aviation and aeronautics, as well as military service, primarily in aviation, in the 20th Century.

Henry H. Hap Arnold (SMS 322)

Henry H. "Hap" Arnold (1898-1950) attended the U.S. Military Academy at West Point, graduating in 1907. He served with the 29th Infantry before being detailed to the Signal Corps. In 1911, he was sent to Dayton, Ohio, for pilot training with the Wright brothers, becoming one of the first military pilots. Arnold then became a pilot instructor in College Park, Maryland, and Augusta, Georgia. He served in several other domestic assignments before going to Panama in early 1917 to set up an air service. When the United States entered World War I, he returned to the U.S. where he led the Information Service in the Aviation Division of the Signal Corps and later helped lead the Office of Military Aeronautics. At the end of the war he was sent to Europe to inspect aviation activities before returning to several more domestic assignments. Arnold graduated from the Army Industrial College in 1925 and the Command and General Staff School in 1929. He worked on the early development of the bomber and in 1938 he was promoted to Major General and appointed Chief of the Air Corps. During World War II, he served as the commanding general of the Army Air Forces before retiring in 1946. On May 7, 1949, Hap Arnold was appointed the first General of the Air Force, with a five-star rank, by the U.S. Congress before he passed away in early 1950.



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AIR FORCE CRUISES BY CALIFORNIA BAPTIST, 4-1

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FOOTBALL

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2019 Football Team Record 11-2

- Beat Colorado Boulder
- Beat Washington State in Cheeze-It Bowl
- Played in 27 bowl games-Record is 13-13-1
- 1985 team was 12-1; finished 5th in UPI Final Poll.
- USAFA teams compete with other service academies for Commander-in-Chief's Trophy
- San Antonio Spurs basketball coach Gregg Popovich is a 1970 USAFA graduate.

Benefits of U.S. Air Force Academy Information Resources

- Learning about academy's historical evolution and current developments.
- Learning about academy instructional and research activities.
- Learning about prominent individuals in academy history.
- Learning about aeronautical and astronautical developments.
- Learning about academy collections dealing with aeronautical and astronautical history.
- Gaining understanding of how current cadets view emerging operational subjects affecting the Air Force and Space Force.
- Gaining appreciation for the responsibilities cadets will have in the U.S. Air Force and in future civilian activities.

Questions?



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