



***JOINT WARFIGHTING:
“HOW WE FIGHT”***

SYLLABUS

AY20

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

**UNITED STATES AIR FORCE
AIR COMMAND AND STAFF COLLEGE
*21st Century Leaders for 21st Century Challenges***

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

FOREWORD

This syllabus for the Joint Warfighting course at the Air Command and Staff College, March-May 2020, provides both an overview of the course, course objectives and questions, and a detailed description of each lesson to assist students in their reading and preparation for each course day. Also included herein is information about course methods of evaluation, schedule, and the fulfilment of joint professional military education core goals.

SIGNED

Christopher Weimar
Course Director
Joint Warfighting

APPROVED

James Forsyth, PhD
Dean of Academic Affairs

TABLE OF CONTENTS

| | <u>PAGE</u> |
|---|-------------|
| Foreword | 1 |
| Table of Contents | 2 |
| Course Description and Objectives | 3 |
| Course Questions, Organization, and Narrative | 4 |
| Course Requirements and Methods of Evaluation | 5 |
| Course Administration | 6 |
| Course Snapshot | 7 |
| Lesson List | 8 |
| Course Map | 9 |
| Joint PME Learning Areas and Objectives/Special Areas of Emphasis | 10 |
| Course Faculty | 102 |
| <u>Course Schedule :</u> | |

| <u>PHASE 1</u> | <u>Pg.</u> | <u>PHASE 2</u> | <u>Pg.</u> | <u>PHASE 3</u> | <u>Pg.</u> |
|----------------|------------|----------------|------------|----------------|------------|
| JW-500 | 19 | JW-516 | 54 | JW-534 | 97 |
| JW-501 | 20 | JW-517 | 56 | JW-535 | 99 |
| JW-502 | 22 | JW-518 | 58 | | |
| JW-503 | 24 | JW-518.1 | 60 | | |
| JW-504 | 26 | JW-519 | 61 | | |
| JW-505 | 29 | JW-520 | 63 | | |
| JW-506 | 32 | JW-521 | 66 | | |
| JW-507 | 34 | JW-522 | 68 | | |
| JW-508 | 36 | JW-523 | 71 | | |
| JW-509 | 38 | JW-524 | 74 | | |
| JW-510 | 40 | JW-525 | 76 | | |
| JW-511 | 42 | JW-526 | 78 | | |
| JW-512 | 44 | JW-529 | 81 | | |
| JW-513 | 46 | JW-530 | 83 | | |
| JW-514 | 48 | JW-527 | 85 | | |
| JW-515 | 51 | JW-528 | 86 | | |
| | | JW-531 | 90 | | |
| | | JW-532 | 93 | | |
| | | JW-533 | 95 | | |

JOINT WARFIGHTING COURSE OVERVIEW

COURSE DESCRIPTION

The Joint Warfighting (JW) course is designed to demonstrate, at the operational level, how the U.S. joint force organizes, deploys, employs, sustains, and redeploys military capabilities in support of national interests. The primary purpose of the JW course is to comprehend and analyze how we, the Joint Force, go to war and prevail.

The course will equip military and interagency professionals with skills to articulate and influence the application of the military instrument of power to provide commanders with options for the use of military force in support of national interests. Understanding operational art and design is essential for the military professional, no matter their specialty. Understanding operational context and strategic goals is necessary to properly plan and execute military operations in the modern operational environment. It is also imperative to understand how the U.S. military operates as part of a joint force in a multinational, interagency, and intergovernmental environment.

The Joint Warfighting course grounds students in joint force organization and capabilities, and the planning processes by which national military strategy is developed and translated into plans for joint and multinational operations across the range of military operations. In this course students will examine several historical operations that provide the context for greater understanding and further application of modern doctrinal concepts. The course will also examine and evaluate national security guidance and strategy in relation to operational level plans. Fundamental to operation planning is a comprehension of the capabilities and limitations of the military services across domains, and the examination of ways a joint force commander may integrate service and functional command support to achieve success at the operational level of war. In order to tie the numerous course concepts together, students will learn and use the Joint Planning Process (JPP) and practice the fundamentals of joint and combined operation planning to include whole of government approaches. Students will apply these fundamentals in planning exercises focused on developing effective military solutions to real-world operation planning problems.

COURSE OBJECTIVES

Through the study and analysis of historical operations, the operational environment, strategic guidance, and joint and service doctrine, the JW course will enable students to:

1. Comprehend operational art, operational design, and the joint planning process and how they enable the employment of the military instrument of power and military decision making in pursuit of national interests.
2. Comprehend U.S. joint force capabilities, limitations, and doctrine through the framework of multi-domain operations, and how forces are organized, deployed, employed and sustained in actions across the range of military operations.
3. Apply course concepts and the Joint Planning Process to develop solutions to operational problems in a volatile, uncertain, complex or ambiguous environment using critical

thinking, operational art, and current joint doctrine. (Builds upon the previous two course objectives)

COURSE QUESTIONS

The JW course captures multiple themes related to operational art and design, multi-domain operations, and military planning at the operational level of war. One constant for the course is to examine “*how we fight*.” This succinctly captures how, at the operational level, plans are derived for the application of the ‘**M**’ of the ‘DIME’ in pursuit of national interests. The course approaches this larger issue through the following themes:

1. Understanding strategic direction and guidance: What are the objectives and desired end state? (Ends)
2. Understanding the art of military operations: What sequence of actions is most likely to achieve those objectives and end state? (Ways)
3. Understanding military science: What resources are required to accomplish that sequence of actions? (Means)
4. What is the chance of mission failure or other unacceptable results in performing that sequence of actions? (Risk/Issues)

COURSE ORGANIZATION AND NARRATIVE

Joint Warfighting is structured in three phases:

Phase 1: Problem Framing: Understanding the Problem, Strategic Direction, and the Operational Environment. Phase 1 includes the evaluation of national security guidance and strategy in relation to current security issues and threats, analysis of the potential operational environment, and identification of specific problems to be solved. This phase will familiarize students with the methods through which planners analyze and incorporate strategic guidance in the development of the operational approach (operational design methodology) and mission analysis. This phase will focus on the desired *ends*, and how the military instrument of power may be applied in pursuit of national interests. Upon the completion of this phase, students will be familiar with doctrinal concepts and aspects of operational design, and steps one and two of the Joint Planning Process (JPP) – Initiation and Mission Analysis – which assist the planner in identifying and framing the problem to be solved.

Phase 2: Problem Solving: Developing Solutions through the Application of Military Capabilities. Phase 2 focuses on the *ways* and *means* that may be applied in utilizing the military instrument of power toward solving national security problems. This phase will acquaint students with operational art as applied across the five warfighting domains and across the range of military operations as it enables the development of potential solutions (courses of action) - with the military instrument of power as the centerpiece. The necessity to deploy and sustain forces, as the U.S. is and will remain a power projection nation, is a concept that will also be explored as it greatly influences the planning of joint military operations. The emphasis of Phase 2 is on the operational warfighting domains within and through which military capabilities are arranged and applied; and how valid courses of action are derived, analyzed, and compared to provide the maximum chance of success within the parameters of acceptable risk.

Phase 3: Practical Application - Joint Planning Exercise (JPEX). Phase 3 provides the opportunity to apply all of the concepts of the JW course, and to incorporate concepts from across the ACSC curriculum. The JPEX is based on a complex, nuclear-capable near-peer adversarial scenario. Applying operational art, operational design, and the JPP, students will act as a joint planning group (JPG), and develop courses of action in accordance with national strategic guidance and the commander's intent for a major combat operation (MCO).

COURSE REQUIREMENTS AND METHODS OF EVALUATION

1. **READINGS.** Before lecture and seminar, students are expected to complete all assigned readings for the day. Students are encouraged to read the explanation given in the syllabus before reading the assigned books and articles. The readings will inform seminar discussion and activities. Students should come with pertinent observations and questions from the reading that lead to informed discussion and active participation.
2. **LECTURES.** Students will attend lectures relating to assigned readings and seminar. These presentations compliment the readings and seminar discussion, and therefore enhance knowledge of the course concepts. Lectures in the course take two forms: morning lectures provide historical and theoretical background to stimulate and enhance learning in seminar, while afternoon lectures prepare students for ensuing in-class activities and the application of course concepts. All lectures are not for attribution.
3. **SEMINAR PARTICIPATION.** Due to the "applied art and science" nature of the Joint Warfighting course, student participation in seminar discussions is vital to the success of the course. Students must prepare for each seminar by completing all of the assigned readings. Each member of seminar is expected to contribute meaningfully to the discussion regularly.
4. **WRITTEN ASSIGNMENTS.** There is one graded written assignment in fulfillment of the requirements of the Joint Warfighting course in the form of 1 ten-page take-home analysis paper which is completed as a group project. All written work must include as the first citation an acknowledgement of colleagues who made an intellectual contribution to the work (supports LAO 1a, 6e; SAE 6).
5. **ORAL BRIEFING ASSIGNMENTS.** There are three oral briefings during the course: An Operational Art presentation (JW-518/518.1) and two graded briefings during the final JW planning exercise (JPEX). Specific topics, staff roles, and briefing assignments will be assigned by the course instructor. All students will participate in oral briefings.
6. **PEER REVIEWS.** Based on the collaborative nature of the course, there are two peer reviews that will be completed during the course. The first, covering Phase 1 and Phase 2 will be turned in to the seminar instructor on 5 May. The second review will focus on the JPEX (Phase 3) and will be turned in on the last day of the course. Peer reviews do not constitute student-assigned participation grades, but provide insight into the collaboration efforts in the seminar. The reviews also provide a leadership opportunity as part of the culmination of the ACSC experience. Detailed instructions will be provided by the instructor.

METHODS OF EVALUATION. The evaluations for the course consist of an in-class presentation (JW 600E during JW-518), one written essay (JW 601E), individual class contribution (JW 602E), and two group briefings (JPEX Briefings - JW 603E). All JW concepts and the application of the JPP will be assessed during the two JPEX briefings.

| <u>Assignment</u> | <u>Type</u> | <u>Weight (%)</u> | <u>Date*</u> |
|---------------------------------|------------------|-------------------|------------------|
| In-class presentation (JW 600E) | Group | 10% | 13 April |
| Essay (JW 601E) | Written/Group | 20% | 28 April (1200) |
| Class Contribution (JW 602E) | Daily/Individual | 20% | 16 March - 5 May |
| JPEX Briefings (JW 603E) | Oral/Group** | 50% | 15 & 21 May |

* Refer to the JW course calendar for due dates. The dates listed above are the due date for each assignment. ** JPEX evaluated briefings include a Mission Analysis brief and a Course of Action (COA) Decision brief. The briefs constitute a single graded event. The flight will work as a group during JPEX, but the JPEX grade will be an individual grade.

COURSE ADMINISTRATION

The majority of assigned JW readings are provided in Canvas. Readings that are not in Canvas are either from issued books or at a hyperlink provided in this syllabus. Assigned selections from current Joint Doctrinal Publications (JPs) are available in Canvas. For complete versions of Joint Publications (JP) and other doctrinal resources, it is recommended that students access and download the full versions of applicable doctrinal publications from the Joint Doctrine website: <http://www.jcs.mil/Doctrine/Joint-Doctrine-Pubs/>. The site is the homepage of the library, while JEL+ (CAC required) provides access to unclassified but restricted publications (<https://jdeis.js.mil/jdeis/generic.jsp>). It is recommended that students download JP 1, JP 3-0, JP 5-0, and the *DOD Dictionary of Military and Associated Terms* (<http://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/dictionary.pdf?ver=2018-07-25-091749-087>) from this website and have them readily available for personal and in-class reference.

ACSC provides students with copies of the following books, which must be returned at the conclusion of the course:

- Rick Atkinson, *An Army at Dawn: The War in North Africa, 1942-1943*, (New York: Henry Holt and Company, 2002).
- Bob Woodward, *Plan of Attack*, (New York: Simon and Schuster, 2004).
- Robert C. Owen, *Air Mobility: A Brief History of the American Experience*, (Washington, D.C.: Potomac Books, 2013).

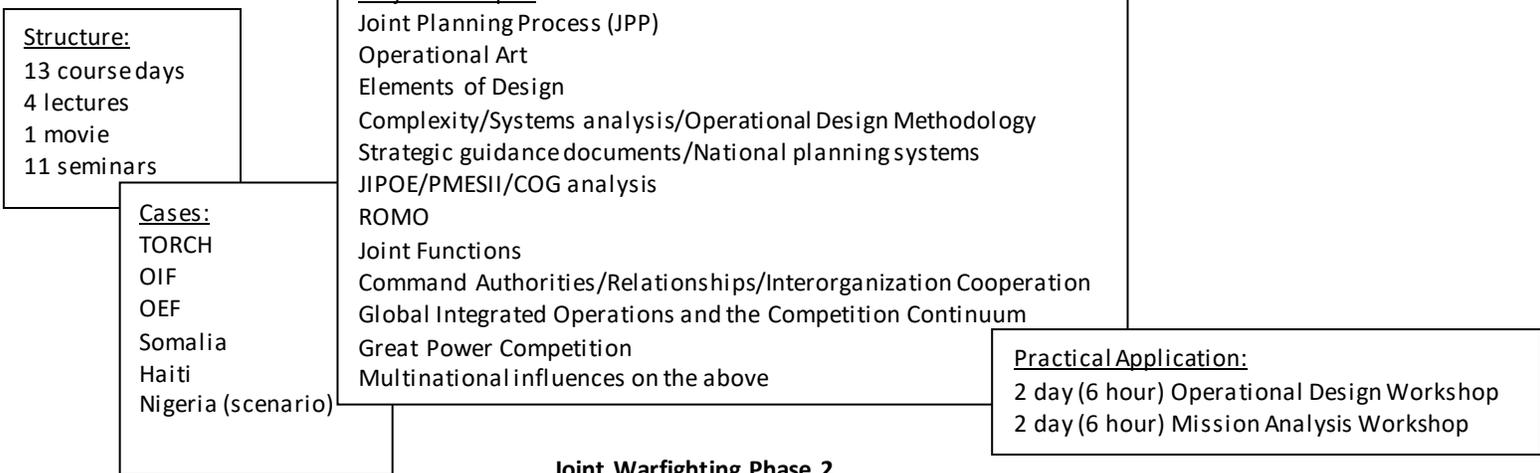
When available, lecture slides will be posted on the same day as the lecture.

Please refer any questions to your seminar instructor, Dr. Chris Weimar (Course Director, christopher.weimar.1@us.af.mil, Office 144), or Lt Col Travis Eastbourne (Deputy Course Director, travis.eastbourne@us.af.mil, Office 181A).

Joint Warfighting Phase 1

Problem Framing: Understanding the Problem, Strategic Direction, and the Operational Environment

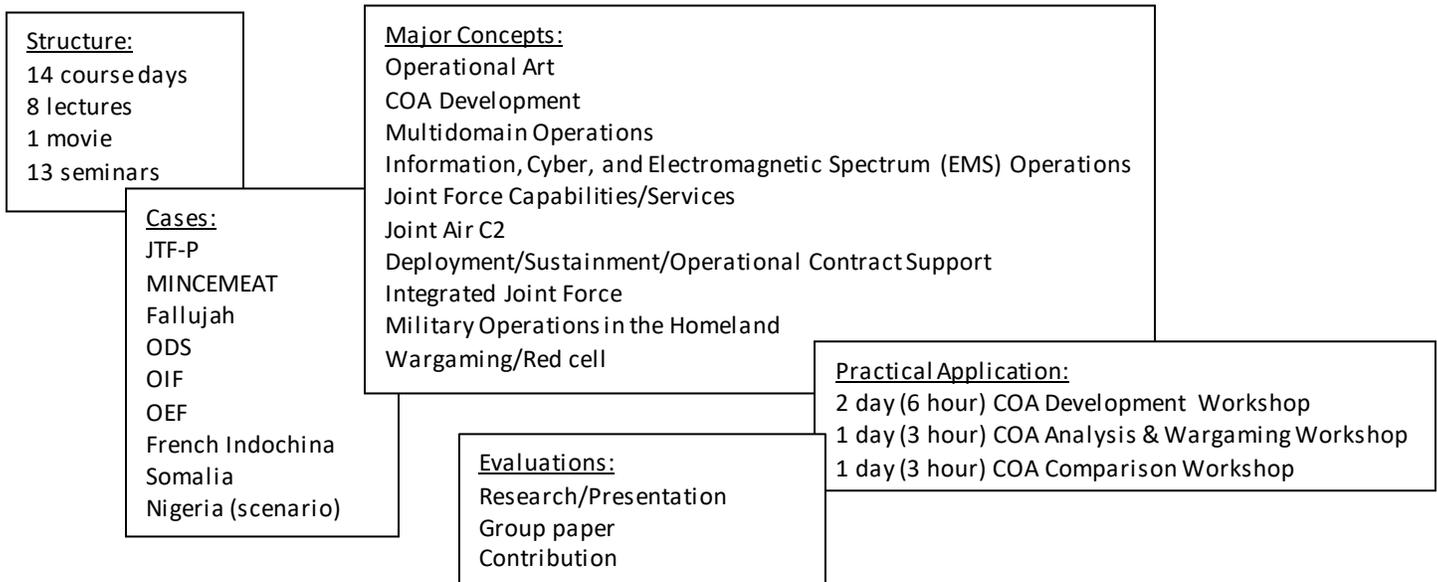
Familiarizes students with the methods through which planners analyze and incorporate strategic guidance in the development of the operational approach (operational design methodology) and mission analysis. Focuses on desired ends, and how the military instrument of power may be applied in pursuit of national interests.



Joint Warfighting Phase 2

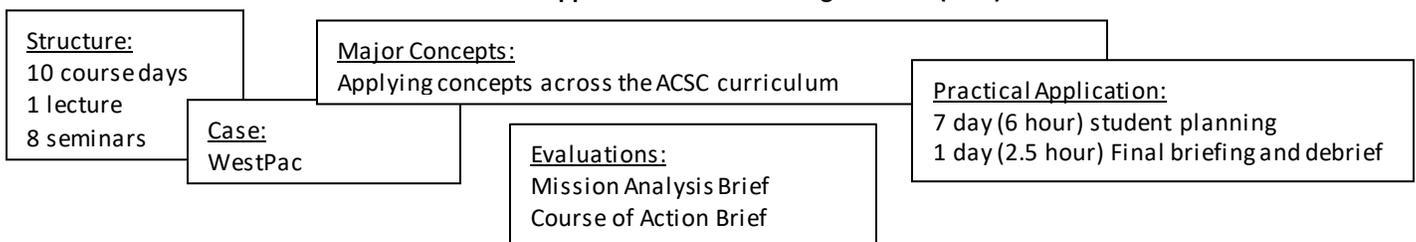
Problem Solving: Developing Solutions through the Application of Military Capabilities

Focuses on the ways and means that may be applied in utilizing the military instrument of power. Operational art as applied across the five warfighting domains and across the range of military operations. Emphasis of Phase 2 is on the domains within and through which military capabilities are arranged and applied; and how valid courses of action are derived, analyzed, and compared to provide the maximum chance of success within the parameters of acceptable risk.



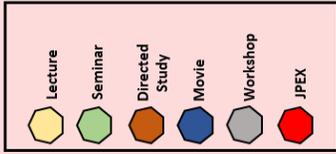
Joint Warfighting Phase 3

Practical Application: Joint Planning Exercise (JPEX)



| |
|--|
| Day 0: JW-500 (L) Introduction to the Joint Warfighting Course |
| Day 1: JW-501 (L) Joint Planning: How We Fight |
| Day 1: JW-502 (S) Joint Military Operations and the Joint Planning Process |
| Day 2: JW-503 (S) Introduction to Operational Design: Complexity in Operational Planning |
| Day 3: JW-504 (S) Understanding Strategic Direction, Global Integrated Operations, and Competition Continuum |
| Day 4: JW-505 (S) Understanding the Operational Environment & Defining the Problem |
| Day 4: JW-506 (S) Center of Gravity Analysis |
| Day 5: JW-507 (S) Developing the Operational Approach |
| Day 5: JW-508 (L) Nigeria Background Brief |
| Day 6: JW Directed Study |
| Day 7: JW-509 (S) Operational Design Workshop Day 1 |
| Day 8: JW-510 (S) Operational Design Workshop Day 2 |
| Day 9: JW-511 (L) Linking Conceptual Planning to Detailed Planning and Multi-Domain Operations |
| Day 9: JW-512 (S) Introduction to Mission Analysis |
| Day 10: JW-513 (Movie) Mission Analysis Case Study: Black Hawk Down |
| Day 10: JW-514 (S) Mission Analysis Case Study: Somalia |
| Day 11: JW Directed Study |
| Day 12: JW-515 (S) Mission Analysis Workshop Day 1 |
| Day 13: JW-515 (S) Mission Analysis Workshop Day 2 |
| Day 14: JW-516 (L) JTF Perspective on Problem Solving |
| Day 14: JW-517 (S) Operational Art and Problem Solving: Course of Action Development |
| Day 15: JW-518 (S) COA Development: The Operational Art (Student Presentation) |
| Day 16: JW-519 (Movie) Information Operations: The Man Who Never Was |
| Day 16: JW-520 (S) Joint Cyber, Electromagnetic Spectrum, and Information Operations |
| Day 17: JW-521 (L) Special Operations |
| Day 17: JW-522 (S) Joint Operations in the Land Domain |
| Day 18: JW-523 (S) Joint Operations in the Maritime Domain |
| Day 19: JW-524A,B,C,D,E (L) Joint Space Operations Lectures |
| Day 19: JW-524F (S) Joint Space Operations Seminar |
| Day 20: JW-525 (L) CFACC, AOC, Joint Air Tasking |
| Day 20: JW-526 (S) Joint Operations in the Air Domain |
| Day 21: JW-529 (L) The Reserve Component (RC) in the Homeland |
| Day 21: JW-530 (S) The RC in Joint Operations and Planning for Domestic Operations |
| Day 22: JW-527 (L) Sustainment Concepts for Global Power Projection |
| Day 22: JW-528 (S) Deploying and Sustaining the Joint Force |
| Day 23: JW Directed Study (JW Paper/JW-601E due, NLT 1200) |
| Day 24: JW-531 (S) COA Development Workshop Day 1 |
| Day 25: JW-531 (S) COA Development Workshop Day 2 |
| Day 26: JW-532 (S) COA Analysis and Wargaming Workshop |
| Day 27: JW-533 (S) COA Comparison and Approval Workshop |
| Day 27: JW-534 (L) JPEX Road to War |
| Day 28: JW Directed Study |
| Day 29-36: JW-535 (S) Joint Planning Exercise (JPEX) |

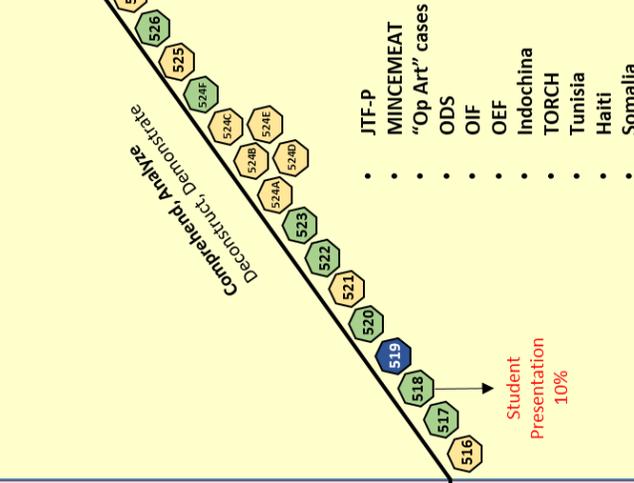
JW OVERVIEW



Phase I: Problem Framing (Course Days 1-13)



Phase II: Problem Solving (Course Days 14-27)

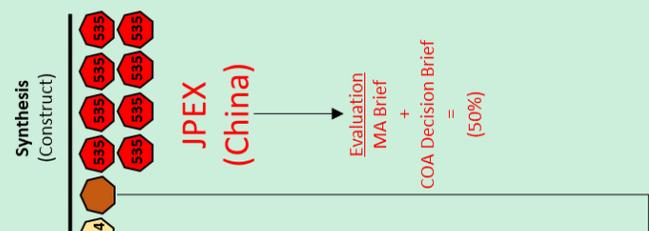


Student Presentation 10%

JW Group Paper 20%

Seminar Contribution 20%

Phase III: App (Course Days 28-36)



JOINT LEARNING AREAS AND OBJECTIVES (JPME-I)

Joint Warfighting addresses Intermediate-Level College Joint Learning Areas and Objectives for Joint Professional Military Education (JPME-I), established by the Chairman of the Joint Chiefs of Staff via the Officer Professional Military Education Policy (OPMEP), CJCSI 1800.01E, signed 29 May 2015. The course supports the following Joint Learning Areas and Objectives, listed below with points of explanation:

Learning Area 1 – National Military Capabilities Strategy

- a. Comprehend the capabilities and limitations of US military forces to conduct the full range of military operations in pursuit of national interests.
 - Lesson JW-505 and 516 discuss the capabilities and limitations of U.S. forces from both theoretical and historical contexts through the examination of a Somalia case study and JTF operations in the Philippines.
 - Lessons JW-520, 521, 522, 523, 524, 526, 527, 528, 529, and 530 provide opportunities to examine current Joint and Service capabilities, including organization, force presentation, space, cyber, and logistical support.
 - Lessons JW-531, 532, and 535 each provide the opportunity for the analysis and practical application of US military forces in a modern, realistic scenario.
 - The written evaluation, JW-601E, will require students to identify and discuss US military capabilities and limitations in multidomain operations.

- b. Comprehend the purpose, roles, authorities, responsibilities, functions, and relationships of the President, the Secretary of Defense, National Security Council, Homeland Security Council, Chairman of the Joint Chiefs of Staff, Joint Chiefs of Staff, Combatant Commanders, Joint Force Commanders, Service component commanders, and combat support agencies.
 - Lessons JW-502 introduces the roles of the President, SECDEF, NSC, HSC, CJCS, JCS, CCDRs/JFCs, Service Component Commanders, Interorganizational relationships, and CSAs in military operations.
 - Lessons JW-522, 523, 524, 526, 527, 528, 529, and 530 examine the roles, functions, and missions of the US military services, service chiefs, Functional Combatant Commanders and others in support of joint force commanders at the operational level in a multidomain approach.
 - Lesson JW-535 allows for the analysis and application of solutions to a complex problem set, and evaluation of student comprehension of the roles, authorities, and relationships of all components and organizations involved in US joint military operations.

- c. Comprehend how the U.S. military is organized to plan, execute, sustain, and train for joint, interagency, intergovernmental, interorganizational, and multinational operations.
 - Lessons JW-502, 521, 522, 523, 524, 525, 526, 527, and 528 discuss the organization of forces, capabilities, sustainment, and the necessity for and considerations of operating in JIIM operations.
 - JW-529 and 530 specifically address the Reserve Component in the Homeland and considerations for domestic operations and the interagency.

- JW-535 is an opportunity to apply knowledge of force organization and synchronization for JIIM operations.
- d. Comprehend strategic guidance contained in documents such as the National Security Strategy, the Quadrennial Defense Review, National Military Strategy, Global Force Management Implementation Guide (GFMIG), and Guidance for Employment of the Force.
- Lessons JW-504, 509, 510, 512, 515, 532, 533, and 535 each provide ample opportunity to examine the purpose, content and impact of strategic guidance documents and their place in military operation planning, and to apply knowledge of strategic guidance in realistic planning scenarios.

Learning Area 2 – Foundation of Joint Warfare and the Profession of Arms

- a. Comprehend current joint doctrine.
- JW-500, 501, 502, 503, 504, 505, 506, 507, 509, 510, 511, 512, 513, 514, 515, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 530, 531, 532, 533, and 535 examine the origins, purpose, content, or application of current joint doctrine in JIIM and multidomain operations.
- b. Comprehend the interrelationship between Service doctrine and joint doctrine.
- Lessons 521, 522, 523, 525, and 526 provide the opportunity to examine the interrelationship between service doctrine and joint doctrine across operating domains and Services.
- c. Apply solutions to operational problems in a volatile, uncertain, complex or ambiguous environment using critical thinking, operational art, and current joint doctrine.
- All JW lessons were formulated to prepare students to think critically and develop problem solving skills using operational art and design, the planning process, and joint doctrine.
 - Lessons JW-509, 510, 515, 516, 531, 532, 533, and 535 provide specific opportunities to examine, formulate, and apply such solutions.

Learning Area 3 – Joint and Multinational Forces at the Operational Level of War

- a. Comprehend the security environment within which Joint Forces are created, employed, and sustained in support of JFCs and component commanders.
- Lessons JW-504, 505, 506, 507, 508, 511, 512, 513, 514, and 516 examine the contemporary security environment and joint force operations therein.
 - Lessons JW-509, 510, 515, 531, 532, 534, and 535 use realistic scenarios involving the contemporary security environment to aid in the application of military solutions to complex problem sets.
 - JW builds upon the introduction to aspects involved with the contemporary and future security environment in War Theory (WT) lessons WT-522, 523, 524, 525, 526 and 527 in which factors driving the changing character of conflict and the security environment are introduced in a theoretical framework. The JW also builds upon the theories and concepts of international security (ISI and ISII) courses; from ISI-509, 511, 513, 514, 515, 517, 519, 520, 521, 522, 523, 524,

525, 526, 527, 528, 529; from ISII - 502, 503, 513, 519, 521, 522, 523, 524, 525 which aid in explaining the global security environment, challenges, capabilities, and national strategies.

- b. Comprehend Joint Force command relationships.
 - JW-502, 512, 514, 515, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, and 535 provide ample opportunity to discuss and apply doctrinal Joint Force command relationships in seminar discussion, case studies, and practical application exercises. Also, The JW also builds upon the theories and concepts from the AirPower II (APII) course - 603 and 607.
- c. Comprehend the interrelationships among strategic, operational, and tactical levels of war.
 - All JW lessons are framed around the synchronization of the tactics and strategy through the lens of operational level warfare.
 - JW-501, 502, 503, 504, 505, 506, 507, 509, 510, 513, 514, 515, 516, 524, and 535 specifically address or draw upon this comprehension through case studies or practical application.
- d. Comprehend how theory and principles of joint operations pertain to the operational level of war across the range of military operations to include traditional and irregular warfare that impact the strategic environment.
 - The JW course is built upon a foundation of doctrine, theory, and principles of joint operations and case studies which examine such across multidomain operations, the ROMO, and military mission sets. The JW course builds upon the foundation of War Theory (WT) lessons WT-505, 507, 508, 514, 516, 518, 519, 520, 522, 524, and 526 in which students are first introduced to classic military theorists and the principles of war in several operating domains and environments.
 - JW-501, 503, 506, 507, 509, 510, 511, 514, 515, 516, 517, 518, 519, 520, 522, 523, 526, 528, 531, 532, 533, and 535 all provide opportunities to discuss, examine, or apply such theory and principles.
 - The JW course Workshops (lessons 509, 510, 515, 531, 532, and 533) are based on an irregular warfare scenario.
- e. Comprehend the relationships between all elements of national power and the importance of comprehensive approaches, the whole of government response, multinational and interorganizational cooperation, and building partnership capacity in support of security interests.
 - JW-502, 503, 504, 505, 507, 512, 513, 514, 516, and 517 examine the necessity of synchronizing the elements of national power, multinational relationships, multinational, interagency, and interorganizational considerations in the OE, and whole of government response.
 - JW-509, 510, 515, 531, and 535 are opportunities to apply knowledge of these relationships toward solutions in a volatile, uncertain, complex, and ambiguous (VUCA) environment.

- f. Analyze a plan critically for employment of joint and multinational forces at the operational level of war.
 - Lessons JW-504, 506, 507, 512, 513, 514, and 518 specifically examine several cases of historical military operations across the ROMO.
 - JW-528, 531, 532, 533, and 535 require students to analyze their own planning activities and courses of action.
 - The JW course builds upon the foundations of APII-613 and 620.
- g. Comprehend the relationships between national security objectives, military objectives, conflict termination, and post conflict transition to enabling civil authorities.
 - The JW course is framed by the joint planning process and how military planning and execution is guided by an ends, ways, means, and risk analysis linking national strategy to military tasks.
 - Lesson JW-501, 502, 503, 504, 505, 507, 509, 510, 514, 515, 517, 531, and 535 specifically address these concepts through case studies or practical application in realistic planning scenarios.

Learning Area 4 – Joint and Multinational Forces at the Operational Level of War

- a. Comprehend the relationship among national objectives and means available through the framework provided by the national levels systems.
 - The JW course is framed by the joint planning process and how military planning and execution is guided by an ends, ways, means, and risk analysis linking national strategy to military tasks. War Theory (WT) lessons WT-507 and 508 provide the theoretical foundation for contemporary examination and application of available means to achieve desired national objectives.
 - JW-504, 515, 520, 524, 527, and 528 foster comprehension of national planning systems and frameworks (NSC, APEX, JPEC, JSCP), and available means via discussion of military capabilities (means) across multidomain operations.
 - Lessons JW-529 and 530 specifically address the National Response Framework and Defense Support of Civil Authorities.
 - Lessons JW-531 and 535 are practical application of student comprehension of national systems and frameworks, and the ends, ways, means, and risk analysis.
- b. Comprehend the fundamentals of Joint Planning across all the phases of a joint operation.
 - The JW course is framed by operational art and design and the doctrinal planning process and provides continuous exposure to such fundamentals.
 - Lessons JW-501, 502, 503, 504, 505, 506, 507, 511, 512, 513, 514, 517, 519, 520, 524, and 528 provide doctrinal and historical context to comprehend the fundamentals of joint operational planning across all phases of a joint operation.
 - JW-509, 510, 515, 531, 532, 533, and 535 are dedicated to application of the fundamentals of Joint Planning.
- c. Comprehend the integration of joint functions (command and control, intelligence, fires, information, movement and maneuver, protection and sustainment) to operational planning problems across the range of military operations.

- Lessons JW-502, 507, 512, 513, 514, 517, 519, 520, 522, 523, 524, 525, 526, 527, and 528 discuss the principles of joint operations and functions across the range of military operations in both a theoretical and historical context.
 - JW-515, 531, 532, and 535 are practical application of the integration of the joint functions in realistic planning scenarios.
- d. Comprehend how planning for OCS across the joint functions supports managing the effects contracting and contracted support have on the operational environment.
- Lesson JW-527, 528 discusses OCS and associated issues involved with OCS during the planning, execution, and sustainment of joint operations.
 - JW-515, 531 and 535 provide the opportunities to incorporate knowledge of OCS into solutions in realistic planning scenarios.
- e. Comprehend the integration of IO and cyberspace operations with other lines of operations at the operational level of war.
- Lessons JW-507, 510, 511, 512, and 516 discuss how IO and cyber operations have been or may have been utilized in the examination of several case studies.
 - JW-519 focuses specifically on IO (MILDEC) and how it fosters access, facilitates maneuver, and achieves effects in the OE.
 - JW-520, 522, 523, 526 examine the incorporation of IO and cyberspace operations into multidomain operations.
 - JW-531 and 535 require the incorporation of IO and cyber capabilities into developing military solutions in a realistic scenario.
 - Joint Warfighting capitalizes on the foundation built earlier in the year with the information warfare and cyber domain lesson set in War Theory (lesson WT-524), cyber security lessons from APII (lessons AP-617 and 618), and the ethical and just war dimensions of cyber from IS2 - 515.
- f. Comprehend the roles that factors such as geopolitics, geostrategy, society, region, culture/diversity, and religion play in shaping planning and execution of joint force operations across the range of military operations.
- Lessons JW-501, 503, 504, 505, 506, 507, 508, 513, 514, 516, 517, and 519 discuss how these several factors impact planning/operations, and how the planner may influence and capitalize on such for greater influence in the OE.
 - JW-509, 510, 515, and 535 require students to incorporate this comprehension into practical military solutions in a complex, realistic scenario.
 - Joint Warfighting capitalizes on the foundation built in IS1-508, 509, 511, 514, 515, 517, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529
- g. Comprehend the role and perspective of the Combatant Commander and staff in developing various theater policies, strategies and plans.
- The JW course effectively places students in the role of the staff (and to some extent commander) in analyzing or developing theater plans.
 - Lessons JW-501, 502, 503, 504, 505, 507, and 517 discuss these roles and perspectives across various stages and activities of planning.

- JW-509, 510, 515, 533, and 535 provide the opportunity for students to apply this knowledge in a realistic planning scenario.
 - Joint Warfighting capitalizes on the foundation built in ISII-519, 521, 522, 523, 524.
- h. Comprehend the requirements across the joint force, Services, interorganizational partners and the host nation in the planning and execution of joint operations across the range of military operations.
- Lessons JW-501, 502, 503, 504, 505, 507, 509, 510, 513, 514, 515, 516, 517, 521, 522, 523, 525, 526, 527, 528, 530, 531, 532, 533, and 535 discuss these requirements across the ROMO using cases studies, doctrinal concepts, the planning process, and realistic planning scenarios.

Learning Area 5 – Joint Command and Control

- a. Comprehend the organizational options, structures and requirements available to joint force commanders.
- JW-502, 512, 514, 516, 521, 522, 523, 525, and 526 discuss the organizational options, structures, or requirements.
 - JW-515, 531, 532, and 535 are all opportunities for students to apply this knowledge to develop sound C2 structures and force organizations in a planning scenario.
 - Joint Warfighting capitalizes on the foundation built in APII - 603, 607, 608.
- b. Comprehend the factors of intent through trust, empowerment and understanding (Mission Command), mission objectives, forces, and capabilities that support the selection of a specific C2 option.
- JW-517, 520, 521, 522, 523, 524, and 526 examine the concepts and utility of mission command and the development of specific C2 options suitable for JIIM operations.
 - JW-515, 531, and 535 require students to utilize the concepts of mission command in developing C2 solutions in realistic planning scenarios.
- c. Comprehend the effects of networks and cyberspace on the ability to conduct Joint Operational Command and Control.
- JW-520, 524, and 525 discuss the effects of networks and cyberspace on the ability to conduct Joint Operational Command and Control.
 - JW-535 requires students to develop solutions to complex C2 problems in a realistic planning scenario, and to leverage cyberspace and space capabilities to conduct operations.

Learning Area 6 – Joint Operational Leadership and the Profession of Arms

- a. Comprehend the role of the Profession of Arms in the contemporary environment.
- JW-500, 501 and 511 enable a better comprehension of the role of the Profession of Arms in the contemporary environment through the examination of historical military operations and the conceptual and detailed planning of realistic scenarios.

- JW-513, 514, 516 and 535 specifically challenge students to comprehend the various roles the military may have in any specific geostrategic setting or challenge.
- b. Comprehend critical thinking and decision-making skills needed to anticipate and recognize change, lead transitions, and anticipate/adapt to surprise and uncertainty.
- All JW lessons are designed to foster greater levels of critical thinking and decision-making skills in JIIM operations.
 - Lessons JW-501, 503, 505, 506, 507, 509, 510, 514, 515, 516, 518, 531, 532, 533, and 535 provide case studies and scenarios through which to increase critical thinking skills either through analysis of case studies or synthesis planning activities.
- c. Comprehend the ethical dimension of operational leadership and the challenges that it may present when considering the values of the Profession of Arms.
- JW builds upon the foundations set in the Leadership course, Phase One, Lesson 1, where students comprehend ethics in the military profession and ethical military leadership as the direction of resources toward accomplishing the mission while respecting means, ends, and persons.
 - Lessons JW-515, 531, and 535 provide case studies and scenarios through which to consider ethical issues of operational leadership and its challenges during the mission analysis and course of action development components of the joint planning process.
- d. Analyze the application of Mission Command (intent through trust, empowerment, and understanding) in a Joint, Interagency, Intergovernmental and Multinational (JIIM) environment.
- JW-513, 514, 516, 518, and 535 discuss mission command, associated concepts, and its necessity in the modern JIIM operating environment.
- e. Communicate with clarity and precision.
- All seminars provide the chance for students to become skilled in thinking and communicating clearly about military theory, strategy, operations, and policy.
 - JW-515, 518, 531, 532, 533, and 535 require students to communicate clearly and precisely by providing oral briefings within a planning scenario.
 - The in-class presentation (600E) requires clear and organized verbal presentation and the written assignment, JW-601E, requires clear and precise written communication.
- f. Analyze the importance of adaptation and innovation on military planning and operations.
- Lessons JW-501, 503, 505, 507, 509, 510, 511, 513, 514, 515, 516, 517, 518, 527, 531, 532, 533, and 535 analyze the importance of adaptation and innovation on military planning and operations in military theory, doctrine, and contemporary and historical cases.

The Joint Warfighting course also accomplishes several of the current AY20-21 JPME Special Areas of Emphasis (SAE) including the following:

SAE 1 – The Return to Great Power Competition.

- JW-504 (Understanding Strategic Direction) Provide an examination and discussion of the complex and dynamic character of competition between the United States and great power threats and the implications of future warfare and dynamic force employment concept introducing unpredictability to adversary decisionmakers.
- JW-535 (JPEX) students will use the JPP to consider operational constructs, dynamic force employment, operating concepts and capabilities as a way of maintaining competitive advantage in the face of increasingly capable threats with a near-peer competitor along with innovative solutions that generate lethal capabilities. They will examine and consider, where applicable, interagency, intergovernmental, and multinational actors to include the role of alliances and partnerships in building a warfighting plan with lethal force for major combat.

SAE 2 – Globally Integrated Operations in the Information Environment.

- JW-504 (Understanding Strategic Direction) Examine and discuss the nature of global integrated operations in the information environment as part of U.S. national security strategy.
- JW-505 (Understanding the Operational Environment) Examine and discuss integrated operations and dynamic force employment from the perspective of the human, physical, and informational aspects of the security environment in the development of an Operational Approach in the Joint Planning Process.
- JW-515 (Mission Analysis Workshop) Examine and discuss how planners determine the tasks to accomplish the mission from across the domains and students perform mission analysis activities in Nigeria scenario.
- JW-517 (Operational Art and Problem Solving: Course of Action Development) Examine and discuss how the Joint Force will build information into operational art to design operations that deliberately leverage information and the informational aspects of military activities to achieve enduring strategic outcomes.
- JW-520 (Cyber, EMS and Information Operations) Examine and discuss how the joint force executes integrated operations across domains and in the information environment.
- JW-531 (COA Development Workshop) and JW-535 (JPEX) students will formulate options that integrate informational and physical aspects of the security environment in the Joint Planning Process Course of Action Development in the Nigeria and JPEX scenarios.

SAE 3: Strategic Deterrence in the 21st Century.

- JW-535 (JPEX) students examine and wrestle with a plan for deterrence and flexible deterrent options against a near-peer, nuclear capable adversary with specific strategic guidance to deter by forward presence and means that reduce escalation of nuclear exchange.
- Joint Warfighting builds on the foundation of the Extended Deterrence lesson from ISII-522.

SAE 4: Modern Electromagnetic Spectrum Battlefield.

- JW-520 (Cyber, EMS and Information Operations). Examine and discuss EMS and its impact on military operations, why EMS superiority is essential to all U.S. military capabilities and operations in an OE and the increasingly congested and contested nature of the EMS. Focus on EMS as a critical enabler to superiority in all other domains.
- JW-515 (Mission Analysis workshops), JW-531 (COA Development workshops), and 535 (JPEX). During Mission Analysis and Course of Action Development, students will consider EMS in the process of planning, coordinating, deconflicting, and executing joint force operations.

SAE 5: Space as a Warfighting Domain

- JW-524A, B, C, D, E, F (Joint Operations in the Space Domain). Space as a warfighting domain is a critical component of Joint Planning. Leverage the Schriever Scholars program to provide Space expertise for lectures and seminar. Our focus is to understand, examine, and discuss the space domain, awareness of potential adversary space capabilities and their reliance on space systems, threat, the operational integration of space capabilities, Joint Force, Interagency and Intergovernmental organization activities that support space operations and superiority, and the impact of losing space capabilities on operations across other domains.
- JW-515 (Mission Analysis workshops), JW-531 (COA Development workshops) and JW-535 (JPEX) students will formulate options that integrate space capabilities and considerations into the Joint Planning Process Mission Analysis and Course of Action Development in the Nigeria and JPEX scenarios.

SAE 6: Ability to Write Clear and Concise Military Advice Recommendations

- JW-601E (Group writing and analysis assignment) - Groups will conduct mission analysis related activities and provide military advice through clear and concise writing.

JOINT WARFIGHTING COURSE SCHEDULE

Day 0: JW-500

Introduction to the Joint Warfighting Course

LESSON OBJECTIVES

1. Comprehend the objectives, organization, and methods of evaluation for the Joint Warfighting course, and its linkages to the overall ACSC curriculum.
2. Comprehend the linkage between the science of doctrine and the operational art, and the role of the Profession of Arms in conjunction with other instruments of power in achieving national interests.

[LAO: 2a, 6a]

LESSON OVERVIEW

JW-500 (L): Introduction to the Joint Warfighting Course

Overview: The JW course is the capstone of joint professional military education at ACSC. The course is designed to introduce students to how we fight as a joint military force, and includes multiple concepts that provide the framework for understanding and solving complex, operational-level military problems. While driven by joint and service doctrine – the science - the study of history and current events will be crucial to the course outcomes, as this study provides the context through which doctrinal elements have been derived, and how those elements are and will be applied across the range of military operations. To that end, this lecture will provide students with an overview of the course objectives, themes, structure and calendar, and evaluation instruments.

CONTACT HOURS: 0.5-hour lecture

REQUIRED READINGS

1. Course Syllabus and Course Calendar.

[A careful review of the course's syllabus and calendar will provide the student with overarching course objectives and expectations along with key deliverables and their respective weightings toward computation of a final course grade. Students should spend some time reviewing the course material available on canvas to understand the flow of the course and general material that will be covered throughout the term.]

SUGGESTED ADDITIONAL MATERIAL

1. None.

LESSON INTEGRATION AND RATIONALE

This lesson provides an overview of the Joint Warfighting course. It presents the students with a roadmap of the course to include course methodology, course objectives, evaluations, and desired outcomes. The lecture will also describe the broad themes of the course and how the material integrates with the broader ACSC curriculum.

STUDENTS MEET WITH INSTRUCTOR FOLLOWING LECTURE

Discuss class policies, expectations, materials, and assignments

CONTACT HOURS: 0.5-hour seminar

PHASE 1: PROBLEM FRAMING

Understanding the Problem, Strategic Direction, and the Operational Environment

Day 1: JW-501

Joint Planning: How We Fight

LESSON OBJECTIVES

1. Comprehend the context for JW course concepts, joint and service doctrine, and the requirements and considerations that a power projection nation has for deploying, employing, and sustaining a joint force.
[LAO: 2a, 3c, 3d, 6b, 6f]
2. Comprehend the relationship between the formulation of national security objectives and the development of military objectives, and the ends-ways-means-risk analysis required for operations in a complex operational environment (OE) across all levels of warfare.
[LAO: 2a, 3c, 3g, 4b, 4g, 4h, 6b, 6f]
3. Comprehend how the military planning process is guided by national strategic interests and guidance, and how geopolitics and geostrategy and other joint, interagency, intergovernmental and multinational (JIIM) considerations may impact the planning and execution of military operations.
[LAO: 4b, 4f, 4h, 6a, 6b, 6f]
4. Comprehend the fundamentals of theory and principles of joint operations that enable operational art and design through the analysis of an historical operation for the planning and employment of joint and multinational forces as the operational level of war.
[LAO: 2a, 3d, 3g, 4b, 4f, 6b, 6f]

LESSON OVERVIEW

JW-501 (L): Joint Planning: How We Fight

Overview: Operation TORCH was the first major Allied operation in the European theater involving U.S. forces during WWII. As an example of the final “product” of military operation planning activities, this particular operation is valuable as it presents several timeless military planning and operational considerations and concepts that remain relevant and significant in current joint and service doctrine. Through an analysis of the plan for operation TORCH, this lecture demonstrates how planners today use a similar construct for analyzing problems and developing military solutions in a complex operational environment, and will aid students in gaining familiarity with planning concepts and JW course themes. Operation TORCH also highlights many of the difficulties regarding long-distance power projection, multinational military operations and command relationships, and the necessity for adaptation and innovation in all military operations. TORCH also reveals several elements of operational design found in current service and joint doctrine, particularly JP 5-0 *Joint Planning* – the U.S. Joint Force’s current guide to planning military operations. A solid understanding of these concepts, their connection to one another, and the ends-ways-means-risk analysis is important for any military professional to understand and apply in order to solve complex problems facing the military professional.

CONTACT HOURS: 1.0-hour lecture

REQUIRED READINGS

1. Rick Atkinson, *An Army at Dawn: The War in North Africa, 1942-1943*, (Henry Holt & Company; New York, 2002), 1-160.

[An Army at Dawn provides an overview of the strategic guidance, national interests, and impact of various actors on military decision making, and the strategic and operational objectives of a military campaign. With this historical perspective, students will have the background knowledge that will enable their comprehension of connections between Joint Planning concepts and a completely developed (and executed) operation plan (Operation TORCH). Atkinson's book also reminds the reader that the seemingly clinical doctrinal approach to operation planning eventually translates to the human dimension of warfare, and that the risk and cost of military operations, while having important political and military strategic consequences, ultimately falls upon those who execute the plan. Through this study of historical military operations, students are provided an overview of multiple JW course concepts, JW course objectives, and the Joint Planning concepts and activities that will be instrumental throughout the course.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, xi-xxx.
2. Joint Publication 1, *Doctrine for the Armed Forces of the United States*, 25 March 2013 Incorporating Change 1, 12 July 2017, I-1 to I-21; VI-3 to VI-4; B-1 to B-3.
3. Joint Publication 3-0, *Joint Operations*, 17 January 2017 Incorporating Change 1 22 October 2018, ix-xxiv.

LESSON INTEGRATION AND RATIONALE

This lecture, using an historical case study, familiarizes students with multiple course concepts by incorporating the larger geopolitical concepts from ACSC's First and Second Quarters, and narrowing the scope to the operational level of war. The lecture also introduces several operation planning concepts regarding the use of the military instrument of power in pursuit of national interests. The lecture provides an overview of a joint and combined operation plan, and helps frame the entire JW course by providing an example of how doctrinal concepts and tenets aid in the analysis of complex problems and the development of military plans to address them.

Day 1: JW-502
Joint Military Operations and the Joint Planning Process

LESSON OBJECTIVES

1. Comprehend how elements of operational art, operational design, and the joint functions are integrated throughout the planning process and how they apply across the levels of warfare and the range of military operations (ROMO) within a joint, interorganizational, or multinational for structure.
[LAO: 2a, 3c, 3g, 4b, 4c, 4h]
2. Comprehend how the Joint Planning Process (JPP) is utilized to translate strategic guidance, from written directives to policy statements, into executable military options which are incorporated and aligned with other stakeholders and instruments of power for a comprehensive interorganizational/whole of government response.
[LAO: 2a, 3e, 3g, 4b, 4c, 4h]
3. Comprehend the roles, missions and functions of Joint Force Commanders (JFC) as outlined in the Unified Command Plan (UCP) and how they differ from the roles, missions and functions of the military services.
[LAO: 1b, 1c, 2a, 3b, 4g, 4h]
4. Comprehend the options a JFC has for organizing the joint force for operations (service or functional components).
[LAO: 1c, 2a, 3b, 5a]

LESSON OVERVIEW

JW-502 (S): Joint Military Operations and the Joint Planning Process

Overview: The Joint Planning Process is a tested and proven method of arranging problem solving activities in a complex environment. Along with operational art and operational design, the JPP enables the derivation of actionable tasks from broad strategy (strategy-to-task). The JPP allows the planner to successfully integrate military options into ends-ways-means-risk calculations at the national level in pursuit of national interests. This seminar will set a baseline for concepts recurring throughout the JW course, including the levels of warfare, the range of military operations (ROMO), the roles of various actors – including the President, SECDEF, CJCS, CCDRs, JFCs, and interorganization stakeholders – in the national security system, and the process which guides the planning for military operations at all levels and across the ROMO.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, xi-xxx.

[The JP 5-0 Executive Summary provides a brief and broad overview of operation planning, the basis for the framework the JW course will use to identify and solve problems. This selection also introduces information about theater campaign plans, the APEX enterprise, JPEC, operational assessment, and other broad planning systems and constructs that will be further examined during JW-504.]

2. Joint Publication 1, *Doctrine for the Armed Forces of the United States*, 25 March 2013 Incorporating Change 1, 12 July 2017, Read III-1 to III-12; I-17 to I-19.

[The JP 1 selections outline the organization of the DoD and roles and responsibilities of the Joint Chiefs of Staff, military services and combatant commanders, and a short introduction to the seven joint functions.]

3. Joint Publication 3-0, *Joint Operations*, 17 January 2017 Incorporating Change 1 22 October 2018, V-4 to V-17.

[Provides an overview of the range of military operations fundamental to the JW course.]

4. Joint Publication 3-08, *Interorganization Cooperation*, 12 October 16, Validated 18 October 2017, Skim I-1 to I-17 and II-2 to II-12.

[The JP 3-08 provides concepts and considerations associated with interorganizational cooperation necessary to understand how the military contributes to unified effort within the U.S. Government.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, Ch. I-III, IV-1 to IV-19; Ch. V; Appendix A.
2. Joint Publication 3-0, *Joint Operations*, 17 January 2017 Incorporating Change 1 22 October 2018, Ch. II, Ch. III.
3. Joint Publication 1, *Doctrine for the Armed Forces of the United States*, 25 March 2013 Incorporating Change 1, 12 July 2017, Ch. V and (Review from War Theory) I-7 to I-8 (Levels of Warfare).
4. Bob Woodward, *Plan of Attack*, (Simon and Schuster, New York, 2004), 1-138.

LESSON INTEGRATION AND RATIONALE

This lesson is an opportunity to introduce several doctrinal planning concepts foundational to the course in order to provide students with an example of how U.S. Forces plan and operate in joint, interagency, interorganizational, intergovernmental and multinational environments in the pursuit of national interests. It builds upon the foundation of War Theory (WT) lessons that address and examine classic military theorists (ex, Clausewitz, Jomini) and the principles of war and incorporates the larger geopolitical concepts from International Security I and narrows the scope to the operational level of war and the study of joint military operations. The lesson also introduces several operation planning concepts for the use of the military instrument of power in pursuit of national interests, and will provide the background and framework necessary for the study of selected concepts associated with military operational art and design in future lessons.

ASSIGNMENT

JW-518.1 (JW600E) group/operation assignments made

Day 2: JW-503
Introduction to Operational Design: Complexity and Problem Solving

LESSON OBJECTIVES

1. Comprehend the concepts associated with complexity as they pertain to military operations and operation planning across the ROMO and the tactical, operational, and strategic levels of warfare.
[LAO: 2a, 3c, 3d, 3e, 4b, 4f, 4g, 4h, 6b, 6f]
2. Comprehend operational art and operational design and their relationship in joint doctrine to military operations and operation planning across the levels of war and the ROMO.
[LAO: 2a, 3c, 3d, 3g, 4b, 4g, 4h, 6b]
3. Comprehend the doctrinal elements of operational design, and the interrelation of those elements in framing complex problems, and their utility in outlining comprehensive, whole of government approaches for applying potential military solutions across the levels of war through the commander's operational approach.
[LAO: 2a, 3c, 3d, 3e, 3g, 4b, 4f, 4g, 4h, 6f]
4. Comprehend the purpose and content of the commander's operational approach, commander's planning guidance, and commander's intent.
[LAO: 2a, 3d, 4b, 4g, 6f]

LESSON OVERVIEW

JW-503 (S): Introduction to Operational Design: Complexity and Problem Solving

Overview: Operational art is the thought process commanders use to visualize how to efficiently and effectively employ military capabilities to accomplish their mission. Together operational art and operational design synthesize the intuition and creativity of the commander with the analytical and logical process of design. General (Ret) James Mattis stated, "Design does not replace planning, but planning is incomplete without design. The balance between the two varies from operation to operation as well as within each operation." Modern military operations must take into account many sources of complexity including cultural, religious, and multinational considerations, among others. Operational design helps the commander provide enough structure to an ill-structured problem so that planning can lead to effective action linking military objectives to strategic national security objectives. The iterative dialogue that is central to operational design allows for the commander and staff to gain better understanding of complex problem sets, and to frame the problems in such a way that potential solutions may be sought by providing clarity and focus for operations with full consideration of the complexity of the modern operational environment, while also providing the environment that enables adaptation and innovation to address complexity during operations.

CONTACT HOURS: 3.0-hour seminar

REQUIRED READINGS

1. Jeffrey M. Reilly, *Operational Design: Distilling Clarity from Complexity for Decisive Action*, (Air University Press, 2012), 1-14, 21-29.

[The selection from Dr. Reilly provides an excellent overview of the purpose and theory of operational design. Dr. Reilly also provides an excellent schema for the incorporation of the various elements of operational design into the planning process.]

2. US Army, *TRADOC Pamphlet 525-5-500, Commander's Appreciation and Campaign Design*, (Fort Monroe, VA, 2008), 4-18.

[This selection provides an introduction to types of complexity and the characteristics of complex problem sets that military planners may encounter. Understanding different forms of complexity, and the characteristics of “wicked problems” is essential in military operations.]

3. Joint Publication 5-0, *Joint Planning*, 16 June 2017, IV-1 to IV-42.

[JP 5-0 chapter IV is central to gaining an understanding of joint doctrine, the joint explanation of operational art and design, and the elements of operational design. This reading equips students with both the necessary context for why operational design is useful for planning and conducting military operations, and with a common framework in the doctrinal methodology and elements that guide the development of the commander's operational approach. *This reading is central to understanding the “science” that will underlie and enable the application of the operational art.*]

4. Bob Woodward, *Plan of Attack*, (Simon and Schuster, New York, 2004), 52-66.

[This selection from *Plan of Attack* provides a short example of an initial operational approach derived by General Frank's, considered to be an early precursor to the current doctrinal approach to operational design. These readings also provide students with an introduction to the complexity of the joint, interagency, intergovernmental, and multinational (JIIM) environment.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Staff J7, *Insights and Best Practices Focus Paper: Design and Planning*, (Washington, DC, 2013), 1-27.
2. General Paul K. Van Riper, “An Introduction to System Theory and Decision-Making,” 1-12.
3. Horst W. J. Rittel and Melvin M. Webber, “Dilemmas in a General Theory of Planning,” *Policy Sciences*, 4(2), 155-169.
4. Joint Staff J7, *Planner's Handbook for Operational Design* (Suffolk, VA., 2011), I-1 to D-24.
5. Colonel Gerard Tertychny, “Rain of Ruin: Operational Design and the Pacific War, 1944-1945,” *Campaigning: The Journal of the Joint Forces Staff College*, Fall 2015, 13-20.

LESSON INTEGRATION AND RATIONALE

Understanding the complexity of operational problem sets and their impact on military operations is critical. This lesson provides essential background on the concepts of complex problems, and operational art and operational design that will be used throughout the JW course. In ensuing JW lessons, the methodology for devising the operational approach will be discussed, analyzed, and applied to complex national security problems.

Day 3: JW-504
Understanding Strategic Direction, Global Integrated Operations, and the Competition Continuum

LESSON OBJECTIVES

1. Comprehend what is contained in the Adaptive Planning and Execution System (APEX) and how APEX and the Joint Planning and Execution Community (JPEC) support the application of military capabilities in support of national security interests across the levels of war.
[LAO: 3c, 3e, 3g, 4a, 4b, 4g, 4h]
2. Using the ends, ways, means, risk model and joint doctrine, comprehend where and how desired national strategic end states and military end states are developed and how they influence conceptual and detailed military planning efforts across the ROMO.
[LAO: 2a, 3c, 3e, 3g, 4b, 4f, 4g, 4h]
3. Comprehend how the military instrument of power, new operational constructs and operating concepts can contribute to the attainment of the national strategic end state, maintaining friendly competitive advantage, and the necessity for close coordination and synchronization across the joint, interagency, intergovernmental, and multinational (JIIM) community in the face of increasingly capable threats.
[LAO: 2a, 3a, 3e, 4b, 4f, 4g, 4h]
4. Comprehend the various sources of guidance and their impact on planning to include, but not limited to: the National Security Strategy (NSS), National Defense Strategy (NDS), National Military Strategy (NMS), Unified Command Plan (UCP), Joint Strategic Campaign Plan (JSCP), Global Campaign Plan, and the Global Force Management Implementation Guidance (GFMIG).
[LAO: 1d, 2a, 3a, 3e, 3g, 4a, 4b, 4g, 4h]
5. Comprehend how military analysis and other external factors in the modern security environment to include the role of technology and the changing character of war may shape the discussion on desired ends by identifying the limitations on ways, means, and risk.
[LAO: 2a, 3a, 3e, 3f, 3g, 4b, 4f, 4h]

LESSON OVERVIEW

JW-504 (S): Understanding Strategic Direction, Global Integrated Operations, and the Competition Continuum

Overview: Beginning with the first major component of the joint doctrine methodology for developing an operational approach, the seminar will discuss sources that will aid in answering the questions: “*what are the strategic goals to be achieved and the military objectives that support their attainment?*” which fosters the proper linking of military objectives and conflict termination to national security objectives. This seminar will include discussion of the forms and sources of strategic guidance and direction and how they influence (and are influenced by) operation planning; and how geopolitics, the character of war, the competition continuum, culture, and other factors can shape strategic guidance. The systems and processes available to military operation planners consist of a number of orders, plans, and directives that allow for the transformation of national strategic guidance into executable military operations. These include the APEX, UCP, JPP, new operational constructs (integrated campaigning) and various strategic guidance and planning directives essential to successfully integrate military options into ends-ways-means-risk calculations at the national level in pursuit of national interests. The seminar

will review several sources of guidance, and examine the type of guidance derived from those sources that enable military planners to answer ends-ways-means-risk questions and derive military solutions by analyzing historical examples of guidance and resultant planning efforts and written plans or orders.

CONTACT HOURS: 3.0-hour seminar

REQUIRED READINGS

1. Bob Woodward, *Plan of Attack*, (Simon and Schuster, New York, 2004), 1-23, 31-38, 85-95, 130-133, 177-179.

[The first part of *Plan of Attack* tells the real-world story of how the APEX came about and the functioning of the joint planning community and the iterative dialogue that occurs between the military and civilian leadership. *Plan of Attack* points to the various forms of strategic and operational guidance outside of formal documents. Guidance is informed by political decisions, and includes joint, interagency, intergovernmental, and multinational considerations.]

2. *National Military Strategy of the United States of America 2018*, 1-6.

[A review of an NMS is essential for understanding how military strategic guidance informs planning efforts – through the lens of ends, ways, means, and risk – and how several sources of strategic guidance and direction are nested. Being able to transform broad guidance to actionable and measurable tasks is an essential skill for any military professional.]

3. CJCSI 3100.01D, 20 July 2018, 1-2 and Enclosures A, B, C, G, H, and I.

[This instruction provides an excellent overview of the content and purpose of important formal strategic guidance documents and processes.]

4. Joint Doctrine Note 1-19, *Competition Continuum*, 3 June 2019, v-vii, 1-11.

[This joint doctrine note introduces the idea of the Continuum of Competition. It briefly discusses integrated campaigning in the realms of cooperation, competition below armed conflict, and armed conflict in order to sustain strategic objectives.]

5. Gen Joseph F. Dunford, Jr., “The Character of War and Strategic Landscape Have Changed,” *Joint Force Quarterly*, Issue 89, Second Quarter 2018, 2-3.

[Gen Dunford gives his thoughts on how war and strategy have changed based on the paradigm shift of the competition continuum, creating new imperatives for the U.S. military and how Global Integration is a planning model to address these imperatives.]

6. Ronald O’Rourke, “Renewed Great Power Competition: Implications for Defense – Issues for Congress,” Congressional Research Service, 7 November 2019, 1-8.

[Brief overview of implications for U.S. defense of the shift in the international security environment to a situation of renewed great power competition.]

SUGGESTED ADDITIONAL MATERIAL

1. (Review) Joint Publication 5-0, *Joint Planning*, 16 June 2017, Ch. I, Ch. II, and Ch. III.
2. (Review from IS1) *National Security Strategy*, Dec 2017, 1-55.
3. (Review from IS1) *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge*, 1-11.
4. Rick Atkinson, *An Army at Dawn: The War in North Africa, 1942-1943*, (Henry Holt & Company; New York, 2002), *Review* 1-32.
5. Chairman of the Joint Chiefs of Staff Instruction 3100.01D, *Joint Strategic Planning System*, 20 July 2018.
6. Mark D. Miles and Charles R. Miller, "Global Risks and Opportunities: The Great Power Competition," *Joint Force Quarterly*, Issue 94, Third Quarter 2019, 80-85.
7. Joint Staff J7, "Joint Staff support to Decision-Making for Globally Integrated Operations in Competition Short of Armed Conflict and Crisis: Insights and Considerations," (Washington, DC, 15 January 2013), i, 1-15.
8. Joint Doctrine Note 1-18, *Strategy*, 25 April 2018, v-x, I-1 to I-8.
9. CJCS Guide 3130, 5 March 2019.

LESSON INTEGRATION AND RATIONALE

In the process of problem framing and the application of military power, it is critical to ensure the correct problem(s) is (are) identified in the international environment that we define as a continuum of competition. Beginning the planning process with the end in mind provides a level of clarity and direction, particularly in the global integration construct, that may otherwise be absent. Understanding the sources and implications of strategic guidance on military problem solving lays the groundwork for the remainder of the operational design methodology, and the detailed planning conducted during the JPP. Students will continue to analyze this guidance and determine how it shapes planning activities during the remainder of the JW course. This lesson builds upon the foundation of War Theory lessons on classic military theorists (ex. Clausewitz), principles of war, and International Security I and II lessons that address and examine the Geopolitical context, Great Power Competition, Grand Strategy, Military Strategy, the NSS and NMS.

Day 4: JW-505

Understanding the Operational Environment and Defining the Problem

LESSON OBJECTIVES

1. Comprehend the tools and processes used to analyze the current and potential joint operational environment (OE), to include understanding the human, physical, and information aspects of the environment and the implications of the OE on the training, equipping, and employment (capabilities and limitations) of the joint force.
[LAO: 1a, 2a, 3a, 4f, 4h, 6b]
2. Comprehend doctrinal methods of conducting operational assessments, the necessity of incorporating multiple aspects of the OE and all elements of national power, and how this contributes to a staff's understanding of the operational environment, problems sets, and potential solutions.
[LAO: 2a, 3a, 3e, 4b, 4f, 4g, 4h, 6b; SAE 2]
3. Comprehend how incomplete information regarding the OE drives doctrinal concepts such as assumptions, commander's critical information requirements (CCIRs), and risk analysis during operation planning.
[LAO: 2a, 3a, 4b, 4f, 4g, 6b, 6f]
4. Comprehend the relationship between the "observed system" and the "desired system" as it relates to planning and operational design and the pitfalls of "mirror imaging" when operating in complex multinational environments.
[LAO: 3a, 3e, 4b, 4f, 4g, 4h, 6f]
5. Comprehend the doctrinal methodology for defining the problem during operational design, and how a correctly defined problem leads to the identification of potential defeat and/or stability mechanisms, and moving from current conditions to desired conditions within the OE and ultimately the national security environment.
[LAO: 2a, 3a, 3c, 3e, 3g, 4b, 4f, 4g, 4h, 6b, 6f]

LESSON OVERVIEW

JW-505 (S): Understanding the Operational Environment and Defining the Problem

Overview: Military planners operate in unpredictable and uncertain environments. Having an understanding of the environment and being able to relate that understanding to senior decision makers is a critical component of military art. This understanding of the environment is developed over long periods of time and is a continuous process that includes understanding the human, physical, and information aspects of the environment. However, a staff officer may be expected, on short notice, to provide detailed assessments of their assigned operational areas and/or operational domains. These assessments assist in framing the (correct) problem, giving due consideration to multiple unknowns or gaps in intelligence. This process assists in eliminating as many unknowns as possible or recommending hedges against remaining risk due to the presence of unknowns. This seminar uses the second doctrinal aspect of developing the operational approach to explore in a larger sense the current and potential future operational environment (OE). In seminar students will discuss perspectives on the current and future OE, the doctrinal prerequisite to describe the current and the desired OE/conditions when developing an operational approach, and the pitfalls of trend analysis and planning assumptions that may require branch plans or acceptance of elevated risk in an operation. The seminar will provide context for the concepts of

understanding the current and desired environment during planning. Frameworks such as PMESII and SOSA will also be discussed by examining previous planning efforts and planning assumptions in order to comprehend the complexity involved with intelligence collection, and the insight required to make logical ties within a complex system. In addition, Understanding the problem or problem set the joint force faces is pivotal to developing the most appropriate solutions and the focused application of military capabilities, and properly linking tactical actions to operational objectives in support of strategic goals. Only after the problem set is identified and framed may the staff and commander begin to develop the approach that may be taken to solve it. This also helps in determining what the correct Center of Gravity (introduced in the next lesson) is.

CONTACT HOURS: 2.0-hour Seminar

REQUIRED READINGS

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, (Review) IV-10 to IV-15 (stop at “Identify Assumptions”).

[This section of JP 5-0 provides the doctrinal underpinning for the processes and products contributing to gaining an understanding of the operational environment as a major component of the operational design process. It also introduces the idea using a problem statement to clearly define the problem.]

2. Joint Publication 2-0, *Joint Intelligence*, 22 October 2013, ix-xvi.

[JP 2-0 provides a short overview of the nature, roles and responsibilities of intelligence, the joint intelligence process, principles of joint intelligence, and intelligence support to operations.

3. Joint Publication 2-01.3, *Joint Intelligence Preparation of the Operational Environment*, 21 May 2014, xi-xviii; Skim Appendix B, D, and E.

[JP 2-01.3 is instructive as it demonstrates the many facets addressed in understanding the OE. The Joint Intelligence Preparation of the Operational Environment (JIPOE) Somalia Case Study (Appendix B) is an excellent description of JIPOE in support of stability and irregular warfare operations, and will also be useful in preparing for future JW seminars. Appendix D and Appendix E provide excellent examples of analysis (PMESII) and visual depictions/products of analysis that are useful in JW exercises.]

4. Joint Staff J7, *Planner’s Handbook for Operational Design*, (Suffolk, VA, 2011), V-1 to V-16.

[The short selection from the J-7 Handbook provides some further insight into considerations for framing complex problems and developing a problem statement.]

5. Dale F. Spurlin, "The Problem Statement – What’s the Problem?" *The Small Wars Journal*, <https://smallwarsjournal.com/jrn/art/the-problem-statement-%e2%80%93-what%e2%80%99s-the-problem>.

[The article draws on concepts used in management sciences, operations research, Army and Joint doctrine to discuss approaches to military problem statement development and problem statement construction to support generatating a solution and evaluation criteria.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Publication 2-01.3, *Joint Intelligence Preparation of the Operational Environment*, 21 May 2014, Ch. I, Ch. II, **Ch. III (covers operating domains)**, and Ch. IV.
2. (Review) Jeffrey M. Reilly, *Operational Design: Distilling Clarity from Complexity for Decisive Action*, (Air University Press, 2012), 8-19.
3. (Review) Joint Publication 5-0, *Joint Planning*, 16 June 2017, Ch. IV.
4. Joint Publication 3-16, *Multinational Operations*, 1 March 2019, Ch. III.
5. (Review from IS1) *Joint Operating Environment (JOE) 2035*, 14 July 2016, i-iii; 1-52.

LESSON INTEGRATION AND RATIONALE

The goal of this seminar is to facilitate for the planner the ability to focus appropriately on the most meaningful portions of a system, to include understanding the human, physical, and information aspects of the environment, without undue distraction by the extraneous, yet still understanding the system as a whole. Interorganization and multinational stakeholder integration will likely continue as a norm in the joint force planning process and can impact or influence the operational environment. This lesson sets up the follow-on lesson of Center of Gravity Analysis (JW-506) which will focus on the purpose and approaches for addressing a specific aspect of the problem and the JIPOE in order to enable focused planning and employment of military capabilities.

Day 4: JW-506 Center of Gravity Analysis

LESSON OBJECTIVES

1. Comprehend the joint doctrinal concepts of center of gravity (COG) and critical factors and how these concepts are utilized in the operational design process and understanding the OE.
[LAO: 2a, 3a, 3d, 3f, 4b, 4f, 6b]
2. Comprehend how the linkages between end states, centers of gravity, objectives, effects, decisive points, and lines of operation contribute to the development of the commander's operational approach, and provide focus for subsequent/subordinate planning.
[LAO: 2a, 3a, 3c, 3d, 4b, 4f, 6b]
3. Comprehend how center of gravity analysis is continually refined during the JPP, and how this refinement impacts the planning and execution of military operations across the range of military operations.
[LAO: 2a, 3d, 4b, 4f]
4. Comprehend how centers of gravity, and the associated critical factors analysis are influenced by the levels of war, and how nesting of COGs and objectives assist in providing clarity in complex operational environments.
[LAO: 2a, 3a, 3c, 3d, 4b, 4f, 6b]

LESSON OVERVIEW

JW-506 (S): Center of Gravity Analysis

Overview: Center of gravity analysis has long been argued as the most important aspect of joint planning. Having defined the problem, it aids the combatant commander and staffs in further understanding of the security environment and provides a detailed examination of the capabilities and vulnerabilities of friendly and adversary actors that are tied to the problem statement. However, the COG concept has also come under some heavy criticism.

Regardless of the context and criticism, COG analysis remains an integral component for understanding of the operational environment and operational design framework, and aiding the staff and commander in focusing planning efforts and the application of combat power during execution. The seminar will provide a basic understanding of joint doctrinal concepts and their application during the JPP, and will also require the thoughtful analysis of an historical operation in terms of identifying and analyzing centers of gravity.

CONTACT HOURS: 1.5-hour seminar

REQUIRED READINGS

1. Milan Vego, *Joint Operational Warfare: Theory and Practice*, (Naval War College Press, 2009), VII-13 to VII-27; VII-29 to VII-35.

[The selections from Vego's *Joint Operational Warfare* provide an excellent synopsis of the concept of center of gravity and its significance in military operations, and some important misconceptions regarding COG of which military professionals should be aware. Though the concept of COG and critical factors has fostered many debates in the joint community over the last few decades, this reading provides a superb baseline from which to continue the discussion in this course and allow reasonable application of current doctrinal concepts during JW Workshops and the JPEX.]

2. Christopher M. Schnaubelt, Eric V. Larson, and Matthew E. Boyer, *Vulnerability Assessment Method Pocket Guide*, (RAND Corporation, 2014), Skim 1-6; Read 7-32.

[The VAM Pocket Guide provides a concise process for the identification and analysis of a COG, helping the military operation planner to focus planning efforts as well as apply valuable and limited military resources toward mission accomplishment. The reading also addresses the COG analysis in terms of competing objectives, and an ends, ways, means analysis in keeping with JW course themes.]

SUGGESTED ADDITIONAL MATERIAL

1. U.S. Air Force, *Air Force Doctrine Annex 3-0, Appendix A: Center of Gravity Analysis Methods*, (4 Nov 2016), 1-7.
2. (Review) Joint Publication 5-0, *Joint Planning*, 16 June 2017, IV-23 to IV-26 (COG).
3. Christopher M. Schnaubelt, Eric V. Larson, and Matthew E. Boyer, *Vulnerability Assessment Method Pocket Guide*, (RAND Corporation, 2014), 33-81.
4. Celestino Perez, Jr., *Addressing the Fog of COG: Perspectives on the Center of Gravity in US Military Doctrine*, (Combat Studies Institute Press, Fort Leavenworth, KS, 2012), 1-169.

LESSON INTEGRATION AND RATIONALE

The COG construct is useful as an analytical tool to help JFCs and staffs analyze friendly and adversary sources of strength as well as weaknesses and vulnerabilities. It is an integral component of both operational design and operational art, and ultimately allows the commander to apply combat power with more precision and focus. The critical factor analysis helps provide some structure to the otherwise ill-structured problems as discussed in lesson JW-503. Within the context of the defined problem, COG identification and analysis is a tool that aids in linking national security objectives to military objectives and termination, and provides insight into the ends-ways-means-risk calculus. This lesson builds upon the foundation of War Theory (WT) lessons that address and examine classic military theorists (ex. Clausewitz, Jomini) and the principles of war.

Day 5: JW-507

Developing the Operational Approach

LESSON OBJECTIVES

1. Comprehend the three distinct but interrelated aspects of the operational design methodology (understand the strategic direction, understand the operational environment, and define the problem) that when combined assist in the development of an operational approach.
[LAO: 2a, 3a, 3e, 3g, 4b, 6b, 6f]
2. Comprehend how conceptual planning during the development of an initial operational approach assists in determining the arrangement and phasing of operations.
[LAO: 2a, 3c, 3d, 4b, 4c, 4e, 6f]
3. Building on concepts presented in Objectives 1 & 2, analyze an operational approach and its utility in the planning and execution of joint military operations.
[LAO: 2a, 3c, 3e, 3f, 4b, 4c, 4f, 4g, 4h, 6f]

LESSON OVERVIEW

JW-507 (S): Developing the Operational Approach

Overview: The operational approach is a commander's description of the broad actions the force must take to achieve the desired military end state. It is the commander's visualization of how the operation should transform current conditions into the desired conditions at end state – the way the commander wants the operational environment to look at the conclusion of operations. The operational approach is based largely on an understanding of the operational environment and the problem facing the JFC; however – as always – the approach must take into account whole of government (DIME) and multinational considerations. Once the JFC approves the approach, it provides the basis for beginning, continuing, or completing detailed planning. The JFC and staff should continually review, update, and modify the approach as guidance, the operational environment, end states, or the problem change. Though laying the framework for detailed planning, the operational approach is iterative and should allow for adaptation and innovation throughout planning and execution of military operations.

CONTACT HOURS: 2.5-hour seminar

REQUIRED READINGS

1. Dale C. Eikmeier, "Design for Napoleon's Corporal," *Small Wars Journal*, September 2010, 27(7), 1-11.

[Eikmeier takes the elements in JP 5-0 and tries to make them understandable for "Everyman". He focuses on the "how" and provides some of his own suggestions for developing an operational approach.]

2. Jeffrey M. Reilly, *Operational Design: Distilling Clarity from Complexity for Decisive Action*, (Air University Press, 2012), 31-58; Review Ch. 2.

[Chapter 3 in Reilly's book goes in to detail on the methodology of design and the use of the "cognitive map" (operational approach). He walks through the critical steps providing some historical basis for the methodology.]

3. Joint Staff J7, *Planner's Handbook for Operational Design*, (Suffolk, VA, 2011), VI-1 to VI-7.

[The short selection from the J-7 Handbook provides some insight into developing an Operational Approach.]

4. U.S. Joint Forces Command, *Design in Military Operations: A Primer for Joint Warfighters*, The Joint Warfighting Center, Joint Doctrine Series, Pamphlet 10, (Suffolk, VA, 2010), (*Read vignette as assigned by seminar instructor*) A-1 to A-32.

[The JWFC Pamphlet provides several historical examples of problem framing and the use of the operational approach in military operations across the ROMO.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Staff J7, *Planner's Handbook for Operational Design*, (Suffolk, VA, 2011), Chapters 4-5.
2. (Review) Joint Publication 5-0, *Joint Planning*, 16 June 2017, IV-6 to IV-19 (Design Methodology) and IV-19 to IV-40 (Elements of Operational Design).

LESSON INTEGRATION AND RATIONALE

This lesson provides the framework upon which students can take the doctrinal elements of design and begin to more clearly understand the practical relationships between those elements. The visual depiction of the operational approach (the cognitive map) is a comprehensive starting point from which to begin applying operational art. Now that the elements of operational design are better understood we can begin to analyze previous operations in more detail. This is foundational to the JW planning workshops and JPEX.

Day 5: JW-508 Nigeria Background Brief

LESSON OBJECTIVES

1. Comprehend the historical background, current actors, and events involved with a realistic planning scenario in a joint, interagency, intergovernmental and multinational environment.
[LAO: 3a]
2. Comprehend factors in the the strategic environment and operational environment, including geopolitics, culture, region, religion, and culture which potentially inform operational design and detailed joint planning.
[LAO: 3a, 4f]

LESSON OVERVIEW

JW-508 (L): Nigeria Background Brief

Overview: The history of potential and actual ethnic, religious, cultural, economic, and political faultlines in Nigeria all play an important role in any contingency planning effort. Nigeria has the largest economy and largest military of all African nations. Understanding the background, current situation, and underlying tensions and issues will be essential for successful execution of the JW planning workshops.

CONTACT HOURS: 1.0-hour lecture

REQUIRED READINGS

1. None.

SUGGESTED ADDITIONAL MATERIAL

1. None.

LESSON INTEGRATION AND RATIONALE

This lecture will provide the *starting point* for student directed study in preparation for the first two days of JW course planning workshops. Students will be expected to arrive in all ensuing workshop seminars with the appropriate level of knowledge, insight, and analysis of information that pertains to the problem set in Nigeria and the surrounding region. This will enable the planning group to apply operational art, operational design, and the planning process to propose potential military solutions to the commander.

Day 6: JW Directed Study

Day 7: JW-509 Operational Design Workshop Day 1

LESSON OBJECTIVES

These Objectives build on concepts discussed in Lessons JW-501 through 507

1. Demonstrate the use of operational art and design in Joint Planning, and how military planning considers all elements of national power and an interorganizational/whole of government approach to achieve national strategic goals.
[LAO: 2a, 2c, 3d, 3e, 3g, 4b, 4f, 4g, 4h, 6b, 6f]
2. Apply elements of operational art and design (per joint doctrine) in order to understand the current and desired operational environment and develop potential solutions to a complex military planning problem.
[LAO: 2a, 2c, 3a, 3d, 3e, 4b, 4f, 4g, 4h, 6f]
3. Analyze strategic guidance documents, the commander's initial planning guidance, and the operational environment in order to develop military end states, objectives, and desired effects for the application of the military instrument of power.
[LAO: 1d, 2a, 2c, 3c, 3d, 3e, 3g, 4b, 4h, 6f]
4. Analyze appropriate centers of gravity to aid in the identification of decisive points that will be used in the development of the operational approach.
[LAO: 2a, 2c, 3a, 3c, 3d, 3e, 4b, 6b, 6f]

LESSON OVERVIEW

JW-509 (S): Operational Design Workshop Day 1

Overview: The Operational Design Workshop (2 days) will focus on the elements of operational design and the development of an *initial* operational approach. The first day of the Workshop will concentrate on “understanding strategic direction” and “understanding the operational environment” that will allow planners to answer the questions: “*what are the strategic goals to be achieved and the military objectives that support their attainment?*” and “*what is the larger context that will help me determine our problem?*” The seminar practical application will include concepts such as Joint Intelligence Preparation of the Operational Environment (JIPOE), center of gravity analysis, SOSA/PMESII constructs, and a review of national strategic guidance documents. The result of Day 1 will be well-crafted strategic and operational end states, military operational objectives and effects, and thorough enemy and friendly center of gravity analysis. This workshop is the first in a series of eight during the JW course that will enhance student ability to derive solutions to complex problems in potentially volatile, uncertain, and ambiguous environments.

This lesson underscores the importance of staff support to the commander in developing an operational approach so that planners can subsequently continue with focused mission analysis and COA development in JPP Steps 2 and 3. Prior to conducting Mission Analysis, the JFC will typically provide initial planning guidance based upon current understanding of the operational environment, the problem, and the initial operational approach for the campaign or operation. ACSC suggests that the operational approach be captured in a cognitive map, which will support the remainder of the planning activities, including decision analysis.

CONTACT HOURS: 3.0-hour seminar

REQUIRED READINGS

1. Joint Publication 3-08, *Interorganizational Cooperation*, 12 Oct 2016, Validated 18 October 2017, II-12 to II-18; II-21 to II-32.

[The JP 3-08 provides concepts and considerations associated with interorganizational cooperation necessary to understand how the military contributes to unified effort within the U.S. Government.]

2. JW Nigeria scenario planning guidance, research materials, and other open source research materials as required. (**Canvas**)

[Students must read the scenario guide prior to the start of the workshop. Students will not have the time to “spin-up” on the scenario during this seminar. This seminar marks the first of several experiential learning days that provide an opportunity to synthesize and apply JW course concepts through instructor led practical application. In addition to the materials provided, students will be required to conduct their own research in order to gain information that will facilitate the analysis and application of elements of operational design during the seminar. The purpose of student research for scenario information, in addition to aiding the practical application of doctrinal concepts, is to build analytical skills for knowing what *types* of questions to ask, as well as what specific questions to ask, and seek appropriate information to enable military planning activities.]

3. JW Planning Study Guide. (**Canvas**) [This guide is provided to enable coherent research and note taking on scenario materials. Students should use the guide and prepare notes for in-class use per their instructor’s directions.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, Ch. IV.
2. Jeffrey M. Reilly, *Operational Design: Distilling Clarity from Complexity for Decisive Action* (Air University Press, 2012), 1-14; 21-29; 31-38 (stop at first full paragraph); 40-58.

LESSON INTEGRATION AND RATIONALE

This seminar is the first of eight instructor-led workshops in which students will “walk” through Operational Design and the JPP utilizing a scenario as a tool to enhance learning. This seminar will directly enable the analysis and application of concepts in the Mission Analysis, COA Development, COA Analysis and COA Comparison Workshops later in the JW course. In these seminars the planning groups will continue to analyze and apply operational art and design concepts by continuing detailed planning through the use of the JPP. The experience gained during this seminar will increase analytical and critical thinking abilities, and aid in preparing students to conduct student-led planning during the Joint Planning Exercise (JPEX) to address a more complex contingency scenario.

Day 8: JW-510 Operational Design Workshop Day 2

LESSON OBJECTIVES

These Objectives build on work conducted in Lesson JW-509 and concepts presented in Lessons JW-501 through 507.

1. Demonstrate the use of operational art and design in Joint Planning, and how military planning considers all elements of national power and a whole of government approach to achieve national strategic goals.
[LAO: 2a, 2c, 3d, 3e, 3g, 4b, 4f, 4g, 4h, 6b, 6f]
2. Apply elements of operational art and design (per joint doctrine) in order to understand the current and desired operational environment and develop potential solutions to a complex military planning problem.
[LAO: 2a, 2c, 3a, 3d, 3e, 4b, 4f, 4g, 4h, 6f]
3. Analyze the operational environment and the multiple actors and relationships in that environment in order to understand and isolate root causes of the issues at hand, define the problem, and determine how these operational variables may inhibit or facilitate the preferred change toward the desired operational end state.
[LAO: 1d, 2a, 2c, 3a, 3c, 3g, 4b, 4f]
4. Apply appropriate doctrinal elements of operational design, to include, but not limited to: lines of operation/lines of effort, decisive points, end state, objective, effects, and arranging operations in order to analyze a complex security issue and develop an initial operational approach, commander's planning guidance, and commander's intent.
[LAO: 1d, 2a, 2c, 3c, 3d, 3g, 4b, 4e, 4g, 4h, 6b]

LESSON OVERVIEW

JW-510 (S): Operational Design Workshop Day 2

Overview: The second day of the Operational Design Workshop (2 days) will continue the analysis previously conducted for the development of end states, objectives, effects and the analysis of centers of gravity that will enable the development of an operational approach. In this session, the planning group will continue to apply doctrinal concepts and methodology for developing the operational approach. Specifically, the group will use previous analysis of enemy and friendly objectives and centers of gravity to determine potential decisive points that aid in the development of lines of operation and/or lines of effort which are foundational to an operational approach. During this seminar the questions: "*what problem is the design intended to solve?*" and "*how will the problem be solved?*" will guide the formulation of an initial operational approach.

The lesson underscores the importance of staff support to the commander in developing an operational approach so that planners can subsequently continue with focused mission analysis and COA development in JPP Steps 2 and 3. Prior to conducting Mission Analysis, the JFC will typically provide initial planning guidance based upon current understanding of the operational environment, the problem, and the initial operational approach for the campaign or operation. ACSC suggests that the operational approach should be captured in a cognitive map, which will support the remainder of the planning activities, including decision analysis.

The result of Day 2 will be a “cognitive map” that captures the broad actions the force will take and to convey the staff and commander’s overall understanding of the situation prior to the start of detailed planning. The elements of design on this “map” include, but are not limited to: end state, objectives, effects, COGs, decisive points, lines of operation/effort, and arranging operations.

CONTACT HOURS: 3.0-hour seminar

REQUIRED READINGS

1. JW Nigeria scenario planning guidance, research materials, and other open source research materials as required. (**Canvas**)

[Students must read the scenario guide prior to the start of the workshop. Students will not have the time to “spin-up” on the scenario during this seminar. This seminar continues with the analysis conducted in the previous Operational Design Workshop. In addition to the materials provided, students will be required to conduct their own research in order to gain information that will facilitate the analysis and application of elements of operational design during the seminar. The purpose of student research for scenario information, in addition to aiding the practical application of doctrinal concepts, is to build analytical skills for knowing what types of questions to ask, as well as what specific questions to ask, and seek suitable information to enable military planning activities.]

2. JW Planning Study Guide. (**Canvas**)

[This guide is provided to enable coherent research and note taking on scenario materials. Students should use the guide and prepare notes for in-class use per their instructor’s directions.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, Ch. IV.
2. Jeffrey M. Reilly, *Operational Design: Distilling Clarity from Complexity for Decisive Action* (Air University Press, 2012), 1-14; 21-29; 31-38 (stop at first full paragraph); 40-58.

LESSON INTEGRATION AND RATIONALE

This seminar is the second of eight instructor-led workshops in which students will “walk” through Operational Design and the JPP utilizing a scenario as a tool to enhance learning. This seminar will directly enable the analysis and application of concepts in the Mission Analysis, COA Development, COA Analysis and COA Comparison Workshops. In these seminars the planning groups will continue to analyze and apply operational art and design concepts by continuing detailed planning through the use of the JPP. The experience gained during this seminar will increase analytical and critical thinking abilities, and aid in preparing students to conduct student-led planning during the Joint Planning Exercise (JPEX) to address a more complex contingency scenario. Combined with material presented in JW-509, these lessons build upon the foundations of War Theory’s examination of classic theorists (ex. Clausewitz, Jomini, Sun Tzu, Liddell Hart, David Galula, Mao Tse Tung), International Security I and II that address and examine VEO and Non-State Threats and the Combatant Commands and Posture Statements. Also, War Theory and AirPower II lessons that address and examine Irregular Warfare and Gray Zone Conflict.

Day 9: JW-511

Linking Conceptual Planning to Detailed Planning and Multi-Domain Operations

LESSON OBJECTIVES

1. Comprehend how conceptual level planning (accomplished during operational design), theory, and principles of joint operations drive detailed planning during the JPP.
[LAO: 2a, 3d, 4b]
2. Comprehend how detailed planning informs conceptual planning through the continuous and iterative planning process.
[LAO: 2a, 4b]
3. Comprehend the changes in the operating environment that have led to the current thinking about multi-domain operations and how thinking about operations in and through domains aids in making strategy-to-task decisions.
[LAO: 3a, 4e, 6a, 6f]

LESSON OVERVIEW

JW-511 (L): Linking Conceptual Planning to Detailed Planning and Multi-Domain Operations

Overview: Operational Design can be considered as part of the conceptual level of planning. Operational Design helps the commander and staff begin to distill clarity from complexity and frame the problem set they are facing. The derivation of military end states, objectives, lines of effort, and other elements from national strategic guidance is merely the beginning of an iterative process that continues even during execution. During Step 2 of the JPP the planning staff considers the broad operational approach and begins, through the doctrinal activities of mission analysis, to develop the tasks that must be accomplished to achieve the desired effects and accomplish the stated objectives. This analysis aids in the continued refinement of the problem frame. With changes in the anticipated global operating environment, military thinkers have proposed that analyzing mission requirements through consideration of domains rather than joint services is essential for success against future adversaries. Conducting planning activities, including mission analysis, within the context of multi-domain operations may assist the planner in applying existing doctrine to a new concept of warfighting.

CONTACT HOURS: 1.0-hour lecture

REQUIRED READINGS

1. Joint Staff J7, *Insights and Best Practices Focus Paper: Design and Planning*, First Edition, July 2013, 2-17.

[This excerpt discusses, through a variety of real-world examples, how to incorporate operational design into joint operations as it supports the exercise of command, provides a broad perspective that deepens understanding and enables visualization to drive planning and resolve problems.]

2. David G. Perkins and James M. Holmes, "Multidomain Battle: Converging Concepts Toward a Joint Solution," *Joint Force Quarterly*, Issue 88, First Quarter 2018, 54-57.

[This article describes what the U.S. Army Training and Doctrine Command (TRADOC) and Air Combat Command (ACC) have done to provide input for integrating and converging land and air domain capabilities to create a merged multidomain capabilities required for success in future combat.]

3. *The U.S. Army in Multi-Domain Operations 2028*. TRADOC Pamphlet 525-3-1, 6 December 2018, 6-8.

[These two pages discuss the emerging operational environment, contested domains, and contested international norms with Russia and China as the primary adversaries; it also discusses how threats from the emerging operational environment necessitate the U.S. to adapt its current understanding of the battlefield; it provides a framework of the emerging battlefield that illustrates the breadth of activities, spaces, distances, and interrelationships for which the Multi-Domain Operations must account.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, Ch. II and Ch. V.
2. United States Army-Marine Corps, “Multi-Domain Battle: Combined Arms for the 21st Century,” White paper, 18 January 2017, 1-13.
3. Jeffrey M. Reilly, *Operational Design: Distilling Clarity from Complexity for Decisive Action*, (Air University Press, 2012), p. 59-64.

LESSON INTEGRATION AND RATIONALE

This lecture provides a bridge from operational design to mission analysis in Phase 1 of the JW course which focuses on problem framing. Having examined complexity and the use of operational design to aid in establishing a problem frame, this framing process continues during the beginning of detailed planning in Step 2 of the JPP – mission analysis. Though doctrine lists several activities that take place during mission analysis, it is the continued analytical thinking that is most important as more detail is considered and added to the plan. Multi-domain operations (MDO) provides a framework for thinking about how the military will operate against potential future adversaries. MDO is still in the conceptual stage of development. Today’s professionals will be challenged to develop the detailed methods to complete the strategy-to-task calculus in order to better address the changing characteristics of the OE and near peer threats.

Day 9: JW-512

Introduction to Mission Analysis

LESSON OBJECTIVES

1. Comprehend the purpose, activities, and desired outputs of JPP step 2, Mission Analysis, including how operational art, operational design, and the commander's initial operational approach, along with the joint functions, inform the JPP through Mission Analysis activities.
[LAO: 1d, 2a, 3a, 3e, 3f, 4b, 4c, 4e]
2. Comprehend the process for developing a clear mission statement, and the purpose, construct, and content of a mission statement per current joint doctrine through the critical analysis of a joint operation.
[LAO: 1d, 2a, 3a, 3f, 4b]
3. Comprehend the significance of planning assumptions, commander's critical information requirements (CCIRs), and risk assessment during the planning and execution of military operations.
[LAO: 2a, 3a, 4b]
4. Comprehend the options available to the joint force commander for the organization of a joint force, the potential interorganizational relationships, and the doctrinal command relationships (COCOM, OPCON, TACON, and support) that define the authority a commander has over assigned or attached forces, and how that leads to unity of command and unity of effort.
[LAO: 2a, 3b, 5a]

LESSON OVERVIEW

JW-512 (S): Introduction to Mission Analysis

Overview: The military portion of the plan for Haiti earthquake relief was one part of a whole of government and multinational effort, with the U.S. State Department as the lead federal agency. A thorough Mission Analysis is critical to correctly framing the problem (and framing the correct problem) which enables the derivation of appropriate solutions during the rest of the JPP. Through the activities of Mission Analysis, planners are able to determine the tasks required to accomplish the mission, the purpose of the mission, limitations on freedom of action (constraints and restraints), and the forces and organization that will support the operation. The outputs of the Mission Analysis step directly influence the remainder of detailed planning, particularly course of action development during which planners develop solutions to the problems as outlined during Mission Analysis. Factors such as planning assumptions and CCIRs also impact intelligence collection and ends-ways-means-risk assessment throughout planning and execution. The seminar will include the critical analysis of the plan and subsequent execution of intergovernmental and multinational relief operations in Haiti.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS

1. David R. DiOrio, "Operation Unified Response – Haiti Earthquake 2010" (Case Study), Joint Forces Staff College, 1-18.

[The readings from the U.S. joint military response to the 2010 Haiti Earthquake provide an excellent example of the outcome of the activities of Mission Analysis produced by an actual

joint staff during a crisis. The reading helps link the conceptual thinking accomplished through development of an operational approach to doctrinal activities of mission analysis.]

2. CDRUSSOUTHCOM, USSOUTHCOM OPORD 1-10: Support to Haiti Earthquake Relief Efforts (2010), Read 3-18 (up to “tasks to units”); Skim 18-60.

[This real-world unclassified Operation Order (OPORD) is useful to demonstrate the format and content of a planning order. The order is useful in analyzing how the operational approach informs detailed planning, and particularly mission analysis activities at the JTF headquarters and component levels.]

3. Joint Publication 5-0, *Joint Planning*, 16 June 2017, V-4 to V-20.

[Introduces the doctrinal activities associated with the Mission Analysis step of the joint planning process.]

4. Joint Publication 1, *Doctrine for the Armed Forces of the United States*, 25 March 2013 Incorporating Change 1, 12 July 2017, IV-1 to IV-11; IV-15 to IV-18, V-1 to V-13.

[The JP 1 reading describes the types of U.S. joint organizations and the organizational options available to a joint force commander for the conduct of military operations, and command relationships (authorities) that facilitate unity of command and unity of effort.]

5. Joint Publication 3-08, *Interorganizational Cooperation*, 12 Oct 2016 Validated 18 October 2017; IV-19 to IV-30.

[The JP 3-08 provides concepts and considerations associated with interorganizational cooperation necessary to understand how the military contributes to unified effort within the U.S. Government.]

SUGGESTED ADDITIONAL MATERIAL

1. US SOUTHCOM Haiti Caribbean Mass Migration Crisis Action Planning Brief (PowerPoint Presentation, 2010), 1-33.
2. Joint Publication 1, *Doctrine for the Armed Forces of the United States*, 25 March 2013 Incorporating Change 1, 12 July 2017, V-1 to V-13.

LESSON INTEGRATION AND RATIONALE

The Mission Analysis seminar continues the JW Phase 1 theme of problem framing, specifically through the doctrinal activities of Mission Analysis. The seminar follows the JW-511 lecture that bridges the JW lessons on operational design to mission analysis. This seminar will facilitate the discussion of an historical operation during JW-513 and JW-514 in which students will apply their knowledge of the Mission Analysis step and associated inputs, outputs and activities to analyze previous mission planning conducted for joint and interagency response to an actual crisis, and to JW-515 during which students will conduct Mission Analysis using a scenario. The lesson also revisits operational design, national planning systems, and sources of national guidance that drive detailed planning during the JPP.

Day 10: JW-513
Mission Analysis Case Study: Black Hawk Down

LESSON OBJECTIVES

1. Comprehend how the Mission Analysis step of the JPP is integrated with the elements of operational design, the commander's initial operational approach, and joint functions.
[LAO: 2a, 3e, 4b, 4c, 4h]
2. Comprehend the relationship between the doctrinal levels of war, and analyze how activities and effects at one level may impact the other levels in positive or negative ways.
[LAO: 2a, 3e, 4b]
3. Comprehend the concepts of Mission Command and mission creep, and identify its causes and effects, as well as ways to mitigate or avoid the associated risks of expanding operational goals beyond initial guidance or the planning and analysis conducted during the Mission Analysis step of the JPP.
[LAO: 2a, 3e, 4b, 4f, 6d, 6f]
4. Building on concepts presented in Objectives 1, 2 & 3, analyze the planning of an historical operation for the doctrinal activities of mission analysis, and identify planning activities and operational design elements that lead to success or failure in military operations in a complex operational environment.
[LAO: 2a, 3a, 3c, 3e, 3f, 4b, 4f, 4h, 6a, 6d, 6f]

LESSON OVERVIEW

JW-513 (L): Mission Analysis Case Study: Black Hawk Down

Overview: The "Battle of Mogadishu" – a single mission conducted as part of Operation GOTHIC SERPENT, was the result of a single tactical mission in which U.S. forces attempted to capture Somali warlord Mohamed Farrah Aidid. Operation GOTHIC SERPENT was a specific portion of the ongoing U.S. operations in Somalia from August to October 1993 designed to capture Aidid and his top lieutenants in order to aid in restoring order to Mogadishu. These tactical operations took place under the cognizance of larger efforts which the U.S. had code-named Operation RESTORE HOPE (the follow-on to Operation PROVIDE RELIEF) – which was part of ongoing international efforts to bring humanitarian aid and to conduct peace operations in Somalia as it suffered from ongoing civil war and widespread famine. A careful examination of operations in Somalia from 1992 through 1994 (including UN Operations in Somalia I (UNOSOM I), Unified Task Force (UNITAF), and UNOSOM II) provides an opportunity to analyze the planning efforts and mission analysis conducted for multi-faceted Foreign Humanitarian Assistance (FHA) and Peace Operations (PO), examine the complexity of coalition operations, and to study the ambiguity that may exist in the operational environment in military operations even on the "lower end" of the ROMO.

CONTACT HOURS: 1.5-hour movie

REQUIRED READINGS

1. None

SUGGESTED ADDITIONAL MATERIAL

1. None

LESSON INTEGRATION AND RATIONALE

The opportunity to analyze a complex operation, from a tactical perspective and through film, provides a unique perspective for linking actions and effects across the levels of war and across the ROMO. Learning through film also reinforces the objectives of the course which strive to foster habits of mind and patterns of inquiry – providing the planner not merely with examples of previous operations, but building analytical tools for future operation planning and problem solving.

Day 10: JW-514
Mission Analysis Case Study: Somalia

LESSON OBJECTIVES

1. Building on concepts discussed in Lesson JW-513, analyze the planning of an historical operation for the doctrinal activities of mission analysis, and identify planning activities and operational design elements that lead to success or failure in military operations in a complex operational environment.
[LAO: 2a, 3a, 3c, 3e, 3f, 4b, 4f, 4h, 6a, 6b, 6d, 6f]
2. Comprehend how the Mission Analysis step of the JPP is integrated with the elements of operational design, the commander's initial operational approach, and the joint functions.
[LAO: 2a, 3e, 4b, 4c, 4h]
3. Comprehend the relationship between the doctrinal levels of war, and analyze how activities and effects at one level may impact the other levels in positive or negative ways.
[LAO: 2a, 3e, 3g, 4b]
4. Comprehend the concept of mission creep, and identify its causes and effects, as well as ways to mitigate or avoid the associated risks of expanding operational goals beyond initial guidance or the planning and analysis conducted during the Mission Analysis step of the JPP.
[LAO: 2a, 3e, 3g, 4b, 4f, 6d, 6f]
5. Building on concepts discussed in Objectives 2, 3, & 4, analyze the joint doctrinal command relationships and joint force organizational structures, and their significance in operations, and connection with the principle of unity of command.
[LAO: 2a, 3b, 3d, 5a]

LESSON OVERVIEW

JW-514 (S): Mission Analysis Case Study: Somalia

Overview: Students have previously attended a lecture and seminar on JPP step 2, Mission Analysis and are equipped with the requisite knowledge of the purpose and activities of Mission Analysis to enable an analysis of an historical operation. The Somalia case study provides an opportunity to analyze a specific mission, and the logic and analysis behind a mission statement and other outputs of Mission Analysis. "Mission creep" is also an important concept that should be understood in relation to mission analysis and the iterative dialogue that should take place between commanders and planners throughout mission planning and execution. (Having gained fairly common usage in military circles, the term "mission creep" finds its origins in the U.S operations in Somalia in 1993). Command relationships (joint force and multinational) and their direct and indirect effects on military operations are also a key area deserving critical analysis.

CONTACT HOURS: 1.5-hour seminar

REQUIRED READINGS

1. Kenneth Allard, "Somalia Lessons Learned," *CCPR Publication Series*, (Washington D.C., 2002), xv-xviii; 1-34; 50-59; 67-69; 78-86.

[The overview reading for U.S. and UN military operations in Somalia provides important background information and insight regarding the UN mandates for coalition engagement in Somalia, and specifically the strategic guidance and military planning for U.S. military involvement in foreign humanitarian assistance (FHA) and peace operations (PO) in Somalia.

This background is essential for the analysis, at the operational level, of elements of operational art and design, planning concepts and to draw conclusions regarding appropriate operation planning concepts and processes in the subsequent seminar.]

2. Major Michael F. Beech, "Mission Creep: A Case Study in U.S. Involvement in Somalia, A Monograph," School of Advanced Military Studies, United States Army Command and General Staff College, (Fort Leavenworth, Kansas, 1996), Skim 1-45.

[The Beech monograph points out several excellent lessons learned and adeptly explains the concept of mission creep and its effects on operations.]

3. (Review) Joint Publication 2-01.3, *Joint Intelligence Preparation of the Operational Environment*, 21 May 2014, B-1 to B-32.

[This is a review of the OE (JIPOE) for Somalia. It is important to complete the assigned reading prior to the scheduled presentation. This will allow students to view the events of the tactical actions depicted with the appropriate "operational lens."]

SUGGESTED ADDITIONAL MATERIAL

1. U.S. Army, Center of Military History, *United States Forces, Somalia After Action Report and Historical Overview: The United States Army in Somalia, 1992–1994*, (Washington, D.C., 2003), 1-276.
2. (Review) Joint Publication 5-0, *Joint Planning*, 16 June 2017, V-4 to V-20.
3. (Review) Joint Publication 1, *Doctrine for the Armed Forces of the United States*, 25 March 2013 Incorporating Change 1, 12 July 2017, I-7 to I-9.

LESSON INTEGRATION AND RATIONALE

This seminar reinforces previous learning (JW-511, JW-512, and JW-513) moving from comprehension of JPP step 2 and associated activities of Mission Analysis to the analysis of an historical operation through the specific lens of Mission Analysis activities as outlined in current doctrine. Through the historical case study, students will be further empowered with the skills to conduct their own mission analysis as applied to a complex planning scenario during the Mission Analysis Workshop (JW-515) and the Joint Planning Exercise (JPEX).

Day 11: JW Directed Study

Day 12 & Day 13: JW-515
Mission Analysis Workshop Day 1 and Day 2

LESSON OBJECTIVES

These Objectives build on work conducted in Lessons JW-509 & 510 (Operational Design Workshop) and concepts discussed in Lessons JW-511 through 514

1. Integrate operational art and operational design with Joint Planning, and assess how military planning considers all elements of national power, interorganizational stakeholders, private contractors, and a whole of government approach to achieving national strategic goals.
[LAO: 2a, 3a, 3c, 3g, 4b, 4f, 4h; SAE 2]
2. Comprehend the purpose and process for activities of JPP step 2, Mission Analysis, and how operational art, operational design, and the JPP are iterative in nature.
[LAO: 2a, 3c, 3d, 3g, 4b, 4f]
3. Analyze how strategic guidance documents, commander's intent and planning guidance, and the initial operational approach guide and inform the Mission Analysis step of the JPP.
[LAO: 1d, 2a, 3g, 4b, 4f, 4g]
4. Apply joint planning concepts across the joint functions while conducting Joint Planning activities as described in JP 5-0 for JPP Step 2, Mission Analysis, in order to develop a Mission Statement and create a Mission Analysis brief for the Joint Force Commander (CI).
[LAO: 1d, 2a, 2c, 3a, 3b, 3c, 3d, 3e, 3g, 4a, 4b, 4c, 4d, 4f, 4h, 5a, 5b, 6b, 6c, 6e, 6f; SAE 2, 4, & 5]

LESSON OVERVIEW

JW-515 (S): Mission Analysis Workshop Day 1 and Day 2

Overview: Mission Analysis is an important part of the JPP which, according to JP 5-0, "is used to study the assigned tasks and to identify all other tasks necessary to accomplish the mission" (V-4). This step provides direction to the commander and allows the staff to properly focus on the problem at hand. This workshop will address the activities of Mission Analysis, and will expand upon and link to the analysis conducted during JW-509 and JW-510 (Operational Design). The results will include a refined Operational Approach and delivery of a Mission Analysis Brief. The outputs of Mission Analysis will prepare the students to develop Courses of Action later in the JW course during the application of JPP Step 3.

The Mission Analysis brief is a tool through which the staff briefs the commander on the operational design and planning activities through JPP Step 2. Though the seminar has been led by the instructor through operational design, Step 1 (Initiation), and Step 2 (Mission Analysis) it is useful for students to develop and present the brief in order to gain an appreciation for how all of the thought, discussion, and doctrinal terms and tools come together to inform and shape the commanders planning guidance and future steps in the problem solving process. According to JP 5-0, the brief "[provides] the commander with the results of the staff's analysis of the mission, offers a forum to discuss issues that have been identified, and ensures the commander and staff share a common understanding of the mission" (V-17).

CONTACT HOURS: 2x3.0-hour seminars

REQUIRED READINGS

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, VI-24 to VI-41 (Operation Assessment).

[The plan for assessing the achievement of operational goals should be built into the overall plan. This section provides guidance on how to ensure assessment is built into all plans.]

2. U.S. Army Combined Arms Support Command, “Operational Contract Support: Plan and Management for Leaders,” May 2018, 2 page smart card.

[OCS Smart Card provides a concise snapshot of the OCS process, functions, tasks, checklists, considerations, risks, and warnings.]

3. JW Nigeria scenario planning guidance, research materials, and other open source research materials as required. (**Canvas**)

[Students should continue research and build upon their work during the JW-509 and JW-510 Operational Design Workshop prior to the start of the Mission Analysis Workshop. Students will not have the time to “spin-up” on the scenario during this seminar. This seminar continues with the analysis conducted in the previous Operational Design Workshop. In addition to the materials provided, students will be required to conduct their own research in order to gain information that will facilitate the analysis and application of elements of operational design during the seminar. The purpose of student research for scenario information, in addition to aiding the practical application of doctrinal concepts, is to build analytical skills for knowing what types of questions to ask, as well as what specific questions to ask, and seek suitable information to enable military planning activities.]

4. JW Planning Study Guide. (**Canvas**)

[This guide is provided to enable coherent research and note taking on scenario materials. Students should use the guide and prepare notes for in-class use per their instructor’s directions.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, Review V-4 to V-20 (Mission Analysis), Ch. VI.
2. (Review) Jeffrey M. Reilly, *Operational Design: Distilling Clarity from Complexity for Decisive Action*, (Air University Press, 2012), 54-58, beginning with “Assumptions: The Forgotten Element in Design.”
3. Operational Contract Support EXECUTION+: a practical guide to OCS. Reference Handbook, 2017
4. Non-Organic Support: a primer on considerations and concepts. OCS Reference Book, 2017
5. Joint Publication 4-10 Operational Contract Support 4 March 2019.

LESSON INTEGRATION AND RATIONALE

The Mission Analysis Workshop provides an opportunity to synthesize all JW concepts to this point in the course. This workshop will allow the CI to “walk” the seminar through the activities

of Mission Analysis. The products of this seminar, including the development of assumptions, limitations, tasks, initial risk assessment, CCIRs and a mission statement, will support the COA Development Workshop wherein students will develop distinct COAs to address the scenario contingency planning problem. The analysis and synthesis conducted during these two days provide another opportunity to hone critical thinking and analytical skills. The experience gained during this seminar will also prepare the students to conduct student-led planning during the Joint Planning Exercise (JPEX) to address a more complex contingency scenario. This lesson builds upon the foundation of War Theory's examination of classic theorists (ex. Clausewitz, Jomini, Sun Tzu, Liddell Hart, J.C. Fuller, David Galula, Mao Tse Tung), International Security I and II that address and examine VEO and Non-State Threats and the Combatant Commands and Posture Statements. Also, War Theory and AirPower II lessons that address and examine Irregular Warfare and Gray Zone Conflict and Leadership lessons that address and examine ethical military leadership.

Phase 2: PROBLEM SOLVING

Developing Solutions through the Application of Military Capabilities

Day 14: JW-516

JTF Perspective on Problem Solving

LESSON OBJECTIVES

1. Comprehend political, military, economic, social, infrastructure and informational (PMESII) factors that inform operational art, elements of operational design, and mission analysis in Joint Task Force (JTF) planning for irregular warfare.
[LAO: 2c, 3a, 3e, 4f, 4h, 6f]
2. Comprehend how commanders and staffs leverage operational art and design to link tactical actions to strategic objectives, answering ends-ways-means-risk questions to develop military strategy for irregular warfare.
[LAO: 2c, 3c, 3e, 4f, 4h, 5a, 6a, 6b, 6f]
3. Comprehend a JTF commander's perspective and use of operational art, operational design, and unique special operations forces (SOF) capabilities to develop courses of action in a multinational operation in irregular warfare.
[LAO: 1a, 2c, 3d, 3e, 4e, 4f, 4h, 6b, 6d, 6f]

LESSON OVERVIEW

JW-516 (L): JTF Perspective on Problem Solving

Overview: In 2002 Joint Task Force (JTF) 510 executed OEF Philippines (OEF-P), a population-centered counterinsurgency effort designed to support the Government of the Philippines as they battled the Abu Sayyaf Group, radical Islamic separatists operating on Zamboanga and Basilan Island. Originally conceived as a hostage rescue operation, OEF-P evolved into a multi-pronged effort designed to re-establish the Philippine government's legitimacy in the eyes of the population in those regions. The planning and execution of this operation highlight the essential interconnectedness of national and military level objectives, multinational considerations and context, and building partner capacity in developing an appropriate concept of operations. In addition, the operation showcases the critical nature of information operations, and the need for flexibility and adaptability when executing a plan.

CONTACT HOURS: 1.5-hour lecture

REQUIRED READINGS

1. Linda Robinson, Patrick B. Johnston, and Gillian S. Oak, *US Special Operations Forces in the Philippines, 2001–2014*, (RAND Corporation, 2016), iii-iv, 17-44.

[The RAND Study provides a summary of the operations conducted by Special Forces Joint Task Force 510 in the Philippines. The reading provides an understanding of Operation Enduring Freedom-Philippines mission for security assistance and security cooperation at the tactical and operational level to disrupt and degrade a terrorist network. The reading directly links to the JW-516 lecture which highlights how a JTF CDR views mission analysis and problem solving.]

SUGGESTED ADDITIONAL MATERIAL

1. None.

LESSON INTEGRATION AND RATIONALE

This presentation incorporates many of the JW course concepts previously discussed, including but not limited to operational design and mission analysis. While focused primarily on a limited COIN operation (JTF-Philippines), the concepts presented are broadly applicable to all planning efforts, and are a good introduction to the art of military analysis. This lecture serves as a transition as the course moves from “problem framing” into “problem solving” – taking the analytical “science” of design and problem framing toward developing the artful arrangement of capabilities (means) into viable military solutions (ways) as framed by strategic guidance and limitations. The presentation also revisits and reinforces concepts such as COGs, objectives and effects, and how these concepts play a pivotal role in course of action development. The need for COAs with inherent flexibility, clear command relationships, integrated IO, and force structure are also presented in the case of JTF-P operations.

Day 14: JW-517
Operational Art and Problem Solving: Course of Action Development

LESSON OBJECTIVES

1. Comprehend how operational art, operational design, the initial operational approach and mission analysis guide and inform the doctrinal development of potential solutions and the application of military capabilities.
[LAO: 2a, 3g, 4b, 4f, 5b]
2. Comprehend the doctrinal purpose and process for activities of JPP step 3, Course of Action Development, including several considerations for developing COAs, and what constitutes a valid and complete course of action.
[LAO: 2a, 4b, 4c]
3. Comprehend operational art and design, information and information aspects of military activities as part of operational art and design, joint functions, the principles of joint operations and their relationship to joint planning, and how military planning considers all elements of national power and a whole of government approach to achieving national strategic goals.
[LAO: 2a, 3d, 3e, 4b, 4c, 4f, 4g, 4h, 6f]

LESSON OVERVIEW

JW-517 (S): Operational Art and Problem Solving: Course of Action Development

Overview: One of the most critical steps in military planning is conceiving of and deciding upon COAs. Among the paths an operation can take, the commander must decide on a particular course of action. During JPP step 3, the staff develops unique courses of action to achieve the commander's military end state. These COAs adhere to the commander's guidance and intent, build on the results of mission analysis, and introduce additional elements of operational design. Ideal COAs consider all participants, culture, religion, geopolitics and other factors to achieve the desired end state within the commander's guidance, while maintaining flexibility to react to unforeseen challenges (i.e. Mission Command). It is essential to balance the requisite detail in the proposed courses of action with the flexibility for those who will execute the plan to be able to adapt to situations on the ground and to exploit opportunities in real time.

The COA sketch is one tool available to assist the commander in visualizing the entire operation (i.e. the course of action). This seminar will describe how to develop a valid COA that accomplishes the mission within the commander's guidance and positions the joint force for future operations.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, V-20 to V-31 (Course of Action Development); VII-4 paragraph 4(a)(b)(c)(d) and Appendix F (FDOs/FROs); (Review) IV-31 to IV-33 (Defeat & Stability Mechanisms).

[The selected reading from Joint Publication 5-0 provides the joint doctrinal guidance in regards to COA development, including methods and criteria for validating a COA. It also

provides an introduction and examples of flexible deterrent options (FDOs) and flexible response options (FROs) that are central to flexibility in military operations.]

2. Bob Woodward, *Plan of Attack*, (Simon and Schuster, New York, 2004), 75-84, 96-103, 105-106.

[*Plan of Attack* provides an excellent example of the iterative nature of COA development and strategic guidance, assumptions, end state, objective, and effects. This helps the student tie the actions and activities of detailed COA development during the JPP back to operational design concepts that inform how COAs are developed, and why; and how the chosen COA was selected, and why.]

3. “Joint Concept for Operating in the Information Environment (JCOIE),” Joint Chiefs of Staff, 25 July 2018, vii-xi, 1-6, and 11-30.

[The JCOIE describes how the Joint Force will build information into operational art to design operations that deliberately leverage information and the informational aspects of military activities to achieve enduring strategic outcomes.]

SUGGESTED ADDITIONAL MATERIAL

1. (Review) Jeffrey M. Reilly, *Operational Design: Distilling Clarity from Complexity for Decisive Action*, (Air University Press, 2012), 21-29.
2. (Review from AP1) Thomas E. Griffith, Jr., *MacArthur’s Airman: General George C. Kenney and the War in the Southwest Pacific*, (University Press of Kansas, 1998), 84-89; 94-96.
3. Rick Atkinson, *An Army at Dawn*, (Henry Holt and Company, New York, 2002), 30-32, 69-115, 130-140, 270-282, 303-317, 408-415, 537-541.

LESSON INTEGRATION AND RATIONALE

This seminar will incorporate the previous JW lessons of operational design and mission analysis to link how a commander’s operational approach, guidance, and intent impact COA development. The seminar will include an introduction to doctrinal defeat and stability mechanisms with examples, leveraging previous case studies that will build the foundation for the comprehension of service capabilities and operations in the domains which follow later in the course. The preceding lecture will offer discussion points on defeat and stability mechanisms, and reading on OIF planning will provide information to foster discussion on the iterative nature of COA development and COA validity leading into COA Analysis and Wargaming in a future seminar. The concept of COA development taught during this seminar is essential to understanding how commanders and their staffs visualize options to solving complex problems.

Day 15: JW-518
COA Development: The Operational Art (Student Presentation – JW-600E)

LESSON OBJECTIVES

These Objectives build on concepts discussed in Lessons JW-501 through 515

1. Analyze the fundamentals of operational art and design, specifically as they may be applied to the development of potential military solutions to complex security problems the joint force may face.
[LAO: 2a, 3d, 6b, 6f]
2. Analyze a military operation for the commander's vision, decision making, and use of doctrinal concepts (operational art and operational design) and principles of joint operations which led to successful accomplishment of the mission.
[LAO: 2a, 3d, 3f, 6b, 6d, 6e, 6f]
3. Analyze the factors or characteristics of commander's that may lead to success in combat operations, and how those factors relate to modern doctrinal concepts.
[LAO: 2a, 6b, 6d, 6f]

LESSON OVERVIEW

JW-518 (S): COA Development: The Operational Art (Student Presentation)

Overview: Martin Van Creveld, in his seminal work *Command in War* (1987) posits, "Studying the past may be a matter of marginal utility only, but the past is us and it is on the past alone that all decision making is inevitably based. If systematic study of the past is taken away, only personal experience, hearsay, and intuition remain" (p. 15). The opportunity to study and present a short presentation on a selected commander and battle will provide insight into the methods of analysis, and critical and creative thinking required of the military professional to devise appropriate courses of action to solve complex security problems. As the second day of the JW "problem solving" phase (Phase 2), this will be an opportunity to gain appreciation for command decisions, and how planners and commanders elect to adhere to or reject certain principles or doctrinal concepts in order to successfully accomplish missions. This seminar, coupled with a solid understanding of the "tools" used in accomplishing military missions (introduced in upcoming lessons), will enable students to analyze a situation, and determine appropriate ways and means for achieving the desired ends – known in U.S. joint doctrine as developing courses of action. The student presentation constitutes 10% of the Joint Warfighting course grade (JW-600E)

CONTACT HOURS: 2.5-hour seminar

REQUIRED READINGS

1. LTC Joseph M. Blair III, "The Ingredients of Military Genius," (U.S. Army War College, 1986), 1-16.

[“Ingredients of Military Genius” provides the reader with a brief overview of the characteristics identified by Clausewitz as being necessary or evident in the most effective combat commanders. This provides additional examples of military genius that Clausewitz wrote about which students read during the Leadership course in the fall term.]

2. Milan Vego, "On Military Creativity," *Joint Force Quarterly*, 70, 3rd Quarter (2013), 83-90.

[Vego points out several aspects of military creativity, and the necessity for the military professional's "...ability to find workable, novel solutions to problems—to be innovative and adaptable in fast moving, potentially confusing situations," a primary goal of ACSC and the JW course.]

3. JW 518.1 Student Research and Presentation Guidance (in this syllabus).

[Provides detailed guidance on the timing and content requirements of the in-class presentation. It is important that students follow the guidance for this graded presentation.]

4. Research as required for assigned in-class presentation. This will require going outside of the course materials to conduct the research.

SUGGESTED ADDITIONAL MATERIAL

1. None.

LESSON INTEGRATION AND RATIONALE

This lesson allows for a brief look at a few historical case studies of commanders and battles that stand out as significant for many reasons. The ability to research and critically analyze historical operations in terms of application of capabilities and the use of doctrine and other accepted principles will lay the groundwork for student application of creative thinking to develop valid courses of action for solving complex problems through application of military capabilities. This lesson is an early part of a building block approach to problem solving in this course, and future lessons will add service capabilities, domain operations, and doctrinal activities of course of action development. The JW COA Development Workshops will leverage this analysis, and the JW course will culminate with the application of this knowledge during the JPEX. This lesson builds upon the foundation of War Theory (WT) lessons that address and examine classic military theorists (ex. Clausewitz, Jomini, Tzu) and the principles of war.

WRITTEN ASSIGNMENT

Group paper (JW601E) assigned at the conclusion of the JW-518 seminar.

Day 15: JW-518.1 (JW-600E)
COA Development: The Operational Art (Student Presentation)
STUDENT RESEARCH AND PRESENTATION GUIDANCE

Refer to JW-518 in the JW Syllabus for lesson objectives, required readings, and other rationale. This assignment constitutes 10% of the Joint Warfighting course grade (JW-600E).

On 16 March (JW Day 1) seminar CIs will assign students to research groups. There will be 4 groups created, each of 3 students (one group of 4 if a 13 person flight). Each group will be assigned a specific commander and related battle/operation from the list below to research and present to the seminar during JW-518. The presentation will adhere to the following guidance:

- The presentation will be **no longer than 20 minutes**. Use of PowerPoint slides is at the discretion of the CI.
- **3-5 minutes**: Overview of the operation.
- **5-10 minutes**: Identify **no fewer than 3 and no more than 5** elements of operational design that the commander utilized or did not utilize, and the impact they had on the operation, particularly in the commander's decision making.
 - How did these elements inform the commander's decision making process?
 - Did the commander appreciate certain elements, or discount them? Why?
- **5-10 minutes**: Identify **no fewer than 3 and no more than 5** principles of joint operations (formerly known as principles of war) to which the commander adhered, or were disregarded/violated, and how they impacted the commander's decisions.
 - Why were these principles/concepts significant to the outcome of the battle/operation and the decisions made?
 - Was the "violation" of certain principles a direct contributor to military success (or failure), or was success achieved in spite of flawed use of doctrine/principles?
 - How do the principles connect to the elements of operational design that you identified?

Each student presentation will be followed by a 10-15 minute question/answer/discussion period led by the CI. Alternately, the CI may opt to conduct all of the presentations first and use the remainder of the seminar time for discussion.

The commander/battle assignments are as follows (CI/seminar will select 4):

General Ulysses S. Grant at Vicksburg
General Robert E. Lee at Chancellorsville
General Douglas F. MacArthur at Inchon
Air Chief-Marshall Hugh Dowding at the Battle of Britain
*Reichsmarshal Hermann Goering at the Battle of Britain
Admiral Chester Nimitz at the Battle of Midway
*Generaloberst Helmuth von Moltke (the younger) at the Battle of the Marne
Viscount General William Slim at the Battles of Kohima/Imphal
Napoléon Bonaparte at Austerlitz
Lt Col James H. Doolittle and the USAAF Raid on Tokyo

* At least one of these two will be selected in the list of four.

Day 16: JW-519
Information Operations: The Man Who Never Was (Movie)

LESSON OBJECTIVES

1. Comprehend how the Information joint function and information operations (IO) are incorporated with operational art, operational design, and the planning process to gain entry to and produce effects within the information environment and across traditional operating domains.
[LAO: 3d, 4b, 4c, 4f]
2. Comprehend the necessity for building IO plans as an inherent part of operation planning/lines of operation, and the lead time, detailed planning, and synchronization necessary for successful integration of information related capabilities (IRCs).
[LAO: 2a, 4b, 4c, 4e]
3. Comprehend the Information Environment and associated dimensions (physical, informational, and cognitive), how they interact, and are essential in joint military operations across the domains.
[LAO: 2a, 3d, 4c, 4f]
4. Comprehend how Information as a joint function and IO contribute to operational art through the principles of joint operations, and how understanding the actors within an OE is essential to effective IO.
[LAO: 2a, 3d, 4b, 4c, 4e, 4f]

LESSON OVERVIEW

JW-519 (L): Information Operations: The Man Who Never Was (Movie)

Overview: As stated in JP 3-13 “the Secretary of Defense now characterizes IO as the integrated employment, during military operations, of IRCs in concert with other lines of operation to *influence, disrupt, corrupt, or usurp* the decision making of adversaries and potential adversaries while protecting our own” [emphasis added]. The movie “The Man Who Never Was” is a theatrical account of the true story of Operation MINCEMEAT – the successful military deception plan to throw off the Axis high command as to the location and timing of the Allied invasion of Sicily from North Africa. As one of many information related capabilities (IRC) currently found in joint doctrine, this example of military deception (MILDEC) is useful toward gaining an appreciation for the broader issues regarding the proper planning and integration of IO into military plans. Moreover, one may also recognize that the process for IO planning and integration may be similar to operations in the traditional warfighting domains (land, maritime, air, space, and cyber). Reverse planning regarding the intended target (in the case of IO, the target audience), the desired effects, and how to gain access to the audience (or domain) and achieve those effects (and avoid undesired effects) is similar to the approach taken in all military planning efforts. It is part of the operational ends-ways-means-risk analysis. In the domains, we seek first to gain access, then to maneuver in such a manner that we achieve the desired effects on any broad selection of “targets” in order to accomplish a mission and reach a desired end state.

CONTACT HOURS: 2.0-hour movie

REQUIRED READINGS

1. Joint Publication 3-13, *Information Operations, (Incorporating Change 1)*, 20 November 2014, I-1 to I-5; II-5 to II-13; IV-1 to IV-12.

[The reading selection from JP 3-13, Information Operations, provides background regarding the modern doctrinal concepts associated with Information Operations, including the Information Environment (IE) and associated dimensions of the IE. Additionally, a brief overview of information related capabilities (IRCs, chapter II) and the incorporation of IO into operation planning is covered. This background reading provides a lens through which students may view the movie “The Man Who Never Was” and relate the events depicted in the film to modern military concepts useful for the planning and integration of IO into joint military operations.]

SUGGESTED ADDITIONAL MATERIAL

1. Ben Macintyre, *Operation Mincemeat: How a Dead Man and a Bizarre Plan Fooled the Nazis and Assured an Allied Victory*, (Broadway Books, 2011).
2. Joint Publication 3-13.4, *Military Deception*, 14 February 2017, viii-xiv, A-1 to A-3.
3. Joint Publication 3-13.1, *Electronic Warfare*, 8 February 2012, vii-xv.
4. Joint Publication 3-13.2, *Military Information Support Operations*, 21 November 2014, vii-xii, B-1 to B-7.

LESSON INTEGRATION AND RATIONALE

This movie screening is another opportunity to analyze a complex operation through film, and provides a unique perspective for linking actions and effects across the levels of war and across the ROMO. This movie depicts events related directly to the planning and integration of Information Operations, though, as noted, may be expanded to broaden understanding of operational art and multi-domain operations. Students will be expected to incorporate IO/IRCs during the JW Workshops (particularly the COA Development Workshop), and the JPEX. Learning through film also reinforces the objectives of the course which strive to foster habits of mind and patterns of inquiry – providing the planners not merely with examples of previous operations, but building analytical tools for future operation planning and problem solving.

Day 16: JW-520
Joint Cyber, Electromagnetic Spectrum, and Information Operations

LESSON OBJECTIVES

1. Comprehend joint force capabilities in Cyberspace, the Electromagnetic Spectrum (EMS) and Information Operations (IO) and their contributions to joint warfighting to achieve effects at the operational level of war across the range of military operations (ROMO), and how they are integrated into other lines of operation or lines of effort.
[LAO: 1a, 2a, 3d, 4a, 4b, 4e, 5b, 5c; SAE 2 & 4]
2. Comprehend how the joint force operates in and through the cyber, including how the force gains access, maneuvers, and achieves effects in the cyber, the EMS, and the information environment (IE).
[LAO: 1a, 3b, 3d, 4b]
3. Comprehend the interdependencies, risk, synergies, limitations, and unique capabilities/effects of the joint force that enable cyber, the EMS, and IO and provide joint force commanders with the means and ways to achieve the desired end state.
[LAO: 1a, 3b, 4b]
4. Comprehend how the joint functions enable the commander and staff in the planning and execution of joint military cyber, EMS and information operations across all domains.
[LAO: 1a, 3b, 4b, 4c, 5c; SAE 2 & 4]

LESSON OVERVIEW

JW-520 (S): Joint Cyber, Electromagnetic Spectrum, and Information Operations

Overview: Cyber, Electromagnetic Spectrum (EMS) and Information Operations are critical to all modern joint military operations. EMS pervades every aspect of military, commercial, and adversary operations. EMS is a critical enabler to superiority in all domains and must be considered first in planning and executing any joint force operation. Cyber activities and operations have significant impact on how the Joint Force operates in and across all domains and in many cases dependent on cyber related capabilities. EMS and Cyber are both contested areas that have impact on military operations. Information Operations (IO) and related IRCs are important capabilities to be incorporated into joint military operations at the outset of planning activities. IO can be the centerpiece of a joint mission with other joint functions effectively serving a supporting role. It is important to understand how to integrate EMS, Cyber, and IO effects into the operational approach and detailed planning of any operation. This lesson will focus on understanding EMS as a critical enabler, how it impacts military operations, and why EMS superiority is a primary objective in any military operation. Also, how the Joint Force provides access to, maneuvers in, and effects in cyber and the information domain as both an enabler of joint capabilities and functions and in offensive and defensive operations.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS

1. Joint Publication 3-12, Cyberspace Operations, 8 June 2018, vii-xvii.

[The JP 3-12 executive summary provides foundational doctrine for how the Joint Force operates in and through the cyberspace domain, including core activities, effects, joint functions, and the planning and execution of cyberspace operations.]

2. Dina Temple-Raston, “How the U.S. Hacked ISIS,” 26 Sep 2019, NPR:
<https://www.npr.org/2019/09/26/763545811/how-the-u-s-hacked-isis?ft=nprml&f=1001>

[This article provides a rarely seen behind the scene’s look at the U.S.’s ability to conduct Offensive Cyber Operations. Pay special attention to how these operations gained access, maneuvered, and achieved effects in cyberspace.]

3. Jennifer Leigh Phillips, “Tactical Maneuver in the Cyber Domain: Dominating the Enemy,” *Joint Force Quarterly*, Issue 93, Second Quarter 2019, 14-20.

[This short article focuses on how some of the joint functions (maneuver, fires, and C2) affect the cyber domain at the tactical level. It also looks at cyber as a complex system and how it can achieve effects where the physical and cognitive worlds meet.]

4. Joint Doctrine Note 3-16, *Joint Electromagnetic Spectrum Operations*, 20 October 2016, v-ix; I-1 to I-11.

[This selection defines Joint EMS operations, discusses coordination required to conduct them, and some planning considerations. There are also connections to be made between this and the IO reading from JW-519.]

5. Congressional Research Service, “Defense Primer: Electronic Warfare,” 18 September 2019.
6. Congressional Research Service, “Defense Primer: Military Use of the Electromagnetic Spectrum,” 24 May 2019.
7. Congressional Research Service, “Defense Primer: Information Operations,” 18 December 2018.
8. Congressional Research Service, “Defense Primer: Convergence of Cyberspace Operations and Electronic Warfare,” 13 August 2019.
9. Congressional Research Service, “Defense Primer Cyberspace Operations,” 18 December 2018.

[These 5 short articles from Congress Research Service provide a quick look at concepts presented in this lesson that can be used throughout the rest of the course.]

SUGGESTED ADDITIONAL MATERIAL

1. Jeff Reilly, *Beyond the Theory – A Framework for Multi-Domain Operations*, Podcast, 13 April 2018: <https://www.youtube.com/watch?v=jcTicq1BagM&feature=youtu.be>
2. Eric Heginbotham, et al. “The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power 1996-2017,” Rand Corporation, 2015, Ch 11 (US and Chinese Cyberwarfare Capabilities).

3. Joint Publication 3-12, *Cyberspace Operations*, 8 June 2018, Ch. II, Ch. IV.
4. Joint Doctrine Note 3-16, *Joint Electromagnetic Spectrum Operations*, 20 October 2016, Ch. III.

LESSON INTEGRATION AND RATIONALE

This lesson continues to emphasize the need to integrate multi-domain capabilities to achieve operational success. The examination of operating domains and service capabilities, and how forces gain access to and operate within these domains is a key facet of operational art and operational design. Comprehension of domain characteristics and service capabilities enables planners to analyze missions and derive suitable courses of action to provide options to commanders and national decision makers in the application of military forces toward achieving national interests. Additionally, understanding how Functional Combatant Commanders (such as CYBERCOM) and combat support agencies are integrated into operation planning is essential. This lesson will provide tools for students to use as planners during the JW COA Development, Analysis, and Comparison Workshops, and for the Joint Planning Exercise (JPEX). This lesson builds upon the AirPower II Cyber Lessons that address and examine past operations, present state and future threats. Also, War Theory lesson that address and examine Information Warfare and Cyber Domain.

Day 17: JW-521
Joint Special Operations

LESSON OBJECTIVES

1. Comprehend the roles and functions of the U.S. Special Operations as prescribed by Title 10, United States Code and other relevant directives.
[LAO: 1a, 1c]
2. Comprehend Joint Special Operations warfighting doctrine, force organization, perspective on warfighting, and unique contributions to the Joint Force.
[LAO: 1a, 2b, 5b]
3. Comprehend how Special Operations presents forces and capabilities to the Joint Force Commander for operations, the capabilities and limitations of those forces, and their relationship to the Joint Force Land, Maritime, and Air Components.
[LAO: 1a, 1c, 2a, 3b, 4h, 5a,]

LESSON OVERVIEW

JW-521 (L): Joint Special Operations

Overview: The lecture discuss Special Operations Forces (SOF) opportunities across the spectrum of conflict, irregardless of complexities. The lecture will discuss SOF as a capability from the strategic and operational levels of planning introducing national and DoD systemic products that appear sequential but have dynamic effect on operations (i.e. national strategy, Global Campaign Plans, EXORDS, contingency plans). Discuss types of operations and capabilities (i.e. exchange programs, liaison elements, security cooperation, search & rescue across the spectrum, C2 nodes, interagency support and how forces are presented in Joint Task Forces (JTFs), Special Operation Joint Task Force (SOJTF), and Joint Special Operations Task Force (JSOTF). Lecture will contribute to a better understanding of how to employ Special Operations forces during joint operations.

CONTACT HOURS: 1.0-hour lecture

REQUIRED READINGS

1. Joint Publication 3-05, *Special Operations*, 16 July 2014, ix-xv; I-1 to I-10; II-1 to II-18.

[This reading provide foundational doctrine upon which Special Operations bases it organization and conduct of operations]

2. Department of Joint Warfighting, *Joint Warfighting Capabilities Primer (JWCP) AY20*, Joint Special Operations, 114-127.

[The JWCP provides a brief overview of special operations capabilities, force presentation, and major assets to enhance understanding of special operations' unique contributions to the joint force.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Publication 3-05, *Special Operations*, 16 July 2014, CH III, IV, and appendix A.

2. Congressional Research Service, “Defense Primer: Special Operations Forces,” 2 January 2020.

LESSON INTEGRATION AND RATIONALE

Comprehension of US Special Operations current doctrine, operating concepts, and the capabilities and limitations of US Special Operations forces is foundational for being able to properly plan for and employ Special Operations forces during joint operations. This lecture provides a foundation for understanding the concepts presented during Phase 2 of the Joint Warfighting Course.

Day 17: JW-522
Joint Operations in the Land Domain

LESSON OBJECTIVES

1. Comprehend Army and Marine Corps warfighting doctrines, force organization, perspectives on warfighting, and unique contributions to the Joint Force.
[LAO: 1a, 2b]
2. Comprehend how the Army and Marine Corps presents forces and capabilities to the Joint Force Commander for operations, the capabilities and limitations of those forces, and their relationship to the Joint Force Land Component.
[LAO: 1a, 1c, 2a, 3b, 4h, 5a]
3. Comprehend the capabilities of joint forces and their contribution to joint warfighting in the land domain to achieve effects at the operational level of war, and across the range of military operations (ROMO).
[LAO: 1a, 1b, 1c, 2b, 3b, 4h]
4. Comprehend how the joint force operates in and through the land domain, including how the force gains access, maneuvers, and achieves effects on the land (including command and control of land operations and command relationships).
[LAO: 1a, 1b, 1c, 2a, 3d, 4h, 5a, 5b]
5. Comprehend the interdependencies, risk, synergies, limitations, and unique capabilities/effects of the joint force that enable operations in the land domain and provide joint force commanders with the means and ways to achieve the desired end state.
[LAO: 1a, 3b]
6. Comprehend how the joint functions enable the commander and staff in the planning and execution of joint military operations in the land domain and how a commander may leverage IO/information related capabilities, space, and cyber effects to enhance those functions, potentially reduce risk, and accomplish the mission.
[LAO: 2a, 2b, 4c, 4e]

LESSON OVERVIEW

JW-522 (S): Joint Operations in the Land Domain

Overview:

The ultimate outcome of any future joint operation will depend on success across all domains. However, it is the combined effects in the land domain that have historically been the decisive effort at the operational level of war. While war on land is heavily influenced and enabled through actions and effects in other domains - such as air, maritime, cyber, and space - it is land warfare that ultimately exploits control over land, resources, and people. Discussing the land domain and those joint military capabilities that gain access and operate within that domain is an essential part of practicing operational art and problem solving as it describes ways and means that may be artfully arranged to achieve specific desired effects. Such a discussion will include capabilities of major land components and general schemes of maneuver within the land domain. This includes both the US Army and US Marine Corps. The goal of the Army's unified land operations is applying landpower as part of unified action to defeat the enemy on land and establish conditions that achieve the JFC's end state. A clear understanding of US Army capabilities and limitations, and how Army forces are presented to a JFC, will contribute to a better understanding of how to employ Army forces

during joint operations. The Marine Corps is capable of rapidly conducting missions across the range of military operations anywhere in the world. Operational level planners must understand how Marine Corps forces are organized, how they accomplish their missions and how they execute their roles as part of joint and combined teams in campaigns and major operations.

CONTACT HOURS: 3.0-hour seminar

REQUIRED READINGS

1. U.S. Army HQ, *Army Doctrine Publication 3-0: Unified Land Operations*, (Washington D.C., 2019), 3-1 to 3-13.

[This reading provide foundational doctrine upon which the Army bases it organization and conduct of operations and discusses the Army's operational concept and how the Army fights.]

2. U.S. Marine Corps HQ, *Marine Corps Doctrinal Publication (MCDP) 1-0 w change 1,2,3: Marine Corps Operations*, (26 Jul 2017), 1-1 to 1-5 (stop at instruments of National Power); 1-13 (Roles and Functions) to 1-15 to 1-17; 2-6 to 2-20.

[The MCDP 1-0 reading outlines the Marine Corps Title 10 roles and functions, discusses how Marine forces are organized and presented to a JFC, and discusses how Marine Corps forces would be employed to achieve JFC objectives to include addressing the capabilities and limitations that these forces bring to the fight.]

3. Department of Joint Warfighting, *Joint Warfighting Capabilities Primer (JWCP) AY20*, United States Army & United States Marine Corps, 57-74, 93-107.

[The JWCP provides a brief overview of service capabilities, force presentation, and major assets to enhance understanding of the services' unique contributions to the joint force.]

4. Joint Publication 3-31, *Command and Control for Joint Land Operations*, 3 October 2019, ix-xviii.

[The reading from JP 3-31 introduces the concept and responsibilities of a possible functional component command within a Joint Force - the Joint Force Land Component Commander, or JFLCC. Understanding which forces enable unified land operations and the capabilities they bring to the JFC are as important as the capabilities of fielded forces]

SUGGESTED ADDITIONAL MATERIAL

1. Kelly McCoy, *The Road to Multi-Domain Battle: An Origin Story*, 27 October 2017: <https://mwi.usma.edu/road-multi-domain-battle-origin-story/>
2. U.S. Army Training and Doctrine Command, *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century 2025-2040*, December 2017.
3. United States Marine Corps, *Concepts and Programs*, http://www.candp.marines.mil/Portals/216/documents/CNP%20Publications/CNP_2018.pdf?ver=2018-03-08-090045-590

4. United States Army, *Army Technique Publication 3-93 Theater Army Operations*, November 2014. https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/atp3_93.pdf
5. United States Army, *Field Manual 3-96 Brigade Combat Team*, October 2015. https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/fm3_96.pdf
6. United States Army, *Field Manual 3-81 Manuever Enhancement Brigade*, April 2014. https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/fm3_81.pdf
7. Bradley Martin, "Amphibious Operations in Contested Environments: Insights from Analytic Work," (RAND, 2017), 1-10.
8. Milan Vego, *Joint Operational Warfare: Theory and Practice*, (Government Printing Office, 2009), II-25 to II-39; V-39 to V-56.

LESSON INTEGRATION AND RATIONALE

Comprehension of US Army and US Marine Corps current doctrine, operating concepts, and the capabilities and limitations of their forces is foundational for being able to properly plan for and employ these forces during joint operations. In addition, the examination of operating domains and service capabilities, and how forces gain access and operate within these domains is a key facet of operational art and operational design. Comprehension of operations in and through operating domains, and U.S. service capabilities enables planners to analyze missions and derive suitable courses of action to provide options to commanders and national decision makers in the application of military forces toward achieving national interests. Additionally, understanding the roles, functions, and responsibilities of services, joint force commanders, and functional component commanders is essential. This lesson will provide tools for students to use as planners during the JW COA Development, Analysis, and Comparison Workshops, and for the Joint Planning Exercise (JPEX). This lesson builds upon the foundation of War Theory (WT) lessons that address and examine classic military theorists (ex. Clausewitz, Jomini, Fuller, Guderian, Hart) and the principles of war in different domains.

Day 18: JW-523
Joint Operations in the Maritime Domain

LESSON OBJECTIVES

1. Comprehend Navy warfighting doctrine, force organization, perspective on warfighting, and unique contributions to the Joint Force.
[LAO: 1a, 2b]
2. Comprehend how the Navy presents forces and capabilities to the Joint Force Commander for operations, the capabilities and limitations of those forces, and their relationship to the Joint Force Maritime Component.
[LAO: 1a, 1c, 2a, 3b, 4h, 5a]
3. Comprehend the capabilities of joint forces and their contribution to joint warfighting in the maritime domain to achieve effects at the operational level of war, and across the range of military operations (ROMO).
[LAO: 1a, 1b, 1c, 2b, 3b, 4h]
4. Comprehend the unique characteristics of the maritime domain and how joint forces gain access to and maneuver in the domain to generate effects contributing to the overall success of a joint operation (including command and control of maritime operations and command relationships).
[LAO: 1a, 1b, 1c, 2a, 3d, 4h, 5a, 5b]
5. Comprehend the interdependencies, risk, achieving synergy, limitations, and unique capabilities/effects of the joint force that enable operations in the maritime domain providing joint force commanders with the means to achieve the desired end state.
[LAO: 1a, 3b]
6. Comprehend how the joint functions enable the commander and staff in the planning and execution of joint military operations in the maritime domain and how a commander may leverage other capabilities (such as IO, space, and cyber) to enhance those functions, potentially reduce risk, and accomplish the mission.
[LAO: 2a, 2b, 4c, 4e]

LESSON OVERVIEW

JW-523 (S): Joint Operations in the Maritime Domain

Overview: The ultimate outcome of any future joint operation depends on successes across all domains, but as a power projection nation we must dominate the maritime domain when and where we need to as it will continue to be the primary method of deploying and sustaining relatively large warfighting formations, in addition to being one of the primary methods through which the U.S. achieves forward presence and conducts power projection. While operations in the maritime domain are heavily influenced by other domains; such as air, space and cyber, it is the maritime domain that ultimately connects vast resources, and people across the globe. The US Navy provides decisive naval capabilities to a JFC in the form of task-organized, tailorable, and forward deployed expeditionary force packages through flexible organizational and command and control structures. Unique service traits such as access, persistent presence, and small footprint augment these capabilities. Understanding the maritime domain and those joint force capabilities that enable access to operate within and create effects in that domain are an essential part of understanding operational art.

CONTACT HOURS: 3.0-hour seminar

REQUIRED READINGS

1. Navy Warfare Publication 3-32, *Maritime Operations at the Operational Level of War*, October 2008 w/Change 1, August 2010, 1-1 to 1-7.

[This U.S. Navy Service doctrine overview of the maritime domain, and the purpose, functions, and activities of the U.S. Naval forces.]

2. Navy Warfare Publication 3-56, *Composite Warfare: Maritime Operations at the Tactical Level of War*, December 2015, Read 1-1 to 1-5, 3-1 to 3-8; Skim 4-1 to 5-6; Read 7-1 to 7-8, 8-1 to 8-5.

[Provides an explanation of naval warfare areas, force organization, U.S. Navy command and control of maneuver forces, and Naval force roles in joint operations.]

3. Department of Joint Warfighting, *Joint Warfighting Capabilities Primer (JWCP) AY20*, United States Navy, 75-92.

[The JWCP provides a brief overview of service capabilities, force presentation, and major assets to enhance understanding of the services' unique contributions to the joint force.]

4. Naval Media Center, *All Hands: Magazine of the U.S. Navy*, Special Issue No. 892, Skim 3-19 and 32-33.

[These short selections provide examples of the doctrinal naval warfare areas in action during the Gulf War. It is an excellent overview of the multifaceted nature of naval capabilities contributing to a joint campaign. Issue 892 of All Hands is provided in its entirety for continuity.]

5. Milan Vego, "On Naval Warfare," Reprinted from the *Tidskrift i Sjöväsendet* Issue 1 2010, 73-92.

[Dr. Vego discusses the theoretical constructs of the nature and character of war, and the corresponding evolution of and objectives in naval warfare, providing the context for the roles, missions, and functions of the modern U.S. maritime services.]

SUGGESTED ADDITIONAL MATERIAL

1. Video: <https://youtu.be/XUXQV7drVoM> (National Geographic 2-15 - USS Ronald Reagan 21st Century Supercarrier).
2. Video: <https://youtu.be/PZ5I6eb9rt4> (Coordinated Anti-Submarine Warfare - SONAR, Sonobuoys, USS Stein, USS Badger).
3. Milan Vego, *Joint Operational Warfare: Theory and Practice*, (Naval War College Press, 2009), II-47 to II-59.
4. Department of the Navy, *2015 Navy Program Guide*, (Washington, D.C., 2015), 2-3 (Aircraft Carriers), 31-37 (Surface Warfare), 67-70 (Submarine Force); SKIM all other sections: <http://www.navy.mil/navydata/policy/seapower/np15/top-n>

5. Robert C. Rubel, "The Future of Aircraft Carriers," *Naval War College Review*, 64(4), October 2011, 1-16.

LESSON INTEGRATION AND RATIONALE

Comprehension of US Navy current doctrine, operating concepts, and the capabilities and limitations of US Navy forces is foundational for being able to properly plan for and employ Navy forces during joint operations. In addition, the examination of operating domains and service capabilities, and how forces gain access and operate within these domains is a key facet of operational art and operational design. Comprehension of domain operations and service capabilities enables planners to analyze missions and derive suitable courses of action to provide options to commanders and national decision makers in the application of military forces toward achieving national interests. Additionally, understanding the roles, functions, and responsibilities of services, joint force commanders, and functional component commanders is essential. This lesson will provide tools for students to use as planners during the JW COA Development, Analysis, and Comparison Workshops, and for the Joint Planning Exercise (JPEX). This lesson builds upon the foundation of War Theory (WT) lessons that address and examine classic military maritime theorists (ex. Mahan, Corbett) and the principles of war in different domains.

Day 19: JW-524 Joint Space Operations

LESSON OBJECTIVES

1. Comprehend the capabilities of joint forces (and applicable CSAs) and their contribution to joint warfighting in the space domain to achieve effects at the operational level of war, and across the range of military operations (ROMO).
[LAO: 1a, 1b, 1c, 2a, 3b, 4a, 4b, 5b; SAE 5]
2. Comprehend how joint forces operate in and through space to gain access, facilitate maneuver, and generate effects contributing to the overall success of a joint operation.
[LAO: 1a, 1c, 2a, 3c, 4b, 4c, 5c; SAE 5]
3. Comprehend the considerations and challenges when integrating space operations into joint military operations.
[LAO: 2a, 3c, 5c; SAE 5]

LESSON OVERVIEW

JW-524A, B, C, D, E (L): Joint Space Operations

Overview: Operations in the space domain will have significant impacts on how the Joint Force operates in and across all domains. In many ways, operations in the land, sea, and air domains are dependent on operations in the space and cyber domains, but the relative sanctuary the U.S. has enjoyed in space has eroded. Space is congested and contested, and the Joint Force is increasingly reliant on potentially exposed systems, and vulnerable to effects associated with proliferating access. This series of five lectures will discuss the Joint Space Missions (what we do in space), the Organization (who does what in space), Operational Considerations (including fueling, commerce, and space weather), Space as a Supported Domain and National Space Law and Policy.

CONTACT HOURS: 3.0-hour (5 x lectures)

JW-524F (S): Joint Space Operations

This seminar will be facilitated by the Schriever scholars and faculty. The intent is to provide an introduction to some of the capabilities, limitations, force organization and command relationships, and unique features of the space domain and U.S. space capabilities as well as answer questions to help provide the students with tools they can apply to the rest of the Joint Warfighting course.

CONTACT HOURS: 1.0-hour seminar

REQUIRED READINGS

1. *Challenges to Security in Space*, Defense Intelligence Agency, January 2019, 7-37.
2. Air Force Doctrine Annex 3-14, *Counterspace Operations*, 27 August 2018, 2-33.
3. Field Manual 3-14, *Army Space Operations*, August 2014, 1-1 to 1-13.
4. "Marine Corps Concept for Space Operations," U. S. Marine Corps, 16 October 2017, 1-11.
5. Donald J. Trump, "Space Policy Directive 4: Establishment of the United States Space Force," Presidential Memoranda, 19 February 2019.

[These selected readings will give the students an understanding of military space operations and how space power doctrine can be applied in future conflicts]

SUGGESTED ADDITIONAL MATERIAL

1. U.S. Air Force Space Command, “Resiliency and Disaggregated Space Architectures” White Paper, 2014, <http://www.afspc.af.mil/Portals/3/documents/AFD-130821-034.pdf?ver=2016-04-14-154819-347>.
2. U.S. Department of Defense & Director of National Intelligence, National Security Space Strategy: Unclassified Summary, (Washington, D.C., 2011), 1-21.

LESSON INTEGRATION AND RATIONALE

This lesson continues to emphasize the need to integrate multi-domain capabilities to achieve operational success. The examination of operating domains and service capabilities, and how forces gain access to and operate within these domains is a key facet of operational art and operational design. It is important for planners to also understand the space access and capabilities provided to the joint force commander. Prevailing in a future peer-to-peer conflict will entail providing space capabilities to the nation and warfighter while denying an adversary the same. Adversaries are aware of the advantages space capabilities provide and are actively seeking to deny those advantages to the United States. Additionally, adversaries are developing new space capabilities to achieve these military goals while simultaneously reducing their reliance on U.S. Space Capabilities. This series of lectures and seminar sets the foundation for later discussion during JW of how to properly integrate these capabilities during operation planning. Comprehension of domain characteristics and service capabilities enables planners to analyze missions and derive suitable courses of action to provide options to commanders and national decision makers in the application of military forces toward achieving national interests. This lesson will provide tools for students to use as planners during the JW COA Development, Analysis, and Comparison Workshops, and for the Joint Planning Exercise (JPEX). This lesson builds upon the foundations set in War Theory (WT) lessons that address and examine the application of the ideas of classic maritime theorists and the principles of war in the Space Domain; and AirPower II Space lessons that address and examine impact on U.S. national security.

Day 20: JW-525
The CFACC, AOC, and Joint Air Tasking

LESSON OBJECTIVES

1. Comprehend the CFACC's roles, responsibilities, and authorities for the planning and execution of joint/combined military air operations, to include networks and cyberspace, to achieve objectives at the operational level of war.
[LAO: 2a, 3b, 4h, 5a]
2. Comprehend the purpose, functions, and organization of the Air Operations Center (AOC) and the processes and products that support the CFACC and JFC in the planning and execution of joint/combined air operations.
[LAO: 1c, 2a, 2b, 3b, 5c]
3. Comprehend joint and service doctrine for the command and control of joint and coalition air operations, and how it incorporates the joint functions to facilitate air operations.
[LAO: 2a, 2b, 3b, 4c, 4h, 5a]

LESSON OVERVIEW

JW-525 (L): The CFACC, AOC, and Joint Air Tasking

Overview: The CFACC provides coherence, guidance, and organization to the air effort and maintains the ability to focus the impact of air capabilities wherever needed within the operational environment using the tenant of centralized control, decentralized execution. The CFACC deals with a wide range of issues including air apportionment, air-ground integration, command relationships, battle rhythm, and operational friction. This lecture discusses the CFACC's roles and responsibilities in carrying out these functions, and the associated organization (the AOC) and processes that enable effective airpower in modern operations.

CONTACT HOURS: 1.0-hour lecture

REQUIRED READINGS

1. Joint Publication 3-30, *Command and Control for Joint Air Operations*, 25 Jul 2019, I-1 to II-28, Appendices F and G.

[Joint doctrine provides an overview of the command and control of joint and coalition air operations, and the roles and responsibilities of the CFACC.]

SUGGESTED ADDITIONAL MATERIAL

1. Air Force Instruction 13-1AOC, Volume 3, 2 November 2011. *Operational Procedures—Air and Space Operations Center*, SKIM 10-24, 29-38, 47-48, 71-72.
2. U.S. Air Force, Air Force Doctrine Annex 3-30, Appendix D: *The Theater Air Control System*, (7 Nov 2014), 1-3.

LESSON INTEGRATION AND RATIONALE

This lecture provides a senior leader perspective on the roles and responsibilities of the CFACC, and the organization and processes available for the effective command and control and integration of air power capabilities in support of a joint campaign plan. As the senior commander concerned with joint air power application, the CFACC perspective orients the ACSC student to the operational level of war. This lesson builds upon the foundation set in Air Power II lessons that address and examine the concepts of the Joint/Combined Force Air

Component Commander J/CFACC and Air Operation Center (AOC) while also examining key planning and execution challenges for a J/CFACC and AOC in Operation Allied Force.

Day 20: JW-526
Joint Operations in the Air Domain

LESSON OBJECTIVES

1. Comprehend the capabilities of joint forces and their contribution to joint warfighting in the air domain to achieve effects at the operational level of war, and across the range of military operations (ROMO).
[LAO: 1a, 1b, 1c, 2b, 3b, 4h]
2. Comprehend how the Joint Force Commander, COMMAFFOR, and JFACC leverage capabilities, organize for and operate in and through the air domain, including how the force gains access, maneuvers, and achieves effects.
[LAO: 1a, 1b, 1c, 2a, 3d, 4h, 5a, 5b]
3. Comprehend the interdependencies, risk, synergies, limitations, and unique capabilities/effects of the joint force that enable operations in the air domain and provide joint force commanders with the means and ways to achieve the desired end state.
[LAO: 1a, 3b]
4. Comprehend how the joint functions enable the commander and staff in the planning and execution of joint military operations in the air domain and how a commander may leverage IO/information related capabilities, space, and cyberspace to enhance those functions, potentially reduce risk, and accomplish the mission.
[LAO: 2a, 2b, 4c, 4e]
5. Comprehend Air Force warfighting doctrine, force organization, perspective on warfighting, and unique contributions to the Joint Force.
[LAO: 1a, 2b]
6. Comprehend how the Air Force presents forces and capabilities to the Joint Force Commander for operations, the capabilities and limitations of those forces, and their relationship to the Joint Force Air Component.
[LAO: 1a, 1c, 2a, 3b, 4h, 5a]

LESSON OVERVIEW

JW-526 (S): Joint Operations in the Air Domain

Overview: This seminar will continue the discussion of the fundamentals of joint operations in the air domain and will focus primarily on the command and control of joint and multinational air operations. The goal is to introduce the fundamentals of joint operations in the air domain and how the joint force gains *access*, *maneuvers*, and creates *effects* through the use of airpower. For example, the USAF contributes decisive air, space, and cyberspace capabilities to a Joint Force Commander (JFC) in the form of Air and Space Expeditionary Task Forces (AETFs). Because of its organizational structure, the AETF provides flexible, yet potent capability. There are limitations to USAF capabilities, however, some of which are mitigated through joint interdependencies with the other armed services. This seminar introduces the air domain and the roles, missions, functions and force presentation of not just the USAF, but the airpower presented by the joint force. Key concepts to discuss focus on how the joint force utilizes airpower capabilities and conducts operations to gain access and superiority within the air domain, and how that access influences and is influenced by

maneuver and effects across domains and in synchronization with all of the instruments of national power.

CONTACT HOURS: 3.0-hour seminar

REQUIRED READINGS

1. Department of Joint Warfighting, *Joint Warfighting Capabilities Primer (JWCP) AY20*, United States Air Force, 6-25.

[The JWCP provides a brief overview of service capabilities, force presentation, and major assets to enhance understanding of the services' unique contributions to the joint force.]

2. Benjamin S. Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom*, (RAND Corporation, 2005), 62-103.

[Lambeth's book provides a recent example of the complexity to deploy airpower, first to gain access and then to create effects in and through the air domain in support of coalition operations. Students should be able to note specific examples of the force gaining access, maneuvering, and achieving effects.]

SUGGESTED ADDITIONAL MATERIAL

1. U.S. Air Force, *Air Force Future Operating Concept*, September 2015, "Applying Agility to Operations," 8-10.
2. Lt Gen CQ Brown Jr., and Lt Col Rick Fournier, "No Longer the Outlier: Updating the Air Component Structure," *Air and Space Power Journal* 30:1 (Spring 2016), 4-15.
3. Maj Gen (ret.) Michael Boera, "Preserving Our Command and Control Edge: A Near-Term Flight Plan for the Air Operations Center Weapon System," Mitchell Institute Policy Paper, February 2016, 1-8.
4. Milan Vego, *Joint Operational Warfare: Theory and Practice*, (Government Printing Office, 2009), II-63 to II-86, V-63 to V-72.
5. Field Marshal the Viscount William Slim, *Defeat Into Victory: Battling Japan in Burma and India, 1942-1945*, (Cooper Square Press, 2000), 285-368.
6. U.S. Air Force, *Air Force Doctrine, Volume 1, Ch. 5: The Tenets of Air Power*. (LeMay Center, Air University, 2015), 65-75.
7. Lt Col Clint Hinote, "Centralized Control and Decentralized Execution: A Catchphrase in Crisis?," (Air University Press, 2012), 1-70.
8. U.S. Air Force, "Global Vigilance, Global Reach, Global Power for America, USAF Core Missions," (Washington, D.C., 2013), 1-12.

LESSON INTEGRATION AND RATIONALE

Comprehension of US Air Force current doctrine, operating concepts, and the capabilities and limitations of US Air Force forces is foundational for being able to properly plan for and employ Air Force forces during joint operations. In addition, the examination of operating domains and service capabilities, and how forces gain access, maneuver, and create effects within these domains is a key facet of operational art and operational design. Comprehension of domain operations and service capabilities enables planners to analyze missions and derive suitable courses of action to provide options to commanders and national decision makers in the application of military forces toward achieving national interests. Additionally, understanding

the roles, functions, and responsibilities of services, joint force commanders, and functional component commanders is essential. This lesson will provide tools for students to use as planners during the JW COA Development, Analysis, and Comparison Workshops, and for the Joint Planning Exercise (JPEX). Theoretical and historical knowledge gained in the AP1 and AP2 courses will be added to and applied at the operational level of modern military operations. This lesson builds upon the foundation set in Air Power I and II lessons on airpower, airpower in recent conflicts, appraising the application of airpower in the post 9/11 era and more recently as a component of Gray Zone conflict in Libya and against ISIS in Iraq and Syria. It also builds upon the War Theory (WT) lessons that address and examine classic military air theorists (ex. Douhet, Slessor, and Warden) and the principles of war in different domains.

Day 21: JW-529
The Reserve Component in the Homeland

LESSON OBJECTIVES

1. Comprehend the role of the Chief, National Guard Bureau in coordination between DoD, DHS, US Northern Command, and the state and territorial Adjutants General for planning and execution of domestic military support operations.
[LAO: 1a, 1b, 1c, 3b, 4a]
2. Comprehend the various types of operations for which Title 10 military forces may be called upon to assist local and state governments in conjunction with the National Guard, and how the National Response Framework governs those operations.
[LAO: 1a, 1b, 4a]
3. Comprehend the complexities of planning for domestic military operations, including the requirements for interagency coordination, the leading role of civilian organizations and institutions, the sovereignties of local and state governments and how they relate to Federal authorities and organizations.
[LAO: 1c, 3b]

LESSON OVERVIEW

JW-529 (L): The Reserve Component in the Homeland

Overview: The National Guard is the primary military “first responder” for operations in the Homeland. The Chief, National Guard Bureau (NGB) is a member of the Joint Chiefs of Staff and has a joint staff in the Pentagon which is responsible for, among other things, the coordination of emergency response and National Special Security Event (NSSE) planning and execution for Defense Support of Civil Authorities (DSCA) between the state and territorial National Guard Joint Force Headquarters (JFHQ), US Northern Command (page 69) (USNORTHCOM) and the Department of Homeland Security (DHS). The considerations involved in this kind of planning are complex and are in many cases very different from those involved in conventional military operations overseas.

CONTACT HOURS: 1.0-hour lecture

REQUIRED READINGS

1. National Guard Bureau, *2018 National Guard Bureau Posture Statement*, Skim 1-26.

[This short selection provides an overview of the purpose, organization, mission, roles, and capabilities of the National Guard as part of the military force construct.]

2. David W. Giles, “Defending the Homeland: The Massachusetts National Guard Responds to the 2013 Boston Marathon Bombings,” 2017 Harvard Kennedy School of Government, Case 2089.0, 1-21.

[This Selection gives an overview of the events of 2013 Boston Marathathon Bombing and describes how the national guard responded. It provides several different perspectives from The Massechusetts Adjutant General down to the first responder on the scene. Many of the challenges faced were not unique to this incident and can be applied to future incidents.]

SUGGESTED ADDITIONAL MATERIAL

1. LT GEN Charles D. Luckey, *2017 Posture Statement of the United States Army Reserve*, 26 April 2017, 1-11.
2. U.S. Air Force, *Air Force Reserve Mission Brief*, May 2017, 1-19 (focus on slides 12 and 14).
3. U.S. Navy, *2015-2025 Navy Reserve Vision: Our Course for the Future*, March 2016, 1-13.

LESSON INTEGRATION AND RATIONALE

This lecture, providing a RC perspective on planning, coordinating and leading military forces in a response to a complex Homeland operations, familiarizes students with multiple course concepts. The lecture also highlights some of the concepts concerning intergovernmental and interorganizational planning and execution which students learned in IS2. The lecture will reinforce for students the need for careful consideration of applicable laws, authorities, policies and the various roles and capabilities of all elements of the Joint Force when planning complex military operations.

Day 21: JW-530

The Reserve Component in Joint Operations and Planning for Domestic Operations

LESSON OBJECTIVES

1. Comprehend the basic structures, types of organizations, and capabilities residing in the Reserve Components (RC) of the Joint Force, the legal and operational distinctions between the RC and Active Component, and various authorities which govern the use of the RC domestically and overseas.
[LAO: 1a, 1b, 1c, 3b, 4a]
2. Comprehend the distinctions between Homeland Defense and Homeland Security, the various types of operations for which Title 10 military forces may be called upon to assist local and state governments in conjunction with the National Guard, and how the National Response Framework governs those operations.
[LAO: 1a, 2a, 3b, 4a]
3. Comprehend the complexities of planning for domestic military operations, including the requirements for interagency coordination, the leading role of civilian organizations and institutions, the sovereignties of local and state governments and how they relate to Federal authorities and organizations in a whole of government response to national interests.
[LAO: 2a, 3b, 4a, 4h]

LESSON OVERVIEW

JW-530 (S): The Reserve Component in Joint Operations and Planning for Domestic Operations

Overview: Over half of the strength of the US military resides in the various services' Title 10 Reserves and the National Guard. The Joint Force cannot fully operate without the units, service members, and capabilities these organizations provide. As future senior leaders and planners, it is imperative that students are fully aware of the capabilities of the National Guard and Reserves, and how the Combatant Commanders gain access to these capabilities. Additionally, given that the top priority of the Department of Defense is the defense and security of the Homeland, students must become familiar with the processes, laws and structures to be used when military forces are deployed inside the United States in support of civil authorities. The planning factors and considerations for these kinds of missions are complex and very different from traditional planning factors the Joint Force uses for operations overseas. Interagency coordination, understanding state and local sovereignties, laws governing the military in a law enforcement role, and the use of military capabilities in competition with private businesses, all are among the important areas military planners need to be concerned with in a domestic situation.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS

1. Joint Publication 3-27, *Homeland Defense*, 10 April 2018, vii-xv and A-1 to A-7.

[This selection provides an overview of the distinctions between HD, DSCA, and Homeland Security, and considerations and planning for Homeland Defense.]

2. Joint Publication 3-28, *Defense Support of Civil Authorities*, 29 October 2018, ix-xix.

[This Executive Summary describes again the distinction of DSCA from HD, and outlines the Reserve and Active Component role in DSCA, and how they contribute within the interorganizational framework to unified effort in domestic operations requiring military capabilities.]

3. Ryan Burke, and Sue McNeil, *Toward a Unified Military Response: Hurricane Sandy and the Dual Status Commander*, (Carlisle Barracks, PA: US Army War College Press, April 2015), 7-21.

[This is an After Action Review (AAR) of the military response to Hurricane Sandy in 2012, and how the federal and state military forces (Title 10 Active Duty and Title 32 National Guard) interacted during this event using the Dual Status Commander construct. This reading will familiarize students with the formal structures of domestic military response, as well as many of the planning requirements, challenges and coordination activities needed for these kinds of operations to be successful.]

4. Department of Homeland Security, *National Response Framework, Third Edition*, (Washington, DC: United States Government, June 2016), i-ii, 1-19.

[The seminal document which outlines the specific manner in which all domestic emergency response actions take place. Understanding the NRF is key to being able to comprehend how military forces provide support to civil authorities within the United States, and how all response agencies from the local, municipal, county, state and federal levels interact and perform their functions during emergencies.]

5. Department of Joint Warfighting, *Joint Warfighting Capabilities Primer (JWCP) AY20*, U.S. National Guard, 143-148.

[The JWCP provides a brief overview of service capabilities, force presentation, and major assets to enhance understanding of the services' unique contributions to the joint force.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Publication 3-08, *Interorganizational Cooperation*, 12 Oct 2016, Validated 18 October 2017, Chapter III.
2. Joint Publication 3-28, *Defense Support of Civil Authorities*, 31 July 2013, Chapter I.
3. Thomas Goss, "Who's in Charge? New Challenges in Homeland Defense and Homeland Security," *Homeland Security Affairs* II(1), 2006, 1-12.

LESSON INTEGRATION AND RATIONALE

This lesson continues from previous lessons the detailed discussion and analysis of the uses, capabilities and limitations of the military, across domains in varied circumstances, and across the Range of Military Operations (ROMO). Coupled with the JW-529 lecture, students will leave this lesson with a fuller understanding of the broad range of capabilities residing in all components of the Joint Force, along with knowledge of the considerations involved in planning and organizing forces for domestic operations.

Day 22: JW-527
Sustainment Concepts for Global Power Projection

LESSON OBJECTIVES

1. Comprehend the significance and complexity of deploying and sustaining a joint force for global operations across the ROMO in support of national interests, including how the force and DOD are organized to fulfill this role.
[LAO: 1a, 1b, 1c, 2a, 3b, 4a , 4h]
2. Comprehend how sustainment concepts and capabilities affect joint operations and provide commanders and staffs with options to plan and execute campaign plans.
[LAO: 3b, 4c, 4d, 6f]

LESSON OVERVIEW

JW-527 (L): Sustainment for Global Power Projection

Overview: The deployment and sustainment concepts of a course of action will have significant impact on the feasibility of that course of action, and those concepts should be developed concurrently during COA Development. While operational concerns will largely drive logistical requirements, the viability of any plan is only as good as the plan to gain access and sustain military activities. This lecture will introduce students to the importance of deployment and sustainment planning and its impact on operational objectives and the timing and arrangement of operations.

CONTACT HOURS: 1.0-hour lecture

REQUIRED READINGS

1. Joint Publication 4-0, *Joint Logistics*, 4 February 2019 (Incorporating change 1 Dated 8 May 2019) ix-xviii, I-1 to I-10.

[The JP 4-0 readings provide foundational doctrine upon which the joint force conducts joint logistics. Particular focus should be placed upon the principles of logistics and the planning of sustainment to support joint operations.]

SUGGESTED ADDITIONAL MATERIAL

1. None.

LESSON INTEGRATION AND RATIONALE

This lesson places an emphasis on integrating various aspects of logistics and operational planning in order to provide insight into the challenges of developing a complete and valid course of action. Additionally, this lecture sets the stage for the JW-528 seminar in which students will delve into deploying and sustaining the joint force to include using Operational Contract Support to leverage the skills and services of Private Military Contractors (PMCs) who have become an integrated element of the Joint Force. Together, the lecture and seminar will introduce students to the vast implications of sustainment concepts on joint campaign planning and convey how logistics provides the Joint Force Commander with the operational reach, endurance, and flexibility necessary for successful military operations. This information will further enable concept application during the JW Course of Action Development Workshop and the Joint Planning Exercise (JPEX).

Day 22: JW-528 Deploying and Sustaining the Joint Force

LESSON OBJECTIVES

1. Comprehend the significance and complexity of deploying and sustaining a joint force for global operations across the ROMO in support of national interests.
[LAO: 3d, 4c, 4h]
2. Comprehend how doctrinal principles of logistics and sustainment capabilities may affect joint operations and campaign outcomes.
[LAO: 2a, 3f, 4b, 4c]
3. Comprehend operational contract support (OCS) concepts, the importance of incorporating OCS in the design and execution of campaign and contingency plans given the dependency on Private Military Contractors (PMCs), and potential pitfalls of OCS in military operations in a JIIM environment.
[LAO: 2a, 4b, 4d]
4. Comprehend how a functional combatant command (USTRANSCOM), Services, and combat support agencies contribute to the Joint Force's ability to deploy and sustain military operations in a complex integrated environment across all domains.
[LAO: 1a, 1b, 1c, 3b, 4a, 4h]

LESSON OVERVIEW

JW-528 (S): Deploying and Sustaining the Joint Force

Overview: While matters of logistics will almost certainly levy limitations upon the deployment and employment of the Joint Force, an integrated logistics and operational concept promotes operational reach, endurance, and flexibility. Even though logistics plans are primarily driven by operational goals, neither can claim primacy as each is integral for successful joint operations. Comprehending joint logistics fundamentals is necessary for successful deployment and sustainment of the Joint Force across all phases of an operation, and across the ROMO. The PMC has played a significant role in the employment, support, and sustainment of Joint Force operations. The Joint Force has become dependent on the PMC due to the breadth of skills and services they offer the warfighter and have become an essential element of the integrated Joint Force. OCS is an indispensable capability and the critical enabler to integrate PMC's into Joint Force operations. It will continue to be prevalent across all levels of service and joint operations. When properly integrated, logistics and OCS are critical enablers and force multipliers that aide Commanders and their staffs in developing solutions and options to problems across the joint spectrum. To this end, analysis and discussion of historical sustainment concepts are useful in demonstrating the impact logistics may have on courses of action development and execution. This lesson will also provide the opportunity to analyze an historical case for the application of doctrinal sustainment concepts.

CONTACT HOURS: 2.0-hour seminar

REQUIRED READINGS

1. Operational Contracting Support (OCS) Overview (video). (**Canvas**)

[Provides a short overview of OCS and its purpose in joint military operations.]

2. Joint Publication 4-10, *Operational Contract Support*, 4 March 2019, ix–xvii, I-1 to I-4 (stop at “4. Key Terminology”), I-8 to I-16 (stop at “8. Prevention of Fraud, Waste, and Abuse”).

[JP 4-10 provides a brief overview of OCS and implications for military operations.]

3. Alice Trvion, et. al, “Leveraging our War-Fighting Capabilities through the Lens of Operational Contract Support,” *Air and Space Power Journal*, Fall 2019, 4-14.

[The article presents lessons learned on using OCS to meet mission requirements during USAF emergency response activities for Hurricane Michael and Super Typhoon Yutu, and using OCS to bolster credible warfighting capability in INDOPACOM.]

4. Charles R. Shrader, *A War of Logistics: Parachutes and Porters in Indochina, 1945-1954*. (University Press of Kentucky, 2015), xv-xvi, 1-9.

[After nearly ten years of savage combat, the western world was stunned when Viet Minh forces decisively defeated the French Union army at the battle of Dien Bien Phu in MAY2054. Logistics dominated every aspect of the First Indochina War, dictating the objectives, the organization of forces, the timing and duration of the operations, and even the final outcome.]

5. Kenneth Allard, “Somalia Lessons Learned,” *CCPR Publication Series*, (Washington D.C., 2002), Read 40-46; 74-75; Review remaining pages from JW-514 for context as required (xv-xviii; 1-34; 50-59; 67-69; 78-86).

[Identifies planning considerations and challenges associated with deploying a joint force in support of humanitarian assistance missions in Somalia. This reading also provides another thread of continuity between lessons within the JW course.]

6. Robert C. Owen, *Air Mobility: A Brief History of the American Experience*, (Potomac Books, Washington D.C., 2013), 240-253.

[The chapter on the first Gulf War emphasizes the integration, capabilities, and limitations of air forces in the deployment and sustainment of the Joint Force.]

7. Department of Joint Warfighting, *Joint Warfighting Capabilities Primer (JWCP) AY20*, U.S. Transportation Command, 136-142.

[The JWCP provides a brief overview of service capabilities, force presentation, and major assets to enhance understanding of the services’ unique contributions to the joint force.]

8. Quizlet Module – OCS, <https://quizlet.com/226338153/operational-contract-support-ocs-3c-course-week-2-flash-cards/>.

[This CBT provides students an opportunity to familiarize themselves with some of the OCS terms and offices. To use, it requires joining “Quizlet”, a free service.]

SUGGESTED ADDITIONAL MATERIAL

1. Rick Atkinson, *An Army at Dawn: The War in North Africa, 1942-1943*, (Henry Holt & Company, New York, 2002), Review 1-160 (Pay particular attention to the deployment and sustainment of forces in the North African campaign).
2. Mark Solseth, "Rules for Planning Joint Sustainment," *Army Sustainment Magazine*, March-April 2014, 15-18.
3. LCDR Akil R. King III, USN, CPT Zackary H. Moss, USA, and LT Afi Y. Pittman, USN. "Overcoming Logistics Challenges in East Africa," *Army Sustainment Magazine*, January-February 2014, 28-31.
4. Video - Defense Logistics Agency (<https://www.youtube.com/watch?v=Sx1u0jDaeKU>)
5. Operational Contracting Support Corruption video (Canvas).
6. Operational Contract Support EXECUTION+: a practical guide to OCS. Reference Handbook, 2017
7. Non-Organic Support: a primer on considerations and concepts. OCS Reference Book, 2017

LESSON INTEGRATION AND RATIONALE

Together, this seminar and the preceding lecture will prepare students to apply, at the introductory level, the principles of logistics and concepts of OCS into their own planning of joint operations to ensure complete and valid COAs during the Course of Action Development Workshop and during the course evaluation in the JPEX. Further, this lesson will enable the application of operational art and design to complex military problem sets and solutions, ultimately facilitating the operational reach, endurance, and flexibility for successful military operations. Seminars will be expected to apply these tenets and concepts during the COA Development Workshop and the JPEX.

Day 23: JW Directed Study
JW-601E Paper Due (NLT 1200)

Day 24 & Day 25: JW-531
COA Development Workshop Day 1 & Day 2

LESSON OBJECTIVES

These Objectives build on work conducted in Lessons JW-509, 510, & 515 and concepts presented in Lessons JW-519 through 530.

1. Integrate operational art and operational design with Joint Planning, and assess how military planning considers all elements of national power and a whole of government approach to achieving national strategic goals.
[LAO: 2a, 3d, 3e, 3g, 4b, 4h; SAE 2]
2. Comprehend the purpose and process for activities of JPP step 3, Course of Action Development, including several considerations for developing COAs, and what constitutes a valid and complete course of action.
[LAO: 2a, 3b, 3g, 4b, 4c, 5a]
3. Analyze how operational art and design, the initial operational approach, and mission analysis guide and inform the development of potential solutions and the application of military capabilities.
[LAO: 1a, 2a, 3d, 3g, 4b; SAE 4 & 5]
4. Apply joint planning concepts while conducting Joint Planning activities as described in JP 5-0 for JPP Step 3, Course of Action Development; and develop two valid courses of action for the Joint Force Commander (CI) that provide options for solving the given scenario problem(s) as identified in previous JW planning workshops.
[LAO: 1a, 2a, 2c, 3a, 3b, 3d, 3e, 3f, 3g, 4a, 4b, 4c, 4d, 4e, 4h, 5a, 5b, 6b, 6c, 6e, 6f]

LESSON OVERVIEW

JW-531 (S): COA Development Workshop Day 1 & Day 2

Overview: Equipped with an understanding of Operational Design and Mission Analysis (Problem Framing), the JW course has now moved well into the Problem Solving phase. Though the derivation of any solution begins with understanding the problem and all actors involved, the joint planning framework for developing potential solutions begins in earnest with Course of Action Development (JPP step 3). Through the study of several historical examples of the innovation and insight required to develop valid COAs to address complex problems; and comprehension of the tools and domains through which the joint force may address these problems, students are now equipped to apply that knowledge toward the development of two original COAs within the given JW scenario.

One of the most critical steps in campaign planning is conceiving of, and deciding upon, COAs. Among the myriad paths an operation can take, the commander must decide on a particular course of action. During JPP step 3, the staff develops unique courses of action to achieve the commander's military end state. These COAs adhere to the commander's guidance and build on the results of mission analysis, and introduce additional elements of Operational Design. Ideal COAs consider all participants and achieve the desired end state within the commander's guidance, while maintaining flexibility to react to unforeseen challenges. A key facet for achieving this balance is the concept of "mission command." It is essential to balance the requisite detail in the proposed courses of action with the flexibility

for those who will execute the plan to be able to adapt to situations on the ground and to exploit opportunities in real time.

CONTACT HOURS: 2 x 3.0-hour seminar

REQUIRED READINGS

1. JW Nigeria scenario planning guidance, research materials, and other open source research materials as required. (**Canvas**)

[Students must review previous planning products from the Operational Design and Mission Analysis Workshops prior to the start of the workshop. Students will not have the time to “spin-up” on the scenario during this seminar. This seminar continues the experiential learning that provides an opportunity to synthesize and apply JW course concepts through instructor-led practical application. In addition to the materials provided, students will be required to conduct their own research in order to gain information that will facilitate the analysis and application of elements of operational design during the seminar. The purpose of student research for scenario information, in addition to aiding the practical application of doctrinal concepts, is to build analytical skills for knowing what types of questions to ask, as well as what specific questions to ask, and seek appropriate information to enable military planning activities.]

2. JW Planning Study Guide. (**Canvas**)

[This guide is provided to enable coherent research and note taking on scenario materials. Students should use the guide and prepare notes for in-class use per their instructor’s directions.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, Review V-20 to V-31 (COA Development).
2. Jeffrey M. Reilly, *Operational Design: Distilling Clarity from Complexity for Decisive Action*, (Air University Press, 2012), Review 50-54 (“The Arrangement of Operations”).
3. The U.S. Army in Multi-Domain Operations 2028. TRADOC Pamphlet 525-3-1, 6 December 2018, 15-46.

LESSON INTEGRATION AND RATIONALE

This two day COA Development Workshop builds on the previous Operational Design and Mission Analysis workshops that were focused on incorporating elements of operational design, framing the problem, and developing the operational approach, as well as defining the mission and refining guidance. In this session, students will have the opportunity to practice and apply the COA development step of the Joint Planning Process within the ongoing JW scenario. This lesson will also allow students to synthesize many of the JW course concepts introduced to this point in the course, including: elements of operational design, operational art, multi-domain operations, joint force capabilities, command relationships, and joint force structures. The concepts taught during this practicum are also essential for the successful completion of the Joint Planning Exercise (JPEX). This lesson builds upon the foundation of War Theory and its

examination of several war theorists, International Security I and II examination of VEO and Non-State Threats and the Combatant Commands and Posture Statements. Also, War Theory and AirPower II lessons that address and examine Irregular Warfare and Gray Zone Conflict; Leadership lesson examining ethical military leadership.

Day 26: JW-532
COA Analysis and Wargaming Workshop

LESSON OBJECTIVES

These Objectives build on work conducted in Lessons JW-509, 510, 515 & 531 and concepts presented in Lessons JW-519 through 530.

1. Integrate operational art and operational design with Joint Planning, and assess how military planning considers all elements of national power and a whole of government approach to achieving national strategic goals.
[LAO: 1d, 2a, 3d, 4b, 4h]
2. Comprehend the purposes and process for conducting COA Analysis, including the methodology of wargaming that enables the testing and improvement of COAs.
[LAO: 1a, 2a, 3a, 4b, 6b]
3. Apply joint planning concepts while conducting Course of Action (COA) Analysis and Wargaming (JPP Step 4), and develop planning tools to capture results of COA Analysis (including but not limited to: a synchronization matrix, decision support matrix, and decision support template).
[LAO: 1a, 1d, 2a, 2c, 3a, 3d, 3f, 4b, 4c, 4h, 5a, 6b, 6e, 6f]

LESSON OVERVIEW

JW-532 (S): COA Analysis and Wargaming Workshop

Overview: COA Analysis and Wargaming enable critical examination and further refinement of COAs. This seminar and workshop will provide the opportunity to analyze and wargame the courses of action developed in previous workshop sessions in order to gain insight into the operation, improve COAs, and enhance operational decision making. COA analysis is the process of closely examining potential COAs to reveal details that will allow the commander and staff to tentatively identify COAs that are valid, and then compare these COAs to evaluation criteria in step 5 of the JPP (COA Comparison).

CONTACT HOURS: 3.0-hour seminar

REQUIRED READINGS

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, V-31 to V-42.

[Outlines the doctrinal approach, purpose, and methods of COA analysis through wargaming.]

2. Jeffrey M. Reilly, *Operational Design: Distilling Clarity from Complexity for Decisive Action*, (Air University Press, 2012), 65-81.

[Provides a detailed methodology for the conduct of a wargame and outlines several products that may result from wargaming that inform the commander's decision making.]

3. JW scenario planning guidance, research materials, and other open source research sources as required. (**Canvas**)

[Students must review products from previous JW planning Workshops and refine them per instructor direction in preparation for this Workshop. Students will not have the time to

“spin-up” on the scenario or refine products during this seminar. This seminar continues the experiential learning that provides an opportunity to synthesize and apply JW course concepts through instructor led practical application. In addition to the materials provided, students will be required to conduct their own research in order to gain information that will facilitate the analysis and application of elements of operational design during the seminar. The purpose of student research for scenario information, in addition to aiding the practical application of doctrinal concepts, is to build analytical skills for knowing what types of questions to ask, as well as what specific questions to ask, and seek appropriate information to enable military planning activities.]

4. JW Planning Study Guide. (**Canvas**)

[This guide is provided to enable coherent research and note taking on scenario materials. Students should use the guide and prepare notes for in-class use per their instructor’s directions.]

SUGGESTED ADDITIONAL MATERIAL

1. None.

LESSON INTEGRATION AND RATIONALE

This practicum constitutes the seventh of eight sessions of instructor-led JW workshops in which students are guided through the planning process utilizing a scenario-driven planning exercise. This practicum continues to build upon the previous lessons and steps of the JPP and establishes the foundation for JPP step 5, COA Comparison. Through the process of analyzing their own planning efforts (developed COAs), students are provided another opportunity to improve critical and creative thinking skills. This seminar will also facilitate student success in the JPEX evaluations.

Day 27: JW-533
COA Comparison and Approval Workshop

LESSON OBJECTIVES

These Objectives build on work conducted in Lessons JW-509, 510, 515, 531 & 532 and concepts presented in Lessons JW-519 through 530.

1. Integrate operational art and operational design with Joint Planning, and assess how military planning considers all elements of national power and a whole of government approach to achieving national strategic goals.
[LAO: 1d, 2a, 3d, 4b, 4h]
2. Comprehend the purposes and process for conducting COA Comparison, and the several methodologies for conducting and presenting the staff's COA comparison that are found in joint doctrine.
[LAO: 2a, 4b]
3. Apply joint planning concepts while conducting Course of Action (COA) Comparison (JPP step 5) in order to analyze a plan critically for the deployment, employment, sustainment of joint military forces at the operational level of war and recommend to the JFC the COA that best accomplishes the mission.
[LAO: 2a, 2c, 3d, 3f, 4b, 4g, 4h, 6b, 6e, 6f]
4. Comprehend the actions a commander may take upon receiving the planning staff's COA recommendation in JPP step 6, COA Approval.
[LAO: 2a, 4b]

LESSON OVERVIEW

JW-533 (S): COA Comparison and Approval Workshop

Overview: This seminar will cover JPP steps 5 and 6. During COA Comparison (JPP step 5) the comparison activity will include discussion of the techniques and potential pitfalls of COA comparison as the seminar continues the application of the JPP in an instructor-led, scenario-driven learning environment. Performed properly, COA Comparison enables the planning staff to provide their recommendation (and associated rationale) for the COA that will be most effective in achieving the desired ends sought by the commander. As the commander relies heavily on staff input to this point in the process, it is imperative that the planning group understand the COA Comparison tools and process and how to use the various comparison options to best inform the commander. Critical to this process is the careful selection and thorough definition of evaluation criteria against which the COAs will be assessed. The COA Comparison facilitates the commander's decision making process through careful staff evaluation of the ends, ways, means, and risk of each COA.

Upon receiving the staff's recommended COA during COA Approval (JPP step 6), the commander makes a decision regarding the COA which then enables the formulation of the commander's estimate. Once reviewed by the appropriate authority, the commander's estimate becomes the concept of operation (CONOPS) for the plan, and allows detailed Plan or Order Development (JPP step 7).

CONTACT HOURS: 3.0-hour seminar

REQUIRED READINGS

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, V-42 to V-45, Appendix G, and (Review) VI-24 to VI-41.

[This reading provides the doctrinal guidance for how to conduct COA Comparison, and provides useful methodologies and matrices for presenting staff rationale. Chapter VI reviews the necessity for operation assessment.]

2. JW scenario planning guidance, research materials, and other open source research sources as required. (**Canvas**)

[Students must review products from previous JW planning Workshops and refine them per instructor direction in preparation for this Workshop. In addition to the materials provided, students will be required to conduct their own research in order to gain information that will facilitate the analysis and application of elements of operational design during the seminar. The purpose of student research for scenario information, in addition to aiding the practical application of doctrinal concepts, is to build analytical skills for knowing what types of questions to ask, as well as what specific questions to ask, and seek appropriate information to enable military planning activities.]

3. JW Planning Study Guide. (**Canvas**)

[This guide is provided to enable coherent research and note taking on scenario materials. Students should use the guide and prepare notes for in-class use per their instructor's directions.]

SUGGESTED ADDITIONAL MATERIAL

1. Joint Publication 5-0, *Joint Planning*, 16 June 2017, Ch VI.

LESSON INTEGRATION AND RATIONALE

This seminar introduces the fifth and sixth steps of the JPP, COA Comparison and COA Approval. It builds upon the preceding scenario-driven planning sessions. As the students continue application of the JPP through a real-world scenario, this practicum introduces the concepts related to COA Comparison by providing an overview of the process, as well as addressing the significance and appropriate application of the various results. This seminar provides another opportunity to hone critical thinking skills through the activities of selecting and defining evaluation criteria, and conducting a comprehensive comparison of the COAs that have been developed by the seminar. Students will later revisit these concepts as they participate in the Joint Planning Exercise (JPEX).

Phase 3: PRACTICAL APPLICATION

Joint Planning Exercise (JPEX)

Day 27: JW-534 JPEX Road to War

LESSON OBJECTIVES

1. Comprehend the historical and strategic setting for the Joint Planning Exercise Scenario in preparation for the JW directed study day dedicated to prepare students for participation and evaluation during the JW culminating planning exercise.
[LAO: 3a]

LESSON OVERVIEW

JW-534 (L): JPEX Road to War

Overview: This lecture, in the form of a joint staff overview of the strategic setting in the Western Pacific, will provide the basis for student directed study and preparation for the Joint Planning Exercise (JPEX). This brief serves only as an overview of historical and ongoing events, international relationships, and other considerations that will provide a framework for detailed study and planning. Students will be expected to study open-source materials related to the JPEX scenario that will enable the student-led planning and briefing activities.

CONTACT HOURS: 1.0-hour lecture

REQUIRED READINGS

1. None.

SUGGESTED ADDITIONAL MATERIAL

1. None.

LESSON INTEGRATION AND RATIONALE

This lecture sets up the student directed study day for JPEX, during which students and/or seminars will be expected to thoroughly analyze scenario products and other relevant open source information to enable detailed discussion and planning throughout the JPEX.

Day 28: JW Directed Study

Day 29 – Day 36: JW-535
Joint Planning Exercise (JPEX)

LESSON OBJECTIVES

1. Apply Joint Planning concepts to develop an initial operational approach based on planning directives and guidance provided, and conduct appropriate activities involved in the Joint Planning Process (JPP) to develop solutions to operational problems in a volatile, uncertain, complex, and ambiguous environment.
[LAO: 1d, 2a, 2c, 3a, 3c, 3d, 3g, 4b, 4d, 4h, 6a, 6b, 6c, 6f; SAE 1, 2, 4, & 5]
2. Construct a plan that demonstrates how the military instrument of power may be utilized to further national interests, taking into account the necessity for integrating of information operations, a whole of government approach, and multinational cooperation, against a near-peer, nuclear capable adversary.
[LAO: 1a, 1b, 1c, 1d, 2a, 2c, 3a, 3b, 3c, 3e, 3g, 4a, 4b, 4c, 4e, 4f, 4g, 4h, 5a, 5b, 5c; SAE 1, 2, 3, 4, & 5]
3. Analyze U.S. military force capabilities and limitations and appropriately organize and plan for the employment of forces in conducting operations across the range of military operations and across operational domains (including space and cyber) in pursuit of national interests.
[LAO: 1a, 1b, 1c, 1d, 2a, 2c, 3a, 3b, 3e, 3g, 4b, 4e, 4f, 4h, 5a, 5b, 5c, 6c, 6e, 6f; SAE 1, 2, 3, 4, & 5]
4. Analyze the plan as developed by the student planning group for validity and efficacy, and comprehend the fundamentals of Joint Planning, and joint and service doctrine.
[LAO: 2a, 2c, 3d, 3f, 3g, 4b, 4h, 6b, 6d, 6e, 6f]

LESSON OVERVIEW

JW-535 (S): Joint Planning Exercise

Overview: JPEX is the capstone event of the Joint Warfighting (JW) course - the application of concepts. As potential future members of a unified command or component planning staff, officers may be required to develop multiple military courses of action (COA) based on: changes in the strategic environment; the Joint Strategic Campaign Plan (JSCP); a POTUS/SECDEF tasking; or as tasked by the combatant commander. While the JPEX is a deliberate planning scenario, this 8-day exercise requires the completion of JFC tasking on a specific timeline. JPEX requires seminar members to apply concepts and topics previously discussed, including (but not limited to): multi-domain operations, service capabilities, geographic and functional combatant commands, command organizations and relationships, interagency, intergovernmental, and multinational considerations, strategic guidance documents, and planning concepts. This knowledge will be synthesized during the conduct of the JPEX as students analyze the operational environment and strategic guidance; develop two courses of action (COAs); and present a Mission Analysis Briefing and a Course of Action Decision Briefing to the Commander (Course Instructor).

Student performance will be evaluated on the development and presentation of two briefs. The first will be the Mission Analysis Brief conducted on JPEX Day 4. The second brief is the Course of Action Decision Brief on JPEX Day 8. Together the two JPEX briefings constitute JW 603E, a graded evaluation that will total 50% of the JW course grade. The following is a general breakdown of JPEX daily activities. Student planning groups should

devise their own detailed itinerary. Evaluated briefings should be considered in-class examinations and will occur only at the scheduled times per the official ACSC calendar.

Day 1 (6 hours):

JPEX Introduction, 0.5-hour
Planning Initiation
Develop Initial Operational Approach

Day 2 (6 hours):

Develop Initial Operational Approach (cont.)
Begin Mission Analysis

Day 3 (6 hours):

Continue Mission Analysis
Revise Initial Operational Approach as required

Day 4 (6 hours):

Deliver Mission Analysis Brief (JW 603E part one)
Begin COA Development

Day 5 (6 hours):

COA Development

Day 6 (6 hours):

COA Development

Day 7 (6 hours):

COA Analysis and Wargaming
COA Comparison
Develop Course of Action Decision Brief (homework)

Day 8 (2.5 hours):

Deliver Course of Action Decision Brief (JW 603E part two)

CONTACT HOURS: 44.5-hour seminar

REQUIRED READINGS

1. JPEX scenario planning guidance, research materials, and other open source research sources as required. (**Canvas**)

[Students must read the scenario guide and conduct appropriate research prior to the start of the JPEX during the scheduled directed study time. Students will not have the time to “spin-up” on the scenario during this seminar. In addition to the materials provided, students will be required to conduct their own research in order to gain information that will facilitate the analysis and application of elements of operational design. The purpose of student research for scenario information, in addition to aiding the practical application of doctrinal concepts, is to build analytical skills for knowing what types of questions to ask, as well as what

specific questions to ask, and seek appropriate information to enable military planning activities.]

2. JW Planning Study Guide. (**Canvas**)

[This guide is provided to enable coherent research and note taking on scenario materials. Students should use the guide and prepare notes for in-class use per their instructor's directions.]

3. JW Course assigned readings. (**Canvas**)

[As the final JW event, all of the course readings and applicable service and joint doctrine are appropriate resources to be used in the planning exercise. This exercise requires students to integrate the concepts and doctrinal principles presented during all of the previous Joint Warfighting (JW) course lessons. Students are also expected to incorporate the concepts and knowledge gained in other ACSC courses. Students should bring appropriate reference materials to seminar to facilitate joint planning and student hands-on practical learning.]

SUGGESTED ADDITIONAL MATERIAL

1. None.

LESSON INTEGRATION AND RATIONALE

The JPEX is the capstone of the JW course. It will test your ability to assimilate many of the concepts you've learned up to this point in ACSC and apply them to a complex operational problem in a time-compressed environment. The goal is for the seminar to emerge from the JPEX with a better understanding of the relationship between strategic events and the role of joint doctrine in guiding the planning process, the application of operational art and design, and the application of military capabilities to support national interests. This lesson builds upon the foundation of War Theory and its examination of several War Theorists and Strategic Deterrence, International Security I & II's examination of China's ascendance as a great power, INDOPACOM, Offshore Control, and Strategic Deterrence, and Leadership lesson examining ethical military leadership.

APPENDIX: COURSE FACULTY

Major Steven E. Alsop is an instructor in the Joint Warfighting Department at the Air Command and Staff College. A U.S. Marine Corps Infantry Officer and Expeditionary Reconnaissance Officer, he completed the Air Command and Staff College at Maxwell AFB in 2016. Major Alsop has served in a variety of positions from Platoon Commander, Company Commander, Battalion Operations Officer, and Battalion Executive Officer throughout his 16 year career. His assignments include 1st Battalion, 1st Marines, 3d Battalion, 2d Marines, 5th ANGLICO, Marine Corps Det. Ft Benning GA, 3d Force Reconnaissance Company, and 2d Reconnaissance Battalion. He has multiple operational deployments in command positions across the CENTCOM and PACOM AOR.

Lt Col Kyle G. Bellue is the Deputy Department Chair and instructor in the Joint Warfighting Department at the Air Command and Staff College. He taught both Leadership and Joint Warfighting in ACSC's Academic Year 2019. He has a B.S. and M.S. in Meteorology from Texas A&M University and is currently working on his EdD in Higher Education (concentration on leadership) from the University of Memphis. His assignments include operational weather, weather equipment acquisitions, AFROTC and the Joint Staff as course director/developer for the Joint METOC (Meteorological and Oceanographic) Officer's Course and the US representative on NATO's METOC Working Group. He is a graduated weather squadron commander and AFROTC detachment commander. He has multiple operational deployments in command and staff positions supporting Air Force and Army across the CENTCOM AOR.

Lt Col Joel R. Bius is the Associate Dean of Education (Operations) and Assistant Professor of National Security Studies at the Air Command and Staff College. He received his Ph.D. in U.S. History from the University of Southern Mississippi in May 2015. He also has an MA in Military Studies with an emphasis in the American Civil War and is a graduate of the Air Command and Staff College. His military operational experience includes 12 years' experience in strategic deterrence as an ICBM combat crew commander, instructor, and 20th AF command evaluator, and operational counterinsurgency experience as Deputy J5 police while serving in ILO status with the US Army in Kandahar, Afghanistan. In addition to teaching the Joint Warfighting and War Theory core courses, Lt Col Bius also teaches electives on the history of American Military Culture and The American Civil War. His current research interests include the history of the American cigarette ration, the environmental history of WWII, American military culture, selected topics in war and society, and the history of military and joint campaign planning. He is the author of *Smoke 'Em if you Got 'Em: The Rise and Fall of the Military Cigarette Ration*, as well as chapters in several other edited volumes.

Mr. Mark A. Burge is an Assistant Professor of Warfare Studies in the Department of Joint, Airpower, and Warfare Studies (JAWS) at the Air Command and Staff College's eSchool of Graduate Professional Military Education. He has a MS in Strategic Studies from the Air War College, a MA in Human Resource Development from Webster University, and a BA in History

from Youngstown State University. At the eSchool, he is responsible for teaching and developing courses on Joint Planning and Joint Forces. He is a retired Army Infantry Colonel.

Dr. James D. Campbell is an Associate Professor of Military and Security Studies in the Joint Warfighting Department. A retired US Army Brigadier General, Dr. Campbell served as an Infantryman and Strategic Plans and Policy Officer for 30 years, with assignments at all levels of command and staff, in both the Regular Army and the National Guard. Most recently he served as the Deputy Chief, Operations Plans Division at US Central Command, and prior to his retirement served as the 39th Adjutant General of Maine with the state cabinet-level position of Commissioner of the Maine Department of Defense, Veterans and Emergency Management. Dr. Campbell holds a M.A. in European History and a Ph.D. in British History from the University of Maine. He is a graduate of the CAPSTONE course at the National Defense University, the US Army War College, and was an International Security Studies Fellow at the Fletcher School of Law and Diplomacy, Tufts University. Dr. Campbell has published works on subjects ranging from Homeland Defense, to Irregular Warfare, and 19th and early 20th century British Military History. His current research interests focus on British Imperial military operations and the Army in India.

Lt Col Paul Clemans is an Assistant Professor in the Department of Research at the Air Command and Staff College. He has served as an acquisitions officer on various programs including the Airborne Laser, the Integrated Maintenance Data System, and the Distributed Common Ground System. Lt Col Clemans career-broadened into operations research leading to assignments with AETC/A5, the 438th Air Expeditionary Wing, and the International Security Assistance Force-Afghanistan. In his last assignment, he completed his doctorate degree in history at Florida State University in December 2019.

CDR Patrick Corcoran is the Naval Advisor to the Commandant Air Command and Staff College. He has an MBA from Liberty University, a MS in Strategic Studies from the Air War College, and a BS in Business Operations from the Ohio State University. Prior to arriving at ACSC, CDR Corcoran was the Officer-In-Charge, NAVCENT Qatar. He is a Naval Flight Officer with over 2800 hours in S-3Viking, ES-3A Shadow and EA-6B Prowler aircraft. He has served as an Aide to COMNAVSPACECOM and is a Joint Duty Qualified Officer who has completed tours as a member of the Joint Fires Integration and Interoperability Team, Eglin Air Force Base, as a Division Counter-IED Officer in Iraq, and Navy Air Liaison Officer in Islamabad, Pakistan.

Maj Christopher “Hellboy” Dauer is an Air University Fellow, instructing in the Department of Joint Warfighting at the Air Command and Staff College. Maj Dauer is a 2005 graduate of THE University of Texas where he graduated with a BS in Kinesiology. He is a graduate of ACSC and holds a Masters in Human Relations and another Masters in Military Operational Art & Science. Maj Dauer is an Expeditionary Communications Officer, having served in both AFSOC, the Combined Joint Special Operations Air Component, and 3 years in Combat Communications Squadrons. Prior to his student year at ACSC, he was the Commander of the 51st Combat Communications Squadron where he directed the mobilization and deployment of 210 Airmen in support of combat operations.

Dr. Melvin G. Deaile is the Director of the School of Advanced Nuclear and Deterrence Studies (SANDS) and an Associate Professor in the Department of International Studies at Air University's Air Command and Staff College. He teaches classes on nuclear deterrence, nuclear strategy, joint warfighting, and classical military thought. Dr Deaile hails from Fresno, CA native, and is a retired Air Force Colonel, where he served two tours in the B-52 Stratofortress and a tour in the B-2 Spirit. He has flown combat operations as part of Operations DESERT STORM and OPERATION ENDURING FREEDOM, including a record setting 44.3 hour combat mission, and deployed in support of Operation IRAQI FREEDOM. He is the recipient of the Distinguished Flying Cross and a distinguished graduate of the USAF Weapon School. Dr Deaile recently published his first book, *Always at War*, which chronicles the development of SAC's organizational culture under Gen Curtis LeMay. He is the author of multiple articles, editorials, and book reviews on nuclear weapons and their role in national security.

Maj Patrick W. DuVall is an Air University Fellow instructing in the Department of Joint Warfighting at the Air Command and Staff College. Maj DuVall is a 2006 graduate of the United States Air Force Academy where he graduated with a BS in Legal Studies. He is a graduate of ACSC and holds an MA in Organizational Leadership from Gonzaga University. Maj DuVall is a program manager in space acquisitions, and was previously a nuclear missile operator. Prior to his student year at ACSC, he served as Branch Chief, Legacy Space Systems, in the Strategic Warning and Surveillance Systems Division, Peterson AFB, CO.

Lt Col Travis R. Eastbourne is an instructor in the Department of Warfighting and has been the deputy Course Director for Joint Warfighting since October 2018. Lt Col Eastbourne is a 1998 graduate of Washington State University where he graduated with a BA in Communications. He is a graduate of ACSC and has a Masters of Military Art and Science. He is a Master Air Battle Manager with over 3900 hours in the E-3A/B/C/G. He has deployed and flown Combat/Combat Support sorties in Operations SOUTHERN WATCH, NORTHERN WATCH, IRAQI FREEDOM, ENDURING FREEDOM, UNIFIED PROTECTOR, and INHERENT RESOLVE. He served as the Director of Staff for 7th Air Force A3/A5 from 2008-2009 and most recently served as Deputy Chief Air Battle Manager as well as an Instructor Mission Crew Commander/Evaluator Senior Director for the 513 Air Control Group in the Air Force Reserve.

LTC Mike Fife is the Army Advisor to the Commandant at Air University's Air Command and Staff College (ACSC). LTC Fife has served in a wide variety of command and staff positions throughout his military career. His career highlights include the following: LTC Fife was assigned to 1st Brigade Combat Team, 3D Infantry Division Fort Stewart, Georgia. Assignments while assigned to the Raider Brigade included S3 for 3D Brigade Support Battalion, Support Operations Officer for 3D Brigade Support Battalion, and Logistics Readiness Officer in the Division G4 section. During his five years at 3D Infantry Division LTC Fife deployed twice for a total of 27 months in support of OIF III and OIF V. In April 2008, upon redeployment from OIF V, LTC Fife attended the Air Command and Staff College (ACSC) at Maxwell Air Force Base in Montgomery, Alabama. After graduating ACSC, LTC Fife remained on as an instructor in the Joint Warfighting Department until June 2011. In July 2011 LTC Fife assumed command of the Baltimore Recruiting Battalion headquartered at Fort George G. Meade Maryland. He served two

years as the battalion commander and in July 2013 assumed the duties as the 1st Recruiting Brigade Deputy Commander. Upon returning to ACSC in the summer of 2015, LTC Fife was assigned to the Joint Warfighting Department where he served as an instructor/advisor.

MAJ Quenella L. Garrett is an Instructor in the Department of Joint Warfighting at the Air Command and Staff College. MAJ Garrett earned a B.S. in Management in 2003 from Park University. She earned a M.A. in Human Resources Development in 2004 from Webster University. She was commissioned in 2005 through the Office Candidate School (OCS), Fort Benning, Georgia. She is a Logistics Officer in the U.S. Army. She is a 2016 graduate of Command and General Staff College (CGSC), Fort Leavenworth, Kansas. MAJ Garrett has served in a variety of positions from Platoon Leader to Battalion Executive Officer throughout her 27-year career (13 years enlisted). MAJ Garrett assignments include various duty stations stateside and abroad to include Fort Benning, Georgia, Fort Lee, Virginia, Fort Polk, Louisiana, Multi-National Force Observers, Egypt, and various deployments with the latest being Special Operations Command Africa (SOCAF) 2015 as the Directorate of Logistics-J4.

LtCol Ronnie Goode is an instructor of the Joint Warfighting course. He earned a BS in finance from the University of Central Florida and was commissioned in the Marine Corps in 1998. He is a Field Artillery Officer who as commanded at the Platoon through Battalion level. Additional tours include Marine Exchange Officer 75th Ranger Regiment and Advisor to 31st Georgian Light Infantry Brigade. His combat tours include OIF and OEF. He is a graduate of the US Army Captains Career Course, Marine Corps Command and Staff College, and the Air War College.

MAJ Jonathan Hawkins is an instructor in the Department of Joint Warfighting at the Air Command and Staff College. MAJ Hawkins is a 2004 graduate of Western Kentucky University where he graduated with a MA in History. As a Field Artilleryman, he has served at all levels from platoon to Division staff, including multiple combat and operational deployments. MAJ Hawkins most recently served as the DIVARTY Operation officer 25th Infantry Division, at Schofield Barracks Hawaii.

Dr. Jon Hendrickson is an Assistant Professor of Military and Security Studies in the Joint Warfighting Department. After being awarded a Tyng Scholarship to Williams College, he earned his Ph.D in military history from The Ohio State University, where he was awarded a Mershon Center Fellowship to conduct research in Vienna, Rome, Paris and London. This research led to the publication of *Crisis in the Mediterranean*, a book on the shifting alliances and naval races in the Mediterranean before World War I. After graduating from Ohio State, he was awarded the Class of 1957 Post-Doctoral Fellowship in Naval History at the US Naval Academy, and taught at Coastal Carolina University. He has published and presented several papers on naval and military history, ancient history, and diplomatic history.

Dr. Robert M. Kerr is an Associate Professor in the Joint Warfighting Department. He also previously served as Course Director for International Security 2: The Use of Armed Force. He holds a PhD in Political Geography from the University of Oregon, and an MA in Geosciences from the University of South Carolina. His BA is in History with an emphasis on the Islamic World from Grand Valley State University. In addition to teaching at ACSC, Dr. Kerr has

worked at the Air Force Culture and Language Center, and taught courses at the US Air Force Special Operations School, the Senior NCO Academy, and the Air Advisor Academy. In 2008-2009 he spent 15 months in NE Baghdad with the 3rd Brigade, 4th Infantry Division and 1st Brigade, 1st Cavalry Division as an embedded political/cultural advisor.

Mr. Brent Lawniczak is an Assistant Professor of Military and Security Studies at Air University's Air Command and Staff College (ACSC). A retired Marine aviator (UH-1N/UC-12), he has served in multiple theaters in various capacities. He served as the Senior Marine Corps Advisor to the Commandant of ACSC from 2008-2012. Additionally, Brent was qualified as a Command Pilot, Forward Air Controller (Airborne) (FAC(A)), Forward Air Controller (FAC)/Joint Terminal Attack Controller (JTAC), and Weapons and Tactics Instructor. His interests and expertise include Joint planning, operational design, joint fires, maritime and amphibious operations, aviation operations, policy formulation, American politics, and international relations.

LTC Jeffrey J. Lesperance is an instructor in the Department of Joint Warfighting at the Air Command and Staff College. LTC Lesperance is a 1998 graduate of Washington State University where he graduated with a MA in Criminal Justice. As an Infantryman, he has served at all levels of leadership from platoon leader to battalion commander, including multiple combat and operational deployments. LTC Lesperance most recently served as the battalion commander of 1st Battalion, 307th Infantry Regiment (Training Support), at Joint Base McGuire-Dix-Lakehurst, NJ.

Maj Josh Lev is an Air University Fellow, instructing in the Department of Joint Warfighting at the Air Command and Staff College. Maj Power is a 2006 graduate of Kent State University, Kent, Ohio where he graduated with a BA in Criminal Justice. He is a distinguished graduate of ACSC AY19. Maj Lev is a Senior Intelligence Officer, having served in both the RC-135 and Falconer weapons systems. Prior to his student year at ACSC, he served as the Chief of Targets for United States Air Forces Europe and United States Air Forces Africa at the 603d Air Operations Center.

Lt Col Nathan P. Lewis is an instructor in the Department of Joint Warfighting at the Air Command and Staff College. He is a 2003 graduate of North Carolina State University where he graduated with a BS in Technology Education. Lt Col Lewis is a graduate of ACSC and holds a MA in National Security Studies. He is a Senior Electronic Warfare Officer on the RC-135V/W RIVET JOINT with 1353 combat hours in Operation ENDURING FREEDOM. He has served as the Deputy Chief of the Information Operations Team for USAFE/AFAF and most recently as the Chief, USSTRATCOM Engagement Branch for the NRO.

Dr. Robert (Bob) Mahoney is the Chair, Department of Joint Warfighting at the Air Command and Staff College. He has a PhD in History from the George Washington University, a MS in National Resource Strategy from the Eisenhower School, National Defense University (NDU), a MS in Management from Webster University, and a BS in Engineering Sciences from the United States Air Force Academy. Prior to arriving at ACSC, Dr. Mahoney was the Dean of the Marine Corps War College and an Assistant Professor at the Eisenhower School at NDU. His book, The

Mayaguez Incident, was published by Texas Tech Press. He is a retired USAF Colonel with over 27 years of service, commanded a KC-135 flying squadron, was on the AMC and CJCS staff, and was a command pilot with over 3500 hours in the T-37, T-38 and KC-135. His research interests include the US Constitution, Joint Warfighting, Joint Planning, Operational Design, Leadership, US Air Force History, Vietnam War era, WW II, Revolutionary War, and Civil War.

Maj Christopher G. Marquis is the Director of Instruction in the Department of Joint Warfighting at the Air Command and Staff College (ACSC/DEW), Air University, Maxwell AFB, Alabama. He is an instructor of the Joint Warfighting and War Theory core courses and of the “Understanding the U.S. Constitution” elective. He earned his BA in economics and government from Cornell University in Ithaca, NY, and his MBA from the University of Massachusetts, Lowell. He is currently pursuing a Master of Arts in History degree at Auburn University, Alabama. He was commissioned through the Officer Training School at Maxwell AFB. His primary career field is contracting, and he is a worldwide deployable contingency contracting officer.

CDR Antonio Martinez is an instructor in the Department of Warfighting at the Air Command and Staff College. CDR Martinez is a 1995 graduate of Texas A&M University where he graduated with a BS in Bioenvironmental Sciences. He is a graduate of the Naval War College and Navy Postgraduate School, where he earned an MS. He has served on four different class of ships (CG, LHA, DDG and CVN) and a Carrier Strike Group Staff (on the only forward deployed CSG), Numbered Fleet Command, and Sub-Unified Command on combat and operational deployments. He served as the Assistant Chief of Staff for Fleet Support and Operations at Navy Air and Missile Defense Command, working Integrated Air Missile Defense and Ballistic Missile Defense for Navy deployments in EUCOM and PACOM areas of responsibility. Additionally, he served as Operations Officer at USSTRATCOM Joint Warfare Analysis Center, leading a team of civilian and military personnel in hard target, network, and nodal analysis for the Joint Staff and Geographic Combatant Commanders.

Mr. Gaylon McAlpine is the Course Director of the online graduate course for Joint Planning in the Online Master’s Program (OLMP), and three self-paced courses, in the Department of Joint, Airpower, and Warfare Studies (JAWS) at Air University’s eSchool of Graduate PME. Prior to arriving at the eSchool in 2009, Mr. McAlpine was a member of the Department of Joint Warfighting at the Air Command and Staff College (2005-2009), where he served for two years as the Course Director of the former Joint Planning course. He holds a MA in Public Affairs from the University of Alabama-Huntsville, a MMOAS from the resident Air Command and Staff College, and a BA in English from the University of Texas at El Paso. A retired U.S. Army Lieutenant Colonel, and joint qualified officer (JQO), Mr. McAlpine was a career Field Artillery officer with experience at the command and staff levels in both peacetime and combat. His research interests include Joint Warfighting, Joint Planning, and development of online gamification and edutainment of joint-related curriculum.

LTC Keyes M. Metcalf is an instructor in the Joint Warfighting Department at the Air Command and Staff College. A U.S. Army Special Forces officer, he completed the Army Command and General Staff College at Ft. Leavenworth, KS in 2009. LTC Metcalf has served in

a variety of positions from Platoon Leader to Battalion Commander throughout his 20-year career. His assignments include duty with the 25th Infantry Division, 5th Special Forces Group (Airborne) and the United States Special Operations Command (USSOCOM) J3X. He has multiple operational deployments in command and staff positions across the CENTCOM AOR.

Dr. John L. Minney is an Assistant Professor of Military and Security Studies in the Joint Warfighting Department. A retired US Air Force Lieutenant Colonel, Dr. Minney is a Master Navigator, and has flown the F-111, F-15E, KC-135, and C-130 aircraft. Dr. Minney holds a Ph.D. in History from the University of Alabama. He is a graduate of both the Air Command and Staff College and the Air War College in-residence programs. Prior to his arrival at ACSC he worked as an Assistant Professor of History at Concordia College Alabama, and has taught as an Adjunct Professor of History at the University of Alabama, Auburn University Montgomery, and Troy University. His research interests and expertise are in Military History, Air Power History, the relationship between USAF Doctrine and Technology, and Grand Strategy.

Lt Col Andrew Miscisin is a Joint Warfighting instructor at the United States Air Force's Air Command and Staff College (ACSC). Prior to this assignment, he served four operational flying tours at Little Rock AFB, Elmendorf AFB, RAF Mildenhall, and Hurlburt Field. Lt Col Miscisin is a command navigator with 3,900 flying hours in multiple C-130 variants, including 1100 combat/combat support hours while deploying numerous times in support of Operations ENDURING and IRAQI FREEDOM. A 2014 graduate of residence ACSC, he also completed Air War College by correspondence while serving on staff as the Defense Threat Reduction Agency liaison at US Africa Command's Plans and Policy Directorate. Lt Col Miscisin chose to return for ACSC instructor duty, where he taught in the Department of Airpower and was the Associate Dean for Students and Support. After returning from a deployed staff position to the Combined Joint Task Force Horn of Africa, Lt Col Miscisin requested to leverage his recent planning experience as a Joint Warfighting instructor. His Research Interest/Expertise is in the Cold War, History of the Vietnam War, U.S. Military History, and Aviation History.

Maj G. Scott Patton is an instructor in the Department of Warfighting and has been the director of staff for the department since June 2019. Maj Patton is a 2005 graduate of The University of Arkansas where he graduated with BAs in Criminal Justice and Sociology. He received a MA in Security Management from American Military University in 2013. He is also a graduate of ACSC and has a Masters of Military Art and Science. He is a Security Forces Officer with eight different assignments serving in multiple duty positions. He has deployed four times supporting Operations IRAQI FREEDOM, ENDURING FREEDOM, NEW DAWN, and JUNIPER SHIELD. He served as the commander of the 823 Base Defense Squadron, 11 Security Support Squadron, HQ Air Force Security Forces Center Detachment 3, and 823 Expeditionary Base Defense Squadron during the span of 2013-2018.

Dr. Melia Pfannenstiel is an Assistant Professor in the Joint Warfighting Department. She holds a MA in Political Science and a PhD in Security Studies from Kansas State University and is a graduate of the Joint and Combined Warfighting School. Prior to joining ACSC, Dr. Pfannenstiel was a post-doctoral fellow at the School of Advanced Air and Space Studies (SAASS) and served as an instructor and researcher at various public and private universities.

She has published articles on terrorism and contributed to works on cyber warfare, African security issues, and conflict in the Middle East. Her current research interest is the role of information operations in great power competition.

Dr. Bradley F. Podliska is an Assistant Professor of Military and Security Studies in the Department of Joint Warfighting at Air University's Air Command and Staff College. He has a Ph.D. in Political Science (International Relations major) from Texas A&M University, a M.A. in National Security Studies from Georgetown University, and a B.A. (with honors) in International Relations from the University of Wisconsin-Madison. Prior to arriving at ACSC, Dr. Podliska worked as an intelligence analyst for the Department of Defense and as an investigator for the U.S. House of Representatives Select Committee on Benghazi. His publications include a book, *Acting Alone: A Scientific Study of American Hegemony and Unilateral Use-of-Force Decision Making* (Lexington Books) and a book chapter, "Security and the Surveillance State: Bureaucratic Politics, the Intelligence Community, and Congressional Oversight" (Campus Verlag). He is an intelligence officer in the US Air Force Reserves and has served on the J2 staff with US Joint Forces Command and US European Command.

Lt Col Bradley J. Pogue is an instructor in the Department of Joint Warfighting at the Air Command and Staff College. He serves as an Instructor for two academic courses and as the department's Director of Staff. Maj Pogue is an Air Force Space Operations Officer with previous experience in the Air Force Personnel career field. His space operations experience is in Intelligence, Surveillance, and Reconnaissance and satellite command and control. Prior to his arrival at ACSC, he was the Director of Operations for National Reconnaissance Office's Space Operations Squadron located in Las Cruces, New Mexico. He was commissioned in 2004 after receiving his B.A. in History from Berry College, and he subsequently earned a M.A. in Government/International Politics from Regent University in 2009. Maj Pogue is an ACSC in-residence graduate, where he earned a Master of Military Operational Art and Science in 2016.

Maj Mike F. Power is an Air University Fellow, instructing in the Department of Joint Warfighting at the Air Command and Staff College. Maj Power is a 2002 graduate of Fontbonne University, St. Louis, Missouri where he graduated with a BA in History and British Literature. He is a distinguished graduate of ACSC and holds a MA in International Relations and Conflict Resolution. Maj Power is a Senior Air Battle Manager, having served in both the AWACS and Control and Reporting Center (CRC) weapons systems. Prior to his student year at ACSC, he served as the Assistant Director of Operations at the 337 Air Control Squadron, the USAF's sole source undergraduate air battle manager training schoolhouse.

Lt Col Steven Quillman is an Instructor of Joint Warfare, Director of Staff for the Department of Research and Deputy Director of Electives at Air University's Air Command and Staff College (ACSC). Lt Col Quillman graduated from Louisiana Tech University with a Bachelor of Science degree in Mechanical Engineering. He holds a Master's of Business Administration from Touro University International. Lt Col Quillman has published multiple entries in The Encyclopedia of Cyber Warfare (ABC-CLIO, 2017) and Russia at War (ABC-CLIO, 2015). Lt Col Quillman co-teaches a course on irregular warfare from 1830 to the present. Lt Col Quillman previous experiences include propulsion engineer with the C-17, C-130J, and F-22A,

weapons integration engineer with the F-16, Education with Industry tour with National Institute of Aerospace, aircraft battle damage assessor for Joint Combat Assessment Team, and as a program manager with AOC System Program Office.

Dr. Brian R. Price is an Associate Professor in the Department of Warfighting at the Air Command and Staff College. He is a graduate of the University of California, Los Angeles (UCLA) in political science, and holds a doctorate from the University of North Texas in military history. He has conducted research for the POW-MIA Accounting Agency, served as a Social Science SME serving special operations in Afghanistan, and has served a double tour as Senior Social Scientist in RC East, Afghanistan, 2011-12. He worked for ten years in Silicon Valley, rising to the level of Vice President, and ran his own publishing company before taking his doctorate. His research interests focus on the nexus between culture, technology and war, and his current research focuses on the development of post-Vietnam TACAIR, a project for which he has conducted extensive archival research along with oral histories on a number of senior officers. He is published in a number of journals, and has several books in his second field, medieval and early modern warfare. In his spare time he teaches historical swordsmanship and has been inducted into the Martial Arts Hall of Fame.

LTC Ryan L. Reid is an instructor in the Department of Warfighting and Deputy Course Director of War Theory at the Air Command and Staff College. LTC Reid is a 1998 graduate of the University of North Georgia where he graduated with a BS in Physics and was commissioned as a U.S. Army Logistics officer. He is a graduate of ACSC and SAASS Class XXI, holds an MBA and is currently pursuing his PhD in Public Administration and International Relations from Auburn University. He has served at all levels of leadership and staff from platoon through Division, including multiple combat and operational deployments. He served as the Strategic Logistics planner and Retrograde Chief for USFOR-A during the 2013 reduction of US forces from Afghanistan and most recently served four years as the Professor of Military Science of the Army ROTC Mustang Battalion at Auburn University Montgomery and Troy University.

Dr. Christopher M. 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.

Dr. Joseph (Jay) Varuolo is a Professor of Warfare Studies at Air University's eSchool of Graduate Professional Military Education (PME). Dr. Varuolo is a retired USAF combat aviator (B-1) and Fighter Weapon School Graduate. Additionally, he has an explicit strategy background in two distinct theaters including Section Chief in the CFACC's Strategy Division during Operation Iraqi Freedom and architect of the Russian sections of the Theater Security Cooperation Plan for EUCOM from 2004 – 2007. Dr. Varuolo served as a senior diplomat at the US Embassy in Moscow, Russia and his expertise has been sought by US Presidential delegations, US Congressional delegations, Council on Foreign Relations, World Affairs

Council, American Council on Germany and academic institutions. Dr. Varuolo's policy expertise extends across international, national, state and local government and transverses the spectrum from advice to final written form. His policy experience encompasses multiple US government agencies and has ranged contentious issues such as US military overflight of Russian territory and Russian/NATO interoperability. He has a PhD in Political Science, Comparative Politics, from the University at Albany's Rockefeller College of Public Affairs and Policy.

Dr. Christopher Weimar is the Joint Warfighting Course Director and Assistant Professor of National Security Studies in the Joint Warfighting Department at the Air Command and Staff College (ACSC). He holds a Ph.D. and M.Phil. in Political Science from the Graduate Center of the City University of New York, M.A. in International Relations from Boston University, and a B.A. in Mathematics and Computer Science from Fordham University. Dr. Weimar is a retired US Air Force Colonel who served in both Active and Reserve status in Communications-Information Systems Management, Cyberspace Operations, and Logistics Readiness. He has served at all levels from Flight to Combatant Command, and has deployed to the Horn of Africa, Kuwait, and Iraq. Most recently, he served as the Deputy Director of Logistics and Engineering at North American Aerospace Defense Command and U.S. Northern Command. Dr. Weimar has taught graduate and undergraduate Political Science courses at a variety of public universities and is a graduate of ACSC and AWC by correspondence and the Joint and Combined Warfighting School residence program.

Lt Col Ryan W. White is an instructor in the Department of Joint Warfighting at the Air Command and Staff College. He serves as an Instructor for two academic courses. Lt Col White is an Aircraft Maintenance Officer with command experience. Prior to his arrival at ACSC, he was the Deputy Group Commander for the 100th Maintenance Group at RAF Mildenhall. He was commissioned in 1997 after receiving his Bachelor's Degree in History from Troy State University, and he subsequently earned a Masters Degree in Aeronautical Science from Embry-Riddle Aeronautical University in 2007. Lt Col White is an ACSC in-residence graduate, where he earned a Master of Military Operational Art and Science in 2011.