



AIRPOWER STRATEGY AND OPERATIONS

SYLLABUS

AY 23

**JOINT PROFESSIONAL MILITARY EDUCATION
PHASE I INTERMEDIATE LEVEL COURSE**

**UNITED STATES AIR FORCE
AIR COMMAND AND STAFF COLLEGE**
Twenty-First Century Leaders for Twenty-First Century Challenges

**AIR COMMAND AND STAFF COLLEGE
MAXWELL AFB, AL**

FOREWORD

This syllabus for the Airpower Strategy and Operations course for the Air Command and Staff College, September - December 2022, provides both an overview of the course narrative and objectives, as well as a detailed description of each lesson to assist students in their reading and preparation for lecture and seminar. Included herein is information about the course's methods of evaluation, the schedule, and the fulfillment of joint professional military education core goals.

Airpower represents one of the greatest opportunities and challenges of modern times. How we approach that challenge is now in your hands.

SIGNED

Heather P. Venable, PhD
Course Director, Airpower
Strategy and Operations

APPROVED

Col Sarah N. Bakhtiari
Dean of Education
Air Command and Staff College

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AIRPOWER STRATEGY AND OPERATIONS COURSE OVERVIEW

COURSE DESCRIPTION

Airpower Strategy and Operations examines the emergence and development of airpower from World War I through the early years of the wars in Afghanistan and Iraq to better understand airpower employment today. Using the lens of strategic competition, the course analyzes the development of key ideas, capabilities, limitations, organizations, and practices that framed the conduct of air warfare in the twentieth and early twenty-first centuries as airmen adapted and innovated rapidly in the air domain. The case studies examined in Airpower Strategy and Operations continue to inform debates about airpower's purpose, utility, and effectiveness. Course readings, lectures, and seminar discussions will cultivate adaptive leaders and critical airpower thinkers. The course challenges students to improve their ability to lead in complex, uncertain times while making ethical decisions with the ultimate goal of applying airpower in a joint context to serve national strategic objectives.

Given the terrible human and material costs of conventional great power wars, American military leaders have devoted considerable effort to winning them as quickly and decisively as possible. In particular, the bloody stalemate of the First World War – perhaps best epitomized by the slaughter at Verdun – drove interest in achieving decisiveness in warfare. Airpower provided one of the most attractive means of achieving decisiveness in twentieth century conflict, either by destroying the enemy surface forces from the air or by attacking the enemy's home front. It was in this context of great power conflict and total war that airpower was born.

For most American airmen, the outcome of the Second World War vindicated their belief in airpower's decisiveness. The idea of airpower as a decisive instrument with deterrent capabilities became foundational for the newly independent US Air Force in 1947. In the context of the Cold War, Airmen sought to use both conventional and nuclear airpower to deter the Soviet Union and, if deterrence failed, to achieve decisive victory. At the same time, American involvement in limited proxy wars in Korea and Vietnam forced the USAF to adapt to other forms of warfare. Finding the proper balance between tactical, operational, and strategic levels of war became a central concern for American airpower, especially as tactical and operational success in Korea and Vietnam did not translate into clearly achieved strategic objectives. In particular, the military's ability to achieve decisive victory seemed in doubt after Vietnam.

What followed was nothing less than an attempted transformation of American military power and airpower. Remaining focused on possible war with the Soviet Union and other conventional threats, the American military pursued new training, doctrine, and innovative technology to stay ahead in the fight. Drawing upon lessons learned from previous and contemporary conflicts – including the Vietnam War and the Arab-Israeli Wars – the US military searched for a new paradigm to achieve decisive victory should the next great war occur. In addition to improving conventional military means, the United States sought to expand deterrent capabilities in air and space to leave the Soviet Union at a strategic disadvantage.

When the Cold War ended, the American military strategy seemed to have been validated. Not long after, a coalition overwhelmingly countered Saddam Hussein's aggression in Operation Desert Storm (ODS), thereby seeming to display US airpower's potential to achieve decisive victory in any regional conflict. Though debate persists regarding the exact impact of airpower in the success of Operation Allied Force (OAF) in 1999, most observers agree that airpower also greatly contributed

to the outcome, with some even claiming that OAF demonstrated airpower's ability to win wars by itself.

The events of 9/11 shook but did not destroy the confidence and certainty with which Americans entered the twenty-first century. The United States embarked upon Operation Enduring Freedom with the nearly unquestioned belief that airpower and other forms of military power would produce decisive results. Again in 2003, Operation Iraqi Freedom's (OIF) "shock and awe" campaign saw airpower topple the regime of Saddam Hussein, seemingly producing even greater decisiveness than ODS. Yet in both Afghanistan and Iraq, violent insurgencies soon undermined American confidence in military power's ability to bring about enduring positive strategic outcomes.

Today, in the face of significant uncertainty regarding the future, many leaders have questions about the proper role of airpower. As land and sea power remain vital to American national security, and as space and cyber power continue to develop and evolve amid an ongoing information revolution, the joint force faces the challenge of integrating airpower into all-domain operations and solving problems at the operational level of war to achieve national security objectives. After careful study and discussion of the historical and contemporary development of airpower, students will be better prepared to help develop the best course of action to ensure that airpower can achieve national security outcomes.

COURSE OBJECTIVES

1. Understand how the foundations of airpower's first century inform twenty-first century warfare.
2. Understand continuity and change in airpower's development for application to contemporary strategy and operations.
3. Apply airpower's capabilities and account for its limitations in order to fulfill national security objectives in complex, uncertain environments.

COURSE METHODS OF EVALUATION

1. AO-900 (E): POSITION PAPER

Students will compose a position paper drawing on material from the first seven course days. This paper should be two pages in length, exclusive of endnotes. The prompt will be posted on Day 1. The paper is worth 20 percent of the course grade and is due electronically on Canvas at 1700 on 27 October 2022.

2. AO-901 (E): EXECUTIVE WRITING ASSIGNMENT

Students will write a one-paragraph sample mission statement from the JFACC's perspective based on the reading for the day, having practiced this exercise in groups on Day 5 of the course. This assignment will be conducted individually without collaboration. The assignment will occur on an unannounced day during the scheduled seminar time to mimic the need to meet executive writing standards under pressure. The assignment is worth 20 percent of the course grade and is due electronically via Canvas at the end of the student's AO seminar.

3. AO-902 (E): FINAL PAPER

Students will compose a paper, drawing on course material. The prompt will be posted on Canvas on Day 1. The Final Paper is worth 40 percent of the course grade and is due electronically on Canvas at 1700 on 12 December 2022.

4. AO-903 (E): CLASS EXERCISES AND CONTRIBUTION

Students are expected to attend lectures and seminars, individually read the assigned pages, participate in class exercises, and contribute to seminars. This contribution is worth 20 percent of the course grade.

COURSE ADMINISTRATION

There are two types of readings in this course: 1) readings from books issued by ACSC; and 2) selected electronic files posted on Canvas indicated as “[EL]” (electronic) or which have links provided. Students can access the syllabus, lecture videos, electronic readings, and other supplemental materials online through Canvas. ACSC provides students with copies of the following course books, which must be returned at the conclusion of the course:

- Biddle, Tami Davis. *Rhetoric and Reality in Air Warfare: The Evolution of British and American Ideas about Strategic Bombing, 1914-1945*. Princeton, NJ: Princeton University Press, 2004.
- Clodfelter, Mark. *The Limits of Air Power: The American Bombing of North Vietnam*. Lincoln, NE: University of Nebraska Press, 2006.
- Corum, James S., and Wray R. Johnson. *Airpower in Small Wars: Fighting Insurgents and Terrorists*. Lawrence, KS: University Press of Kansas, 2003.
- Crane, Conrad. *American Airpower Strategy in Korea, 1950-1953*. Lawrence, KS: University Press of Kansas, 2000.
- Douhet, Giulio. *The Command of the Air*. Translated by Dino Ferrari. Maxwell Air Force Base, AL: Air University Press, 2019.
- Griffith, Thomas E. *MacArthur's Airman: General George C. Kenney and the War in the Southwest Pacific*. Lawrence, KS: University Press of Kansas, 1998.
- Kaplan, Ed. *To Kill Nations: American Strategy in the Air-Atomic Age and the Rise of Mutually Assured Destruction*. Ithaca, NY: Cornell University Press, 2015.
- Kitfield, James. *Prodigal Soldiers: How the Generation of Officers Born of Vietnam Revolutionized the American Style of War*. Washington, DC: Brassey's, 1997.
- Laslie, Brian D. *The Air Force Way of War: U.S. Tactics and Training after Vietnam*. Lexington, KY: University Press of Kentucky, 2015.
- Nutter, Ralph. *With the Possum and the Eagle: The Memoir of a Navigator's War over Germany and Japan*. Denton, TX: University of North Texas Press, 2005.
- Overy, Richard. *The Battle of Britain: The Myth and Reality*. New York, NY: Norton, 2002.
- Olsen, John Andreas, ed. *A History of Air Warfare*. Washington, DC: Potomac Books, 2010.
- Olsen, John Andreas, ed. *European Air Power: Challenges and Opportunities*. Washington, DC: Potomac Books, 2014.
- Salmi, Derek. *Behind the Light Switch: Toward a Theory of Air Mobility*. Maxwell Air Force Base, AL: Air University Press, 2020.
- Sanger, David E. *The Perfect Weapon: War, Sabotage, and Fear in the Cyber Age*. New York, NY: Broadway Books, 2019.
- Singer, P.W., and Emerson T. Brooking. *LikeWar: The Weaponization of Social Media*. Boston, MA: Mariner Books, 2018.

Please refer any general questions to:

- Dr. Heather P. Venable, Course Director, heather.venable@au.af.edu, Office 194
- Dr. Mary Elizabeth Walters, Deputy Course Director, mary.walters.1@au.af.edu, Office 183

Please refer questions regarding Teams or Canvas content to:

- Lt Col Rob Lacy, robert.lacy@au.af.edu, Office 190

Please refer questions concerning lecture slides to:

- Maj Steve Barfoot, steven@barfoot.ca@au.af.edu, Office 186

AIRPOWER STRATEGY AND OPERATIONS SCHEDULE OF MEETINGS

DAY 1: WORLD WAR I

DATE: 19 September 2022

LESSON OBJECTIVES

1. Understand the course objectives, course narrative, course syllabus, methods of evaluation, and expectations for seminar.
2. Comprehend the emergence of a disruptive new technological innovation – the airplane – and its strategic effectiveness in fulfilling the five core missions in World War I.
3. Assess the role of cognitive dissonance in shaping and institutionalizing enduring ideas about the optimal effectiveness of cutting-edge military capabilities in future conflict, particularly regarding strategic bombardment, or direct, independent air operations.
4. Apply issues of attrition, the moral factor, and how cognitive bias shapes our ability to respond to change and innovation to the challenges the United States faces in strategic competition against states like China and Russia today.

LESSON OVERVIEW

AO 500 (L): Course Overview (Dr. Heather Venable) and The Five Core Missions in World War I (Dr. Paul Springer)

Overview: “Airpower,” as the Air Force has used the term recently, refers to the air, space, and cyber assets available to military leaders for use in conflicts.¹ This course examines how airpower can contribute effectively to a nation’s security, as well as how it has been employed in past conflicts and how it might influence future wars. The course overview introduces students to the key concepts and framework of the course. Subsequently, Dr. Springer provides a broad overview of the first significant attempts to use military airpower and demonstrates how important airpower was in the development and employment of strategy during the war. When the First World War erupted in Europe in 1914, heavier-than-air flight was barely a decade old, and it had been used in very few military operations. However, it quickly became an indispensable aspect of military operations, particularly on the Western Front. By the end of the war, airpower was used in virtually every role that it fulfills in modern applications, albeit in a much more primitive fashion.

CONTACT HOURS: 1.0-hour lecture

AO 501 (S): Much Ado about Direct, Independent Airpower?

Overview: In this seminar, instructors introduce themselves to their seminars, discuss classroom policies, and set the stage for subsequent seminar discussions. Students should also be prepared to discuss the lecture and the assigned readings. The First World War witnessed the flourishing of ideas that would shape airpower theory and doctrine for decades to come. Many of these ideas were grounded in fantasy and imagination as much as in concrete reality and practical experience. Nevertheless, the relatively limited use of airpower in the direct,

¹ See, for example, Curtis E. LeMay Doctrine Center, AFDP 3-0, *Operations and Planning*, 4 November 2016, [3-0-D07-A-OPS-Applying-Airpower.pdf \(af.mil\)](#) in contrast with the current definition in AFDP-1, “Airpower is defined as the ability to project military power through control and exploitation in, from and through the air” which is contrasted with cyber as a part of the Information Environment, 6.

independent airpower role shaped the contours of far-reaching discussions among US and British Airmen about the future potential of air warfare to generate strategically meaningful outcomes in wars between industrialized nation-states. This seminar examines airpower in the First World War, with special focus on debates about the viability of direct, independent airpower and applies those insights to challenges facing the US military today in strategic competition.

CONTACT HOURS: 2.0-hour seminar

AO-900 and AO-902 PROMPTS WILL BE POSTED ON CANVAS TODAY

REQUIRED READINGS (90)

1. Tami Davis Biddle, *Rhetoric and Reality in Air Warfare*, 1-68.
2. Heather Venable, “‘Imagined Possibilities’: Reevaluating How Well British Airmen Prepared for Future Warfare, 1917-1918,” unpublished and updated paper presented at the Society for Military History Conference, 2022, 11 pages. [EL]
3. Conrad Crane, “Too Fragile to Fight: Could the U.S. Military Withstand a War of Attrition?” *War on the Rocks*, 9 May 2022, 5 pages. [EL]
4. Ben Connable and Michael McNerney, “The Will to Fight and the Fate of Nations,” *War on the Rocks*, 20 December 2018, 6 pages. [EL]

DAY 2: AIR SUPERIORITY IN THEORY AND PRACTICE

DATE: 22 September 2022

LESSON OBJECTIVES

1. Comprehend the importance of air superiority to airpower theory and practice in the past and present and consider how nations like Australia and others are preparing for achieving air superiority in the future, particularly in strategic competition against China.
2. Consider the contextual factors that illuminate Douhet's work and the extent to which they might continue to shape airpower thinking in the United States and elsewhere.
3. Assess how Douhet and other early airpower theorists continue to influence our understandings of airpower and air superiority, even as modern anti-access, area denial capabilities and stealth aircraft pose new challenges to achieving air superiority.

LESSON OVERVIEW

AO 502 (P): Air Superiority Panel: Gen James Holmes, USAF, retired; Maj Gen Alex Grynkeiwich (via VTC); Dr Steve Fino, Colonel, USAF, retired; and Col Chris Marcell, USAF, retired.

Overview: This panel brings together various airpower experts and practitioners to explore key continuities as well as departures in past practices regarding how to attain air superiority. Panelists will provide individual insights and engage in a broader roundtable discussion followed by time for Q&A. **Note:** Due to panelist obligations, the panel will be held only once from 1230-1400. Morning seminars will attend seminar before attending the panel. Afternoon seminars will attend seminar after attending the panel.

CONTACT HOURS: 1.5-hour panel

AO 503 (S): Air Superiority in Theory and Practice

Overview: By the end of World War I, more questions than answers remained about the new air weapon. During the interwar period, bold claims for the power of air forces to supplant land and sea power matured alongside arguments for the emergence of independent air services. Airmen and theorists like Italian Giulio Douhet extolled airpower's prospects and established theories of airpower employment, to include discussions of air superiority, strategic bombing, interdiction, and close air support. Today we continue to debate the capabilities and limitations of airpower. What problems does Douhet attempt to resolve and how does he argue airpower is best used? How much does classical airpower theory inform current approaches to air superiority?

CONTACT HOURS: 1.5-hour seminar

REQUIRED READINGS (76)

1. Giulio Douhet, *The Command of the Air*, 3-30 and 85-103.
2. Michael Pixley, "False Gospel for Airpower Strategy? A Fresh Look at Giulio Douhet's 'Command of the Air,'" *Air University Chronicles*, 25 July 2005, 1-16. [EL]
3. Peter Layton, "Contested Skies: Our Uncertain Air Superiority Future," *Special Report* (Australian Strategic Policy Institute, January 2018), 4-18. [EL]

DAY 3: INTERWAR AIRPOWER

DATE: 26 September 2022

LESSON OBJECTIVES

1. Comprehend how the legacies of the First World War and the geopolitical, economic, and technological frameworks of the interwar period influenced the development of airpower in Europe and the United States.
2. Comprehend the interrelated nature of successful adaptation and innovation in war with sound intellectual ideas comprising a viable theory of victory.
3. Assess the factors that shape airpower development and employment as an instrument of national power and apply them to strategic competition today, with an emphasis on China.

LESSON OVERVIEW

AO 504 (L): Interwar European Airpower (Dr. Rich Muller)

Overview: This lecture examines the variety of responses by major powers to learning lessons from World War I. By comparing the types of aerial services created by France and Germany, Dr. Rich Muller of SAASS demonstrates the “paths not taken” by the British and American airpower organizations to show there was no common conception of aviation in the interwar period.

CONTACT HOURS: 1.0-hour lecture

AO 505 (S): The Emergence of Airpower Theory and Doctrine in Britain and the United States

Overview: While France and Germany largely concentrated their airpower on supporting ground force maneuver on the eve of the Second World War, most airpower leaders in Great Britain and the United States embraced the idea of strategic bombardment as airpower’s primary mission. Students will compare and contrast the way that British and American airmen understood airpower and the idea of strategic attack during the interwar period. The seminar will allow students to discuss Murray and Biddle’s depictions of organizational culture and cognitive dissonance as key drivers of doctrinal thought in this period by examining the way that German, British, and American airmen strove to enhance capabilities of the new air domain. These competing visions provide meaningful lessons for military officers looking to leverage new all-domain capabilities today, which constitutes a significant portion of the US military’s theory of victory.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (94)

1. Williamson Murray, “Strategic Bombing: The British, German, and American Experiences” in *Military Innovation in the Interwar Period*, (Cambridge: Cambridge University Press, 1996), 96-108, 116-127, 136-143. [EL]
2. Tami Davis Biddle, *Rhetoric and Reality in Air Warfare*, 128-147, 153-183.
3. Michael Trimble, “Interwar Airpower, Grand Strategy, and Military Innovation,” *Strategy Bridge*, 28 February 2018, 8 pages. [EL]
4. Michael Horowitz, “War by Timeframe: Responding to China’s Pacing Challenge,” *War on the Rocks*, 19 November 2021, 7 pages. [EL]

DAY 4: WARTIME ADAPTIONS IN THE BATTLE OF BRITAIN

DATE: 3 October 2022

LESSON OBJECTIVES

1. Comprehend the origins and early conduct of the Second World War in Europe.
2. Examine the operational dynamics of the air campaign over Britain in the summer and fall of 1940 and how early forms of Electronic Warfare and anti-access, area denial, along with intelligence, contributed to the RAF's success.
3. Assess the importance of the Battle of Britain in shaping past and present understandings of airpower effectiveness and consider reasons why the Russian Air Force has struggled in Ukraine given the extreme challenges of employing airpower effectively.

LESSON OVERVIEW

AO 506 (L): Overview of World War II and the Fall of France (Dr. Terry Beckenbaugh)

Overview: This lecture provides a brief overview of the Second World War. It explains the origins of the war, the geopolitical and ideological stakes involved, the major strategies and operational approaches, the role of industry, and the experience of total war. After Germany's invasion of Poland in September 1939, the European Theater entered a period of stalemate known as the Phoney War. This phase came to a crashing end in the spring of 1940 as Germany launched a series of blistering combined arms attacks against Scandinavia and Western Europe, culminating with the fall of France and the British evacuation from Dunkirk. These operations potentially enabled Germany to gain air superiority over Britain and create favorable conditions for a potential amphibious invasion.

CONTACT HOURS: 1.0-hour lecture

AO 507 (S): The Battle of Britain

Overview: The Battle of Britain remains the only significant example of a successful defensive air campaign in history. Consequently, it merits careful study by military professionals. The battle's conduct and outcome provide compelling insights into the dynamics of such universal factors in air warfare as the interplay of strategy and technology, the function of leadership, the role of reliable intelligence in shaping the contours of an aerial campaign, and the elusive nature of air superiority. As one of the first major, sustained aerial encounters of the Second World War, the Battle of Britain exercised an important influence on the mindsets of the American and British Airmen who subsequently sought to erode Germany's capacity and will to fight by means of a major strategic bombing campaign.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (104)

1. Richard Overy, *The Battle of Britain*, 29-63, 67-109.
2. Samir Puri, "The Role of Intelligence in Deciding the Battle of Britain," *Intelligence and National Security*, 21 no. 3 (June 2006), 416 - 439. [EL]
3. Phillips O'Brien, "The Overlooked Reason Russia's Air Force is Failing in Ukraine," *The Atlantic*, 9 May 2022, 5 pages. [EL]

DAY 5: AUXILIARY AIRPOWER IN WORLD WAR II

DATE: 6 October 2022

LESSON OBJECTIVES

1. Comprehend the significance of auxiliary airpower in contributing to strategic effectiveness in the Second World War and the challenges of its allocation between missions of air superiority, interdiction, and close air support.
2. Compare and contrast how American airmen innovated and adapted to leverage auxiliary airpower under very different conditions in the European and Pacific Theaters.
3. Assess the conditions that both facilitated and constrained Gen George Kenney's ability to effectively function as Gen Douglas MacArthur's air component commander in the Southwest Pacific.
4. Consider the challenges of employing auxiliary airpower against an opponent, such as China.

LESSON OVERVIEW

AO 508 (L): Auxiliary Airpower: The Employment of Allied Aircraft in the North African and European Theaters (Dr. Heather Venable)

Overview: Although the US Air Corps had stressed strategic bombardment in the interwar period, it quickly found itself employing airpower more broadly during World War II. Both the British and the Americans adapted relatively quickly, successfully employing auxiliary airpower in North Africa and Europe. Still, they had to make difficult choices regarding the best way to apportion the triad of direct, auxiliary airpower roles—air superiority, interdiction, and close air support. This dilemma highlights the challenge of employing airpower especially when an air force lacks overwhelming numerical superiority.

CONTACT HOURS: 1.0-hour lecture

AO 509 (S): Auxiliary Airpower on a Shoestring in the Southwest Pacific

Overview: The air campaign in the Southwest Pacific during the Second World War is not as well-known as other, more high-profile air campaigns. Nonetheless, it proved a crucial element in the larger strategic context that framed American forces' long-term ability to defeat Imperial Japan. It also provided the backdrop for the emergence of Gen George Kenney as an airpower leader whose success in confronting a set of leadership and operational challenges marked him as one of America's most effective and innovative air commanders. Kenney's ability to direct an effective air campaign in a complex environment with minimal resources makes his leadership worthy of careful study by contemporary military professionals. Students will discuss the reading and practice writing the commander's intent portion of a five-paragraph order.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (84)

1. Thomas E. Griffith, *MacArthur's Airman*, 46-121.
2. Mike Pietrucha, "The Myth of High-Threat Close Air Support," *War on the Rocks*, 30 June 2016, 9 pages. [EL]

DAY 6: INDEPENDENT AIRPOWER IN WORLD WAR II

DATE: 13 October 2022

LESSON OBJECTIVES

1. Comprehend the conduct of the Combined Bomber Offensive (CBO), the adaptations airmen made as the operation continued, and the CBO's overall effectiveness in facilitating Allied strategy.
2. Comprehend how the Pacific theater's strategic environment demanded greater flexibility from American airpower and how airpower leaders solved these complex challenges.
3. Evaluate the ethical dilemmas commanders faced in opting for independent air offensives against Germany and Japan due to the anticipated high civilian casualties, particularly with the advent of the atom bomb.
4. Consider the implications of more recent examples of punishment campaigns against civilians for how nations like Russia and China might employ airpower in strategic competition.

LESSON OVERVIEW

AO 510 (L): Strategic and Operational Lessons Learned from the Combined Bomber Offensive (Dr. Mike Pavelec)

Overview: This lecture explores the learning cycles between Allied and German airmen during the Combined Bomber Offensive that began in earnest in 1944. Interwar airmen had anticipated an independent campaign against German vital centers, but they found themselves waging more of an air superiority campaign to enable the Normandy landing of June 1944. This lecture will consider the overall role of the Combined Bomber Offensive in the broader context of the war and the extent to which it contributed to the war's strategic objectives in a variety of intended and unintended ways.

CONTACT HOURS: 1.0-hour lecture

AO 511 (S): The Strategic and Ethical Dilemmas of Independent Airpower against Germany and Japan

Overview: The strategic air offensive against Germany was the most complex air offensive ever undertaken. The US Army Air Forces (USAAF) had to adapt in real-time along a steep learning curve when operations did not mirror planning. After obtaining some semblance of air superiority, American, British, and Commonwealth Airmen mounted an all-out air offensive against German civilian, military, industrial, petroleum, synthetic fuels, and transportation targets to destroy Germany's ability to continue to fight the Allies. Meanwhile, with the war in Asia driving towards an amphibious landing of terrible promise, the newly operational B-29 seemed to fulfill Douhet's vision of strategically effective airpower, replacing the bloodshed of ground combat. This seminar explores how these two strategic air offensives sought to meet coalition objectives while grappling with the ethical dilemmas inherent to strategic bombing in an age before precision weapons.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (80)

1. Richard Overy, "The Air War in Europe, 1939-1945" in *A History of Air Warfare*, 27-52.
2. Ralph Nutter, *With the Possum and the Eagle*, 233-248.
3. Marc Livecche, "Why Bombing Hiroshima Was the Moral Thing to Do," *The Federalist*, 8 August 2020, 4 pages. [EL]

4. Katherine E. McKinney, Scott D. Sagan, and Allen S. Weiner, “Why the atomic bombing of Hiroshima would be illegal today,” *Bulletin of the Atomic Scientists* 76, no. 4 (2020), 157-165. [EL]
5. Ralph Shield, “The Saudi air war in Yemen: A case for coercive success through battlefield denial,” *Journal of Strategic Studies* 41, no. 3 (2018): 461-489. [EL]

DAY 7: THE AIR ATOMIC AGE AND THE BIRTH OF THE AIR FORCE

DATE: 17 October 2022

LESSON OBJECTIVES

1. Comprehend the influence of the Cold War, the grand strategy of containment, and the emergence of limited geopolitical crises on the employment of airpower.
2. Analyze how the proliferation of increasingly powerful nuclear weapons influenced the USAF's perception of strategic bombardment—or direct, independent air operations—and its role in the United States's national security posture.
3. Discuss the extent to which the advent of nuclear weapons has altered airpower's effectiveness as an instrument of American national security, the role nuclear weapons play today in deterrence and national security, and challenges facing the USAF's current nuclear force in strategic competition with China.

LESSON OVERVIEW

AO 512 (L): Strategies of Containment (Dr. Ed Redman)

Overview: This lecture overviews US nuclear policy from 1945 through 1962. John Lewis Gaddis identified five strategies of containment that informed US policy during the Cold War. This lecture examines the first four: the original concept as presented by George Kennan in the “long telegram” and expressed by President Harry Truman (1947-1949); President Eisenhower, Secretary Dulles, NSC-68, and the impact of the Korean War on military spending (1950-1953); President Eisenhower, Secretary Dulles, and the “New Look” (1953-1961); and the early Kennedy presidency and the beginnings of “Flexible Response.” The lecture examines how national security strategy and national military strategy adapted to the strategic change brought about by nuclear weapons and the rise of the Soviet Union in the two decades after the end of the Second World War.

CONTACT HOURS: 1.0-hour lecture

AO 513 (S): Air Atomic Strategy in the Early Cold War

Overview: The approach to strategic bombing dramatically changed in the early Cold War. During the Second World War, massive fleets of bombers delivered large quantities of conventional weapons against single targets. In many ways, this approach held true following the detonation of the atomic weapons. Yet, other factors changed due to technology, especially how the compression of time affected airpower employment. Ed Kaplan's *To Kill Nations* highlights the importance of comprehending the links between strategic guidance and operational planning within the context of sound civil-military relations. What challenges did and do airmen continue to face in integrating new capabilities into preexisting organizations and doctrinal frameworks in the context of great power competition? To what degree are foundational notions of deterrence established in the 1950s reflected in current US nuclear policies?

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (92)

1. Ed Kaplan, *To Kill Nations*, 1-46, 77-107.
2. Frank G. Klotz and Alexandra T. Evans, *Modernizing the U.S. Nuclear Triad: The Rationale for a New Intercontinental Ballistic Missile* (Santa Monica, CA: RAND Corporation, 2022), 1-12. [EL]

3. Stacy L. Pettyjohn and Becca Wasser, "A Fight over Taiwan Could Go Nuclear," *Foreign Affairs* (May 2022), 5 pages. [EL]

DAY 8: THE KOREAN WAR

DATE: 20 October 2022

LESSON OBJECTIVES

1. Comprehend the influence of the grand strategy of containment and the emergence of limited geopolitical crises and wars on the employment of airpower in the Korean War.
2. Identify the technological, organizational, and command and control challenges that the newly established USAF confronted in the Korean War and evaluate its success in innovating to overcome them.
3. Assess the extent to which airpower functioned as an effective instrument of national policy in the Korean War.
4. Consider the continuing relevancy of lessons from the Korean War regarding strategic competition with China.

LESSON OVERVIEW

AO 514 (L): Overview of the Korean War (Dr. Lisa Beckenbaugh)

Overview: This lecture covers the causes, major combat operations, and the outcomes of the Korean War. Highlights include the political, diplomatic, and military activities of the period. Students will comprehend how the Korean War fit into the strategic competition of the Cold War as a global historical event and better appreciate the war's ground combat.

CONTACT HOURS: 1.0-hour lecture

AO 515 (S): What American Airpower Strategy? The Newly-Independent US Air Force in the Korean War

Overview: In Korea, a USAF increasingly focused on developing its nuclear capability faced a conventional conflict where strategic airpower struggled to achieve wartime goals. Though strategic airpower could deliver great destruction, the limited industrialization of North Korea and long periods of stalemate in the ground war provided few targets for conventional airpower. China's national interest in North Korea, and eventual intervention in the war, further complicated the options facing American airmen. The disconnect between strategic airpower capability and limitations imposed by national policy challenged airpower leaders to develop an effective strategy to win a limited war.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (89)

1. Conrad Crane, *American Airpower Strategy in Korea*, 1-9, 40-75, 80-85, 114-131, 155-170.
2. Douglas A. Birkey, "Air War over Korea: Lessons for Today's Airmen," *The Mitchell Institute Policy Paper* 34 (February 2022), 1, 13-20. [EL]

DAY 9: INDIRECT AND DIRECT AIRPOWER OVER SOUTH VIETNAM

DATE: 24 October 2022

LESSON OBJECTIVES

1. Comprehend how the confluence of dominant airpower theory, USAF organizational culture, and the character of the First Indochina War shaped the patterns of air warfare in Southeast Asia.
2. Comprehend the factors that accounted for American ground and air forces' inability to produce favorable strategic outcomes despite their overwhelming technological advantages and numerous tactical and operational successes in South Vietnam.
3. Analyze the changing nature of the partnership and alliance between the United States and South Vietnam, particularly in the military realm, and US efforts to provide foreign military training.
4. Assess the enduring debates concerning airpower's utility as a military instrument in limited wars and unconventional conflicts.

LESSON OVERVIEW

AO 516 (L): America's War in South Vietnam (Dr. Michael Weaver)

Overview: The limited nature of the Vietnam War complicated the application and effectiveness of airpower. Understanding how requires an examination of the geopolitical context and the ways in which the war on the ground took place. Regarding airpower, missions including aerial refueling, aerial reconnaissance, and air superiority nevertheless contributed to the wider objectives of the war. In particular, airpower undercut the enemy's strategy in Vietnam by nullifying that nation's offensive power, and supported the strategy of the Americans and South Vietnamese by applying firepower the North Vietnamese and Viet Cong could not overcome. The advantages air power conferred, however, were not great enough to persuade the communists to terminate their war against South Vietnam.

CONTACT HOURS: 1.0-hour lecture

AO 517 (S): Competing Arguments for the Strategic Effectiveness of Direct and Indirect Airpower in South Vietnam

Overview: Even as the United States became increasingly involved in South Vietnam following the French withdrawal, the Air Force remained focused on general nuclear war. Yet in irregular war, tasks such as close air support, mobility, and allied advising are key. As the US became more committed to the fighting in South Vietnam, the Air Force struggled to adjust to the ground war in South Vietnam, a role it had neither equipped nor prepared for adequately. The Air Force began to respond by turning to new – and repurposed old – technologies to adapt to its new missions. In Vietnam, the Air Force adapted and provided increasingly effective support to the ground forces, but the overall strategy could not address the underlying causes of the insurgency, nor prevent the insurgents from building an effective organization. Further, the eventual collapse of South Vietnamese forces following the American withdrawal in 1972 points to enduring difficulties in foreign military training – a fact reinforced by recent experience in Afghanistan.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (79)

1. James Corum and Wray Johnson, *Airpower in Small Wars*, 1-10, 225-274.

2. Michael Weaver, “Air Support in Limited Wars & Interventions: The Vietnam War as a Case Study,” unpublished paper, 10 pages. Note: This paper offers insights gleaned from the author’s research in writing *The Air War in Vietnam* (Lubbock: Texas Tech Press, 2022). [EL]
3. “Collapse of the Afghan National Defense and Security Forces: An Assessment of the Factors That Led to Its Demise,” *Special Inspector General for Afghanistan Reconstruction* (May 2022), 2-12. [EL]

DAY 10: INDEPENDENT AIRPOWER OVER NORTH VIETNAM

DATE: 27 October 2022

LESSON OBJECTIVES

1. Comprehend the factors that accounted for changing approaches to strategic bombing between the Johnson and Nixon Administrations during the US air war over North Vietnam.
2. Examine the relative effectiveness of Operations Rolling Thunder, Linebacker I, and Linebacker II and evaluate how well airmen employed airpower at the operational level of war in complex situations.
3. Explore the Vietnam War's implications for airpower theory and practice and the USAF's organizational culture.

LESSON OVERVIEW

AO 518 (L): Air Campaigns over North Vietnam (Dr. Amber Batura)

Overview: This lecture highlights the three main air campaigns against North Vietnam, including their ever-shifting political objectives and their relationship to airpower effectiveness. In particular, the lecture explores the operational challenges of Operation Rolling Thunder and the state of civil-military relations during the Johnson Administration as opposed to the far more limited political objectives of the Nixon Administration. The lecture will also consider the extent to which civilian leadership required the military to fight with one proverbial hand tied behind its back.

CONTACT HOURS: 1.0-hour lecture

AO 519 (S): The Strategic Effectiveness of Airpower in Linebacker I and II

Overview: Many commenters view Operation Rolling Thunder as a landmark case study in the history of airpower because it presents the useful perspective of “what not to do.” By contrast, some view the Easter Offensive as a more traditional air-ground campaign in which North Vietnam massed mechanized forces, thereby providing plentiful targeting opportunities for the United States. Finally, some hold up Linebacker II as the decisive air activity of the war and key driver of the 1973 Paris Peace Accords. This seminar requires students to analyze the use of bombing in Vietnam and the narratives about airpower that have become part of the war's legacy in comparing and contrasting the three operations.

CONTACT HOURS: 2.0-hour seminar

AO-900 POSITION PAPER DUE ON CANVAS TODAY BY 1700

REQUIRED READINGS (84)

1. Mark Clodfelter, *The Limits of Air Power*, 203-223.
2. Kenneth P. Werrell, “American Airpower in Vietnam: Doomed to Failure?” in *Why Air Forces Fail: The Anatomy of Defeat*, ed. Robin Higham and Stephen J. Harris, 2nd ed. (Lexington, KY: University Press of Kentucky, 2016), 377–402. [EL]
3. Phil Haun and Colin Jackson, “Breaker of Armies: Air Power in the Easter Offensive and the Myth of Linebacker I and II in the Vietnam War,” *International Security* 40, no. 3 (2016): 139-178. [EL]

DAY 11: THE STRATEGIC EFFECT OF INDEPENDENT AND AUXILIARY INDIRECT AIRPOWER

DATE: 31 October 2022

LESSON OBJECTIVES

1. Comprehend the importance of air mobility—or indirect, independent, and auxiliary airpower—to US military strategy, especially in enabling the flexible application of joint military power.
2. Examine air mobility’s contribution to varied airpower operations during the Cold War, Vietnam, and the Middle East, ranging from more “tactical” to more “strategic” uses.
3. Analyze the issues that make an air mobility operation successful and how they may have to be adjusted for success in future air operations and deployments against peer competitors.

LESSON OVERVIEW

AO 522 (L): The Strategic Effectiveness of Air Mobility: From Berlin Airlift to Nickel Grass (Dr. John Terino)

Overview: The United States emerged from the Second World War as a global power in part because it had pioneered air routes, developed aircraft, established bases, and then knit them all together in a vast system. This mobility system and the aircraft that made it possible undergirded the Strategic Air Command, as well, in the early Cold War. These transport resources also enabled the Berlin Airlift, helped project power rapidly and effectively to the Middle East in the 1950s, and then transported troops and equipment routinely to Southeast Asia in support of the Vietnam War. As that conflict wound down, air mobility assets helped end the 1973 Arab-Israeli conflict through Operation Nickel Grass and laid the foundation for the global air mobility system on which the American military relies today.

CONTACT HOURS: 1.0-hour lecture

AO 523 (S): Case Studies in Air Mobility

Overview: This seminar builds on the cases presented in the lecture and the Young Tiger aerial refueling operation that enabled the vast amount of airpower to be employed over Southeast Asia during the American phase of the conflict, from 1964-1972. A thorough examination of these case studies and some proposed principles of air mobility will be explored and then applied to the 2021 airlift from Afghanistan. A deeper understanding of the roles and value of airlift, aerial refueling, and their links to potential future challenges should result.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (90)

1. Derek Salmi, *Behind the Light Switch: Toward a Theory of Air Mobility*, 1-25, 109-40, 175-80.
2. *Left Behind: A Brief Assessment of the Biden Administration’s Strategic Failures During the Afghanistan Evacuation* (2022), 5-34. [EL]

DAY 12: POST-VIETNAM REFORMS

DATE: 3 November 2022

LESSON OBJECTIVES

1. Comprehend the importance of airpower in Israeli national security strategy and the Israeli application of airpower in the Arab-Israeli Wars.
2. Comprehend the long-term effects of the Vietnam War on the United States Air Force and the broader airpower community and the overarching effectiveness of US military reforms in the 1970s and 1980s.
3. Compare the post-Vietnam War reform era to today's shift in the United States from a focus on counterinsurgency to strategic competition, particularly against China.
4. Comprehend how the Taiwanese military seeks to reform to meet the threat from China and understand how it envisions using airpower to meet strategic objectives.

LESSON OVERVIEW

AO 520 (L): The Arab-Israeli Wars and the Rise of the Soviet Union (Lt Col Hugh Gardenier)

Overview: Facing an existential threat after its creation in 1948, Israel saw a need for a military capable of achieving decisive victories against numerically superior opponents. Airpower compensated for Israel's lack of strategic depth and has often been the decisive instrument in its military campaigns. At the same time, the Arab States – supported by the Soviet Union – responded to Israel's air capabilities with new air defense systems that seemed to blunt Israel's offensive striking power. The lessons learned from the Arab-Israeli Wars had an immediate impact on the American military as it confronted the new Soviet air defenses in the 1970s and largely reinvented its approach to airpower in the following decades to ensure that it could achieve air superiority. In particular, the Israeli approach focused on airpower missions rather than the application of airpower at different levels of war. This blurring of the lines between “strategic” and “tactical” airpower – a division at the heart of most classical airpower theories – proved enormously consequential for air powers around the world in subsequent decades, including the United States.

CONTACT HOURS: 1.0-hour lecture

AO 521(S): US Air Force Reforms after the Vietnam War

Overview: The readings enable a discussion about the U.S. Air Force's operational focus after Vietnam and its relevance to national security imperatives during the period. What was the strategic imperative for the Air Force's (and the US military's) focus on Central Europe after Vietnam? Having adopted a flawed strategy for air in Vietnam, how did the USAF envision airpower as an instrument for fulfilling national interests in the decade following the war? If the Air Force had produced Red Flag exercises and tactically oriented fighters like the F-16 before Vietnam, would these innovations have produced better outcomes for the war? These questions highlight the complexity of the post-Vietnam period, and the Air Force's struggle to connect operations with strategy in this new Cold War era.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (87)

1. Mike Worden, *Rise of the Fighter Generals: The Problem of Air Force Leadership, 1945-1982* (Maxwell AFB, AL: Air University Press, 1998), 211-228. [EL]
2. Brian Laslie, *The Air Force Way of War: U.S. Tactics and Training after Vietnam*, 33-81.

3. Ronald Keys, “Dear Boss,” 1-3. [EL]
4. Kwan Haeng Cho, Chan Min Hong, and Myung Jin Kim, “Utilization and Construction of Taiwan’s Air Force against Chinese Military Threats,” *The Korean Journal of Defense Analysis* 33, no. 3 (2021), 507-511, 513-528. [EL]

OPTIONAL READINGS (32)

1. Kenneth W. Allen, Brendan S. Mulvaney & James Char, “Ongoing Organizational Reforms of the People’s Liberation Army Air Force,” *Journal of Strategic Studies* 44, no. 2 (2021), 184-217. [EL]

DAY 13: JOINT OPERATIONS AND AIRPOWER IN THE 1980s

DATE: 7 November 2022

LESSON OBJECTIVES

1. Comprehend organizational changes in the Department of Defense during the 1980s.
2. Analyze the effectiveness of airpower in Operations Eagle Claw, Urgent Fury, El Dorado Canyon, and Just Cause.
3. Apply contingency planning capabilities to the various small conflicts of the 1980s and the present, in the context of a strategic competition environment.

LESSON OVERVIEW

AO 524 (L): Airpower in the Army, Navy, and the Marine Corps (Dr. Mary Elizabeth Walters)

Overview: After the Vietnam War the Army, Navy, and the Marine Corps did a great deal of soul searching and, critically, learned different lessons on the best uses of airpower. The Army eschewed the likelihood of small wars and instead focused on large conventional wars. In 1981, it introduced AirLand Battle, which envisioned that airpower would focus on interdiction to prevent reinforcements and supplies from reaching the main battle. Meanwhile, naval aviation focused on supporting three key missions: deterrence, forward defense, and NATO alliance solidarity. The Navy introduced several new fixed wing and rotary aircraft to provide greater speed, reach, and carrying capacity. Finally, both the Army and Marine Corps left Vietnam with misgivings about USAF concepts of CAS, as the conflict lurched to a conclusion. For the Marines, this reinforced their commitment to maintaining internal CAS capabilities. The Army channeled its energies into establishing the Army Aviation Branch in 1983 and modernizing its helicopters. These new ideas and capabilities were put to the test in the interventions of the 1980s.

CONTACT HOURS: 1.0-hour lecture

AO 525 (S): Case Studies in Post-Vietnam US Airpower

Overview: The 1980s are often a forgotten period of American military history, as they fill an intermediary period between the dramatic events of the Vietnam War and Operation Desert Storm. Yet, they are a pivotal period, as the Goldwater-Nichols Act forced the separate services to put aside many of their rivalries in pursuit of national defense priorities, thereby creating the environment necessary to allow joint planning and operations. Students will evaluate how the US military's ability to conduct joint operations evolved during this decade by examining interventions in Grenada, Libya, and Panama following on the reforms made after the failures of Operation Eagle Claw, the 1980 attempt to rescue US embassy staffers in Iran. The 1980s were a renaissance period of sorts—the US entered the decade locked in a seemingly endless Cold War with the Soviet Union (and in many ways seemed to be falling behind in the rivalry), yet emerged from the decade as the world's sole superpower.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (69-70)

1. Brian Laslie, *The Air Force Way of War: U.S. Tactics and Training after Vietnam*, 99-112.
2. James Kitfield, *Prodigal Soldiers: How the Generation of Officers Born of Vietnam Revolutionized the American Style of War*, 215-231, 263-268, 289-296.
3. Louisa Brooke-Holland and Patrick Butchard, "No-fly Zones and Ukraine," *Research Briefing*

- (House of Commons Library, 7 March 2022), 4-20. [EL]
4. GROUP A: Daniel L. Haulman, "Crisis in Grenada: Operation URGENT FURY," in A. Timothy Warnock, ed., *Short of War: Major USAF Contingency Operations, 1947-1997* (Maxwell AFB, AL: Air University Press, 2000), 135-144. [EL]
 5. GROUP B: Judy Endicott, "Raid on Libya: Operation EL DORADO CANYON," in A. Timothy Warnock, ed., *Short of War: Major USAF Contingency Operations, 1947-1997* (Maxwell AFB, AL: Air University Press, 2000), 145-155. [EL]
 6. GROUP C: William J. Allen, "Intervention in Panama: Operation JUST CAUSE," in A. Timothy Warnock, ed., *Short of War: Major USAF Contingency Operations, 1947-1997* (Maxwell AFB, AL: Air University Press, 2000), 167-178. [EL]

DAY 14: THE GULF WAR

DATE: 10 November 2022

LESSON OBJECTIVES

1. Comprehend how America's victory in 1991 appeared to validate the institutional path taken by the American military since the end of the Vietnam War.
2. Evaluate whether DOD reforms of the 1980s improved the US military's ability to conduct joint operations during ODS, especially regarding joint airpower.
3. Assess the role of ODS in transforming airpower into the premier military instrument of choice for American policymakers in subsequent decades.
4. Contrast the United States' approach to joint operations with China's new Joint Force.

LESSON OVERVIEW

AO 526(L): Operation Desert Storm (Lt Col Garick Chamberlin, PhD)

Overview: Operation Desert Storm—our redemptive war after Vietnam—seemed to validate the US approach to conventional military operations, the Reagan military buildup, and the USAF's focus on training in the two decades leading up to 1991. This war also witnessed the establishment of the Air Component Commander—a single airman responsible for all air operations in theater. This lecture examines the geopolitical underpinnings of the war, the air and ground phases of the war, and the legacy for airmen and others of this successful but complicated military operation.

CONTACT HOURS: 1.0-hour lecture

AO 527 (S): Airpower Effectiveness in ODS and its Implications for Joint Warfare

Overview: The lecture and readings invite seminar discussion on how well the 1991 air war reconciled operational effectiveness with meaningful national security outcomes. The war also put the DOD's new joint structures and procedures to the test. Given the high praise for Operation Desert Storm, and, more specifically, its air campaign, how well did airpower meet national security objectives in this conflict?

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (70)

1. John Andreas Olsen, "Operation Desert Storm, 1991," in *A History of Air Warfare*, 177-200.
2. Robert Pape, "The limits of precision-guided air power," *Security Studies* 7, no. 2 (1997), 93-114. [EL]
3. John Warden, "Success in modern war: A response to Robert Pape's bombing to win," *Security Studies* 7, no.2 (1997), 172-190. [EL]
4. David Bickers, "Understanding the Vulnerabilities in China's New Joint Force," *Joint Force Quarterly* 103 (October 2021), 78-86. [EL]

OPTIONAL READINGS (32)

1. Daryl Press, "The Myth of Air Power in the Persian Gulf War and the Future of Warfare," *International Security* 26, no.2 (2001), 10-44. [EL]

DAY 15: OPERATION ALLIED FORCE

DATE: 14 November 2022

LESSON OBJECTIVES

1. Comprehend the advantages and pitfalls of relying on kinetic airpower as the weapon of choice for resolving political and humanitarian crises in wars in which the concept of decisive victory does not apply.
2. Debate the utility of airpower as a coercive instrument in limited war versus the argument that Operation Allied Force (OAF) demonstrated the fulfillment of airpower's promise to produce decisive strategic outcomes on its own.
3. Comprehend Operation Allied Force's legacy for shaping Russia's approach to twenty-first century warfare.

LESSON OVERVIEW

AO 528 (L): Airpower and a Fragile Coalition Answer an Atrocity (Dr. Al Peck)

Overview: US Air Force Lt Gen Allen G. Peck, USAF, retired, PhD, played an instrumental role in the planning and execution of Operation Allied Force. The end of the Cold War helped unleash long-dormant ethnic and religious tensions in many parts of the world. In the Balkans, rivalries led to a series of military operations, interventions, and humanitarian crises that gained the attention of transnational organizations. This lecture briefly will review airpower operations in the Balkans during this period. It will then delve more deeply into the background leading to NATO's decision to use airpower to compel the Serbian leadership to cease atrocities against ethnic Albanians in the province of Kosovo. The discussion will address key planning and execution challenges for the Allied Force air operation and the degree to which these challenges were overcome.

CONTACT HOURS: 1.0-hour lecture

AO 529 (S): Airpower Effectiveness in OAF and its Implications for Strategic Attack

Overview: The readings and lectures stimulate a debate regarding the strategic and operational effectiveness of the bombing of Yugoslavia in 1999. Allied Force's legacy is more complicated and contested than that of Desert Storm. Many airmen support the view that the Kosovo campaign validated airpower's ability to be singlehandedly decisive. Others disagree. Seminar discussion assesses the operational and strategic outcomes for the Balkans, and the implications for airpower's future in contributing towards meaningful national security outcomes in strategic competition. Additionally, OAF prompted Russia to rethink its relationship with the West and contributed to a renewed emphasis on military modernization and a focus on external threats.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (75)

1. Daniel R. Lake, "The Limits of Coercive Airpower: NATO's "Victory" in Kosovo Revisited," *International Security* 43, no. 1 (Summer 2009), 83-112. [EL]
2. Andrew L. Stigler, "A Clear Victory for Air Power: NATO's Empty Threat to Invade Kosovo," *International Security* 27, no. 3 (Winter 2002-2003), 124-157. [EL]
3. Tracey German, "A Legacy of Conflict: Kosovo, Russia, and the West," *Comparative Strategy* 38, no. 5 (2019), 426-435. [EL]

DAY 16: AIRPOWER IN THE GLOBAL WAR ON TERROR

DATE: 17 November 2022

LESSON OBJECTIVES

1. Comprehend the impact of the September 11, 2001 attacks on US national security.
2. Assess the relative effectiveness of airpower as an instrument of national policy in the successive phases of OEF and OIF against the changing character of both conflicts since 2001 and 2003, respectively.
3. Examine the relevance of airpower in conflicts where kinetic solutions, while often necessary, may undermine the broader strategic objective of protecting the population and maintaining its political loyalty.

LESSON OVERVIEW

AO 530 (L): Operation Iraqi Freedom (Col David Hathaway, USAF, retired)

Overview: This lecture examines the geopolitical landscape in the aftermath of the September 11 attacks against the United States and presents the major combat phases of Operation Iraqi Freedom. The lecture addresses perennial planning challenges while assessing planning limitations. The lecture also explores how well airpower met national security objectives in a variety of ways.

CONTACT HOURS: 1.0-hour lecture

AO 531 (S): Airpower Case Studies in Afghanistan, Iraq, and Somalia

Overview: This seminar appraises the case studies of Operation Enduring Freedom and Operation Iraqi Freedom. The major combat phases in Afghanistan and Iraq resembled state-on-state conflict, although they each were heavily lopsided affairs. By 2008, however, coalition forces had begun stability operations and counterinsurgency efforts in both nations. A non-American example of airpower application in the context of counterinsurgency rounds out the case studies. Students will also consider the extent to which the so-called “Afghan model” offers a powerful means for using airpower in conjunction with allied ground power.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (68)

1. Benjamin S. Lambeth, “Operation Enduring Freedom, 2001” in *History of Air Warfare*, 255-277.
2. Stephen D. Biddle, “Allies, Airpower, and Modern Warfare: The Afghan Model in Afghanistan and Iraq,” *International Security* 30, no. 3 (Winter 2005/06), 161-176. [EL]
3. Williamson Murray, “Operation Iraqi Freedom, 2003,” in *History of Air Warfare*, 279-296.
4. Donovan C. Chau, “Linda Nchi from the sky? Kenyan air counterinsurgency operations in Somalia,” *Comparative Strategy* 37, no. 3 (2018), 220-234. [EL]

OPTIONAL READINGS (26)

1. Heather Venable, “The Result is Never Final: Operation Iraqi Freedom, The Greater 30 Years War, 1990-” in *Air Power in the Age of Primacy: Air Warfare since the Cold War*, ed. Phil M. Haun, Colin F. Jackson, and Timothy P. Schultz (Cambridge: Cambridge University Press, 2022), 121-147. [EL]

DAY 17: DRONES: THE PAST, PRESENT, AND FUTURE OF UNCREWED AIRCRAFT

DATE: 28 November 2022

LESSON OBJECTIVES

1. Comprehend the history of the development and use of drones and RPAs in warfare from strategic competition and peer conflict to counterinsurgency campaigns.
2. Analyze the debates over the best of use of RPAs in conflicts across the competition continuum, with particular attention to short-term versus long-term effects and how RPAs affect warfare at tactical, operational, and strategic levels.
3. Debate the challenge of ethical decision making for the employment of RPAs in warfare, particularly the tension between high-value strikes and low tolerances for civilian casualties.
4. Apply understandings of the best practices regarding the employment of RPAs in warfare to an examination of recent conflicts, particularly Russia's invasion of Ukraine.

LESSON OVERVIEW

AO 532 (L): Drones and Modern Air Warfare (Lt Col Michael Kreuzer, PhD)

Overview: In late 2007, the United States embarked on a dramatic expansion of RPA operations in support of the War on Terror. To airpower advocates, this marked a revolution in targeting capabilities that overcame the historic limitations of aircraft in small wars, the transient nature of aircraft, the limits of targeting intelligence, and the precision of munitions. To many critics, it represented a feckless escalation that was bound to result in “blowback” and set a very dangerous precedent for human targeting in future conflicts. Lt Col Kreuzer's lecture will outline the history and evolution of drones and RPAs in warfare and place, in the wider context of modern air warfare, the many roles and missions of drones, their diffusion and adoption by other states, and possible future trends that challenge the narrative of drones as a revolutionary and inherently disruptive military innovation.

CONTACT HOURS: 1.0-hour lecture

AO 533 (S): The Strategic Effectiveness of Drones in the Global War on Terror and Recent Conflict

Overview: Though drones have been used for decades, they came into their own during the Global War on Terror. In fact, drones, including remotely piloted aircraft, became a cornerstone of American counterterrorism and counterinsurgency strategies during the wars in Afghanistan and Iraq, particularly during the Obama administration. With that increased use and visibility, practitioners and academics increasingly debated the effectiveness of drones and how they are best used – the readings highlight these contrasting views. Further, public perceptions of drones increasingly soured as media reports of civilian casualties increased – and often conflicted with statements from the Pentagon. These outcomes highlight the challenge of ethical decision making and the question of accountability, as well as how to communicate these issues to the American public.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (63)

1. Asfandyr Mir and Dylan Moore, “Drones, Surveillance, and Violence: Theory and Evidence from a US Drone Program,” *International Studies Quarterly* 63, no. 4 (2019), 846-849, 860. [EL]
2. Azmat Khan, “Hidden Files Bare Military Failures in Deadly Strikes,” *New York Times*, 19

Dec 2021. [EL]

3. Antonio Calcara, Andrea Gilli, Mauro Gilli, Raffaele Marchetti, Ivan Zaccagnini; “Why Drones Have Not Revolutionized War: The Enduring Hider-Finder Competition in Air Warfare,” *International Security* 46, no. 4 (Spring 2022), 130–171. [EL]
4. Zachary Kallenborn, “Seven (Initial) Drone Warfare Lessons from Ukraine,” *Modern War Institute* (May 5, 2022). [EL]

OPTIONAL READINGS (32)

1. Jenna Jordan, “Attacking the Leader, Missing the Mark: Why Terrorist Groups Survive Decapitation Strikes,” *International Security* 38, no.4 (Spring 2014), 7-38. [EL]

DAY 18: THE SPACE DOMAIN

DATE: 1 December 2022

LESSON OBJECTIVES

1. Comprehend the development of the space domain and its emergence for strategic competition, as well as for asymmetric competition in both commercial and military spheres.
2. Comprehend offensive and defensive space capabilities and various schools of thought for employing these capabilities.
3. Compare and contrast US, Russian, and Chinese approaches to the space domain.

LESSON OVERVIEW

AO 534 (L): China's Space Dream (Dr. Lincoln Hines)

Overview: With goals of becoming a “spacepower in all respects,” China is investing heavily in developing advanced space capabilities. China is becoming increasingly sophisticated in both its counterspace capabilities and in leveraging space capabilities for projecting military power. At the same time, China is accomplishing attention-grabbing feats from landing on the 'far side' of the moon to building a space station in Low Earth Orbit. What is driving China's space ambitions? What advantages does China have in developing its space capabilities? And what obstacles does China face as it seeks to close the capabilities gap between itself and the United States in space? This lecture traces China's ambitions from the outset of the Space Age to today and analyzes the strengths and weaknesses of China's space sector.

CONTACT HOURS: 1.0-hour lecture

AO 535 (S): Military Operations in the Space Domain

Overview: This seminar assesses the space domain and various offensive and defensive capabilities, including the wide range of capabilities employed in the past year. Those capabilities are useful in considering the various intellectual trajectories of US, Russian, and Chinese spacepower. In terms of strategic competition, which schools of operational thought should the United States prioritize and why? How does an understanding of the physics of space help provide insights into what warfare in space might look like?

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (72)

1. Rebecca Reesman and James R. Wilson, “The Physics of Space War: How Orbital Dynamics Constrain Space-to-Space Engagements,” Center for Space Policy and Strategy (2020), 1-22. [EL]
2. Todd Harrison, Kaitlyn Johnson, and Makena Young, “Defense against the Dark Arts in Space: Protecting Space Systems from Counterspace Weapons,” CSIS (2021), 10-26. [EL]
3. Todd Harrison, et al, “Space Threat Assessment: 2022,” CSIS (April 2022), 22-35. [EL]
4. Russell Rumbaugh, “What Place for Space: Competing Schools of Operational Thought in Space,” Center for Space Policy and Strategy (July 2019), 1-21. [EL]

DAY 19: THE CYBER DOMAIN

DATE: 5 December 2022

LESSON OBJECTIVES

1. Comprehend the development of the cyberspace domain, its tie to Information Warfare (IW), and its emergence as a new forum for strategic and asymmetric competition.
2. Comprehend the implications of the paradoxical nature of cyber and IW threats to do great harm but not to be considered an act of war.
3. Compare and contrast how the United States, China, and Russia have used and are seeking to use capabilities in the cyberspace domain.

LESSON OVERVIEW

AO 536 (L): Information Warfare: Interconnections between Cyber, EMS, Information Operations, and ISR (Dr. Josh Sipper)

Overview: Modern information warfare has grown rapidly as a discipline, with all services acknowledging its necessity in strategic competition. The information related capabilities (IRC) of Cyber Operations (CO), Electromagnetic Spectrum (EMS), Information Operations (IO), and Intelligence, Surveillance, and Reconnaissance (ISR) along with Weather Operations can create mass effects to overwhelm adversaries and give our warfighters an operational and tactical advantage. These IRCs not only operate in the information and cognitive spaces, but in concert with and in kinetic space, supporting and enabling Joint All-Domain Operations (JADO).

CONTACT HOURS: 1.0-hour lecture

AO 537 (S): Cyber and Information Warfare

Overview: This seminar examines the cyber domain and information warfare and their impact on US national security. American citizens – including military personnel – have never been more digitally connected, reliant, and vulnerable. Not only is our information vulnerable, but each of us is open to manipulation from *LikeWar* as we casually scroll through our social media feed. Themes include the asymmetric advantage cyberattacks give adversaries, cyber's ability to do harm without doing violence, and the dilemma of fashioning a meaningful response to cyberattacks.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS (81)

1. Josh Sipper, "Information Warfare and Critical Infrastructure: The Combined Power of Information Warfare Threats," *The Journal of Information Warfare* (forthcoming October 2022), 11 pages. [EL]
2. David Sanger, *The Perfect Weapon: War, Sabotage, and Fear in the Cyber Age*, 1-5, 100-123, and 152-160.
3. P.W. Singer and Emerson T. Brooking, *LikeWar: The Weaponization of Social Media*, 83-117.

DAY 20: THE FUTURE OF AIRPOWER?

DATE: 12 December 2022

LESSON OBJECTIVES

1. Comprehend the transitions and challenges facing airpower in an uncertain future, drawing on the Air Force's core missions and airpower's relationship to the cyber and space domains.
2. Examine the opportunities and limits of emerging technologies that might aid in the USAF's efforts to adapt and innovate to prepare for strategic competition.
3. Assess best practices for how institutions prepare for future war in the strategic and operational realms.
4. Comprehend various scenarios in which airpower might be employed in a conflict with China.

LESSON OVERVIEW

AO 538 (P): The Past, Present, and Future of Air, Space, and Cyberpower (Col Ty Morton (ISR), Dr Sped Redman (global strike), Col David Bosko (cyber), Dr Andrea Harrington (space), Col Derek Salmi (mobility), Col Trey Coleman (C2), Dr Al Peck (moderator))

Overview: This panel will address the next quarter century and issues related to strategic competition from China and Russia facing US and allied air, space, and cyber power. Panelists will offer insights regarding the air, cyberspace, and space domains. **Note:** Due to panelist obligations, the panel will be held only once from 0830-1000. Both morning and afternoon seminars will attend the panel.

CONTACT HOURS: 1.5-hour panel

AO 539 (S): The Future of Airpower?

Overview: Over the last five years the DOD and USAF have increasingly focused on the return of strategic competition and the threat posed by China and Russia. Yet even as strategic competition looms large, asymmetric conflict in its varied forms is unlikely to go away. Further complicating matters, emerging technologies may disrupt or rebalance power in the near and medium future. Finally, what are best practices for preparing for future conflict? The speculation of military futurists receives significant attention. Yet in *The Future of War: A History*, Sir Lawrence Freedman examines the historical precedents of previous futurists, pointing out how often they have gotten it wrong. If he is correct, how do we best think about and prepare for the future employment of air, space, and cyber capabilities?

CONTACT HOURS: 1.5-hour seminar

AO-901 FINAL PAPER DUE ON CANVAS BY 1700

REQUIRED READINGS (39)

1. Martin van Creveld, "Approaching the End?," in *European Air Power: Challenges and Opportunities*, 201-214. [EL]
2. R.A. Mason, "The Response to Uncertainty," in *European Air Power: Challenges and Opportunities*, 215-229. [EL]
3. US Air Force, "Air Force Future Operating Concept: A View of the Air Force in 2035," 11-13. [EL]
4. Stacie L. Pettyjohn, "War with China: Five Scenarios," *Survival*, 64, no. 1 (2022), 57-66. [EL]

OPTIONAL READING

1. Lawrence Freedman, *The Future of War: A History*. New York: PublicAffairs, 2017.

APPENDIX: COURSE FACULTY

AO Course Director

Dr. Heather P. Venable is an Associate Professor of Military and Security Studies in the Department of Airpower. She has taught Airpower I, Airpower II, and electives on close air support and the historical experience of combat. She also has served as the Airpower Two course director. As a visiting professor at the US Naval Academy, she taught naval and Marine Corps history. She graduated with a BA in History from Texas A&M University and an MA in American History from the University of Hawai'i. She received her PhD in military history from Duke University. She also has attended the Space Operations Course as well as the Joint Firepower Course. She has written *How the Few Became the Proud: The Making of the Marine Corps' Mythos, 1874-1918* (Naval Institute Press, 2019). Previous published work includes "'There's Nothing that a Marine Can't Do': Publicity and the Marine Corps, 1905-1917" in *New Interpretations in Naval History: Selected Papers from the Sixteenth Naval History Symposium* and "The China Marines and the Crucible of the Warrior Mythos, 1900-1941" in *Crucibles: Selected Readings in U.S. Marine Corps History*. She is also a non-resident fellow at Marine Corps University's Krulak Center. Her professional service includes service as a managing editor for The Strategy Bridge. Her current research centers on intersections between theory and pre-war thinking and the application of airpower in combat.

AO Deputy Course Director

Dr. Mary Elizabeth Walters is an Assistant Professor of Military and Security Studies in the Department of Airpower. Walters received both her MA and PhD in military history from the University of North Carolina at Chapel Hill. She teaches Airpower I, Airpower II, War Theory, and electives on War and Genocide in the Balkans and Combat Motivation. She is currently working on an oral history project exploring Operation Allies Welcome, the military support effort by the United States military for the evacuation and resettlement of Afghans spanning 2021-2022. Her second book project, *Hospitality is the Law of the Mountains: The 1999 Kosovo War*, argues that Albanians – motivated by the Albanian concept of hospitality – took strangers into their homes and communities and changed the course of the refugee crisis. Their actions bought time for the U.S. military to mobilize, rebuild Albania's shattered infrastructure, and bring in massive amounts of aid. Previous published work includes "'Tree Hugging Work': The Shifting Attitudes and Practices of the U.S. Marine Corps Toward Peace Operations in the 1990s" in *Marine Corps History* and "A Tantalizing Success: The 1999 Kosovo War" in *The Strategy Bridge*. Before joining ACSC, Walters was an assistant professor in the History Department at Kansas State University.

Faculty

Maj Kelsi Baker is an instructor and Director of Staff in the Department of Airpower at the Air Command and Staff College. Prior to instructing, she served as the Executive Officer for the LeMay Center Commander and Air University Vice Commander. As a prior missile officer, she completed 4 years at F.E. Warren with the 319th MS and 90th OSS. As an intelligence officer, she has completed assignments at NSA-Texas, 25th AF, AFGSC, and the ISRD at Camp Arifjan. She received her commission from OTS in 2008. Maj Baker graduated with a Bachelor of Science degree in Cellular/Molecular Biology in 2007 and a Master of Military Operational Art and Science degree in 2020.

Maj Steven “Noforn” Barfoot is an Instructor in the Department of Airpower at the United States Air Force’s Air Command and Staff College (ACSC). He teaches the Airpower Strategy and Operations and the Contemporary and Emerging Warfare courses. Prior to instructing at ACSC, he was a member of ACSC’s AY22 class. In his previous assignment, he was the assistant director of operations at the 527th Space Aggressor Squadron at Schriever AFB, CO. As an air traffic controller in the Royal Canadian Air Force, Maj Barfoot cross-trained into space operations in 2009 when he was assigned to the 12th Space Warning Squadron, Thule Air Base, Greenland. Since then, he’s had numerous space assignments in both Canada and the US. Additionally, he has worked in space acquisitions as the project director for the Surveillance of Space 2 capability; the follow-on to Sapphire. Maj Barfoot holds a Master of Business Administration as well as a Master of Military Operational Art and Science.

Dr. Lisa L. Beckenbaugh is the Chair of the Leader and Research Development Department at the US Air Force’s Air Command and Staff College (ACSC). Dr. Beckenbaugh received her bachelor’s and master’s degrees from St. Cloud State University and her PhD from the University of Arkansas. Dr. Beckenbaugh has taught at a variety of undergraduate and graduate civilian institutions. Her book, *The Versailles Treaty: A Documentary and Reference Guide* for ABC-CLIO, was published in 2018. Dr. Beckenbaugh also serves as the faculty advisor for the Gathering of Eagles elective and has edited five of their published books, most recently, *Why We Stay: Stories of Unity and Perseverance*. Dr. Beckenbaugh’s current research is on the 1st MASH (Mobile Army Surgical Hospital), later redesignated 8209th MASH, during the Korean War. Research Interest/Expertise: Oral History, American POWs, World War II, Women in Combat, Battlefield Medicine, and MASH Units in the Korean War.

Dr. Terry Beckenbaugh is an Associate Professor in the Department of Air Power at the US Air Force’s Air Command and Staff College (ACSC). He came to ACSC from the US Army Command and General Staff College at Fort Leavenworth, Kansas, where he taught for nine years in the Department of Military History. Dr. Beckenbaugh received his PhD in 19th Century US History from the University of Arkansas, and his Masters and Bachelors in US History and History, respectively, from Shippensburg University of Pennsylvania. Beckenbaugh has taught at a variety of undergraduate and graduate civilian institutions. He is currently working on a book on the White River Campaign in Arkansas in the spring-summer of 1862, and has numerous publications and conference presentations.

Maj Robert Bireley is an Instructor in the Department of Airpower at the US Air Force’s Air Command and Staff College (ACSC). He teaches the Airpower Strategy and Operations and the Contemporary and Emerging Warfare courses. Prior to this assignment, he served as the Director of Operations, 57th Information Operations Squadron at Nellis AFB, NV. He is an offensive cyberspace operations officer with various assignments in operations and training. He deployed in support of Operation Enduring Freedom, supporting both conventional and special operations joint forces as a fires planner for non-kinetic effects and information operations. Maj Bireley received a Bachelor of Science degree from Wilkes University. He also holds a Master of Science in Information Systems Security from Our Lady of the Lake University and a Master of Military Operational Art and Science degree from ACSC.

Maj Michael A. Bradford is an Air University Fellow and an instructor in the Department of Airpower at the US Air Force’s Air Command and Staff College (ACSC). He completed the ACSC In-Residence program in May 2022. He received his commission from the University of Oklahoma

Reserve Officer Training Corps in 2008 and is a Nuclear and Missile Operations Officer. Prior to ACSC, Maj Bradford was Executive Officer at Jeannette M. Holm Center, Maxwell Air Force Base, AL where he deployed to Central Command's (CENTCOM) Rotations Branch in support of operations in the CENTCOM area of responsibility. He spent five years at Malmstrom Air Force Base, MT culminating as an Emergency War Order Instructor. He spent four years at Vandenberg Air Force Base, CA at the 576 Flight Test Squadron as a Nuclear Test Operations Officer culminating as Assistant Director of Operations and deployed to Kabul, Afghanistan as a member of the 9 AETF-A Staff in support of NATO's Operation Resolute Support. He served as the Director of Operations in the 217 Training Squadron at Officer Training School (OTS), Maxwell Air Force Base, AL. He holds a Master of Military Operational Art and Science from Air University.

Lt Col Benjamin T. Bryant is an instructor and Deputy Department Chair in the Department of Air Power at the Air Command and Staff College. He instructs courses in Airpower Strategy and Operations, Contemporary and Emerging Warfare, and Leadership in Command. Lt Col Bryant is a Master Combat Systems Officer with over 2,300 flight hours in the MC-130E, MC-130P, and MC-130J, including over 630 combat hours flown in OPERATION IRAQI FREEDOM, OPERATION ENDURING FREEDOM, and other contingency operations around the globe. His operational and staff tours include assignments to SOCOM, AFSOC, and AETC. He holds Masters degrees from the University of West Florida (Public Administration) and Air University (Strategic Studies). Lt Col Bryant is an Air War College graduate and completed in-residence IDE at the Army Command and General Staff College. Prior to his arrival at Air University, Lt Col Bryant was Commander, 58th Training Squadron, Kirtland AFB, NM.

Lt Col John "Garick" Chamberlin, PhD, is an Assistant Professor of Military and Security Studies in the Department of Airpower at the United States Air Force's Air Command and Staff College (ACSC). He holds a PhD in History from Purdue University, an MA in National Security Affairs from Naval Postgraduate School, and a BS in Middle East Studies from Excelsior College (USNY). Garick has split his Air Force career roughly equally between intelligence and education assignments, having taught at the Defense Language Institute and the US Air Force Academy, and commanded a Student Squadron at Squadron Officers School prior to his assignment to ACSC. In the Intelligence field, he was attached to the RC-135 both as an enlisted aviator and as an intelligence officer, and also served on the 3rd Air Force and US Air Forces in Europe staffs and as the Chief of Wing Intelligence for the 22 ARW at McConnell AFB. Garick has over a dozen deployments to the Middle East, as well as one to Kosovo. His research focuses on the diplomatic and military history of the Early American Republic, primarily related to North African affairs.

Lt Col Paulo Costa is an Instructor in the Department of Airpower at the United States Air Force's Air Command and Staff College (ACSC). He teaches the Airpower Strategy and Operations and the Contemporary and Emerging Warfare courses. Prior to instructing at ACSC, he was a member of ACSC's AY21 class. Lt Col Paulo Costa is a senior cargo pilot from Brazilian Air Force with more than 3,200 flying hours in several EMBRAER aircraft, from turbo-prop Tucano to business jets. Before coming to the United States, he was the Commander of the Special Transport Group's 1st Squadron, the airlift unit responsible for transporting the President of the Federative Republic of Brazil. Lt Col Costa attended the Brazilian Air Force Academy, receiving his bachelor's degree in Aeronautical Science and Public Administration. He also holds a *Lato Sensu* specialization in Institutional Marketing, a Master of Business Administration, and a Master of Military Operational Art and Science.

Maj Brian “O’Rion” D’Arcy is an Air University Fellow and an Instructor in the Department of Airpower at the US Air Force’s Air Command and Staff College (ACSC). He teaches Airpower Strategy and Operations and Contemporary and Emerging Warfare courses. Prior to this assignment, he served as a B-52H Formal Training Unit Evaluator Pilot in the 11th Bomb Squadron, Barksdale Air Force Base, Louisiana. Major D’Arcy is a senior pilot with over 3,400 flight hours in the B-52H and MQ-1B, including 275 combat hours and 1,579 combat support hours. During his operational assignments, Major D’Arcy deployed in support of Operation ENDURING FREEDOM, Operation INHERENT RESOLVE, and INDOPACOM’s Continuous Bomber Presence, as well as numerous Bomber Task Force deployments to USEUCOM. Major D’Arcy is a 2008 graduate of the United States Air Force Academy, where he received his commission and a Bachelor of Science in Biology. He also holds a Master of Organizational Leadership from Colorado State University-Global Campus, and a Master of Military Operational Art and Science degree from ACSC.

Maj Michael “Deano” Dean is the Air University Fellow Program Manager and an Instructor in the Department of Airpower at the US Air Force’s Air Command and Staff College (ACSC). Prior to this job, he was an Air University Fellow with teaching experience at Squadron Officer School. His recent assignments include strategy and current plans development on the United States Air Forces-Europe Staff and 603d Air Operations Center. He is an Air Battle Manager with more than 2,000 hours on the E-3 AWACS. Maj Dean has deployed in support of Operations Iraqi Freedom, Unified Protector, Enduring Freedom, and Inherent Resolve. Other notable missions supported are Operation Noble Eagle, SOUTHCOM Counter-Drug Operations, Presidential Overwatch, and representing Air Forces-Africa on numerous security cooperation delegations. Maj Dean received a Master of Arts in Education from George Fox University and a Master of Operational Art and Science from ACSC.

Dr. Jared R. Donnelly is an Associate Professor of Military and Security Studies and the Course Director of the Contemporary and Emerging Warfare course at the United States Air Force’s Air Command and Staff College. Dr. Donnelly received his PhD from Texas A&M University and was previously on the faculty of the International Affairs Department at the George H.W. Bush School of Government and Public Service. Donnelly's research focuses on war and social change in Germany and Europe with a specific interest in the period since 1945. Additionally, he studies strategic design for future security environments and conducts research on decision making in multi-domain operations.

Research Interest/Expertise: Modern Europe, Modern Germany, European War and Society, Nazi Germany, Multi Domain Operations, Strategic Design, Joint Planning.

Lt Col Hugh Gardenier is an instructor in the Department of Airpower at the Air Command and Staff College (ACSC). He graduated from the United States Air Force Academy in 2002. After commissioning, he worked as a Developmental Engineer on various USAF aircraft, satellite, and cyber acquisition programs. In 2015, Lt Col Gardenier attended ACSC and after graduation served as an instructor in the Department of Airpower and member of the ACSC staff. He was selected for the Advanced Academic Degree program in 2018 and started at Ohio State University for a Military History PhD the following year. Currently, he is working on his dissertation, which examines the impact of USAF General (Retired) Nathan F. Twining on the USAF and U.S. national security strategy during the Eisenhower administration.

Research Interests: Military effectiveness, civilian-military relations, the strategy-making process, and American military history

Lt Col Jeremiah “Happy” Gilmore is an Instructor in the Department of Airpower at the US Air Force’s Air Command and Staff College (ACSC). Prior to this assignment, Lt Col Gilmore was a Staff Officer at Air Combat Command (ACC) where he worked acquisition and capability development for several emerging Air force Programs. He holds a Master’s in Military Operational Art and Science from Air University as well as a Master of Science in Administration from Central Michigan University. He earned a Bachelor of Science degree in Computer Science from the University of Georgia and received his commission from ROTC. He has previously served at Offutt AFB where he deployed with the RC-135 to the CENTCOM and INDOPACOM AORs. He has also completed an instructor assignment at the Combat Systems Officer Formal Training Unit in Pensacola Florida. He is a Senior Combat Systems Officer with over 2000 hours in the RC-135 and T-1A aircraft.

Maj Zach Johnson is an Instructor in the Department of Airpower at the United States Air Force’s Air Command and Staff College (ACSC). Prior to instructing at ACSC, Maj Johnson was a member of ACSC’s AY22 class. He received his commission from OTS and after graduating Air Battle Manger training at Tyndall AFB, FL, Maj Johnson was assigned to fly the E-3 AWACS stationed at Oklahoma City, OK. Maj Johnson is a certified Mission Commander, graduate of the USN's TOPGUN Air Intercept Controller course, and served in operations OIR, OEF, and CDAG. Additionally, Maj Johnson has been assigned to Kadena AB, Japan, and Osan AB, Korea. Most recently, he was an Evaluator Air Battle Manager at the 621 Air Control Squadron and Chief of Standards & Evaluations at the Korean Air Operations Center.

Lt Col Robert Lacy is an instructor in the Department of Airpower at the US Air Force’s Air Command and Staff College (ACSC). LtCol Lacy is a Senior Combat Systems Officer having flown the EC-130H, MC-130H, and MC-130J. He holds a Master of Military Operational Art and Science from Air University as well as a Master of Natural Resource Development from Texas A&M University. He earned a Bachelor of Science in Geology from the University of Nebraska-Lincoln in 2006 and commissioned through ROTC. Prior to this assignment he was assigned to the 58th Special Operations Wing, AETC’s schoolhouse for Special Operations and Personnel Recovery aviation.

Maj Peter “PMac” MacLellan is an Air University Fellow and an instructor in the Department of Airpower at the Air Command and Staff College (ACSC). He is a 2022 distinguished graduate from the ACSC in-residence program. Prior to ACSC, Maj MacLellan was a C-17A Evaluator Pilot and Chief of Standardization and Evaluations in the 6th Airlift Squadron, Joint Base McGuire-Dix-Lakehurst, New Jersey. He received his commission in 2010 from Officer Training School (OTS) at Maxwell Air Force Base (AFB), Alabama, and earned his wings through Joint Specialized Undergraduate Pilot Training (JSUPT) at Vance AFB, Oklahoma. Maj MacLellan is a Senior Pilot with more than 3,500 hours in the C-17, C-21, and trainer aircraft. Maj MacLellan graduated Summa Cum Laude with a Bachelor of Science in Computer Science from Northeastern University in 2008, earned a Master of Science in Systems Engineering from Johns Hopkins University in 2017, and earned a Master of Military Operational Art and Science from Air University in 2022.

Lt Col R. A. Orozco is an Instructor in the Department of Airpower and the 38th Student Squadron Director of Operations at the US Air Force's Air Command and Staff College (ACSC). He teaches the Airpower Strategy and Operations (AO) course. Prior to this assignment, he served as Political-Military Affairs Strategist and Director of Operations, 571st Mobility Support Advisory Squadron at Travis AFB, CA. He is a prior-enlisted KC-135 Boom Operator, an F-15E Weapon Systems Officer, an Air Ground Operations School instructor, an Undergraduate Combat Systems Officer Training instructor, and a senior Air Advisor. During his operational assignments, he deployed in support of Operation Southern Watch, Operation Enduring Freedom, a theater security package detachment to the Korean Peninsula, and numerous security cooperation engagements within USSOUTHCOM. Lt Col Orozco received a Bachelor of Science degree from the US Air Force Academy. He also holds a Master of Arts in Human Relations from the University of Oklahoma and a Master of Military Operational Art and Science degree from ACSC.

Dr. S. Mike Pavelec is Chair of the Department of Airpower at the Air Command and Staff College. He has extensive teaching experience within JPME, including the Naval War College, the School of Advanced Air and Space Studies (SAASS), and the Joint Advanced Warfighting School (NDU). He earned his PhD at The Ohio State University in 2004. He offers electives on "World War I in the Air" and "The Evolution of Airpower Technology and Theory." A prolific researcher and writer, he has five books in print and two under contract. His most recent book is *Airpower Over Gallipoli, 1915-1916*, (Naval Institute Press, 2020), in addition to journal articles and book chapters on airpower, history, space, and cyber. He can be seen on National Geographic's hit TV show *Nazi Megastructures*.

Dr. Allen G. Peck, Lt Gen, USAF, retired is an Associate Professor of Military and Security Studies at the Air Command and Staff College's Department of Airpower. Prior to joining the ACSC faculty, Dr. Peck served as director of the Air Force Research Institute. During his 36 years on active duty, Dr. Peck commanded an air operations group in Germany, an air expeditionary wing in Saudi Arabia, the Air and Space Expeditionary Force Center at Langley AFB, the LeMay Center for Doctrine Development and Education, and the Air University at Maxwell AFB. He was a key planner for NATO's Kosovo operation and later served as Deputy Combined Force Air Component Commander at Al Udeid Airbase, Qatar. As an aviator, Dr. Peck was qualified as aircraft commander and instructor in the air-to-air and air-to-ground variants of the F-15. He holds a BS in Mathematics from the US Air Force Academy, an MS in Operations Research from the Air Force Institute of Technology, an MA in International Relations from Salve Regina College, and a PhD in Aviation from Embry-Riddle Aeronautical University.

Dr. Edwin H. Redman, Colonel, USAF, retired is an Assistant Professor of Military and Security Studies in the Department of Airpower at the US Air Force's Air Command and Staff College (ACSC). Dr. Redman is a command pilot with tours in each of the Air Force's bomber aircraft. He served as an instructor pilot in the T-38, B-1 and B-2, and flew combat missions in Operation IRAQI FREEDOM in 2003 in the B-2. He is a graduate of the US Air Force Academy, ACSC, and the School of Advanced Air and Space Studies (SAASS). Following SAASS, Dr. Redman attended Duke University, where he received his PhD in History. His last operational assignment was Deputy Commander, 509th Operations Group, Whiteman Air Force Base. He completed his active-duty service at Air University, holding several positions, including Director of Warfighting Education at the LeMay Center for Doctrine Development and Education, and Director of the Grand Strategy Seminar, Air War College. He retired from the Air Force in 2014 and joined Air University as a civilian professor in 2015.

Dr. Joshua A. Sipper is an Assistant Professor at the Air Command and Staff College. He completed his Doctoral work at Trident University in September of 2012, earning a Ph.D. in Educational Leadership (emphasis, E-Learning Leadership). Dr. Sipper's previous degrees were obtained from Troy University (M.Ed. Education) and Faulkner University (B.S. English). Dr. Sipper is a veteran who served honorably in the U.S. Air Force in the intelligence career field and worked for Lockheed Martin in a similar capacity on the U-2 program. More recently, Dr. Sipper shifted his focus into the cyber realm for seven years as a Systems Engineer, Chief of Cyber Standardization and Evaluation, and Cyber Exercise Manager for General Dynamics at the Air Force's 26th Network Operations Squadron, followed by a nine-year stint as a civil servant in the Air Force cyber career field at the Curtis E. LeMay Center for Doctrine Development and Education. Just prior to his appointment at ACSC, Dr. Sipper was a Professor of Cyberwarfare Studies at the Air Force Cyber College where he designed several cyber courses including Cyber ISR, Cyber EW, and Cyber and Information Warfare Capabilities and Trends. He has numerous publications including his paper titled "The Cyber Microbiome and the Cyber Meta-reality" published at the IARIA Cyber 2020 conference for which he won a "Best Paper Award" and also has a book titled "The Cyber Meta-reality: Beyond the Metaverse, published by Rowman and Littlefield in 2022. Dr. Sipper's research interests include cyber operations, ISR, electromagnetic warfare, and cyber warfare.

Dr. Paul J. Springer is a full professor of comparative military studies. He holds a PhD in military history from Texas A&M University. He is the author or editor of more than a dozen books, including *America's Captives: Treatment of POWs from the Revolutionary War to the War on Terror*; *Military Robots and Drones: A Reference Handbook*; *Transforming Civil War Prisons: Lincoln, Lieber, and the Laws of War*; *Cyber Warfare: A Reference Handbook*; and *Outsourcing War to Machines: The Military Robotics Revolution*. In addition, he has published hundreds of shorter pieces, on a variety of subjects including military history, terrorism, strategy, technology, and military robotics. Dr. Springer is a Senior Fellow of the Foreign Policy Research Institute, and the series editor for both the *History of Military Aviation* and *Transforming War* series, produced by the U.S. Naval Institute Press. Currently, he is completing three books, including a collective biography of the West Point Class of 1829; a military history textbook (co-authored with ACSC Professor S. Michael Pavelec); and an examination of the post-Civil War creation of higher education institutions in the South. Research Interest/Expertise includes: POW operations; military leadership and command; terrorism; strategy; military technology; artificial intelligence; cyber warfare; and U.S. military history.

Dr. Chris Stamper is an Assistant Professor of Military and Security Studies in the Department of Joint Warfighting at the Air Command and Staff College. A retired U.S. Navy Commander, he has a Bachelor's of Science Degree in Oceanography from the United States Naval Academy, and a Master of Arts in National Security and Strategic Studies from the U.S. Naval War College. He holds a Doctorate in Public Administration from Capella University, specializing in East African Affairs. He has been a flight instructor and taught at the US Naval Academy and the Air War College.

Chaplain, Lt Col Richard "Rick" Steen is an instructor in the Department of Leadership at the US Air Force's Air Command and Staff College. He holds a Bachelor's Degree in History from Bob Jones University in Greenville, SC (1998), a Master of Divinity from The Master's University and Seminary in Sun Valley, CA (2003), and a Master of Military Operational Art and Science

from Air University (2019). Prior to ACSC, Lt Col Steen served 14 years as a staff chaplain and Wing Chaplain at the 134th Air Refueling Wing, an Air National Guard Wing in Knoxville, Tennessee. Additionally, Lt Col Steen has served as Deputy Wing Chaplain, and a Clinical Pastoral Resident at the University of Tennessee Medical Center.

Maj Josh “SAW” Tobitt is an Air University Fellow and an instructor in the Department of Airpower at the Air Command and Staff College (ACSC). He is a 2022 graduate from the ACSC in-residence program. Prior to ACSC, Maj Tobitt was a F-15E Evaluator Pilot and Wing Executive Officer in the 4th Fighter Wing, Seymour Johnson AFB, North Carolina. He received his commission in 2009 through the Reserve Officer Training Corps (ROTC) at Oklahoma State University and earned his wings through Joint Specialized Undergraduate Pilot Training (JSUPT) at Vance AFB, Oklahoma. Maj Tobitt is a Senior Pilot with more than 2,500 hours in the T-6, T-38, and F-15E. Maj Tobitt graduated with a Bachelor of Science in Industrial Engineering from Oklahoma State University in 2009, earned a Master of Science in Aeronautical Operations from Embry Riddle University in 2014, and earned a Master of Military Operational Art and Science from Air University in 2022.

Dr. Michael E. Weaver is an associate professor of history in the Department of Air Power. He joined the faculty of ACSC in 2002 after completing his doctorate at Temple University under the tutelage of Russell Weigley. Weaver’s first book was *Guard Wars: The 28th Infantry Division in World War II* (Indiana University Press, 2010). His second, *The Air War in Vietnam* (Texas Tech University Press, 2022), should be in print in the fall of 2022. In *The Journal of Aeronautical History, Intelligence and National Security, Air Power History, and Diplomatic History* he has published articles on the Cuban Missile Crisis, air intelligence during World War II, aircraft capabilities, and air combat training during the Cold War. Weaver specializes in aviation history, the Cold War, and World War II.

Maj Justin “Tweek” Wohlford is an instructor in the Department of Air Power at the Air Command and Staff College (ACSC). He teaches the Airpower Strategy and Operations and the Contemporary and Emerging Warfare courses and the Science Fiction and Strategy elective. Prior to this assignment, he served as the Deputy Chief of Flight Safety, Air Combat Command (ACC) at Joint Base Langley-Eustis, VA. Maj Wohlford is a Senior Pilot with over 2,000 flight hours in the E-8C JSTARS, including over 850 combat hours flown in Operation ENDURING FREEDOM, Operation INHERENT RESOLVE, and Operation FREEDOM’S SENTINEL. Maj Wohlford received a Bachelor of Science in Aeronautical Engineering from the United States Air Force Academy. He also holds a Master of Arts in Military History from Norwich University and a Master of Military Operational Art and Science degree from ACSC.

Lt Col Matt “Indy” Ziemann is an instructor in the Department of Leadership and Research at the Air Command and Staff College. He teaches Leadership in the Profession of Arms, Leadership in Command, Airpower Strategy and Operations, and is the military advisor for the Gathering of Eagles. He is a career intelligence officer and political-military affairs strategist with a background primarily in special operations. He is an instructor/evaluator senior airborne ISR Operator with over 1200 flight hours in a variety of special operations aircraft including over 850 combat hours flown in Operation IRAQI FREEDOM and Operation NEW DAWN. He is also a civilian pilot owning an RV-4 for the past 17 years and flying WWII warbirds for the Commemorative Air Force. Lt Col Ziemann commanded the 392d Intelligence Squadron and served as military Deputy Director of Air University’s Commanders’ Professional Development School running O-6 pre-

command training prior to his arrival on ACSC faculty. He received his Bachelor of Science in Management from the US Air Force Academy and holds a Masters in Business Administration with an emphasis in strategic leadership from Trident University and a Master of Military Operational Art and Science degree from ACSC.