Air Force Junior Reserve Officers' Training Corps

Curriculum Guide

AFJROTC

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Jeanne M. Holm Center for Officer Accessions and Citizen Development

CURRICULUM GUIDE

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References

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- ISD: AFMAN 36-2234, *Instructional System Development*
- AFMAN 36-2236, *Guidebook for Air Force Instructors*

Additional references:

- AFH 36-2235 Series: *Information for Designers of Instructional Systems*
- Air Force e-Publishing http://www.e-publishing.af.mil/

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Preface

The mission of the Air Force Junior Reserve Officers' Training Corps (AFJROTC) program is "Developing citizens of character." To support this mission, the Academic Affairs Directorate of the Jeanne M. Holm Center for Officer Accessions and Citizen Development (Holm Center) produces "world-class" academic materials for AFJROTC units worldwide. A comprehensive description of the academic program is contained in this *AFJROTC Curriculum Guide*. The guide is a relevant and informative tool designed to assist school leadership and AFJROTC instructors plan and implement their curriculum programs.

Each AFJROTC class consists of three components—aerospace science (AS), leadership education (LE), and wellness. Citizenship and character education, the heart of the curriculum program, is primarily embedded in the leadership education series of courses, while sense of service and education in science and technology related aerospace science is primarily found in the aerospace science series of courses. Thus, the typical high school student will spend two clock hours per week studying LE material, two more on AS subject matter and a fifth hour in wellness education, culminating in 120-180 contact hours per year for a single AFJROTC course offered at the host school. The flexibility of our curriculum design should enable you to meet the needs of your programs and accomplish the requirements set forth by your district and/or state.

To reinforce what is taught in the classroom, instructors and cadets participate in Curriculum-In-Action (CIA) trips to military bases, aerospace facilities and industries, museums, civilian airports and other areas related to aerospace and leadership education. AFJROTC units also offer the opportunity to participate in co-curricular activities to include drill and ceremonies, cadet leadership courses, and honorary academic groups. Additionally, community service projects are a major part of the AFJROTC experience and help instill a sense of civic pride and citizenship.

The *AFJROTC Curriculum Guide* has four parts:

"Part I – The AFJROTC Curriculum Program" describes the academic program, curriculum materials, and development, structure, and implementation of the curriculum. It expands on the curriculum development process and writing objectives and tests; 21st-century teaching, learning, and assessments; and the course planning and scheduling process.

"Part II – Aerospace Science Courses" presents the menu of courses in the AS series to include *A Journey Into Aviation History, The Science of Flight: A Gateway to New Horizons 2nd Ed, Cultural Studies: An Introduction to Global Awareness 2nd Ed, Exploring Space: The High Frontier 2nd Ed, Management of the Cadet Corps, Survival, Aviation Honors Ground School,* and the *AFJROTC Honors Senior Project*. STEM opportunities have also been added. These hands-on, minds-on activities help cadets understand how STEM is useful in their world and make connections to careers they may not have considered.

"Part III – Leadership Education Courses" covers the LE series of courses to include *Traditions, Wellness, and Foundations of Citizenship*; *Communication, Awareness, and Leadership*; *Life Skills and Career Opportunities; Fundamentals of Management; Drill and Ceremonies;* and the wellness program. LE Electives have also been added and are intended to build upon Holm Center provided leadership education and skills development curriculum.

"Part IV – Additional Supplemental Materials and Resources" provides items to enhance the courses. The materials include guidance to obtaining a complimentary membership and STEM resources from Civil Air Patrol, a useful video series and documentary listing, information to obtain cartographic materials, and a list of commonly used publications and forms. In addition, the NASA Educator Resource center for every state is catalogued as other resource, allowing you access to materials available to support classroom learning objectives.

Our AFJROTC academic program is a showcase for 21st-century teaching, learning, and assessments. Having transformed our curriculum into the 21st-century, we will continue our quest to create the best academic materials for our outstanding AFJROTC units worldwide.

Part I – The AFJROTC Curriculum Program

HISTORY OF AFJROTC

The Junior Reserve Officers' Training Corps (JROTC) program began in 1911 in Cheyenne, Wyoming. The originator of this idea was Army Lieutenant Edgar R. Steevers, assigned the duty of inspector-instructor of the organized military of Wyoming. The National Defense Act of 1916 authorized a junior course for non-college military schools, high schools, and other non-preparatory schools; the Army implemented JROTC in 1916. Public Law 88-647, commonly known as the Reserve Officers' Training Corps Vitalization Act of 1964, directed the secretaries of each military service to establish and maintain JROTC units at public and private secondary schools which apply for and are eligible according to the regulations established by each secretary. Such schools must provide a course of military instruction not less than 3 years in length as prescribed by the military department concerned.

With a modest beginning of 20 units in 1966, Air Force Junior Reserve Officers' Training Corps (AFJROTC) has grown to upwards of 850 high schools throughout the world, including units located in the Department of Defense Schools in Europe, the Pacific, and Puerto Rico. Junior ROTC enrollment worldwide includes over 85,000 cadets. The AFJROTC program provides citizenship education and aerospace science curriculum for high school youth. Enrollment in the AFJROTC program is open to all students in grades 9-12 who meet the requirements set forth in US Code, Title 10. Please refer to AFJROTC Instruction 36-2010 (dated 1June 2023) for criteria regarding 8th grade participants.

Host schools are selected upon the basis of fair and equitable distribution throughout the nation. The 2023 National Defense Authorization Act provided eligibility for non-retired, currently serving members of each military service's Guard and Reserve components, as well as some honorably discharged veterans, to serve as JROTC instructors. Prior to this legislation, only retired Air Force commissioned and noncommissioned officers who are full-time faculty members of the participating high school and employed by the local school district were eligible to teach AFJROTC classes.

MISSION, GOALS, AND OBJECTIVES

The **mission** of the AFJROTC program is “Developing citizens of character."

The **goals** of the AFJROTC program are to instill:

- the values of citizenship,
- service to the United States,
- personal responsibility, and
- a sense of accomplishment.

The **objectives** of AFJROTC are to educate and train students in citizenship and life skills; promote community service; instill a sense of responsibility; and develop character and self-discipline through education and instruction in air and space fundamentals and the Air Force's core values:

- Integrity First
- Service Before Self
- Excellence In All We Do

This program will enable the students to:

- Develop a high degree of strong morals, self-esteem, self- reliance, personal appearance, and leadership.
- Adhere to the values of integrity, service, and excellence.
- Increase their understanding of patriotism and responsibilities as US citizens.
- Participate in community service activities.
- Expand their skills of critical thinking and problem solving, communication and collaboration, and creativity and innovation.
- Demonstrate military customs, courtesies, and traditions and develop habits of order, discipline, and social skills.
- Acquire a broad-based knowledge of aerospace studies and leadership education.
- Strive to graduate from high school and prepare for college and careers in the 21st-century.
- Cultivate a commitment to physical fitness and a healthy lifestyle.

SACS CASI Accreditation by Cognia

Air Force Junior ROTC was awarded continuing accreditation with the Southern Association of Colleges and Schools Council on Accreditation and School Improvement (SACS CASI) on 3 March 2016 by the AdvancED Accreditation Commission. AdvancED is the parent organization of SACS CASI. The AdvancED Accreditation Commission is a national panel that reviews and acts on all SACS CASI accreditation recommendations.

AFJROTC was first awarded accreditation by the Commission on International and Trans-Regional Accreditation (CITA) Board of Directors on 29 November 2005; they have maintained continuous accreditation since then. To achieve accreditation, AFJROTC has undergone and successfully completed rigorous self-studies and site evaluations conducted by the CITA and AdvancED teams of experienced educators.

In the Summer 2008, CITA became part of AdvancED, and the AdvancED standards and protocol took effect 1 July 2009. In November 2018, AdvancED merged with Measured Progress and was known as AdvancED | Measured Progress. In August 2019, the organization was rebranded as Cognia. AFJROTC was reaccredited by Cognia in May 2022. The Cognia accreditation certificate is available for download in the Curriculum SuperStore.

SYNOPSIS OF THE CURRICULUM PROGRAM

Aerospace Science (AS) study includes the history of aviation, cultural awareness of major world regions, science of flight, space exploration, cyber, survival and corps management. Through the study of history of aviation, cadets will learn about the development of flight throughout the centuries. From the science of flight, students will become acquainted with the aerospace environment, weather, the human requirements of flight and the principles of navigation. Space exploration will equip students with current information available in space exploration and space science to include the basic concepts of space. Through cultural studies, students learn to view the world through a variety of cultural domains. The content introduces students to the study of world affairs, regional studies, and cultural awareness. Students learn to explore and discover the processes that shape culture, the relationships between people and environments, and the links between people and places.

Leadership Education (LE) offers students many opportunities to shape their character. Students learn about character development, as many character-building topics are discussed. Elements of good citizenship are instilled in students. They are introduced to the Air Force organizational structure, uniform wear, military customs and courtesies, flag etiquette, citizenship in the United States, first aid, health and wellness, fitness, individual self-control, and basic drill and ceremonies. They learn to listen and think critically, effective communications, how to prepare for leadership, how to build personal awareness, key elements of building and encouraging effective teams, and key behaviors for becoming a credible and competent leader. Students also learn about the importance of charting a career path, specific career options, how to create a personal budget and financial plan, how to write a resume, how to interview for a job, how to apply for college, the principles of management, making decisions, problem solving, human relations, and life skills.

Cadets receive a minimum of elective credit toward high school graduation by successfully passing AFJROTC classes. AFJROTC digital content may be reproduced locally for cadets on an Individual Education Plan. In addition, digital content can be posted to the school Learning Management System.

The Holm Center Academic Affairs Directorate provides the curriculum materials needed to teach all AFJROTC courses – digital textbooks, instructor guides, student-centered learning methods/materials, and support videos. All AS and LE courses are written at the 9th–12th grade reading level. The instructor guides provide lesson objectives, samples of behavior, chapter and lesson overviews, teaching strategies, attention steps, lesson plans, activities, and answers to exercises found in the digital textbooks, and student-centered activities. STEM materials from Civil Air Patrol (CAP), the Academy of Model Aeronautics (AMA), and other education partners are considered supplemental material and may be used in the classroom. To sign up for a free CAP membership, please contact CAP at ae@capnhq.gov or your curriculum team at jrotc.curriculum@au.af.edu.

To reinforce what is learned in the classroom, cadets may participate in many Curriculum-In-Action (CIA) events such as field trips to military bases, aerospace facilities and industries, museums, civilian airports, etc. Cadets should also participate in LDR activities.

CURRICULUM GUIDANCE

The point of contact for all AFJROTC curriculum issues is the Holm Center Academic Affairs Directorate, AFJROTC Curriculum Branch (DEJ). The email address for DEJ is **jrotc.curriculum@au.af.edu**. Per the Memorandum of Agreement, AFJROTC curriculum provided by the Air Force must be taught at the host school. Courses receiving "elective" credit can use a **40%-40%-20%** Curriculum Model for each semester of instruction. (**See page 16 for more flexible options**.) Units that receive "core" credit use a **60%-40%** model for each semester.

AFJROTC courses should be coded in school catalogs as AFJROTC courses unless the individual school district requires AFJROTC courses to be coded in a particular manner. The course
description should clearly indicate that the course is offered by the AFJROTC department, accurately describe course content being taught for each course offered, and indicate the course is for AFJROTC students only.

Units are expected to teach AFJROTC course objectives and use the curriculum materials provided by Holm Center/DEJ. **EXTERNAL TEXTBOOKS/CONTENT ARE NOT AUTHORIZED AND CANNOT BE USED UNLESS PERMISSION IS GRANTED UTILIZING THE WAIVER PROCESS.** Teachers can use supporting materials (e.g., videos, exercises, games etc.) not provided by Holm Center/DEJ as long as those materials:

1. help the instructor accomplish the established course goals and objectives of the AFJROTC curriculum;
2. are **not more than 10% of the contact time** allotted for teaching the course;
3. are include the supplemental/supporting material when defining the unit course in WINGS.

Instructors choosing this option should keep in mind that supplemental/supporting materials **will not exceed 10% of instruction time without a waiver approved by Holm Center/DEJ**. The supplemental/supporting material approved by the Holm Center **must** be defined by going to WINGS | Curriculum | JROTC Unit Defined Curriculum. Using non-AFJROTC support materials falls under the category of personalizing your lesson plans, which is encouraged.

Academic Program

AFJROTC is a multiple year program option for high school students. The fifth year is available in schools that have eighth grade students eligible for the program (detailed below). The curriculum includes Aerospace Science, Leadership Education, and Wellness. All students must be given credit towards graduation for successful completion of the AFJROTC academic year per the Memorandum of Agreement (MOA). **Courses are designed for the cadet to complete in one academic year (or one semester in 4x4) of instruction in each grade level to meet Title 10 requirements.** Each academic course must consist of an AS component, LE/Drill component, and a Wellness component, except Core/Graduation Credit, Aviation Honors Ground School classes, and the stand-alone drill course. Cadets are expected to participate fully in the enrolled JROTC class, which includes attending all classes, wearing the uniform on designated uniform day(s), and participating in wellness/PT activities. **Independent study for cadets enrolled in JROTC classes is not an option.** While cadets do hold leadership positions and provide classroom assistance to instructors, Holm Center provided curriculum is required to be taught by AFJROTC instructors. If AFJROTC courses are to be loaded on school websites and/or Learning Management Systems (LMS), access to the content **MUST** be password protected.

Instructional Contact Hours

The minimum contact hours provided in the MOA are intended to ensure contact hours meet Title 10 requirements for school schedules. Instructors are expected to teach Holm Center Approved curriculum for the entire school year/term. **Outside curriculum exceeding 10% or additional outside classes must be approved by Holm Center Academic Affairs/DEJ (Curriculum Policy waiver) prior to adding any curriculum exceeding 10% or additional classes**.

8th Grade Cadet Inclusion/Enrollment criteria

Air and Space Force units can now enroll 8th grade students in the JROTC program. Units must send an email or memo stating the following criteria are met. The correspondence must be signed by both the middle and high school principals, and the Superintendent. Instructors with questions should contact their RD for guidance.

- The 8th grade school must be co-located, on the same campus as, within walking distance of the AFJROTC classroom - no transportation must be used for the students to attend the high school AFJROTC program (they must be able to safely walk to the high school).
- The School District/Superintendent and both Principals (8th grade and high school) must agree and sign the document.
- AFJROTC instructors will **NOT** travel to the 8th grade school (another campus)– the 8th grade cadets must attend AFJROTC in the high school with the high school cadets.
- 8th grade cadets will wear currently approved AFJROTC uniforms.
- The current curriculum will be utilized to teach 8th grade cadets (no new curriculum will be created).
- The 8th grade total student population will be included in the high school total for the purposes of viability (PSR). 8th grade cadets will be counted towards the 10% viability requirement.

- AFJROTC will continue to abide by the current policy on the number of required instructors per the number of unit cadets - now including 8th grade cadets.
- This is **NOT** a crosstown agreement.

Curriculum Waivers and Deviations

Cadets cannot be assigned to Unit Defined Courses that indicate a waiver is required (red "**X**" in any of the five rule boxes). Units must submit a waiver request to Holm Center/DEJ "Curriculum Policy" through the Unit Defined Course if a waiver is required **prior** to teaching the course.

IMPORTANT NOTE: A waiver required as indicated by a RED "X" MUST be submitted immediately! If a waiver is needed prior to submitting PSR enrollment numbers, units **MUST** submit their waiver request prior to 15 September for the October PSR and 15 January for the February PSR. Waivers not submitted by these suspense dates may not be reviewed prior to the PSR suspense date.

All waivers, regardless of subject, must be requested and approved in WINGS. **To assist in accurately submitting your unit waiver request, please view the "Defining Unit Course in WINGS" CBT available in the Curriculum SuperStore.** It provides comprehensive instructions on how to define unit courses (what you will teach in your classroom), how to submit a waiver request (justification and/or documentation for curriculum waiver) and explains when waivers will be returned. Most waivers should be submitted from the Unit Defined Course webpage within WINGS.

Units may be granted waivers to deviate or be exempt from policy (e.g., curriculum, ground school, wellness program, uniform, etc.). All waiver requests received in a particular month will be reviewed and staffed to the proper approval authority by the end of the next month. As soon as the convening board reaches a decision, units will be informed as to whether the waiver request is approved or denied.

NOTE: Most policy waivers approved by Holm Center/DEJ remain valid for a period of four full academic years after the date of approval. However, curriculum reset waiver requests are typically set at one or two academic years.

Aerospace Science (AS)

Aerospace Science acquaints students with the elements of aerospace and the aerospace environment. It introduces them to the principles of aircraft flight and navigation, the history of aviation, development of air power, contemporary aviation, human requirements of flight, cultural and global awareness, geography, the space environment, space programs, space technology, rocketry, propulsion, the aerospace industry, and survival.

Science, Technology, Engineering, and Math (STEM)

Science, Technology, Engineering, and Math is curriculum-based subject areas designed for students to better understand science and math related curriculum, improve critical thinking skills, and to help cadets be competitive in the emerging technological workplace. AFJROTC has established partnerships with organizations such Air Force Association (AFA), Civil Air Patrol (CAP), National Association Rocketry (NAR), and Academy of Model Aeronautics (AMA) to include STEM opportunities with AS curriculum.

AS STEM courses are provided to supplement, **NOT** replace Holm Center provided AS curriculum. STEM utilization rules and full descriptions of each of the offerings can be found beginning on page 70 of this guide.

Leadership Education (LE)

Leadership Education is the portion of the AFJROTC curriculum that develops leadership skills and acquaints students with the practical application of life skills. The leadership education curriculum emphasizes discipline, responsibility, leadership, followership, citizenship, customs and courtesies, cadet corps activities, study habits, time management, communication skills, career opportunities, life skills, financial literacy, management skills, and drill and ceremonies.

Leadership Education Electives (LE Electives)

Leadership Education electives are provided to allow more flexibility when Unit Defining Courses in WINGS. LE Electives are intended to build upon Holm Center provided leadership education and skills development curriculum. LE elective content will be identified and downloaded via the Curriculum SuperStore. LE Elective utilization rules and full descriptions of each offering can be found on page 97 of this guide.

Wellness Program (PT)

Wellness is an official and integral part of the Air Force Junior ROTC program. The objective of the Wellness Program is to motivate cadets to lead healthy, active lifestyles beyond program requirements and into their adult lives. For classes awarding elective or PE credit for AFJROTC courses, 20% of available contact time must be devoted to Wellness instruction. Units that cannot integrate Wellness into their classes due to inadequate or inaccessible gym facilities, or other reasons, **MUST** submit a waiver request to WINGS.

Units with core credit classes are encouraged to establish a Wellness program for their cadets outside normal classroom hours or during zero, lunch or after school periods. Further guidance for the AFJROTC Wellness (PT) program is provided in this guide on page 94. Additional information is in the Curriculum SuperStore. For immediate questions, contact your RD.

For schools awarding **elective credit** for AFJROTC courses, 40% of available contact time (contact hours) will focus on AS material, 40% on LE, and 20% on Wellness/PT. For units that award **core credit** such as science, history, geography, civics and government, or other core credit courses as defined by No Child Left Behind Act (NCLB), 60% of available contact time is to be spent teaching AS material and 40% on LE (or 60% on LE and 40% on AS, depending upon which component justifies the core or graduation required credit). In states where courses such as PE, Career Technical Education (CTE), Life Skills, Health, Freshman Orientation, or Financial Literacy, are considered graduation requirements, the curriculum division is expected to meet the 40%-40%-20% rule.

Units **must** submit a waiver request to Holm Center/DEJ identifying any required courses that will not include a Wellness component to warrant core credit. State/district mandated material to receive core credit should be included when defining the unit course in WINGS. Units receiving core graduation credit for courses are not to exceed 10% of outside/state mandated curriculum. Core graduation credit **must** be solely based on Holm Center provided curriculum. Required material included during daily classroom instruction that exceeds 10% of the Defined Course will be defined by going to WINGS | Curriculum | Define Unit Courses.

Drill and Ceremonies (Drill Curriculum; Cumulative)

Drill and Ceremonies is offered as a part of the Leadership Education content of a given course or can be taught as a zero-hour class or as an after school co-curricular activity. When Drill and Ceremonies is offered as part of Leadership Education, the drill portion **must not** exceed 50% of the LE component. If a cadet participates in Drill Team activities before or after school, they must also be enrolled in an AS/LE/WELL course to be counted as part of the unit's AFJROTC enrollment.

Aviation Honors Ground School (AHGS)

AHGS is taught as the AS component of an AFJROTC course replacing other AS curriculum for third- and fourth-year cadets only. AHGS should be taught as an "Honors" class; when honors credit is awarded, instructors may define this course in WINGS using the 60%-40% AS/LE mix. Enrollment is open to third- and fourth-year honor students the AFJROTC instructor determines has earned the opportunity to take the course. When the course receives "Honors" (e.g., advanced) credit, it **must** have principal approval. The course goal is for a student to receive honors level credit on his/her transcript and/or be prepared to take and pass the Federal Aviation Administration (FAA) written examination per requirement of the Federal Aviation Regulations CFR 61 (https://www.ecfr.gov/current/title-14/chapter-I/subchapter-D/part-61). Upon receiving a passing score on the FAA Private Pilot's Knowledge Exam, the instructor may request Ground School badges from HQ AFJROTC Logistics.

AHGS should only be taught by AFJROTC instructors who hold appropriate Ground School Instructor (AGI or BGI), FAA Certified Flight Instructor (CFI) certificates, or Air Force Form 8 indicating extensive aircrew instructor/evaluator experience. Instructors interested in offering an AHGS course must submit a request through WINGS (define unit course). Please ensure supporting documents (FAA certificates or AF Form 8) are attached prior to submitting waiver request. Waiver approval will be dependent upon Air Force flying or related experience. After gaining approval, units should download digital ground school materials from the Curriculum SuperStore.

NOTE: AHGS instructors who do not hold an AGI/BGI or CFI certification will be required to have an AGI/BGI or CFI certified instructor sign-off that the course meets FAA standards before cadets may take the FAA administered exam.

AFJROTC instructors may utilize an external AGI/BGI certified instructor (adjunct faculty) to teach AHGS. However, the individual must have school administration's approval to teach the course and his/her credentials must be attached to the waiver request when submitted in WINGS (define unit course) for approval.

Aviation Honors Ground School Prerequisite

Holm Center/DEJ *recommends* that cadets complete the AS 200: The Science of Flight: A Gateway to New Horizons 2nd edition content prior to taking the AHGS course. However, if the Senior Aerospace Science Instructor (SASI) concludes that a cadet is academically capable of successfully completing AHGS, the SASI may place the cadet in the AHGS course.

AFJROTC Honors Senior Project

NOTE: This content is currently under review.

This culminating (capstone) project is designed for cadets to demonstrate essential skills through reading, writing, speaking, production, and performance. Skills in analysis, logic, and creativity will also be showcased through successful completion of this project.

The Honors Project is primarily targeted for senior cadets in a three- or four-year program. However, it is not uncommon for other academically successful cadets enrolled in Advanced Placement, Honors, or in an International Baccalaureate program to successfully complete this project. To retain these cadets in the unit's AFJROTC program and to continue to improve their critical thinking and research skills, selected cadets with demonstrated academic capabilities may also enroll in this class with SASI approval. The honors project may be used as an AS substitution and taught as a 60%-40% curriculum mix when the following conditions are met:

- Course **must** receive Honors level credit from the school or district.
- Subject area for project **must** come from HQ's provided curriculum (AS or LE curriculum).
- Contact time cannot exceed 36 hours, or one semester equivalent.
- Course **must** have a LE/Drill component.

All materials including the grading rubric for the Honors Project is posted in WINGS | Published Files | Directory | JROTC | AFJROTC Curriculum | Honors Senior Project.

Career Technical Education (CTE)

CTE encompasses an assortment of educational programs that offer students experiences beyond that of the traditional school experience. In the US, approximately 12.5 million students participate in CTE programs that introduce them to workplace competencies and expose them to hands-on learning opportunities to prepare them for the 21st century, global workplace.

Currently, the US Department of Education recognizes 16 Career Clusters. States may develop and implement CTE programs of study in one or more of 16 career clusters that are recognized by the Office of Vocational and Adult Education (OVAE) and the National Association for State Directors of Career Technical Education Consortium (NASDCTEc). These 16 career clusters are occupational categories with industry-validated knowledge and skills statements that define what students need to know and be able to do to realize success in a chosen field. Within each of these clusters, programs of study (also called "career pathways") have been developed, which outline sequence of academic, career, and technical courses and training that begin as early as ninth grade and lead to progressively higher levels of education and higher-skilled positions.

The 16 Career Clusters in the National Career Clusters Framework represent 79 Career Pathways to assist learners in charting a course to college and career. A modernized career cluster framework is expected to be released in the Fall of 2024. More information regarding CTE clusters can be found here: https://careertech.org/career-clusters.

In September of 2021, the partnership between AFJROTC and the National Occupational Competency Institute (NOCTI) culminated in a CTE industry-based employment skills credential that directly reflects employability skills demonstrated by cadets. In states where AFJROTC falls under the CTE "umbrella," the credential typically aligns with the Government

and Public Administration Career Cluster; however, it should be noted that each state and school district have different CTE options.

Fourth year cadets are the target demographic for the **Leadership and Employability Skills** assessment primarily because the assessment material is derived from 3rd and 4th year curriculum. However, 3rd year cadets are eligible to take the assessment. This is a nationally recognized credential that measures the competencies needed for success in today's workplace. More information relating to the NOCTI credential is available in the Curriculum SuperStore via the Holm Center Portal.

Documentation that may benefit AFJROTC programs pursuing CTE are posted in the Curriculum SuperStore.

CTE Restrictions

As with earning other core/graduation credit, any CTE credit earned must be based on Holm Center provided curriculum unless a waiver has been granted. Earning CTE credit must not violate the agreed upon and signed MOA between HQ AFJROTC and the school district. These include but are not limited to the following:

1. SASI must maintain Department Chair status.
2. AFJROTC must maintain its separate and equal department status.
3. Holm Center approved curriculum must be taught at all times unless a waiver has been granted.
4. All students taught by AFJROTC instructors must be enrolled in JROTC – **no exceptions**.
5. Cadets **WILL NOT** be compelled to take the ASVAB CEP as part of the AFJROTC curriculum or end of course/completer assessment.

Dual-Enrollment Course Opportunities

Dual-enrollment courses are an excellent way for qualifying students to explore an opportunity to earn college credit while still in high school. Many AFJROTC units created dual-enrollment agreements with local community colleges. By participating in these programs with local community colleges, cadets can earn college level credit while meeting high school graduation requirements. Instructors are encouraged to seek out these local opportunities, keeping in mind that the subject-matter of the dual-enrollment course should align with AFJROTC curriculum.

Many four-year universities are also offering dual-enrollment course opportunities for JROTC. Embry-Riddle Aeronautical University (ERAU) Worldwide campus and Gaetz Aerospace Institute are creating these same opportunities for qualified instructors and cadets. The advantage of ERAU's Worldwide and Gaetz Institute dual-enrollment offerings is that a qualifying instructor is considered an adjunct professor, keeping the cadet in class (not losing her/him to an off-campus program).

- Instructors interested in creating dual-enrollment courses must keep in mind that these opportunities are not for every cadet. These are college level courses, and some dual-enrollment programs have established minimum GPA requirements. If not, **cadet overall GPA must be considered prior to enrollment**.
- Dual-enrollment courses taught by JROTC instructors are for **JROTC cadets only**! A student must be enrolled in JROTC to be taught by a JROTC instructor. JROTC instructors

will be required to establish separate classes for dual-enrollment courses; blended courses will not be offered in the same class, and **independent study is not permitted**.

- Dual-enrollment courses **will not** be offered as an online course unless approved through curriculum policy waiver.

Blended Courses

Blended courses are permitted; however, instructors **MUST** ensure that no content is offered as an independent study option. A **blended course** is defined as a course that combines lessons from two or more authorized AFJROTC courses into one course. For example, a blended Aerospace Science course may contain lessons from *Exploring Space: The High Frontier; The Science of Flight: A Gateway to New Horizons,* and *An Introduction to Global Awareness* all taught in the same academic year, or in the case of block/trimester schedules, during the same term. The Leadership Education portion may consist of portions from LE 100, LE 200, LE 300 and/or LE 400.

Blended Classes

Blended classes are also permitted. **Blended classes** are defined as scheduled classes that may contain 9th, 10th, 11th, or 12th graders all together in the same class. Blended classes offer the opportunity to consolidate curriculum instruction such as teaching all cadets the same curriculum each year. Blended classes in which first-year cadets are enrolled must contain portions of the LE 100 curriculum such as chapter one, to teach the fundamentals of the AFJROTC program or provisions may be made to offer the LE 100 curriculum separately to those cadets. Refer to Sample Seven-Year Curriculum Plans provided in this guide.

Restriction: AS 400: Management of the Cadet Corps is reserved for cadet corps staff members; instructors **must** ensure only cadet corps staff members take this course. For additional guidance on AS 400, please refer to page 63 of this Guide. Repeating curriculum material is **not authorized** for blended classes IAW AFJROTCI 36-2010.

Course Offerings

Instructors must teach from current curriculum materials as defined in this guide. All units have the option to determine which AS and LE courses to offer to first-, second-, third- and fourth-year cadets. The options to select from are:

Aerospace Science

- *AS 100: Milestones Aviation History (2nd edition)*
- *AS 200: The Science of Flight: A Gateway to New Horizons (2nd edition)*
- *AS 220: An Introduction to Global Awareness (2nd edition)*
- *AS 300: Exploring Space: The High Frontier (2nd edition)*
- *AS 400: Management of the Cadet Corps*
- *AS 410: Survival: Survive • Return*
- *AS 500: Aviation Honors Ground School*
- *AS 510: AFJROTC Honors Senior Project*
- *AS STEM 1: Unmanned Aerial Vehicles (UAVs)/Quadcopters*
- *AS STEM 2: Model and Remote-Control Aircraft*
- *AS STEM 3: Weather Station "Air Environment" (Weather Forecasting)*
- *AS STEM 4: Astronomy*
- *AS STEM 5: Flight Simulator*
- *AS STEM 6: StellarXplorers*
- *AS STEM 7: CyberPatriot*
- *AS STEM 8: Introduction to CyberSecurity*
- *AS STEM 9: Cyber Literacy*
- *AS STEM 10: Introduction to Robotics*
- *AS STEM 11: Model Rocketry (Basic)*
- *AS STEM 12: Model Rocketry (Advanced)*

Leadership Education

- *LE 100: Traditions, Wellness, and Foundations of Citizenship*
- *LE 200: Communication, Awareness, and Leadership (2nd edition)*
- *LE 300: Life Skills and Career Opportunities*
- *LE 400: Fundamentals of Management*
- *Drill Curriculum (Cumulative)*
- *ELECTIVE 1: Unlocking Your Potential (UYP)*
- *ELECTIVE 2: National Endowment for Financial Literacy (NEFE)**
- *ELECTIVE 3: Congressional Medal of Honor Foundation (MHF)*
- *ELECTIVE 4: Pennsylvania Veterans Museum (PVM)*
- *ELECTIVE 5: Veterans National Education Program (VNEP)*
- *ELECTIVE 6: Cadet Guide/Handbook*
- *ELECTIVE 7: College Options SAT/ACT Prep*
- *ELECTIVE 8: Financial Readiness*
- *ELECTIVE 9: Consumer Financial Protection Bureau (CFPB): Youth Financial Education Program*
- *ELECTIVE 10: What Now JROTC Cadet*
- *ELECTIVE 11: Intuit Financial Readiness*

*Note that the NEFE's High School Financial Planning Program was retired on 31 July 2021. However, the current content remains available and licensed for AFJROTC use. NEFE content is available digitally via the Curriculum SuperStore.

It is possible for units on nontraditional schedules (4x4 Block) teaching the AFJROTC basic courses to have cadets complete the program in two years. Cadets completing the program in two years is not recommended and should **not** be encouraged. The creation of blended courses and extending the contact time for course chapters/lessons allows units to create more course options resulting in cadets remaining in the program for three or four years. However, instructors **must** ensure the amount of material taught adequately covers the textbook. In other words, teaching one lesson or chapter for the entire school year or term is unacceptable.

Instructors should keep cadet reading levels in mind when selecting the courses offered in any given academic term. The higher the AS or LE course number, generally the content covered becomes more complex and technical. Many lower reading level students will have difficulty reading and comprehending some of the upper-level material such as the *Exploring Space: The High Frontier 2nd Edition* course. New units are encouraged to offer *AS 100: Milestones in Aviation History* and *LE-100: Traditions, Wellness, and Foundations of Citizenship* to all first-time cadets.

Units may use Blended Classes to group first-, second-, third- and/or fourth-year cadets in the same AS and LE course to reduce scheduling issues and to take advantage of the mentoring potential provided by upper-level cadets. If this option is chosen, instructors must ensure the same aerospace science and leadership education courses are not offered in successive years. Over a period of three or four years, cadets must receive different AS and LE courses and be precluded from signing up for the same course twice during their years in AFJROTC.

Current Curriculum Material

The following curriculum materials are considered active (current) as of August 2024. The listing below only includes the "core" AS/LE courses and therefore is not an exhaustive list of the HQ curriculum provided. To view the entire list of active curricula, select the **Curriculum Tile** in WINGS, and then select the **JROTC HQ Provided Curriculum Tab** in the top left corner (ensure the status selection is set to "Active"). Curriculum **NOT** listed as active HQ Provided Curriculum is **NO LONGER AUTHORIZED. NOTE: Outdated and obsolete curriculum WILL NOT be retained as reference material.**

Aerospace Science

Curriculum ID	Curriculum Year	Curriculum Name
AS100 2nd Ed.	2018	Milestones in Aviation History 2nd Ed.
AS200 2nd Ed.	2023	Science of Flight: A Gateway to New Horizons 2nd Ed.
AS220 2nd Ed.	2022	An Introduction to Global Awareness
AS300 2nd Ed.	2021	Exploring Space: The High Frontier 2nd Ed.
AS400	2010	Management of the Cadet Corp
AS410	2010	Survival

Leadership Education

Curriculum ID	Curriculum Year	Curriculum Name
LE100	2016	Traditions, Wellness, and Foundations of Citizenship
LE200 2nd Ed.	2017	Communications, Awareness, and Leadership
LE300	2013	Life Skills & Career Opportunities
LE400 1st Ed.	2020	Fundamentals of Management

Disposal of Obsolete and Unnecessary Curriculum Material

Outdated and obsolete curriculum materials will be disposed of via one of the options listed below. No specific documentation is required when these disposal actions are taken. Here are a few guidelines (not exhaustive):

1. Donate to the host school library or another academic department
2. Donate to any public or private school library
3. Donate to another public or private high school
4. Donate to any other publicly funded entity
5. Recycle via a local recycling program (**does not** include landfill disposal)

Because curriculum is available digitally, units may decide to dispose of textbooks and other previously printed material currently in inventory. In this case, disposal of curriculum materials should be done at the local level. Donate or dispose of according to local school procedures.

GETTING STARTED

Overview of the Curriculum

The AFJROTC curriculum consists of digital textbooks and Instructor Guides with the lesson content and materials necessary to teach the courses. Over the past 10 years, the curriculum has transformed from a 20th century "teacher-centered" traditional learning environment and lecture mode to a "learner-centered" 21st-century approach. Consequently, the curriculum has evolved into engaging, student-centered courses capable of satisfying elective—*and in certain situations*—core credit requirements.

Course Structure

The basic structure of the courses depends on when each course was created. Courses created through 2008 were written in the original 20th century teacher-centered format, courses created in 2010 and beyond were transformed into the 21st-century learner-centered format, and courses created 2012 and later incorporate the Revised Bloom's and Worldwide Instructional Design System (WIDS®) format.

- 21st-century Format, Learner-Centered (Publication Dates: 2010 thru present): AS 100, AS 200 2nd Ed, AS 220 2nd Ed, AS 300 2nd Ed, LE 100, LE 200, LE 300, and LE 400 1st Ed

AFJROTC Curriculum	Pub Year	LP Format	Test Bank Files	Companion Website	IDP (E-Book)
AS 100: Milestones in Aviation History, 2nd Ed.	2017	+♦21st	X	X	
AS 200: The Science of Flight: Gateway to New Horizons, 2nd Ed.	2023	+♦21st	X		X
AS 220: Cultural Studies: An Intro to Global Awareness, 2nd Ed.	2022	+♦21st	X		X
AS 300: Exploring Space: The High Frontier 2nd Ed.	2020	+♦21st	X		X
LE 100: Traditions, Wellness, and Foundations of Citizenship	2015	+♦21st	X	X	
LE 200: Communication, Awareness, and Leadership 2nd Ed.	2017	+♦21st	X	X	
LE 300: Life Skills and Career Opportunities	2013	+♦21st	X	X	
LE 400: Fundamentals of Management, 2nd Ed.	2019	+♦21st	X		X

X = Yes

+ = WIDS Lesson Plan Format

♦ – CPS/NXT/TPC Database with Questions Embedded in the LPs

X = Interactive Digital Publication (E-Book) provided – no longer require a username/password

X = Companion website login instructions provided via Quick Reference Guide (available in Curriculum SuperStore)

Curriculum Models

Each academic course must consist of AS, LE, and Wellness components, except where a unit waiver is approved. Defined courses are designed for the cadet to receive one academic year of instruction to meet Title 10 requirements. A model Defined Course should target 180 contact hours of instruction, if not possible, courses must consist of a ***minimum of 120 contact hours*** (contact time) for the academic year. As described in the Curriculum Guidance section, courses awarding **elective** credit should use a 40%-40%-20% curriculum model for each semester/term of instruction. However, there are more flexible options (see below). Units that award **core** credit use a 60%- 40% model for each semester/term. In both models, the Drill and Ceremonies portion of Leadership Education must not exceed 50% of the LE component. You will develop these courses in WINGS | Curriculum | Define Unit Courses | Add New Value.

Instructional Contact Hours

The minimum contact hours provided in the MOA are intended to ensure contact hours meet Title 10 requirements for school schedules. Instructors are expected to teach Holm Center approved curriculum for the entire school year/term. Outside curriculum exceeding 10% or additional outside classes must be approved by Holm Center Academic Affairs/DEJ (Curriculum Policy waiver) prior to adding any curriculum exceeding 10% or additional classes.

The Standard Curriculum Model (40%-40%-20%)

Units that teach the course for **elective** credit use this model. Typically, the contact time focuses on 40% AS material, 40% LE (includes 20% of LE 100, 200, 300, or 400 and 20% Drill Curriculum Cumulative), and 20% on Wellness/PT. In 2021, flexibility was introduced into this model to customize curriculum to meet the developmental needs of your cadet corps. You may adjust your AS and LE ratios as you see fit, maintaining a **minimum of 20% in each area (60% maximum)**. Additionally, you must maintain 20% in Wellness. For example:
Situation #1: AS 20%, LE 60% (or vice versa) & Wellness 20%
Situation #2: AS 30%, LE 50% (or vice versa) & Wellness 20%

Contact hours (contact time) for the 40%-40%-20% elective credit classes are:

Aerospace Science	**Hours**
AS 100: Milestones in Aviation History 2nd Ed.	72
AS 200: The Science of Flight: A Gateway to New Horizons 2nd Ed.	72
AS 220: Cultural Studies: An Introduction to Global Awareness 2nd Ed.	72
AS 300: Exploring Space: The High Frontier 2nd Ed.	72
AS 400: Management of the Cadet Corps	72
AS 410: Survival	72
AS 500: Aviation Honors Ground School	36
AS 510: Honors Senior Project	36
AS STEM Courses	18

Leadership Education	**Hours**
LE 100: Traditions, Wellness, and Foundations of Citizenship	40
LE 200: Communication, Awareness, and Leadership 2nd Ed.	40
LE 300: Life Skills and Career Opportunities	40
LE 400: Fundamentals of Management	40
Drill Curriculum: Cumulative	18
LE ELECTIVES	18
Wellness (PT)	36

The "Core" Credit Curriculum Model (60%-40%)

In schools where **core credit** is awarded, 60% of available contact time per semester/term may be spent teaching AS material and 40% on LE (or 60% on LE and 40% on AS, depending upon which component justifies the awarded core credit) for each semester/term the course is taught. Core credit is to be based solely on the content of the AFJROTC curriculum and not based on the use of outside supplemental curriculum.

Instructors including state/district mandated material to receive core credit must include the amount of this material when defining the unit course in WINGS. Maximum contact hours (contact time) for core credit classes are:

Aerospace Science	Hours
AS 100: Milestones in Aviation History 2nd Ed.	108
AS 200: The Science of Flight: A Gateway to New Horizons 2nd Ed.	108
AS 220: Cultural Studies: An Introduction to Global Awareness 2nd Ed.	108
AS 300: Exploring Space: The High Frontier 2nd Ed.	108
AS 400: Management of the Cadet Corps	108
AS 410: Survival: Survive • Return	108
AS 500: Aviation Honors Ground School	108
AS 510: Honors Senior Project	36
AS STEM Courses	18

Leadership Education	Hours
LE 100: Traditions, Wellness, and Foundations of Citizenship	40
LE 200: Communication, Awareness, and Leadership 2nd Ed.	40
LE 300: Life Skills and Career Opportunities	40
LE 400: Fundamentals of Management	40
Drill Curriculum: Cumulative	36
LE ELECTIVES	18

Every Student Succeeds Act (ESSA)

The Every Student Succeeds Act (ESSA) is the main federal law for K–12 general education. It covers all students in public schools. When it was passed in 2015, ESSA replaced the No Child Left Behind (NCLB). States are responsible for holding schools accountable for student achievement. The law provides a framework, but it's a flexible framework. Each state can set its own goals for student achievement within that federal framework.

With the implementation of ESSA guidelines and requirements in every state, here are some things that have impacted our education system:

- ESSA encourages new measures of school success
- Standardized testing continues, but with more flexibility for schools
- Fresh focus on literacy in schools
- More innovative instruction based on student-centered approaches
- Teacher qualifications and training will vary from state to state
- Parents play an even bigger role

The application of ESSA at the state level may impact both graduation requirements and the types of credit awarded on the student transcript. **Core credit** options may be an option for your cadets, however, speaking with your counselor and/or administration is the first step in determining what is available to the cadets at your school.

Seven-Year Curriculum Plan

Each unit should develop and maintain a complete seven-year curriculum plan. This plan displays the courses used for the current academic year, the previous three academic years, and courses projected for the future three academic years. The seven-year curriculum plan visually depicts how the unit ensures a cadet ***will not*** repeat the same course content (specific units and/or chapters) over their entire period of enrollment in AFJROTC. **Cadets will not take the same chapter/lesson twice without curriculum waiver approval.** Units must carefully consider the content used during the past three academic years to avoid any cadets repeating curriculum.

Although the 7-year plan is no longer an inspectable item during an assessment, it may be reviewed by the RDs during their visits to ensure instruction is proceeding as planned, and that the unit is not deviating from the intent of the AFJROTC curriculum program. The basic layout of "sample" templates for Blended Classes, Traditional, A/B, 4X4, Block, and Trimester schedules for curriculum planning are posted in the Curriculum SuperStore.

Each sample curriculum plan template will show an outline of how courses or parts thereof are to be taught, by cadet year: Traditional, Block, or Trimester. Scanning down a column will show how many and which AS and LE courses are being taught during a particular term or year. Scanning diagonally downward and to the right will show a particular student's progress through four different sets of AFJROTC courses.

Use the sample templates provided to create your own plans. Replicate the applicable template and fill in the planned courses in the appropriate columns for each cadet year group. Next, describe the STEM, electives, blending plans, and cadets to be taught. This curriculum planning format is not the only way to show curriculum sequence, but it is provided as an example of an acceptable plan. If the plan devised by a unit meets the requirements stipulated or the unit obtains a waiver from DEJ, the exact curriculum planning format used is not important.

The following applies to all templates:

1. DEJ-provided curriculum is the predominate courseware used to teach each class (otherwise an approved waiver must be on file).
2. Core credit is to be based solely on the content of the AFJROTC curriculum and not based on the use of outside supplemental curriculum.
3. For core credit classes, AS/LE mix may be 60%-40% to meet core credit requirements.
4. Authorized supplemental material includes any DEJ-provided supporting materials or related outside videos, news articles, activities, games, etc. (if more than 10% is used, a waiver is required).
5. LE and AS material is blended within each course, with a wellness component being taught 20% of the time each week, to provide a 40%-40%-20% mix (2 days AS, 2 days LE/Drill, and 1-day Wellness per week).
6. First year cadets should be grouped together for LE 100/AS 100 classes and should be taught introductory material.
7. Upper class cadets may be grouped together for other AS and LE courses.
8. Selected upper class cadets are enrolled in AS-400: Management of the Cadet Corps, instead of classes listed.

9. Selected 11th and 12th grade honor students may be enrolled in AS-500, Aviation Honors Ground School, instead of in AS courses listed.
10. Class sizes are determined by SASI or ASI.
11. Units in blended classes should teach all grade levels on rotational AS/LE schedule instead of trying to teach each level a different AS/LE course, unless grade levels can be separated into different classrooms.
12. Sample curriculum plans incorporate DEJ-provided electives into the LE components to illustrate how this may be done.

Creating Unit Defined Courses in WINGS

As stated earlier, the curriculum provided by the Holm Center Academic Affairs Directorate may be augmented by school requirements and/or instructor preferences (e.g., customization of curriculum and/or unit-defined curriculum). In WINGS, the "Define Unit Courses" module is designed to help you create, organize, and track the curriculum that is being presented to your cadets. It will also assist you in determining when a waiver is required (red **X** in any of the fields). In addition, this tool allows AFJROTC instructors an electronic mechanism to create curriculum plans with enhanced capabilities. This tool will assist you in defining your courses from a seven-year curriculum plan, customize unit defined curriculum, create classes by rostering students to courses (enabling you to run reports with student course completion), and easily track contact hours.

Unit Defined Courses are designed for the cadet to receive one year of instruction to meet Title 10 requirements. **Additionally, when defining Traditional, Trimester, and A/B courses, courses must be defined by semester. For 4X4 and Block schedules, each course will be defined as a term.** These capabilities are important for the future of AFJROTC regarding student completion certification, graduation, and accreditation.

To access this section, go to: WINGS | Curriculum | Define Unit Courses

Important Things to Remember:

- When defining a course, be mindful of your curriculum mix. A red X is an indicator that a waiver is required.
- When required, submit curriculum waiver request via the Defined Unit Course.
- Curriculum model percentages do not have to be exact; you are allowed +/- 4%.
- Drill **WILL NOT EXCEED** more than 50% of the LE component. (Unless a waiver has been approved).
- STEM and LE Electives may supplement Holm Center curriculum, **NOT** replace it.

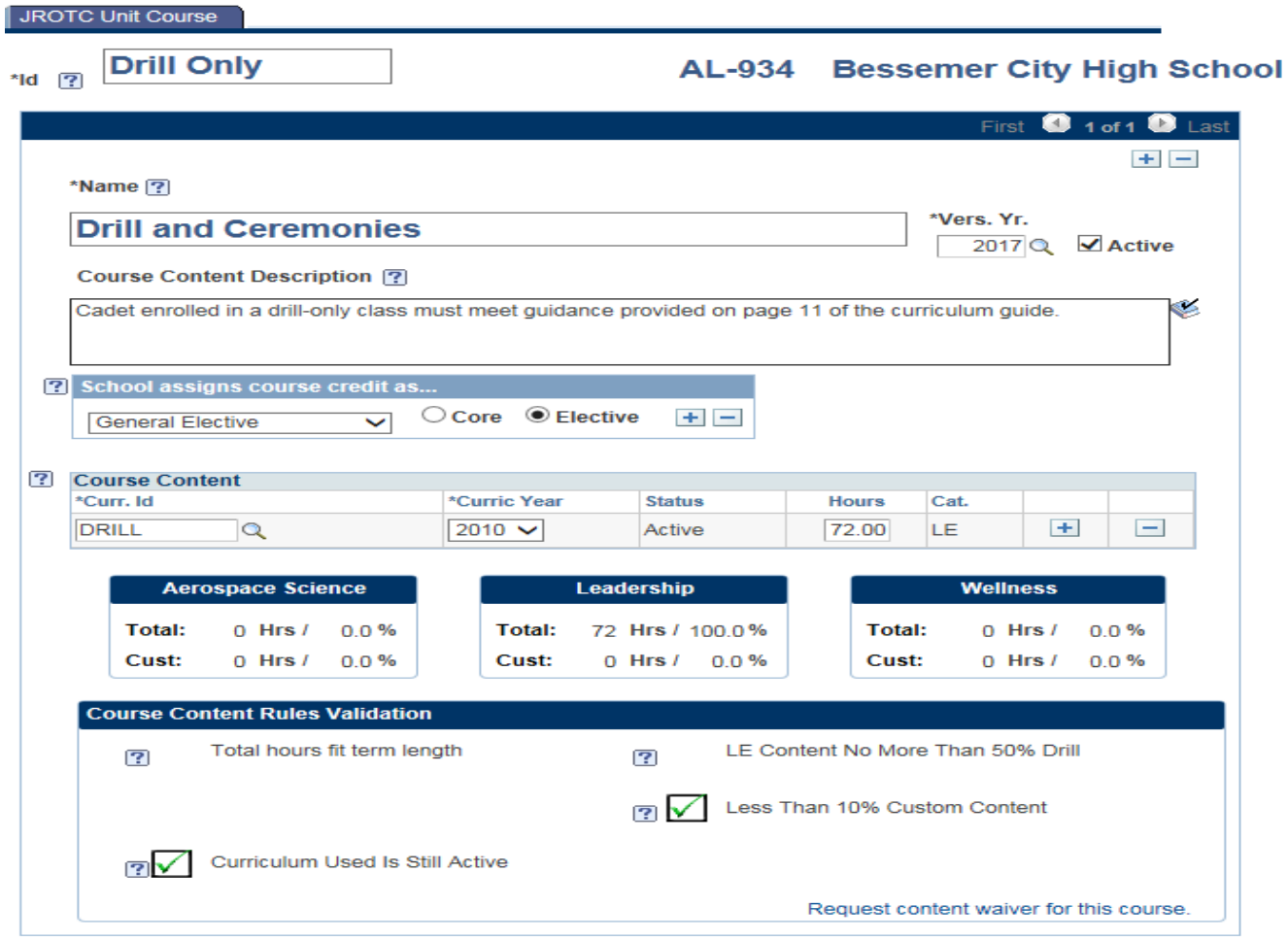
Defined Unit Course Entry for Drill & Sample "Drill Only"

Drill Only Class

The Drill and Ceremonies course may also be taught as a stand-alone course if the following criteria are met:

- **Students enrolled in a drill-only class must be concurrently enrolled in a regular AS/LE/ Wellness class**; at 4x4 block scheduled schools, enrollment in a standard AS/LE/WELL class during the first block is a prerequisite to enrollment in a stand-alone drill class during the second block.
- The Drill-only class must be recognized for graduation credit (elective) by the school.
- The Drill-only class does not count toward the unit viability or AFJROTC Certificate of Completion.

Defined Unit Course for "Drill Only"



Sample Curriculum Plan Template for Blended Classes (Grades 9 – 12) TRAD / AB

CADET YEAR	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Spring 2023	Fall 2023	Spring 2024	Fall 2024	Spring 2025	Fall 2025	Spring 2026	Fall 2026	Spring 2027	Fall 2027
1- 4	AS-220 Ch 3 - 4	AS-410 Units 1 - 2	AS-410 Unit 3 - 4	AS-100 Ch 1 - 3	AS-100 Ch 4 - 6	AS-200 Ch 1 – 2+ STEM 1	AS-200 Ch 3 – 4 STEM 5	AS-220 Ch 1 - 2	AS-220 Ch 3 - 4	AS-100 Ch 1 - 3	AS-100 Ch 4 - 6	AS-200 Ch 1 – 2+ STEM 1	AS-200 Ch 3 – 4 STEM 5	AS-220 Ch 1 - 2
	LE-200 Ch 7 - 8+ E7: CO Drill + Wellness	LE-300 Ch 3-7+ LE-100 * Ch 1+ Drill + Wellness	LE-300 Ch 1-2+ E2: NEFE Drill + Wellness	LE-100 Ch 1- 2+ E6: CG Drill + Wellness	LE-100 Ch 3 - 4+ E1: UYP+ Drill + Wellness	LE 200 Ch 1 – 2+ LE-100 * Ch 1+ Drill + Wellness	LE-200 Ch 3 - 4+ E3: MOH Drill + Wellness	LE200 Ch 5-6 LE-100 * Ch 1 + Drill + Wellness	LE-200 Ch 7- 8+ E7: CO Drill + Wellness	LE-100 Ch 1- 2+ E6: CG Drill + Wellness	LE-100 Ch 3 - 4+ E1: UYP+ Drill + Wellness	LE 200 Ch 1 – 2+ LE-100 * Ch 1+ Drill + Wellness	LE-200 Ch 3 - 4+ E3: MOH Drill + Wellness	LE200 Ch 5-6 LE-100 * Ch 1 + Drill + Wellness
Cadet Corps Staff	AS-400 Units c – d	AS-400 Units a - b	AS-400 Units c – d	AS-400 Units a – b	AS-400 Units c – d	AS-400 Units a – b	AS-400 Units c – d	AS-400 Units a – b	AS-400 Units c – d	AS-400 Units a – b	AS-400 Units c – d	AS-400 Units a – b	AS-400 Units c – d	AS-400 Units a – b
	LE-200 Ch 7 - 8+ E7: CO Drill + Wellness	LE-300 Ch 3-7+ LE-100 * Ch 1+ Drill + Wellness	LE-300 Ch 1-2+ E2: NEFE Drill + Wellness	LE-100 Ch 1- 2+ E6: CG Drill + Wellness	LE-100 Ch 3 - 4+ E1: UYP+ Drill + Wellness	LE 200 Ch 1 – 2+ LE-100 * Ch 1+ Drill + Wellness	LE-200 Ch 3 - 4+ E3: MOH Drill + Wellness	LE200 Ch 5-6 LE-100 * Ch 1 + Drill + Wellness	LE-200 Ch 7- 8+ E7: CO Drill + Wellness	LE-100 Ch 1- 2+ E6: CG Drill + Wellness	LE-100 Ch 3 - 4+ E1: UYP+ Drill + Wellness	LE 200 Ch 1 – 2+ LE-100 * Ch 1+ Drill + Wellness	LE-200 Ch 3 - 4+ E3: MOH Drill + Wellness	LE200 Ch 5-6 LE-100 * Ch 1 + Drill + Well ness
AHGS Course	AS-500 Parts 3-5 FAA Exam	AS-500 Parts 1-3	AS-500 Parts 3-5 FAA Exam	AS-500 Parts 1-3	AS-500 Parts 3-5 FAA Exam	AS-500 Parts 1-3	AS-500 Parts 3-5 FAA Exam	AS-500 Parts 1-3	AS-500 Parts 3-5 FAA Exam	AS-500 Parts 1-3	AS-500 Parts 3-5 FAA Exam	AS-500 Parts 1-3	AS-500 Parts 3-5 FAA Exam	AS-500 Parts 1-3
	LE-200 Ch 7 - 8+ E7: CO Drill + Wellness	LE-300 Ch 3-7+ LE-100 * Ch 1+ Drill + Wellness	LE-300 Ch 1-2+ E2: NEFE Drill + Wellness	LE-100 Ch 1- 2+ E6: CG Drill + Wellness	LE-100 Ch 3 - 4+ E1: UYP+ Drill + Wellness	LE 200 Ch 1 – 2+ LE-100 * Ch 1+ Drill + Wellness	LE-200 Ch 3 - 4+ E3: MOH Drill + Wellness	LE200 Ch 5-6 LE-100 * Ch 1 + Drill +Wellness	LE-200 Ch 7- 8+ E7: CO Drill + Wellness	LE-100 Ch 1- 2+ E6: CG Drill + Wellness	LE-100 Ch 3 - 4+ E1: UYP+ Drill + Wellness	LE 200 Ch 1 – 2+ LE-100 * Ch 1+ Drill + Wellness	LE-200 Ch 3 - 4+ E3: MOH Drill + Wellness	LE200 Ch 5-6 LE-100 * Ch 1 + Drill +Wellness

NOTES:

- Introductory AS/LE course material should be taught during the first semester or block.
- ***** Repeat LE100, Chapter 1 for Blended Classes containing first year cadets is authorized.
- **LE ELECTIVES:** Guidance for using LE Electives can be found in this guide.
- **AS STEM:** Guidance for using (STEM) opportunities can be found in this guide.
- **AS 400:** Intended for 4th year cadets who hold corps management positions.
- **AS 500: Aviation Honors Ground School (AHGS)** Guidance for this course is found in this guide.

Sample Curriculum Plan Template for "Traditional, A/B Schedule"

CADET YEAR	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Spring 2023	Fall 2023	Spring 2024	Fall 2024	Spring 2025	Fall 2025	Spring 2026	Fall 2026	Spring 2027	Fall 2027
1	AS-100 Ch 4 & 6 + STEM 1	AS-100 Ch 1-2	AS-100 Ch 4 & 6 + STEM 1	AS-100 Ch 1-2	AS-100 Ch 4 & 6 + STEM 1	AS-100 Ch 1-2 +	AS-100 Ch 4 & 6 + STEM 1	AS-100 Ch 1-2	AS-100 Ch 4 & 6 + STEM 1	AS-100 Ch 1-2 +	AS-100 Ch 4 & 6 + STEM 1	AS-100 Ch 1-2	AS-100 Ch 4 & 6 + STEM 1	AS-100 Ch 1-2
	LE-100 Ch 4 - 5+ E1: UYP+ Drill + Wellness	LE-100 Ch 1-3+ Drill + Wellness	LE-100 Ch 4 - 5+ E1: UYP+ Drill + Wellness	LE-100 Ch 1-3+ Drill + Wellness	LE-100 Ch 4 - 5+ E1: UYP+ Drill + Wellness	LE-100 Ch 1-3+ Drill + Wellness	LE-100 Ch 4 - 5+ E1: UYP+ Drill + Wellness	LE-100 Ch 1-3+ Drill + Wellness	LE-100 Ch 4 - 5+ E1: UYP+ Drill + Wellness	LE-100 Ch 1- 2+ E6: CG Drill + Wellness	LE-100 Ch 3-4+ Drill + Wellness	LE-100 Ch 1-3+Drill + Wellness	LE-100 Ch 4 - 5+ E1: UYP+ Drill + Wellness	LE-100 Ch 1- 3+ Drill + Wellness
2	AS-200 Ch 3 – 4 STEM 2	AS-200 Ch 1 + STEM 5	AS-200 Ch 3 – 4 STEM 2	AS-200 Ch 1 + STEM 5	AS-200 Ch 3 – 4 STEM 2	AS-200 Ch 1 + STEM 5	AS-200 Ch 3 – 4 STEM 2	AS-200 Ch 1 + STEM 5	AS-200 Ch 3– 4 STEM 2	AS-200 Ch 1 + STEM 5	AS-200 Ch 3 – 4 STEM 2	AS-200 Ch 1 STEM 5	AS-200 Ch 3– 4 STEM 2	AS-200 Ch 1 STEM 5
	LE-200 Ch 4 & 6+ E3: MHF Drill + Wellness	LE-200 Ch 1 - 2+ Drill + Wellness	LE-200 Ch 4 & 6+ E3: MHF Drill+ Wellness	LE-200 Ch 1 - 2+ Drill + Wellness	LE-200 Ch 4 & 6+ E3: MHF Drill+ Wellness	LE-200 Ch 1 - 2+ Drill + Wellness	LE-200 Ch 4 & 6+ E3: MHF Drill+ Wellness	LE-200 Ch 1 - 2+ Drill	LE-200 Ch 4 & 6+ E3: MHF Drill + Wellness	LE-200 Ch 1 - 2+ Drill + Wellness	LE-200 Ch 4 & 6+ E3: MHF Drill+ Wellness	LE-200 Ch 1 - 2+ Drill + Wellness	LE-200 Ch 4 & 6 E3: MHF Drill	LE-200 Ch 1-2+ Drill + Wellness
3	AS-220 Ch 1+ AS510	AS-300 Unit 1+ STEM 11	AS-300 Unit 4+ STEM 12	AS-220 Ch 2- 3	AS-220 Ch 1 + AS510	AS-300 Unit 1+ STEM 11	AS-300 Unit 4+ STEM 12	AS-220 Ch 2- 3	AS-220 Ch 1+ AS510	AS-220 Ch 1- 3	AS-220 Ch 4- 6 AS 510	AS-300 Unit 1+ STEM 11	AS-300 Unit 4+ STEM 12	AS-220 Ch 2- 3
	LE-300 Ch 3 - 7+ Drill + Wellness	LE-300 Ch 1 - 2+ E2: NEFE+ Drill + Wellness	LE-300 Ch 3 - 7+ Drill + Wellness	LE-300 Ch 1 - 2+ E2: NEFE+ Drill + Wellness	LE-300 Ch 3 - 7+ Drill + Wellness	LE-300 Ch 1 - 2+ E2: NEFE+ Drill + Wellness	LE-300 Ch 3 - 7+ Drill + Wellness	LE-300 Ch 1 - 2+ E2: NEFE+ Drill +	LE-300 Ch 3 - 7+ Drill + Wellness	LE-300 Ch 1 - 2+ E2 NEFE + Drill + Wellness	LE-300 Ch 3 -7+ Drill + Wellness	LE-300 Ch 1 - 2+ E2: NEFE+ Drill +	LE-300 Ch 3 - 7+ Drill+ Wellness	LE-300 Ch 1-2+ E2: NEFE+ Drill +
Corps Staff Only	AS-400 Unit c – d	AS-400 Unit a - b	AS-400 Unit c – d	AS-400 Unit a – b	AS-400 Unit c – d	AS-400 Unit a – b	AS-400 Unit c – d	AS-400 Unit a – b	AS-400 Unit c – d	AS-400 Unit a – b	AS-400 Unit c – d	AS-400 Unit a – b	AS-400 Unit c – d	AS-400 Unit a – b
4	AS – 220 Ch 4 + AS 510	AS-300 Unit 2+ STEM 11	AS-300 Unit 4+ STEM 12	AS-220 Ch 1- 3	AS-220 Ch 4+ AS 510	AS-300 Unit 2+ STEM 11	AS-300 Unit 4+ STEM 12	AS-410 Units 1 - 2	AS-410 Units 3 - 4	AS-410 Units 1 - 2	AS-410 Units 3 - 4	AS-300 Unit 2 + STEM 11	AS-300 Unit 3 - 4 STEM 12	AS – 220 Ch 1 - 2
	LE-400 Unit 3 – 4+ Drill + Wellness	LE-400 Unit 1 – 2+ Drill	LE-400 Unit 3 – 4+ Drill	LE-400 Unit 1 – 2+ Drill + Wellness	LE-400 Unit 3 – 4+ Drill + Wellness	LE-400 Unit 1- 2+ Drill	LE-400 Unit 3– 4+ Drill	LE-400 Unit 1 – 2+ Drill + Wellness	LE-400 Unit 3 – 4+ Drill + Wellness	LE-400 Unit 1 – 2+ Drill + Wellness	LE-400 Unit 1 – 2+ Drill + Wellness	LE-400 Unit 1- 2+ Drill	LE-400 Unit 3– 4+ Drill	LE-400 Unit 1 – 2+ Drill + Wellness

- Introductory AS/LE course material should be taught during the first semester or block.
- Scanning down diagonally to the right will show a particular cadet's progress through four different sets of AFJROTC courses.
- **LE ELECTIVES:** Guidance for using LE Electives can be found in this CG.
- **AS STEM:** Guidance for using STEM opportunities can be found in this CG.
- **AS 400:** Intended for 4th year cadets who hold corps management positions.
- **AS 500: Aviation Honors Ground School (AHGS)** may be taught as the AS component of a course replacing other AS curriculum for third- and fourth-year cadets who have successfully completed AS 200.
- **AS 510: Honors Senior Project:** Guidance found in this CG.

Sample Curriculum Plan Template for Traditional School Blended Classes (Grades 10 – 12)

CADET YEAR	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Spring 2023	Fall 2023	Spring 2024	Fall 2024	Spring 2025	Fall 2025	Spring 2026	Fall 2026	Spring 2027	Fall 2027
1	AS-100 Ch 1 - 3	AS-100 Ch 4 - 6	AS-100 Ch 1 - 3	AS-100 Ch 4 - 6	AS-100 Ch 1 - 3	AS-100 Ch 4 - 6	AS-100 Ch 1 - 3	AS-100 Ch 4 - 6	AS-100 Ch 1 - 3	AS-100 Ch 4 - 6	AS-100 Ch 1 - 3	AS-100 Ch 4 - 6	AS-100 Ch 1 - 3	AS-100 Ch 4 - 6
	LE-100 Ch 1- 3+ Drill + Wellness	LE-100 Ch 4 + E1: UYP+ Drill + Wellness	LE-100 Ch 1- 3+ Drill + Wellness	LE-100 Ch 4 + E1: UYP+ Drill + Wellness	LE-100 Ch 1- 3+ Drill + Wellness	LE-100 Ch 4 + E1: UYP+ Drill + Wellness	LE-100 Ch 1- 3+ Drill + Wellness	LE-100 Ch 4 + E1: UYP+ Drill + Wellness	LE-100 Ch 1- 3+ Drill + Wellness	LE-100 Ch 4+ E1: UYP+ Drill + Wellness	LE-100 Ch 1- 3+ Drill + Wellness	LE-100 Ch 4 + E1: UYP+ Drill + Wellness	LE-100 Ch 1- 3+ Drill + Wellness	LE-100 Ch 4 + E1: UYP+ Drill + Wellness
2-4	AS-220 Ch 1 - 2	AS-220 Ch 3 - 4	AS-200 Ch 1 – STEM 1	AS-200 Ch 3 – 4	AS 300 Ch 1 -3+ STEM 4	AS 300 Ch 6-12	AS-220 Ch 1 - 2	AS-220 Ch 3 - 4	AS-200 Ch 1 + STEM 1	AS-200 Ch 3 – 4	AS-200 Ch 1 + STEM 1	AS-200 Ch 3 – 4	AS 300 Ch 1-3 + STEM 4	AS 300 Ch 6-12
	LE300 Ch 3-5 Drill + Wellness	LE-300 Ch 6-8 + Drill + Wellness	LE 200 Ch 1–3+ Drill + Wellness	LE-200 Ch 4- 6+ Drill + Wellness	LE-200 Ch 6-8 + Drill + Wellness	LE-300 Ch 1 – 2+ E2 NEFE Drill + Wellness	LE300 Ch 3-5 + Drill + Wellness	LE300 Ch 6-8 + Drill + Wellness	LE 200 Ch 1 – 3+ Drill + Wellness	LE-200 Ch 4-6+ Drill + Wellness	LE 200 Ch 1 – 3+ Drill + Wellness	LE-200 Ch 4-6+ Drill + Wellness	LE-200 Ch 6-8 + Drill + Wellness	LE-300 Ch 1 – 2+ E2 NEFE Drill + Wellness
Cadet Corps Staff	AS-400 Units a – b	AS-400 Units c – d	AS-400 Units a - b	AS-400 Units c – d	AS-400 Units a – b	AS-400 Units c – d	AS-400 Units a – b	AS-400 Units c – d	AS-400 Units a – b	AS-400 Units c – d	AS-400 Units a – b	AS-400 Units c – d	AS-400 Units a – b	AS-400 Units c – d
	LE-400 Units 1 -2+ Drill + Wellness	LE-400 Units 3- 4+ Drill + Wellness	LE-400 Units 1 -2+ Drill + Wellness	LE-400 Units 3- 4+ Drill + Wellness	LE-400 Units 1 -2+ Drill + Wellness	LE-400 Units 3- 4+ Drill + Wellness	LE-400 Units 1 -2+ Drill + Wellness	LE-400 Units 3- 4+ Drill + Wellness	LE-400 Units 1 -2+ Drill + Wellness	LE-400 Units 3- 4+ Drill + Wellness	LE-400 Units 1 -2+ Drill + Wellness	LE-400 Units 3- 4+ Drill + Wellness	LE-400 Units 1 -2+ Drill + Wellness	LE-400 Units 3- 4+ Drill + Wellness

NOTES:

- Scanning down diagonally to the right will show a particular cadet's progress through four different sets of AFJROTC courses.
- Introductory AS/LE course material should be taught during the first semester or block.
- **LE ELECTIVES:** Guidance for using LE Electives can be found in this guide.
- **AS STEM:** Guidance for using STEM opportunities can be found in this guide.
- **AS 400:** Intended for 4th year cadets who hold corps management positions.

Sample Curriculum Plan Template for a "Trimester" Schedule

CADET YEAR	2021 Tri 1	2021 Tri 2	2022 Tri 3	2022 Tri 1	2022 Tri 2	2023 Tri 3	2023 Tri 1	2023 Tri 2	2024 Tri 3	2024 Tri 1	2024 Tri 1	2025 Tri 1	2025 Tri 1	2025 Tri 2	2026 Tri 3	2026 Tri 1	2026 Tri 2	2027 Tri 3
1	AS-100 Unit 1-2	AS-100 Unit 3-4	AS-410 Unit 1-2	AS-100 Unit 1-2	AS-100 Unit 3-4	AS-410 Unit 1-2	AS-100 Ch 1 – 2	AS-100 Ch 3-4	AS-100 Ch 5 - 6	AS-100 Ch 1-2	AS-100 Ch 3 - 4	AS-100 Ch 5 - 6	AS-100 Unit 1 – 2	AS-100 Unit 3-4	AS-410 Unit 1 - 2	AS-100 Unit 1-2	AS-100 Unit 3-4	AS-410 Unit 1 - 2
	LE-100 Ch 1+ E6 CG+ Drill+ Wellness	LE-100 Ch 2-3+ Drill+ Wellness	LE-100 Ch 4-5+ Drill+ Wellness	LE-100 Ch 1+ E6 CG+ Drill+ Wellness	LE-100 Ch 2-3+ Drill+ Wellness	LE-100 Ch 4-5+ Drill+ Wellness	LE-100 Ch 1+ E6 CG+ Drill+ Wellness	LE-100 Ch 2-3+ Drill+ Wellness	LE100 Ch 4-5+ Drill+ Wellness	LE-100 Ch 1+ E6 CG+ Drill+ Wellness	LE-100 Ch 2-3+ Drill+ Wellness	LE-100 Ch 4-5+ Drill+ Wellness	LE-100 Ch 1+ E6 CG Drill+ Wellness	LE 100 Ch 2-3+ Drill+ Wellness	LE100 Ch 4-5+ Drill+ Wellness	LE-100 Ch 1+ E6 CG+ Drill+ Wellness	LE-100 Ch 2-3+ Drill+ Wellness	LE-100 Ch 4-5+ Drill+ Wellness
2	AS-410 Unit 3-4	AS-200 Ch 1-2	AS-200 Ch 3-4	AS-410 Unit 3-4	AS-200 Ch 1-2	AS-200 Ch 3-4	AS-200 Ch 1 + STEM 1	AS-200 Ch 2 + STEM 3	AS-200 Ch 3-4	AS-200 Ch 1 + STEM 1	AS-200 Ch 2 + STEM 3	AS-200 Ch 3-4	AS-410 Unit 3-4	AS-200 Ch 1-2	AS-200 Ch 3-4	AS-410 Unit 3-4	AS-200 Ch 1-2	AS-200 Ch 3-4
	LE-200 Unit 1-2+ LE-100 Ch. 1* + Drill+ Wellness	LE-200+ Unit 3-4+ Drill+ Wellness	E3 MHF+ Drill+ Wellness	LE-200 Unit 1-2+ LE-100 Ch. 1* + Drill+ Wellness	LE-200+ Unit 3-4+ Drill+ Wellness	E3 MHF+ Drill+ Wellness	LE-200 Ch 1-2+ LE-100 Ch. 1* + Drill+ Wellness	LE-200 Ch 3-5+ Drill+ Wellness	LE-200 Ch 6-8+ E3 MHF+ Drill+ Wellness	LE-200+ CH 1-2+ LE-100 Ch. 1* + Drill+ Wellness	LE-200+ Ch 3-4+ Drill+ Wellness	LE-200 Ch 6-8+ E5 VNEP+ Drill+ Wellness	LE-200 Unit 1-2+ LE-100 Ch. 1* + Drill+ Wellness	LE-200 Unit 3-4+ Drill+ Wellness	E5 VNEP+ Drill+ Wellness	LE-200+ Unit 1-2+ LE-100 Ch. 1* + Drill+ Wellness	LE-200+ Unit 3-4+ Drill+ Wellness	E5 VNEP+ Drill+ Wellness
3	AS-220 Ch 1-2	AS-220 Ch 3-4	AS-220 Ch 5-6	AS-220 Ch 1-2	AS-220 Ch 3-4+ STEM 8	AS-220 Ch 5-6 +	AS-300 Ch 1-3 STEM 7	AS-300 Ch 4-6	AS-300 Ch 7-8 STEM 11	AS-220 Ch 1-2 STEM 7	AS-220 Ch 3-4	AS-220 Ch 5-6	AS-300 Unit 1-2	AS-300 Unit 3-4	AS-220 Ch 1-2	AS-220 Ch 1-2	AS-220 Ch 3-4	AS-220 Ch 5-6
	LE-300 Ch 1-2+ E2 NEFE+ LE-100 Ch. 1* + Drill+ Wellness	LE-300 Ch 3-5+ Drill+ Wellness	LE-300 Ch 6-8+ Drill+ Wellness	LE-300 Ch 1-2+ E2 NEFE+ LE-100 Ch. 1* + Drill+ Wellness	LE-300 Ch 3-5+ Drill+ Wellness	LE-300 Ch 6-8+ Drill+ Wellness	LE-300 Ch 1-2 + E9 CFPB+ LE-100 Ch. 1* + Drill+ Wellness	LE-300+ Ch 3-5+ Drill+ Wellness	LE-300+ Ch 6-8+ Drill+ Wellness	LE-300 Ch 1-2+ E9 CFPB + LE-100 Ch. 1* + Drill+ Wellness	LE-300 Ch 3-5+ Drill+ Wellness	LE-300 Ch 6-8+ Drill+ Wellness	LE-300 Ch 1-2 E2 NEFE+ LE-100 Ch. 1* + Drill+ Wellness	LE-300+ Ch 3-5+ Drill+ Wellness	LE-300+ Ch 6-8+ Drill+ Wellness	LE-300 Ch 1-2+ E2 NEFE+ LE-100 Ch. 1* + Drill+ Wellness	LE-300 Ch 3-5+ Drill+ Wellness	LE-300 Ch 6-8+ Drill+ Wellness
Corps Staff Only	AS-400 Unit a – b	AS-400 Unit b - c	AS-400 Unit c – d	AS-400 Unit a – b	AS-400 Unit b - c	AS-400 Unit c – d	AS-400 Unit a – b	AS-400 Unit b - c	AS-400 Unit c – d	AS-400 Unit a – b	AS-400 Unit b - c	AS-400 Unit c – d	AS-400 Unit a – b	AS-400 Unit b - c	AS-400 Unit c – d	AS-400 Unit a – b	AS-400 Unit b - c	AS-400 Unit c – d
4	AS-410 Units 1 - 2	AS-510+ STEM 8	AS-410 Units 3 - 4	AS-410 Units 1 - 2	AS-510+ STEM 6	AS-410 Units 3 - 4	AS-300 Unit 1 - 2	AS-510+ STEM 10	AS-300 Units 3 - 4	AS-410 Units 1 - 2	AS-510+ STEM 6	AS-410 Units 3 - 4	AS-410 Units 1 - 2	AS-510+ STEM 4	AS-410 Units 3 - 4	AS-410 Units 1 - 2	AS-510+ STEM 5	AS-410 Units 3 - 4
	LE-400 Ch 1-2+ LE-100 Ch. 1* + Drill+ Wellness	E3 MOH+ Drill+ Wellness	LE-400 Ch 3-4+ Drill+ Wellness	LE-400 Ch 1-2+ LE-100 Ch. 1* + Drill+ Wellness	LE-400 Ch 3-5 E3 MOH+ Drill+ Wellness	LE-400 Ch 6-8+ Drill+ Wellness	LE-400 Ch 1-2+ LE-100 Ch. 1* + Drill+ Wellness	LE-400 Ch 3-5 E5 VNEP+ Drill+ Wellness	LE-400 Ch 6-8 Drill+ Wellness	LE-400 Ch 1-2+ LE-100 Ch. 1* + Drill+ Wellness	LE-400 Ch 3-5 E5 VNEP+ Drill+ Wellness	LE-400 Ch 6-8+ Drill+ Wellness	LE-400 Unit 1-2+ LE-100 Ch. 1* + Drill+ Wellness	E3 MOH+ Drill+ Well-ness	LE-400 Unit 3-4 Drill+ Wellness	LE-400 Unit 1-2+ LE-100 Ch. 1* + Drill+ Wellness	E3 MOH+ Drill+ Wellness	LE-400 Ch 3-4+ Drill+ Wellness

NOTES:

- **Due to page space, this plan indicates 3 years prior, present, and 2 years out.**
- Introductory AS/LE course material should be taught during the first semester or block.
- Scanning down diagonally to the right will show a particular cadet's progress through four different sets of AFJROTC courses.
- * Repeat LE100, Chapter 1 for Blended Classes containing first year cadets is authorized.
- **LE ELECTIVES**: Guidance for using LE Electives can be found in CG.
- **AS STEM**: Guidance for using STEM opportunities can be found in CG.
- **AS 400**: Intended for 4th year cadets who hold corps management positions.
- **AS 500**: Aviation Honors Ground School (AHGS) can be found in CG.
- **AS 510**: Honors Senior Project; Guidance found in this CG.

CLASSROOM MATERIAL

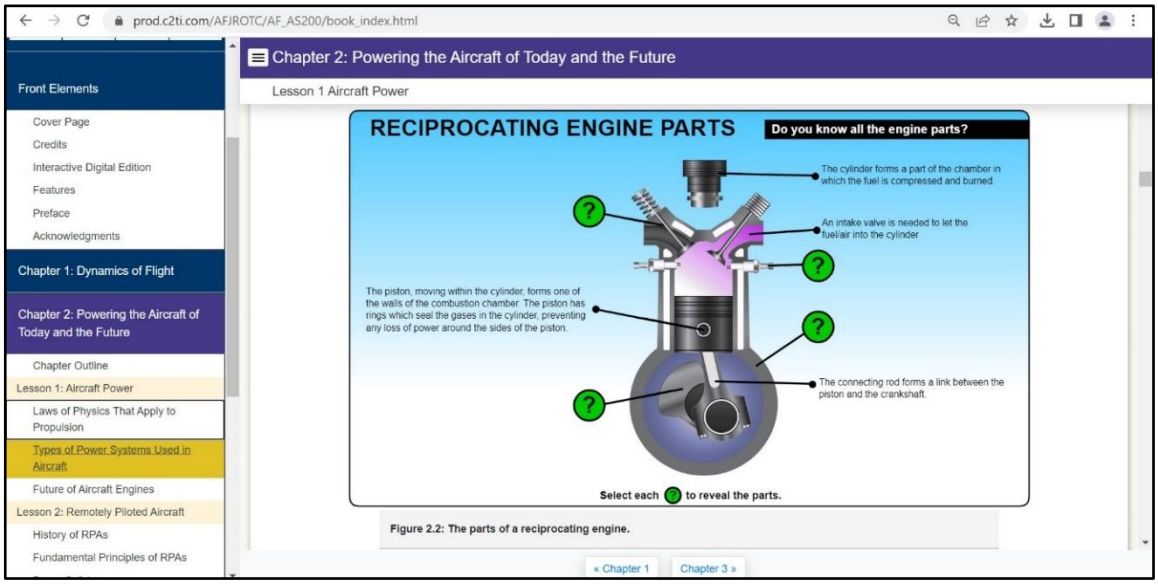
Digital Textbooks

Textbook production at the Holm Center has evolved with technology innovations and user needs. Effective June 2021, Headquarters Air Force Junior ROTC moved to an all-digital curriculum delivery system. To support this endeavor, HQ Holm Center published a "Curriculum SuperStore," giving instructors the ability to download a majority of the Holm Center provided instructional material. Instructors will have to log into WINGS and configure their browser to access available material (If you need further instructions: https://www.youtube.com/watch?v=zdgRdpUe-Yo&feature=youtu.be)

Interactive Digital Publication (IDP)

If 2020 taught us anything, it has highlighted the importance of accessibility to curriculum in more ways than just a hardcover textbook. As a result, the ability to access curriculum that engages cadets using online capabilities has become an underlying priority for HQ AFJROTC. As an element of all ongoing and future curriculum revision processes, Holm Center/DEJ will continue to customize content that provides Interactive Digital Publications (IDP). IDPs are designed to provide instructors with instructional tools, and students with study aids to help them master the material more effectively. In addition to providing a more comprehensive experience, IDPs also benefit AFJROTC program by providing:

- Video, audio clips, animations, and hyperlinks to additional resources
- User-friendly interface that supports table resizing, changing the font, font size, line spacing and color contrast.
- Improved navigation tools that allow the user to search the book easily (by chapter, section, and page), take notes, and search for keywords/vocabulary.
- Swifter publishing and distribution
- Faster editing is possible even after publishing
- Less storage space
- Swifter textbook creation process
- Cost-effective publishing
- Potential to analyze distribution and user behavior



Screenshot of AS 200 IDP

Instructor Guides and Lesson Plans

The Instructor Guides contain lesson plans and supplemental materials. Course objectives lay the foundation for the courses, and lesson objectives and samples of behavior identify desired outcomes. The format of the lesson plan is based on the Air Force model in the Guidebook for Air Force Instructors. Part I of the lesson plan includes the material covered and what teachers and students should do to prepare for the lesson. Part II contains the content of the lesson with embedded images of PowerPoint slides. Part II is followed by checkpoint review questions and answers, and classroom activity worksheets and answer keys. A typical Instructor Guide includes:

- Lesson plans with PowerPoint slides
- National Standards correlations
- Activities (student handouts) and answer keys
- Learning outcomes and objectives
- All LE & AS curriculum have integrated Turning Point Cloud (previously CPS) formative and summative tests. The install files are available in the Curriculum SuperStore

Test Banks and Chapter Projects

Courses published in 2010 and later were designed with enhanced test banks with student workbook-type items. Each lesson contains test bank files with approximately 40 test items correlated to objectives/samples-of-behavior. These items include multiple choice, short answer, matching, fill-in-the-blank, true/false, list or describe, and an occasional case study. If desired, these can also be used as "student workbook" type items for homework or quizzes. Test banks and answer keys were created for each lesson in Word and are available for download via the Curriculum SuperStore.

The Instructor Guide includes a chapter project designed to enhance student learning. Each project-based learning activity includes national standards correlations, preparation guidelines, implementation strategies, and essential questions related to the chapter content. Chapter projects are also available for download via the Curriculum SuperStore (Word and PDF).

Student Engagement Devices

Response Software

Although currently an optional resource for instructors, AFJROTC provides an interactive, student response system (*Turning Technologies*) that infuses technology and curriculum into the classroom. This allows instructors to actively engage and involve the students throughout the entire class. This engagement system provides a fun, interactive way for the students to learn the material being taught in addition to allowing you to monitor students' success at answering questions and understanding the lessons. It will equip you with major tools to create a technology-rich classroom supporting 21st-century teaching and learning.

Some units are using Point Solutions Desktop, while some are using mobile or web-enabled devices. Pulse devices are no longer supported. The students can also use the Point Solutions App for smart devices (Google Play or iTunes) or the URL https://participant.turningtechnologies.com/en/join.

Point Solutions software provides instructors with the following fundamental elements:

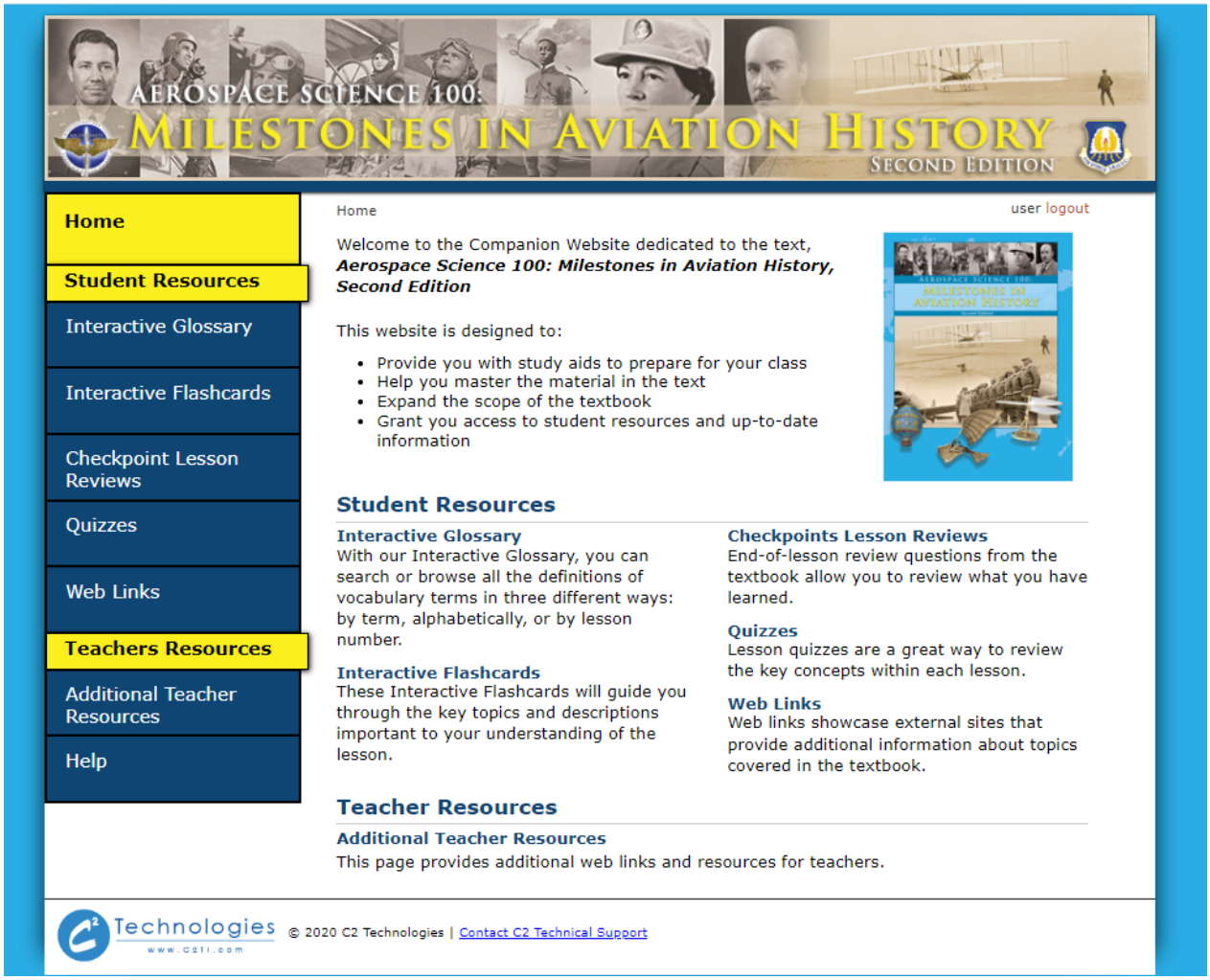
a. Allowing for open-ended and constructed response questions digitally captured
b. The platform allows for future development to integrate new requirements

c. Access to high-quality training webinars that include product demonstration, and 24/7 technical support

School districts across the United States and DoDEA are now investing in Learning Management Systems (LMS) and mobile electronic devices such as iPads, tablets, laptops and applications for smartphones to stimulate student engagement within the classroom. HQ Curriculum acknowledges that in some cases these devices provide the same capabilities as Turning Technologies. **However, if an alternate student engagement option is chosen, Holm Center/DEJ cannot provide technical support.** Holm Center/DEJ recommends instructors keep RDs informed as to which option is used. However, no waiver is necessary, as Point Solutions is an optional resource.

Companion Websites

Although companion websites were innovative, engaging educational tools that offered online resources to support classroom education, AS 100 and LE 200 were the last resources of this type supported by Holm Center/DEJ. The quick reference guide for the available companion websites is available in the Curriculum SuperStore.



Screenshot of AS 100 Companion Website

Cadet Guide/Unit Operating Instruction

It is recommended that units publish a Cadet Guide or unit operating instruction and grant access to all cadets. Although the Cadet Guide/Unit Operating Instruction is no longer an inspectable item during an assessment, instructors that develop Cadet Guides or unit operating instructions should consider the following items:

- Current uniform wear, personal appearance and grooming requirements as defined in AFI 36-2903, AFJROTCI 36-2010, and supplemental HQ guidance.
- Information on applicable program opportunities such as post-graduation benefits and co-curricular activities such as Kitty Hawk Air Society, Drill Team, Color Guard, CIA trips, marksmanship, rocketry, quadcopters, annual community service projects, etc.
- Cadet expectations, such as conduct standards, classroom procedures, saluting, etc.
- Prohibition of physical discipline and hazing as outlined in AFJROTCI 36-2010.
- Information on cadet promotion opportunities, including unit-specific promotion and demotion procedures.
- Information on Cadet Corps operational and functional areas such as Logistics, Personnel, Support, Public Affairs, etc.
- If a unit offers team awards, national awards or HQ-approved specialized ribbons, the specific criteria for earning these will be published in each unit's Cadet Guide. These awards/ribbons are listed in the AFJROTC Operational Supplement.
- Many awards/ribbons already have minimum criteria defined in the AFJROTC Operational Supplement. Units may add additional criteria, but this should be clearly published in their Cadet Guide or operating instruction.
- Reserve Cadet participation requirements such as uniform wear, community service events, etc., must be included in the unit's Cadet Guide.

Course Syllabus

A well-prepared syllabus is valuable for both students and instructors. A course syllabus lets students know what is expected of them on the first day of class so they can plan their semester and school year. The course syllabus is no longer an inspectable item during an assessment; however, the unit may be required to have a syllabus by their school administration. In that case, the syllabus should be in the format directed by the school. When the school does not specify a particular format, instructors are encouraged to use the "sample" syllabus template provided on the following page. A syllabus should contain as a minimum: course name, instructors name(s); basic purpose or description of the class (be concise); course objectives or outcomes; grading procedures; physical training requirement; uniform day; textbook chapters/units, electives, STEM, and/or supplemental material and resources used; other rules, regulations, or requirements specific to the course or instructor.

The recommended approach is to keep the format simple. The sample template is provided as a starting point in developing unit course syllabus.

Sample Course Syllabus Template

COURSE NAME: (List the name of course)
CREDIT TYPE: (PE / Science / Civics / History / CTE, etc.)
INSTRUCTOR'S NAME: (List instructor names)

The Mission of Air Force JROTC is to develop citizens of character dedicated to serving their nation and community.

REQUIRED TEXT AND MATERIALS:

- AS 100: Milestones in Aviation History
- LE 100: Traditions, Wellness, and Foundations of Citizenship
- AF Manual 36-2203, Personnel Drill and Ceremonies, V-2627
- Selected Video Tapes
- Cadet Guide

COURSE DESCRIPTION: (Give a description of the course. This information can be found in the Instructor Guide and in this Curriculum Guide. **MUST include textbook chapters/units that are to be taught.**)

AFJROTC I is the introductory course for all new cadets. The course consists of three components: Aerospace Science (40%), Leadership Education (40%), and Wellness/Physical Fitness (20%).

Aerospace Science 100 portion is an aviation history course focusing on the development of flight throughout the centuries. **During the Fall semester/block, we cover Units 1 and 2. During the Spring semester/block, we cover Units 3 and 4.** The emphasis is on civilian and military contributions to aviation; the development, modernization, and transformation of the Air Force; and a brief astronomical and space exploration history. It is interspersed with concise overviews of the principles of flight to include basic aeronautics, aircraft motion and control, flight power, and rockets.

Leadership Education 100 introduces the student to the AFJROTC program, while instilling elements of good citizenship, develops informed citizens; strengthens and develops character; develops study habits and time management; wear of the Air Force uniform; and Air Force customs, courtesies and drill are introduced. **During the Fall semester/block, we cover Chapters 1-2. During the Fall semester/block, we cover Chapters 3-5.** Additionally, cadets will be taught the fundamentals of Drill and Ceremonies. This portion of the course concentrates on the elements of military drill, and describes individual and group precision movements, procedures for saluting, drill, ceremonies, reviews, parades, and development of the command voice. Students are provided detailed instruction on ceremonial performances and protocol for civilian and military events and have the opportunity to learn drill. Most of the work is to be hands-on.

Wellness/Physical Fitness portion incorporates the Cadet Health and Wellness Program (CHWP). The CHWP is an exercise program focused upon individual base line improvements with the goal of achieving a Presidential Physical Fitness standard calculated with age and gender. The goal of the CHWP is to motivate JROTC cadets to lead active, healthy lifestyles beyond program requirements and into their adult lives. Cadets will be given the opportunity to put into practice the wellness concepts that are taught in Leadership Education I.

COURSE OBJECTIVES AND OUTCOMES: (This information can also be found in the Instructor Guide)

AS/Journey into Aerospace History:

First Semester/Units 1-2:

1. Know the historical facts and impacts of the early attempts to fly.
2. Know the major historical contributions to the development of flight.

Second Semester/Units 3-4:

3. Know the contributions of the US Air Force to modern aviation history.
4. Know the key events of space exploration history.

LE/Leadership Education: Drill and Ceremonies: Applies to both semesters. First Semester LE /Chapters 1-2

1. Analyze the heritage, organization, and tradition of service programs.
2. Analyze the benefits of positive personal behavior.

Drill

1. Know the importance of drill and ceremonies.
3. Know basic commands and characteristics of command voice.
4. Apply and execute the concepts and principles of basic drill positions and movements.
5. Know when and how to salute.

Second Semester LE /Chapters 3-5

1. Evaluate healthy living through physical activity and good nutrition.
2. Apply safe, drug-free decisions.
3. Analyze the importance of citizenship in the United States.

Drill

1. Know the importance of drill and ceremonies.
2. Know basic commands and characteristics of command voice.
3. Apply and execute the concepts and principles of basic drill positions and movements.
4. Know when and how to salute.

Wellness and Physical Fitness: Applies to both semesters

1. Motivate AFJROTC cadets to lead active, healthy lifestyles beyond program requirements and into their adult lives.
2. Create an individualized training program based on national standards by age and gender.
3. Identify areas of improvement for each cadet.
4. Incorporate a physical training program to reach goals.

Uniform Day:

Students wear the Air Force JROTC uniform weekly (Wednesday) and the **issued** PT uniform on Friday.

Office Hours: Our standard duty hours are 0730 – 1515 hours. We are located in the room XXX. We have an open-door policy, and you can come by and discuss anything you need to if we are available.

GRADING POLICY: (NOTE: These are only examples)

a. ACADEMICS 40%

b. LEADERSHIP 40%

c. CO-CURRICULUAR ACTIVITIES 20%

Grading Scale: (NOTE: This is only an "example"- follow your school's grading policy) Grade

	Percentage Required
A	90% and above
B	89% - 80%
C	79% - 70%
D	69% - 60%
F	59% and below

Presentation:

You may be assigned an oral briefing. This assignment will be to demonstrate your verbal communication skills. You will prepare and present a 3-5 minute extemporaneous briefing on a subject to be determined. The target time for this presentation is 5 minutes and points will be deducted for those that are outside the 3-5 minute range. All topics will be submitted to the instructor for approval at a date to be specified later.

Written Assignments:

You may be required to complete a Talking Paper covering your presentation topic to be turned in one class before your scheduled presentation. The intent of this paper is to assist you in planning, organizing, and delivery of your presentation. Additional writing assignments may be assigned if it is determined additional research or effort is needed on a particular subject matter.

Attendance:

Attendance will be considered in determining your final grade, but it is subordinate to measurable performance based on lesson objectives. You will lose points on attendance for being late (5 points from daily grade) or unexcused absences ("0" will be entered as a daily grade.) Excused absences will not count against your daily grade but missed work must be completed. As an Air Force or Space Force Junior ROTC cadet, you will be expected to be punctual and present at your appointments.

Curriculum Videos

HQ Holm Center no longer supports a warehouse function; therefore, videos are no longer available for order. Instructors choosing to include supplemental material to reinforce HQs provided curriculum should include this material when defining the unit course in WINGS. Support material included during daily classroom instruction that exceeds 10% of the Defined Course will be defined by going to WINGS | Curriculum | JROTC Unit Defined Curriculum (Note that the material in this folder is currently being updated.). If less than 10% of the programmed instructional time, **a waiver is not required**; however, it does not have to be part of the "defined course." In addition, it does need to be reflected in the course syllabus. Supplemental/support material **WILL NOT** exceed 10% of instruction time without waiver approval from Holm Center/DEJ.

Leadership Development Requirements(LDRs)

LDRs are designed to develop cadet leadership and teamwork skills. LDRs provide a needed link between being involved in AFJROTC supported activities and Holm Center provided Curriculum. Instructors will refer to Chapter 4: Leadership Development Requirements (LDR) Program Management, Operational Supplement for primary guidance for including LDRs in their unit operations. Instructors should contact the RD for additional guidance and requirements for incorporating LDRs.

In January 2024, The Director AFJROTC authorized an LDR in the Classroom Program. The integration of five LDRs to be taught in the classroom in addition to the curriculum currently being taught are:

- Robotics – AS-600 (43 hrs)
- Drones – AS-605 (30 hrs)
- Marksmanship – WE-600 (30 hrs)
- Rocketry – AS-610 (40 hrs)
- Drill – LE-600 (20 hrs)

Note all five of these LDRs in the classroom are counted as AS hours

Units will use equipment they already have in inventory for robotics, drones, rocketry, and marksmanship. Units that want to participate in these options in the future will need to order necessary equipment through WINGS.

Curriculum resources can be found in the Curriculum SuperStore (CSS) 2.0 which can be accessed using the CSS (via Curriculum and CBTs tile).

The all new LDR content is coded as 600-series and counts as AS curriculum. The LDRs will work by replacing (some/all of your) AS block of study with new 600 series content when creating AS hours in your Define Unit Courses.

The Drill LDR will be coded differently. Currently Drill represents up to 50% of the existing LE hours. The Drill LDR will follow the same criteria and will only represent a maximum of 50% of AS hours. For example, using the 40-40-20 Elective Model:

- 40% AS (20% AS studies + 20% LE-600 LDR Drill), 40% LE (20% LE studies + 20% Drill), and 20% Wellness
- Units **may not** substitute other LDRs in place of the five LDRs listed above. Units cannot substitute Archery for Marksmanship. These new options are listed in WINGS **|** HQ Provide Curriculum (active)

LDRs by Tiers in WINGS (Total of 31 LDRs)

Tier I - STEM Based	Tier II - Activity Based	Tier III - Unit Based
Astronomy	Archery	Awareness Presentation Team
CyberPatriot	Armed Drill Team	Chorus
Flight Simulator	Color Guard	Flag Detail (raising/lowering flag and other flag-related activities)
JROTC Leadership & Academic Bowl (JLAB)	Kitty Hawk Honor Society (KHHS)	Green Team (environmental & beautification efforts)
Remote Controlled (RC) Aircraft	Marksmanship	Honor Guard
Robotics	Orienteering	Model Building Team
Rocketry	Raider/Fitness Team	Morale Team
StellarXplorers	Unarmed Drill Team	Other (unit specific LDR activities not listed)
Unmanned Aircraft Systems (UAS) aka Drones/Multi-copter		Planning Committee (does not include unit/cadet staff meetings)
Weather Forecasting		Saber Team
		Spirit Squad
		Sports Team
		Tutoring (not KHHS)

- **Archery:** The first step to starting an Archery Program is to complete a Memorandum of Understanding (MOU); a sample can be found in WINGS | Published Files | AFJROTC LDRs | Archery. Instructors teaching Archery must complete the in person Basic Archery Instructor (BAI) training and have their BAI certificate on file with CenterShot Blue Archery, send your BAI Certificate to HQ AFJROTC/LDRs at jrotc.ldr@au.af.edu to ensure it gets file with CenterShot Blue.

- **Awareness Presentation Team (APT):** APT is an academic endeavor, much like public speaking and oral presentations, designed to provide positive role models for elementary and middle school students. The APT covers almost any topic, examples include, peer pressure, conflict resolution, bullying, sexual issues, domestic violence, drug & alcohol awareness, and gang violence. The APT is not meant to be solely used as a recruiting/retention endeavor.

- **Color Guard:** Color Guard is a highly professional and patriotic team that combines precision drill and proper flag courtesies. Their primary functions are casing and uncasing, presenting, folding, posting, and retiring the colors. Team members must be dedicated to learning the Manual of Arms and flag etiquette. AFJROTC and SFJROTC units will utilize The Color Guard Instructors Pamphlet (Supplement to DAFP 34-1203) for proper

procedures for Color Guards. This publication can be found in WINGS | Published Files | AFJROTC LDRs | Drill | Color Guard.

- **Drill Team:** Drill teams have been often categorized as a "leadership lab". Drill teaches leadership, discipline and teamwork. It is widely considered the backbone of military instruction and therefore plays an important part of the AFJROTC curriculum. Teams are typically broken into two categories 1) Armed drill and 2) Unarmed drill. Teams are typically a 9-to-12-member team with a commander. Drill usually focuses on regulation drill and an exhibition team. There are competitions available for drill teams at the local, Air Force and the National level. Use AFJROTC Armed Regulation Drill Pamphlet in WINGS | Published Files | AFJROTC LDRs | Drill | Armed for Armed Drill movements and the DAFP 34-1203 for unarmed drill movements.

- **Drones:** Curriculum and Training for PCS Edventures/Discovery Drones Tech Support can be reached by email at support@edventures.com or https://edventures.com/pages/customer-support. If you have specific trouble shooting questions about the RubiQ drone you can contact https://rubiq.edventures.com.

- **Junior Leadership Academic Bowl (JLAB):** The JROTC Leadership & Academic Bowl (JLAB) is a nationally recognized academic competition created exclusively for JROTC students. By participating, cadets learn the values of citizenship, leadership, academic competition, and college opportunity.

- **Kitty Hawk Honor Society (KHHS) Program:** The Kitty Hawk Honor Society (KHHS) program is the official National Honor Society of AFJROTC and SFJROTC and has three primary objectives:

  1. Uphold high academic standards
  2. Promote school and/or community service
  3. Develop leadership skills.

  KHHS also recognizes academic excellence and furthers members' educational knowledge. Units are encouraged to recruit their best and brightest cadets to lead the Honor Society program. Instructors have the flexibility to adjust the program organizational structure, eligibility requirements, membership process and program operations based on the needs of their unit. If adjustments are made, instructors should continue to adhere to the three primary program objectives.

- **Marksmanship Program:** The first step to starting a Marksmanship program is to complete a Memorandum of Understanding (MOU); a sample can be found in WINGS | Published Files | AFJROTC LDRs | Marksmanship. Marksmanship is an after-school program where cadets can receive training in marksmanship and the safe handling of an air rifle. Participation is optional and at the discretion of the school administration. Competitions are held to promote training, good sportsmanship, and a high standard of performance in the safe use of an air rifle. For more information contact the home page of the Civilian Marksmanship Program (CMP) at https://thecmp.org/. Note that instructors must complete CMP training.

- **Military Model Building (Aerospace Science STEM Course):** Static Modeling is the designing and/or building of small model rockets or planes. A static model program can

provide an exciting introduction for cadets to concepts of aerospace engineering and design.

- **Orienteering:** Orienteering is a competitive international sport that combines racing with navigation. It is a timed race in which individual parties use a specialty created, highly detailed map to select routes and navigate through divers and often unfamiliar terrain and visit control points in sequence. Courses can also be enjoyed as a walk in the woods, with difficulty levels from beginner to expert.

- **Planning Committee:** Planning committees are a small group of cadets who organize and plan LDRs. An example of a planning committee might be one that plans a dining-in and dining-out. Additionally, a planning committee might assist instructors in setting up a Curriculum-In-Action (CIA) trip. **Remember cadet participation in a dining-in/out, an awards banquet, or a CIA DOES NOT COUNT as an LDR activity**.

- **Raiders:** Raiders is a very popular athletic competition held within all JROTC programs. Raiders are designed for a small group of 9 cadets of physically fit and mentally tough cadets to compete in various outdoor activities preferably in a very primitive-type location with solid amenities to ensure safety of the participants. The exact raider events vary depending on where you compete, these may involve some type of personal fitness/strength test, distance team running, obstacle course, and some form of rescue/first aid. Other events may include rope bridge building, land navigation, and mental acuity test.

- **Robotics:** This curriculum leverages the "coolness" of robotics, and the excitement of head-to-head competition to inspire and engage students. Students will walk through the design and build a mobile robot to play a sports-like game. During this process they will learn key STEM principles and robotics concepts. At the culmination of this class, they will compete head-to-head against their peers in the classroom, or on the world stage in the VEX Robotics Competition, the largest and fastest growing international robotics competition for high school students. VEX support contact information, you can email jrotc@vex.com for any support questions you may have.

- **Rocketry (Aerospace Science STEM Course):** Model rocketry is the designing, building, and flying of small rockets that are made of paper, plastic, balsa wood, or any other lightweight material. Model rockets constructed in this manner are approved for use by AFJROTC members.

NOTE: For detailed information about these programs, refer to WINGS | Menu | Published Files | Directory | JROTC | AFJROTC Operational Supplement | Chapter 4: Leadership Development Requirements (LDR) Program Management.

For additional information regarding LDRs, please send a detailed email to: jrotc.ldr@au.af.edu

CURRICULUM STRUCTURE

21st-Century Teaching and Learning

In 2008, Academic Affairs' continuous improvement process continued with the transformation of the Instructor Guides and lesson plans and the implementation of the Classroom Performance System (CPS) student response system by *eInstruction* (now Turning Technologies). 21st-century teaching and learning was infused—it utilizes a "Learner-Centered" approach to engage students while preparing them to live and work in a global society. In addition, the "Framework for 21st-century Learning" model created by the Partnership for 21st-century Skills was adopted. It includes 21st-century skills, methods, strategies, tools, standards, and assessments. This was the first major update to the lesson plans in more than four decades.

21st-century Skills were integrated throughout the courses. They are:

- Learning and innovation skills—critical thinking and problem solving, communication and collaboration, and creativity and innovation;
- Information, media, and technology skills—information literacy, media literacy, and ICT (information, communications, and technology) literacy; and
- Life and career skills—flexibility and adaptability, initiative and self- direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility.

The major changes to the lesson plan format included:

- Changed the lesson time from 50 minutes to 1 hour 30 min
- Integrated the national standards directly into lesson plans and created correlations
- Decreased amount of "lecture" time—changed to a "mini-lecture" of approximately 15 minutes to lay the lesson foundation
- Incorporated formative and summative assessments throughout
- CPS/TPC questions embedded in the lessons; also added vocabulary questions
- Included four learner-centered activities per lesson including technology enrichment
- Created one main project per chapter using "project-based learning" and "assessment"

Revised Bloom's and the New Hybrid Lesson Plan Format

Additionally, in 2012 further enhancements were made to the curriculum. The Revised Bloom's Taxonomy and Worldwide Instructional Design System (WIDS®) model were incorporated into the courses, beginning with the initial Science of Flight course. The WIDS® model utilizes Gardner's Multiple Intelligences, and activities were integrated into the body of the lesson plan. The combination of the Revised Bloom's Taxonomy, WIDS® model, and AF format results in a hybrid lesson plan producing outcomes-based curriculum. These updates built on the 21st-century teaching and learning design features introduced in the new cultural studies and exploring space courses.

The new design includes course outcomes, learning outcomes, learning objectives, and project-based learning assessments.

"Course Outcomes" replace course objectives:

- Start with a single cognitive domain verb at a higher level of learning using "Revised Bloom's Taxonomy" (Apply, Analyze, Evaluate, and Create)
- Describe what you want your learners to be able to "do" with what they "know"
- Are measurable and observable through performance assessments

"Learning Outcomes" indicate desired lesson outcome:

- This is "what" students should learn to do by the end of each lesson
- Identifies the major skill or knowledge targeted in each lesson
- Indicates a single outcome per lesson

"Learning Objectives" replace lesson objectives and samples of behavior:

- Serve as the benchmarks for learning
- Learning activities support learning objectives; provide opportunities to "learn the outcome"
- Multiple learning objectives for each lesson' starts with related action verb

"Project-Based Learning and Assessments":

- Knowledge is taken into account, but the primary evidence is performance
- Performance assessment task includes performance standards, performance condition, and criterion, and defines when proficient

National Standards and Standards-Based Curriculum

In 2003, the courses were correlated to national standards using the Mid-Continent Research for Educational and Learning (McREL) standards. This "Standards and Benchmark Review" correlation of the curriculum was performed by Troy University in Montgomery Alabama; the only course not included was Survival.

Beginning in 2006 as the courses were revised, the national education standards were added into the course materials—in the textbooks for courses published through 2008, then in the Instructor Guide for publications 2010 and later. In addition to the McREL standards, the other national standards alignments include the:

- *National Science Education Standards (NSES),*
- *Next Generation Science Standards, (NGSS)*
- *Math Standards and Expectations,*
- *National Council for the Social Studies (NCSS),*
- *Geography for Life – National Geography Standards,*
- *ISTE National Educational Technology Standards for Students (NETS●S),*
- *Common Core English-Language Arts National Standards,*
- *Common Core State Standards for Mathematics, and*
- *National Health Education Standards (NHES).*

NOTE: Common Core Standards for Mathematics have been correlated for content in chapters 1 and 2 of LE 300. Common Core English-Language Arts National Standards have been included in LE 200 and AS 100 revisions.

The correlations and alignments provide the foundation for standards-based curriculum and should assist you in meeting your district and state requirements.

Formative and Summative Assessments

The lessons incorporate rigorous formative and summative assessments that focus on standards-based student-centered activities and projects. There are individual, group, and class activities and technology enrichment based on the objectives; readings; writing and reflection; review questions; video segments; and assessments to guide in the reinforcement of the materials. In many instances, the teacher acts as a facilitator. The technology enrichment activities also go beyond the basic fact-finding to enable the students to apply, analyze, and/or evaluate what they've discovered through their web-based research.

The activities and projects are designed to facilitate higher-order thinking skills and actively engage students while bringing the courses into the 21st-century. Most of the activities and projects enable the students to attain at least the comprehension level, and many of them go beyond to the application and higher levels.

The formative assessments include the "Checkpoints" Review questions in the textbook at the end of each lesson; CPS/TPC lesson learning check, review, and vocabulary questions; and activities with individual and collaborative group work. Summative assessments consist of the test bank items with student workbook-type questions, and projects with rubrics.

Each unit or chapter culminates with a capstone project using project-based learning (PBL) and assessment. The PBLs involve a project or problem incorporating real-world problems. Students work in collaborative groups to solve problems or create projects using authentic tasks; the projects embrace 21st-century skills. There are also detailed project rubrics for research and writing, group work, and project presentations.

Assessments are linked to the course objectives/outcomes and the lesson objectives. This alignment illustrates the correlation:

Course Outcome: Analyze how economic, political, and social factors impact cultures.

Learning (lesson) Outcome: Describe the economic and social issues in Asia.

Learning Objective: Describe the environmental impact of industrialization without regulatory standards in China.

Lesson Activity: Conduct research and deliver a presentation on an assigned economic or social issue.

Test question: What is the most significant environmental problem facing China today?

Chapter Project: As a group, present a newscast on issues and/or topics facing Asia. Investigate the issues/topics and examine the impact of events.

Alignment of Course Outcomes Through Course Assessments

IMPLEMENTING THE CURRICULUM

Preparing for the Classroom

The following section addresses areas of interest for new instructors in AFJROTC. It briefly discusses selected aspects of teaching.

What follows are suggestions to enable you to be the best instructor possible and have students learn what is expected of them through the AFJROTC curriculum in the most effective way. It will also make the job of teaching easier and more enjoyable:

1. ***Knowledge of Content.*** *Know what to teach (the subject), in what amounts, in what sequences, at what rates, with what expectancies and standards of achievement.*

2. ***Use of Materials.*** *Use all appropriate facilities and services provided by the Air Force, the school, and the community.*

3. ***Human Relations.*** *Relate to the students with respect to their background, goals, readiness, aptitude, intelligence, and adjustment problems.*

4. ***Classroom Management.*** *Understand the learning process and the adolescent you are teaching.*

5. ***Planning.*** *Select and prepare instructional materials and equipment. Plan and direct cadet activities to ensure appropriate motivation, control, and educational experiences.*

6. ***Assessment.*** *Assess and evaluate student achievement.*

Teaching Methods

Here are the various methods, tools, and activities used in the courses. They include the original methods identified in the *Guidebook for Air Force Instructors*, and the 21st-century learner-centered approaches. In the learner-centered (experiential) methods, the teacher is a facilitator/guide.

<table>
<tr><th>Original Teacher-Centered
(The teacher directs the learning process)</th><th>Original Learner-Centered
(Focuses on student interaction and activity)</th></tr>
<tr><td>Informal lecture
Class Discussion
Guided Discussion
Teaching Interview
Demonstration
Reading</td><td>Small Group Discussion
Case Study
Role Playing
Brainstorming
Performance
Field Trip
Simulations</td></tr>
<tr><th colspan="2">21st-century Learner-Centered</th></tr>
<tr><td colspan="2">Discovery Learning: Inquiry-based learning method
Inquiry Learning: Problem-based learning
Cooperative Learning: students work in small groups to solve a problem or complete a task
Project-based learning or Problem-based learning (PBL): incorporates real-world situations or problems using authentic tasks; students work in collaborative groups to create projects utilizing 21st-century skills such as critical thinking, communication, collaboration, and problem solving
Digital Storytelling/Gamification
Graphic Organizer: strategy/tool
Virtual Field Trip</td></tr>
<tr><th colspan="2">Methods Identified in Lesson Plans</th></tr>
<tr><td>Informal Lecture with Discussion
Individual Writing and Reflection
Individual and Group Activities
Class/Small Group Discussion</td><td>Internet Research
Reading
Chapter Project</td></tr>
<tr><th colspan="2">Tools and Activities</th></tr>
<tr><td>Journal/Blog: method of communication
K-W-L Chart: tool
Crossword Puzzle: tool/activity
Outline Map: activity
Worksheet/chart and surveys</td><td>Podcasting: activity
Rubrics: tools
CPS/TPC
Technology Enrichment
Academic Challenge (CPS team activities/games)</td></tr>
</table>

Good teaching methods aid learning. The instructor should choose a teaching method (also called instructional method and/or strategy)—not in terms of instructor activities—but in terms of the students' activities as a learner. In making this decision, the instructor considers the ways people learn—by doing, discussing, listening, observing, and participating. The instructor's role is to select an organized set of activities that will result in meaningful, learning experiences for the students.

Because no one method is suitable for all teaching situations, examples of many methods are covered here. To determine an appropriate method, if the desired outcome is knowledge, students should probably observe and listen so they can relate what is seen and heard to their own experiences. If students must learn to apply a principle, the instructor might ask them to solve a problem or perform some task requiring an application of that principle. If students are to gain skill in performing a certain task, one of their activities should be to practice performing the task. The individual methods are grouped into three broad major categories—presentational methods, student verbal interaction methods, and application methods.

Presentation Methods
Informal lecture, briefing, guest lecturer, dialogue, teaching interview, panel, skits, coaching, tutoring, reading, programmed instruction, modular instruction, computer-assisted instruction, mediated instruction
Student Verbal Interaction Methods
Socratic method, student query, guided discussion, free discussion
Application Methods
Individual Projects, field trips, case studies, and experiential learning • Experiential learning activities include real-life simulations, role playing, in-basket exercises, organizational or management games, and flight simulators.

Presentational methods provide situations in which the skill or material to be learned is in some way presented to or demonstrated for the learner. In some presentational methods there is little, if any, activity or interaction required of students other than their attention and desire to learn. In other instances, there is considerable student activity involved. What distinguishes these methods from the other categories is that students begin the learning experience with little or no previous exposure to the material or skills to be learned.

Student verbal interaction methods present situations in which students interact verbally with an instructor, group leader, or with each other. Learning is enhanced as students deal with the material as a group. These methods presuppose a certain amount of previous preparation by the students.

Application methods provide learners with opportunities to apply previously learned material in situations calling for the practical use of the material. Some application methods require students to relate material already learned to new experiences and mentally recognize how the material applies; that is, to transfer concepts to new situations. Other application methods require students to apply previously learned materials to new situations for the purpose of making decisions or solving problems.

The following provides a brief description of the most commonly used methods in the AFJROTC courses:

1. **Lecture Method.** The teaching lecture is a formal or informal presentation of information, concepts, or principles by a single individual. The learning experience is essentially passive. In the informal lecture, the size of the group is usually smaller than the formal lecture and student participation develops when the instructor questions the students or they question the instructor on points presented.

2. **Questioning Method.** Questioning as a method is used to emphasize a point, stimulate thinking, keep students alert, check understanding, review material, and seek clarification.

3. **Non-Directed Discussion Method.** Non-directed discussion is a group interactive process in which task or objective-related information and experiences are evoked from the student. The instructor normally plays a very limited or passive role.

4. **Guided Discussion Method.** The guided discussion is an instructor-controlled, interactive process of sharing information and experiences related to achieving an educational objective. The difference between non-directed discussion and guided discussion is the instructor's active involvement in asking questions and summarizing the concepts and principles learned. Students are encouraged to learn about a subject by actively sharing ideas, knowledge, and opinions. The flow of communication is a transaction among all the students rather than question and response between individual students and the instructor.

5. **Teaching Interview.** The instructor questions a visiting expert and follows a highly structured plan that leads to educational objectives. The advantage of the teaching interview over the guest lecture is that the instructor controls the expert's presentation. The expert normally requires little or no advance preparation but responds extemporaneously from general experience. When a question-and-answer period follows the interview, students can interact with the expert.

6. **Case Studies.** The case study is a learning experience in which students encounter a real-life situation to achieve some educational objective. By studying realistic cases in the classroom, students develop new insights into the solution of specific on-the-job problems and acquire knowledge of the latest concepts and principles used in problem solving.

   Case studies designed to reach the levels of apply, analyze, evaluate, and/or create are within the scope of the term Application Method. However, case studies designed to reach only the level of understand may be defined better as a Student Verbal Interactive Method. The complexity of the case, the level of the objective, and how the case is conducted will have a major impact on whether it is one or the other.

7. **Demonstration-Performance Method.** The demonstration-performance is the presentation or portrayal of a sequence of events to show a procedure, technique, or operation, frequently combining oral explanation with the operation or handling of systems, equipment, or material. This method is the most common small group learning experience in a classroom or laboratory (which requires significant instructor intervention) to develop learner skills in the operation of equipment or the acquisition of mental skills.

8. **Experiential Learning.** The experiential method of learning centers on the students participating in structured learning activities that focus on a specific learning objective. Ideally, the activity has a direct real-world relevancy.

CURRICULUM DEVELOPMENT

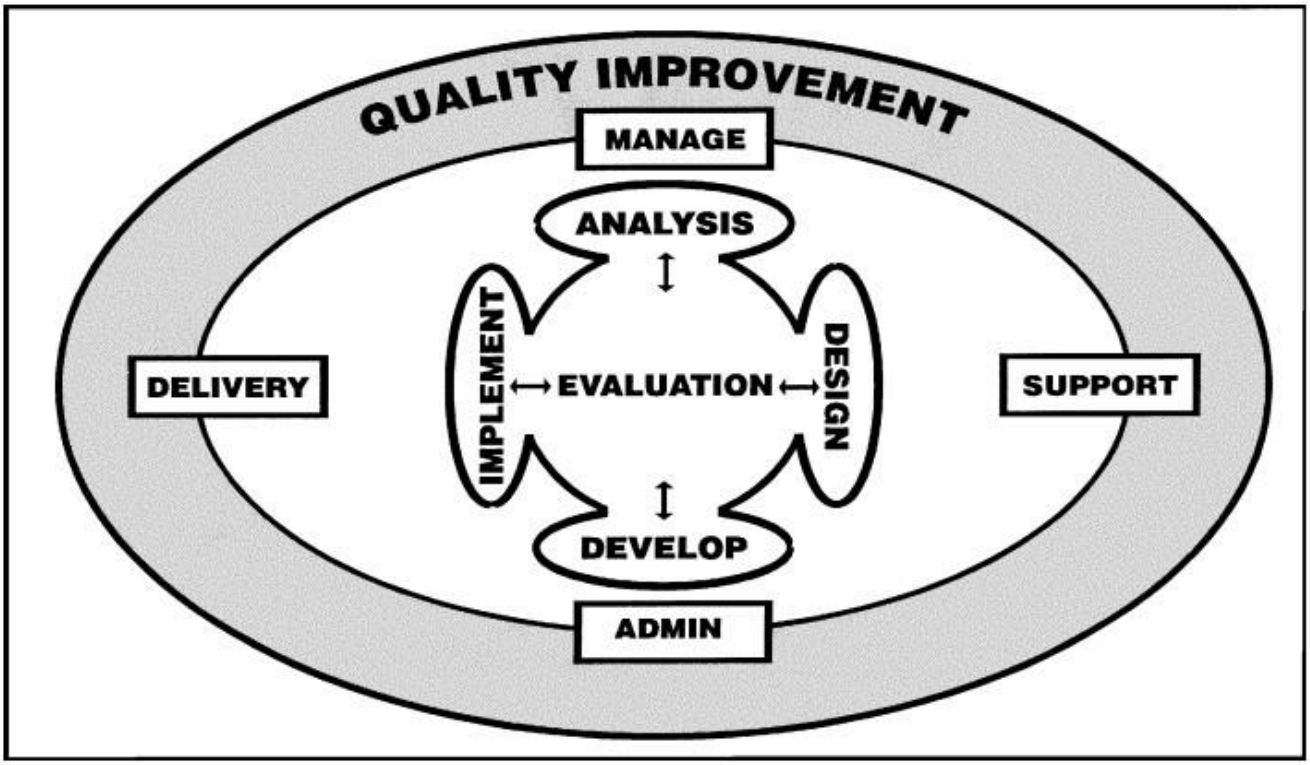
The AFJROTC curriculum is the result of an extensive and continuous review using the Instructional System Development (ISD) process. ISD is a deliberate and orderly, but flexible process for planning, developing, implementing, and managing instructional systems. It ensures that personnel are taught in a cost-efficient way the knowledge, skills, and attitudes essential for successful performance.

Instructional System Development Process

The process involves instructional systems specialists, teachers, leadership, independent researchers, and evaluators from the academic and military environments. The ISD process requires instructional specialists to analyze and determine what instruction is needed, design instruction to meet the need, develop instructional materials to support system requirements, so teachers can implement the instructional system. During the process, evaluation is a central function that takes place in each phase. This model is like the **ADDIE** model: **A**nalyze, **D**esign, **D**evelop, **I**mplement, and **E**valuate.

The ISD model represents simplicity and flexibility so instructional system specialists can use it to develop effective, efficient instructional systems. The model depicts the flexibility that instructional developers have to enter or reenter the various stages of the process as necessary.

Entry or reentry into a particular stage of the process is determined by the nature and scope of the development, update or revision activity.



Air Force ISD Model

System Functions

The system functions of the ISD model are:

- **Management** - The function of directing, controlling instructional system development and operations.
- **Support** - The function of maintaining all parts of the system.
- **Administration** - The function of day-to-day processing and record keeping.
- **Delivery** - The function of bringing instruction to students.
- **Evaluation** - The function of gathering feedback data through formative, summative, and operational evaluations to assess system and student performance.

Using these essential functions to design the overall instructional system and then allocating them to the respective instructional system components, or people responsible, ensures that these functions are operational when the total training system is used. ISD products are integrated into the total instructional system, and aspects of the instructional system functions are active throughout all phases of the ISD process.

The model shows the phases used in the systems approach, which are analysis, design, development, and implementation, with the evaluation activities integrated into each phase of the process. The phases are embedded within the system functions. Evaluation is shown as the central feedback "network" for the total system.

ISD Phases

The instructional development process enables the collaborators to:

- **Analyze** and determine what instruction is needed.
- **Design** instruction to meet the need.
- **Develop** instructional materials to support system requirements.
- **Implement** the instructional system.
- **Evaluation is a central function that takes place at every phase.**
- **Analysis Phase –** In this first phase, it is determined what students need to know and do to meet course requirements and national, state, and/or district standards as applicable. Course tasks are analyzed and compared with the skills, knowledge, and abilities of the incoming students. Many of the requirements for Junior ROTC were reviewed by the US Congress and specified in General Military Law, U.S.C Title 10, Chapter 102. This law sets the tasks/functions and identifies job components.
- **Design Phase –** Instructional objectives/outcomes and tests are created, and the instruction is designed. A detailed plan of instruction is developed and includes selecting the instructional methods and media and determining the instructional strategies. Existing instructional materials are reviewed during this phase to determine their applicability to the specific instruction under development.
- **Development Phase -** Both the student and instructor lesson materials are developed. These include media such as video segments, interactive courseware (ICW), and training devices.
- **Implementation Phase -** The instructional system has been designed and developed, and it is now time for the actual system to become operational. In this phase, the instructional system is executed by the teachers.

- **Evaluation** is a *continuous process* beginning during the analysis phase and continuing throughout the life cycle of the total instructional system. Evaluation consists of:
  - Formative Evaluation consists of process and product evaluations conducted during the analysis and design phases, and validation is conducted during the development phase. Included are individual and small group tryouts.
  - Summative Evaluation consists of operational tryouts conducted as the last step of validation in the development phase.
  - Operational Evaluation consists of periodic internal and external evaluation of the operational system during the implementation phase.

Each form of evaluation should be used during development, update, and revision of instruction, if possible, and if the form of evaluation is applicable.

Writing Student-Centered Objectives and Tests

When deciding what to teach and how to measure success in the teaching environment, there are many things to determine in the lesson-planning process. These include who our students are, what they will need to know, how we will present the material to them, and what our students will be able to do once they have received and processed the information we present. To do this, it is important to write student-centered objectives and tests that focus on the abilities we want the students to display after having received the instruction. With student-centered objectives and tests, teachers are better able to plan teaching activities designed to efficiently impart and display the knowledge we want the students to learn.

Planning for Student-Centered Outcomes

Since the 1950s, there has been a movement within civilian and military education to promote student-centered instruction using appropriate objectives. As a result, student-centered objectives that describe learning in terms of student outcomes versus instructor inputs have been used for over four generations of education.

With the continued push for accountability in schools, the trend toward student-centered instruction is sure to continue. We have found that this approach is "results driven," goal oriented, and client centered. It is so much more effective in meeting our educational goals that it is the standard. Moreover, since student learning is defined in terms of objectives, our measurement of success in instructing is now based on comparing student performance to the objectives rather than on comparing students to each other in each class. Hence, we have a more accurate, objective, and stable foundation on which to make academic judgments about our students and predictions of their future success.

Domains of Learning and Learning Taxonomies

Learning may be defined as *a change in behavior based on instruction*. Students should perform differently after receiving instruction. Moreover, if we have used student-centered objectives, that behavior should be what we predicted it would be.

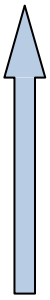
Domains of Learning

Learning takes place within one or more of the domains of learning: the cognitive domain (knowledge/thinking), the affective domain (attitude/feeling), and the psychomotor domain (skills/doing). There are different learning taxonomies—*classification systems*—for each of these domains. Each taxonomy is divided into sub-categories ranging from the simplest to the most complex. These educational taxonomies are used when writing objectives and help instructors classify student-learning outcomes.

The Cognitive Domain Taxonomy by Bloom[1]

The cognitive taxonomy of Dr. Benjamin Bloom is used as a frame of reference to plan instruction and to give us a better understanding of the range of possible cognitive learning outcomes. By using this taxonomy, or classification of learning outcomes, we will carefully specify behaviors that will give us reasonable evidence of learning at the various levels of knowledge and understanding.

Cognitive Taxonomy by Bloom



Levels/Categories	Definition
Evaluation	• Judging the value of material for a given purpose
Synthesis	• Assembling parts together to form new patterns or structures
Analysis	• Breaking down material into parts
Application	• Using learned material in new situations
Comprehension	• Understanding (translation, interpretation, extrapolation)
Knowledge	• Remembering/recall of specifics

[1]Adapted from Bloom, B.S., (Ed.), Englehart, M.D., Furst, E.J., Hill, W.H., & Krathwohl, D.R. (1956). *Taxonomy of Educational Objectives, The Classification of Educational Goals, Handbook I: Cognitive Domain.* New York: Longmans, Green and Company, Inc.

The Revised Bloom's Taxonomy[2]

The Revised Bloom's provides a more authentic tool for curriculum design, teaching and learning processes, and assessment. It focuses on outcome-based objectives, which forms the basis for content, delivery, activities, and assessments. The categories (levels of learning) changed from nouns to active verbs, since thinking is an active process. In addition, three of the six categories were renamed, and the highest two were rearranged. For example, "knowledge" became "remember" and "comprehension" became "understand." The categories are remember, understand, apply, analyze, evaluate, and create.

Revised Bloom's Taxonomy

Levels/Categories		Definitions and Cognitive Processes
Original	***Revised***	
Evaluation	**Create**	• Put elements together to form a coherent or functional whole; reorganize elements into a new pattern of structure (generating, planning, producing)
Synthesis	**Evaluate**	• Make judgments based on criteria and standards (checking, critiquing)
Analysis	**Analyze**	• Break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose (differentiating, organizing, attributing)
Application	**Apply**	• Carry out or use a procedure in a given situation (executing, implementing)
Comprehension	**Understand**	• Construct meaning from instructional messages, including oral, written, and graphic communication (interpreting, exemplifying, classifying, summarizing, inferring, comparing, explaining)
Knowledge	**Remember**	• Retrieve relevant knowledge from long-term memory (recognizing, recalling)

[2]Adapted from Anderson, L.W. & Krathwohl, D.R. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives.* New York: Longman.

The Affective Domain Taxonomy by Krathwohl[3]

A similar scheme for specifying attitudinal objectives was developed by Dr. David R. Krathwohl. Like the Bloom taxonomy, Krathwohl attempted to arrange attitudinal objectives in an order of difficulty. Behavioral evidence is attached to the various levels of this taxonomy for purposes of measurement.

Affective Taxonomy by Krathwohl

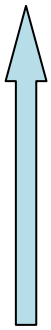
Levels/Categories	Definition
Characterization	• Incorporates value into lifestyle
Organization	• Relating to other values
Valuing	• Acceptance with developing commitment
Responding	• Willingness to act
Receiving	• Awareness and attention

[3]Adapted from Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1964). *Taxonomy of Educational Objectives, The Classification of Educational Goals. Handbook II: Affective Domain.* New York: David McKay Company, Inc.

The Psychomotor Domain by Simpson[4]

Elizabeth Simpson created the psychomotor domain taxonomy; it includes physical movement, coordination, and the use of motor-skills areas and deals with the development of physical tasks. Students' success in learning is assessed by having them complete an evaluation that demonstrates the same physical or mental skill described in the objective.

PsychomotorTaxonomy by Simpson



Levels/Categories	Definition
Origination	• Creating new movement pattern
Adaptation	• Modifying motor actions to fit changing situations
Complex Overt Response	• Performance involves controlled accuracy
Mechanism	• Actions are habitual and performed with confidence
Guided Response	• Overt imitation of instructor's actions
Set	• Readiness to perform motor action
Perception	• Focuses all senses to guide motor action

[4]Adapted from Simpson, E.J. (1972). *The Classification of Educational Objectives in the Psychomotor Domain: The Psychomotor Domain, Vol. 3*. Washington, DC: Gryphon House.

Develop Lesson Objectives

Lesson Objectives and Indicators/Samples of Behavior

It is usually helpful to plan learning systems with a general-to-specific strategy; that is, by starting with general objectives (referred to as "outcomes" in some environments) and ending with very precise performances. By writing general, carefully developed, non-behavioral objectives or outcomes as the first step in planning, we are better able to describe the general type of behavior to look for from our students. It is very important to decide the level of learning before we attempt to describe its evidence by precise behavior. In each course, the level of learning is illustrated using the verbs from Bloom's cognitive domain.

After we have carefully communicated the level of learning we want our students to reach, we must decide which student behaviors we will accept as evidence of learning. The more specific samples of behavior (SOB) are observable and measurable behavioral indicators that help us determine if the student has achieved our general learning objective. Because we cannot "see" comprehension, we use samplings of behavioral indicators to measure our instructional success.

We can define a sample of behavior as *a statement that specifies one of several measurable, observable, reliable, and verifiable behaviors that students should be able to demonstrate at the end of a period or block of instruction and which gives us significant evidence they have achieved our objectives*. These samples begin with an action verb and eventually become the basis for our evaluation, most often in the form of test items.

Certain behavioral verbs lend themselves for use at each level of the taxonomy. However, the same verb may be used at different levels of the taxonomy, depending on the context. The verb must reflect an observable behavior and the same level of learning as specified in the objective or outcome. If the sample is written at a higher or lower level, it will invalidate the effort to assess achievement of the objective at the specified level.

Here are some related action verbs based on the **"Revised Bloom's Taxonomy"**:

Levels of Learning	Related Action Verbs
Remember	Define, describe, find, identify, label, list, locate, match, name, outline, recall, relate, select, state, tell, write
Understand	Compare, contrast, describe, discuss, explain, generalize, give examples, identify, outline, paraphrase, predict, recognize, research, restate, summarize, translate
Apply	Classify, complete, compute, construct, demonstrate, examine, illustrate, manipulate, modify, operate, practice, prepare, sequence, show, solve, use
Analyze	Categorize, characterize, classify, compare, contrast, correlate, debate, determine, differentiate, distinguish, examine, explain, identify, investigate, research, sequence
Evaluate	Appraise, assess, choose, decide, debate, discriminate, judge, justify, rate, recommend, prioritize, score, select, value
Create	Compose, construct, design, develop, formulate, generate, hypothesize, imagine, invent, plan, predict, prepare, produce, set up

Criterion-Referenced Objectives

The criterion-referenced objective (CRO), on the other hand, is found extensively in training environments. In this environment, students are usually learning a task they must perform. The CRO, when written as a performance, condition, and standard, is inherently observable and measurable. Both the indicator/SOB and the CRO are attempting to define the behavior we expect from the student once the instruction is complete. The SOB is taking a cognitive and/or affective outcome and making it observable and measurable while the CRO is defining the expectations of the student while performing a specific task under specified conditions.

The difference between a SOB and a CRO is that the CRO is more specific and detailed and usually states the standards and conditions. However, a comprehensively written SOB may contain all the elements of a CRO. Also, a simple CRO may read like a SOB if either or both conditions or standards are assumed. Rather than split hairs about where the SOB leaves off and the CRO begins, remember that the SOB generally contains only a statement of performance. The criterion objective generally goes into more detail by adding standards and conditions to the performance statements.

The essential elements of a criterion objective include:

- **Conditions**: A description of the testing environment including those problems, materials, and supplies that will be given (included) or specifically excluded from a measurement situation.
- **Performance**: The observable student behavior (or the product of that behavior) acceptable to the instructor as proof that learning has occurred.
- **Standards**: The qualitative and quantitative criteria against which student performance or the product of that performance will be measured to determine successful learning.

A Comparison of Indicators/Samples of Behavior and Criterion-Referenced Objectives:

Illustrative Samples of Behavior –	**Interpreted as a Criterion Objective**
1. Define (insert term)	Without the use of references, define...according to AFM xx-xxx. (remember)
2. Give an example of (insert concept)	Given the concept of...as developed in class, give new examples of (insert concept) consistent with its attributes. (understand)
3. Prepare a position paper on (insert subject)	Using resources, local experts, and a topic assigned from the area of..., prepare a position paper which meets the content and format standards provided in class and in the assigned text. (apply)

Develop Criterion Tests

The lesson-planning process concludes with the construction of test items and tests to measure learning. At this point, we construct test items from indicators or samples of behavior to measure our objectives. These test items are one method we use to gather evidence that students have learned what we intended them to learn. Test items are written prior to instruction because we will use these requirements to determine what needs to be taught. The support material in the lesson should enable the student to perform the indicators or samples of behavior.

The practice of measuring the achievement of stated objectives—known as criterion-referenced testing—is a rigorous process used to assess student-centered objectives. The following provides an example of the process for writing student-centered test items.

1. **Determine the Lesson Objective:** Know the meaning of leadership.
2. **List the Sample/Indicator of Behavior:** Identify the definition of leadership.
3. **Develop Criterion-Referenced Test Item:** Leadership is defined as:
   a. The willingness to exercise management control over subordinates.
   b. The ability to lead a group in a working environment.
   c. The process of inspiring effective individual effort in a group environment toward achieving an objective.
   d. Planning, organizing, staffing, directing, and controlling the capital, material, and human resources of an organization.

Types of Test Items

Written tests are the most frequently used means of measuring how well students achieve learning objectives. Here are some suggestions for preparing test items:

1. Keep the wording simple and direct.
2. Avoid tricky or leading questions.
3. Keep all items independent of other items on the test.
4. Crucial words or phrases in the stem should be underlined, capitalized, italicized, or otherwise highlighted. If possible, avoid negatives because they are often missed.
5. Include sketches, diagrams, or pictures when these will present information to the student more clearly than words.

Selection Test Items

Selection test items require students to select the correct response from a list of responses. Multiple-choice, true-false, and matching are examples of selection items.

Advantages:

1. Since students only have to identify the correct answer, two or more people can score selection items without letting personal bias or opinions affect the result.
2. Selection items take comparatively little time to answer. Students only have to read the item and choose between the responses provided rather than write out their answers.
3. Selection items can be readily analyzed statistically. Since answers to selection items are either right or wrong, statistical analysis is relatively easy.

Disadvantage:

A distinct disadvantage of selection test questions is the possibility of successful guessing. Students have a 50% chance of correctly answering true-false items and about a 25 to 33% chance (depending on the number of choices) of answering multiple-choice items correctly.

Multiple-Choice Items. The multiple-choice item can be used to measure student achievement and works equally well when a test problem has one correct answer or one best answer from an assortment of plausible answers. Certain standard terms are used in the construction of multiple-choice items. The preliminary sentence that poses the question or states the situation is known as the "stem." Possible answers that can be selected by the students are known as "alternatives." The correct answer is the "keyed response," and incorrect answers are called "distracters." Distracters are designed to attract less-informed students away from the correct answer.

Tips for Preparing the Stem of a Multiple-Choice Item:

1. Write the stem so it clearly represents the central problem or idea. The function of the stem is to set the stage for alternatives.
2. Only place the material in the stem relevant to the idea or to the solution of the problem unless selection of relevant material is part of the problem.
3. Make sure the stem does not reveal the correct response. Avoid clue words or phrases.
4. Include language in the stem common to all alternatives to avoid repetitious wording and to save reading time for the student.
5. Avoid any wording unnecessary to answer the question.

6. Avoid negative statements whenever possible because they often confuse the student.
7. Exercise caution when using the articles "a" or "an" at the end of the stem. These articles may reveal the correct response if all alternatives do not conform grammatically to the stem

Tips for Preparing the Alternatives of a Multiple-Choice Item:

1. Avoid clue words such words as "all," "always," "never," "usually," and "sometimes."
2. Make sure all alternatives are approximately the same length; longer statements in the correct alternatives may be a clue to the correct answer.
3. When alternatives are numbers, list them in ascending or descending order.
4. Make all alternatives plausible.
5. Place correct alternatives in random positions throughout the total test.
6. Avoid using the alternative "all of the above" and/or "none of the above." If you must use them, be extremely cautious.

True-False Items. The true-false test items are useful in testing knowledge of facts, especially when there is little question whether a statement about a fact is either right or wrong. True- False items may also be used to determine the persistence of popular misconceptions when the suggestion of a correct response in a multiple-choice item would be too obvious. The chief disadvantage of the true-false item is that the possibility of correct guessing, particularly in simple items, is greater than in any other type of selection test item.

Tips for Preparing True-False Items:

1. Do not make part of a statement true and another part false.
2. Avoid the use of negatives. They confuse the reader.
3. Avoid involved statements. Keep wording and sentence structure as simple as possible. Make statements clear and definite.
4. Whenever possible, use terms that mean the same thing to all students and write short, simple statements.
5. As a rule, avoid absolutes, such as "all," "every," "only," "no," and "never." Similarly, avoid statements containing "some," "any," and "generally."
6. Avoid patterns in the sequence of responses because students can often identify sequence patterns.
7. Make statements brief and uniform rather than writing true statements longer than false statements.

Matching Items. The matching test item, with several variations, presents many of the advantages of the multiple-choice item. It is particularly useful in measuring understanding of closely related concepts or facts. The matching item is actually a collection of related multiple-choice items. Thus, the matching format provides a more compact form for measuring the same learning and can allow the more efficient use of testing time.

Tips for Preparing Matching Items:

1. Give specific and complete instructions. Do not make students guess what is expected of them.
2. Test only essential information; never test for unimportant details.
3. Use closely related materials throughout an item. When students can divide the set of alternatives into distinct groups, the item is reduced to several multiple-choice test items with just a few alternatives. This increases the possibility of guessing the correct answer
4. To minimize guessing by elimination, make all alternatives plausible.
5. Arrange the alternatives in some logical order. Alphabetic arrangements are common.
6. If alternatives are not to be used more than once, provide three or four extras to reduce guessing.

Supply Test Items/Open Ended

A supply test item requires students to furnish their own answers. They are not given alternative responses from which to choose. The basic forms of supply questions are completion, short answer, and essay. Supply test items are mechanically easier to construct than selection items but far more difficult to evaluate.

Advantages:

1. When the ability to express ideas or original thinking is to be measured, supply items have a distinct advantage over selection items. The ability to solve problems and to think creatively is seldom worthwhile end products in themselves; it is usually necessary to communicate the solutions or ideas to others, frequently in writing.
2. When developing the ability to write clearly is a legitimate course objective, supply items may be used effectively. Test items that call for a written discussion, such as the essay form, also give students an opportunity to express themselves—something students often like to do.

Disadvantages:

1. Constructing a supply item for which several equally competent instructors can give comparable scores is difficult. This difficulty in attaining objectivity often leads to reduced test reliability. The supply item requires considerably more time to score than a selection item.
2. Another disadvantage of the supply item stems from the ability of students to think and read more rapidly than they write.

Completion Items and Fill-in-the-Blank Items. Completion items and fill-in-the-blank items require the student to provide one or more words omitted from a statement. The student must supply at least part of the idea expressed in the statement. When the correct word or words are supplied in the proper blank, the statement is complete and true. This virtually eliminates the possibility of guessing and it is a timesaving device in comparison with the essay test. The completion and fill-in-the-blank items can be used in testing student ability to make verbal associations of the who, what, when, where, and why types. When possible, use completion and essay items to measure such student behaviors as explain, define, and describe.

Tips for Preparing Completion Items and Fill-in-the-Blank Items:

1. Construct a completion item so it contains only one blank in each sentence.
2. Write the statement so that the blank appears at or near the end of the item.
3. Be sure there is only one correct or best response for each blank.
4. When testing comprehension and higher levels of learning, write word completion statements so they differ from the way they were worded in texts or lectures
5. Make all blanks uniform in length and indicate whether a single blank always requires one word or whether short phrases may sometimes be supplied.
6. For convenience and accuracy in scoring, include a separate series of blanks arranged in a vertical column on the test page.

Short-Answer Items. In general, the short-answer item, as a type of supply test item includes features of both the completion and the essay item. It may be used in measuring the ability to recall facts, basic concepts, and principles.

Tips for Preparing Short-Answer Items:

1. Be specific. The student should know exactly what is expected.
2. Be sure each required answer involves a simple idea, concept, or fact.

3. Be sure students know how complete to make their responses.

Essay Items. The essay test items should be used only when students are required to think reflectively or creatively, to organize knowledge in the solution of a problem, and to express their solution in writing.

Tips for Preparing Essay Items:

1. Generally, use essay items to measure achievement at the comprehension or higher level of learning.
2. State the items clearly so students will know exactly what type of discussion is required and mean essentially the same thing to all students who have achieved the desired level of learning. Revise or eliminate all items with a double meaning.
3. Whenever possible, increase the number of test items and reduce the amount of discussion required for each.
4. Suggest a time limit for each item. Indicate the desired length of response, or otherwise limit responses.
5. As part of the instructions to students, explain how each item affects the final score of the overall test and the possibilities of partial credit for each item.
6. Avoid making the answer to a first item the basis for a second item.

Part II – Aerospace Science Courses

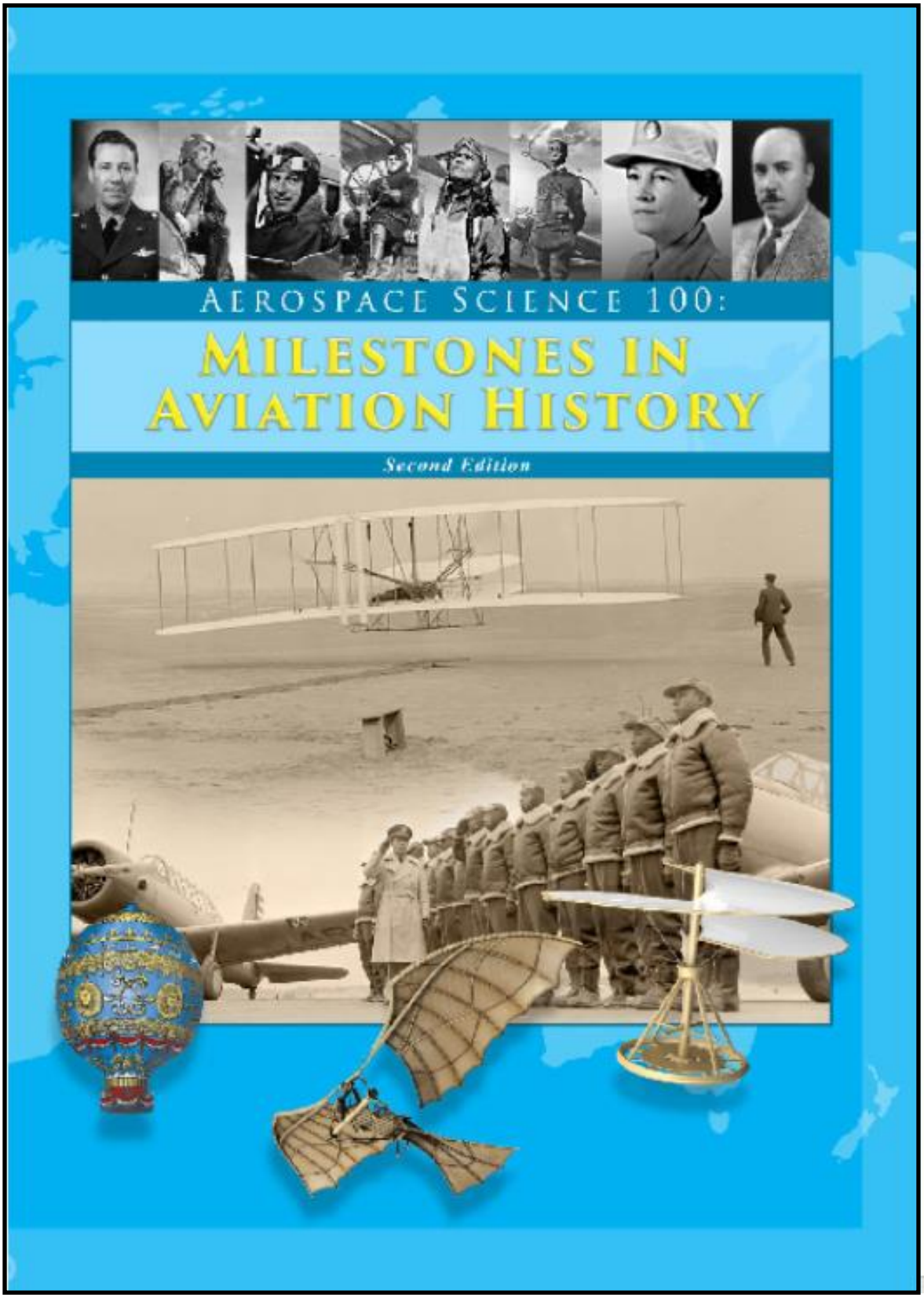
Aerospace Science courses are taught in four-year sequences. For organizational purposes, there are separate textbooks for these courses and the Leadership Education courses. In practice, however, the overlap is considerable. For example, writing and speaking skills are categorized as "leadership education topics" but can and should be incorporated into the "Aerospace Science" courses. Additionally, many of the Aerospace Science topics will be helpful in the Leadership Education classes.

Goals for Aerospace Science Courses

Students will learn about:

1. The development of flight, and civilian and military contributions to aviation.
2. How airplanes fly, how weather conditions affect flight, flight and the human body, and flight navigation.
3. Various cultures through the study of world affairs, regional studies, cultural awareness, people and places, religions, languages, political systems, economics, social issues, environmental concerns, and human rights.
4. The space environment, space exploration, manned and unmanned spaceflight, astronomy, and space technology.
5. The elements of surviving, personal protection, necessities to maintain life, and orientation and traveling.
6. The fundamentals of flight, flight operations, aviation weather, careers in aviation, performance and navigation, and integrating pilot knowledge and skills.

Aerospace Science Courses	
Course Title	**Max Contact Hours (Unless Waived)**
Aerospace Science: Milestones in Aviation History 2nd Ed	72
The Science of Flight: A Gateway to New Horizons 2nd Ed	72
Cultural Studies: An Introduction to Global Awareness 2nd Ed	72
Exploring Space: The High Frontier 2nd Ed	72
Management of the Cadet Corps	72
Survival	72
Aviation Honors Ground School	72
Honors Senior Project	36
Unmanned Aerial Vehicles (UAVs) / Quadcopter	18
Model and Remote-Control Aircraft	18
Weather Station "Air Environment"	18
Astronomy	18
Flight Simulator	18
StellarXplorers	18
CyberPatriot	18
Introduction to Cybersecurity (CAP)	18
Cyber Literacy	18
Introduction to Robotics	18
Model Rocketry (Basic)	18
Model Rocketry (Advanced)	18



Aerospace Science 100: Milestones in Aviation History 2nd Ed.

Published by C^2 Technologies, Inc.

Aerospace Science 100:
Milestones in Aviation History 2nd Ed.

This is the recommended first AS course for all new cadets. It is an aviation history course focusing on the development of flight throughout the centuries. It starts with ancient civilizations and flight, then progresses through time to future developments in aerospace, with an introduction into cyber technologies. The intent of this textbook is to bring alive the significant discoveries in flight a reality. This book tells the story of why we are so proud of our Air Force heritage ─ laying the foundation for future Air Force JROTC aerospace science courses. Throughout the course 21st-century learning is adopted with readings, video clips, hands-on learner centered activities, and chapter project-based learning opportunities.

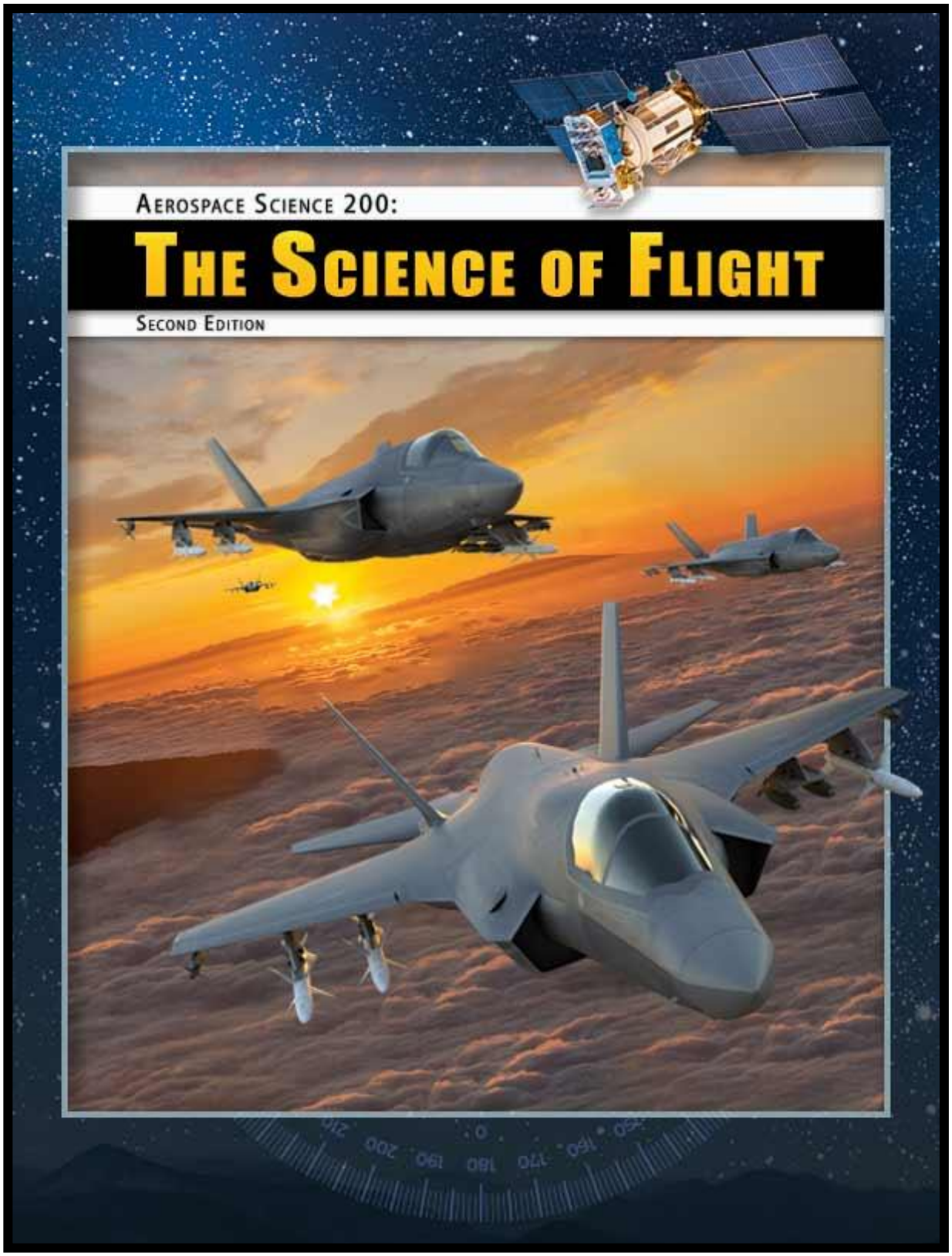
The Course Outcomes are:

1. Describe historical facts and impacts of the early attempts of heavier-than-air flight.
2. Analyze the impact World War I aviation had on commercial aviation.
3. Examine the role aerial bombing had on the outcome of World War II.
4. Investigate the impact commercial jet aviation has had on US travel.
5. Analyze the lessons learned from global use of US airpower.
6. Evaluate developing technology that will affect the US Air Force of the future.

Aerospace Science: Milestones in Aviation History 2nd Ed.

Chapter	Content	Recommended Hours
Chapter 1	Exploring Flight	12
Chapter 2	Developing Flight	12
Chapter 3	The Evolution of the Early Air Force	12
Chapter 4	Commercial and General Aviation Take Off	12
Chapter 5	The US Air Force is Born	12
Chapter 6	The Modern Air Force	12

Chapter Summaries, Learning Outcomes, and Learning Objectives can be found in the Curriculum SuperStore.



The Science of Flight: A Gateway to New Horizons 2nd Ed.

Published by C2 Technologies, Inc.

Aerospace Science 200:
The Science of Flight: A Gateway to New Horizons 2nd Ed.

The *Aerospace Science 200, The Science of Flight: A Gateway to New Horizons, 2nd Edition,* course has been completely rewritten to include the latest information and teaching philosophies, incorporating 21st century learning strategies. This new course provides students with up-to-date information on exploring the fundamentals of the science of flight. It all starts with an introduction to the principles of flight. Students will explore aircraft design, flight control, and aircraft power options. In addition, students explore weather concepts, the effects of flight on the human body, and how to navigate during flight. Finally, students will investigate the safety of flight and possible career options in the aviation industry.

This textbook is intended for high school students and complements material taught in high school history, science, and social studies courses.

The course contents have been correlated using Common Core State Standards for English Language Arts and Literacy (CCSS.ELA-Literacy) in History/Social Studies, Science, and Technical Subjects developed by the Common Core State Standards Initiative, International Society for Technology in Education (ISTE) Standards for Students (listed for technology activities), Next Generation Science Standards (NGSS), Common Core State Standards for Math, National Geography Standards by the National Council for Geographic Education, National Health Education Standards provided by CDC Healthy Schools, and Math Standards and Expectations by National Council of Teachers of Mathematics.

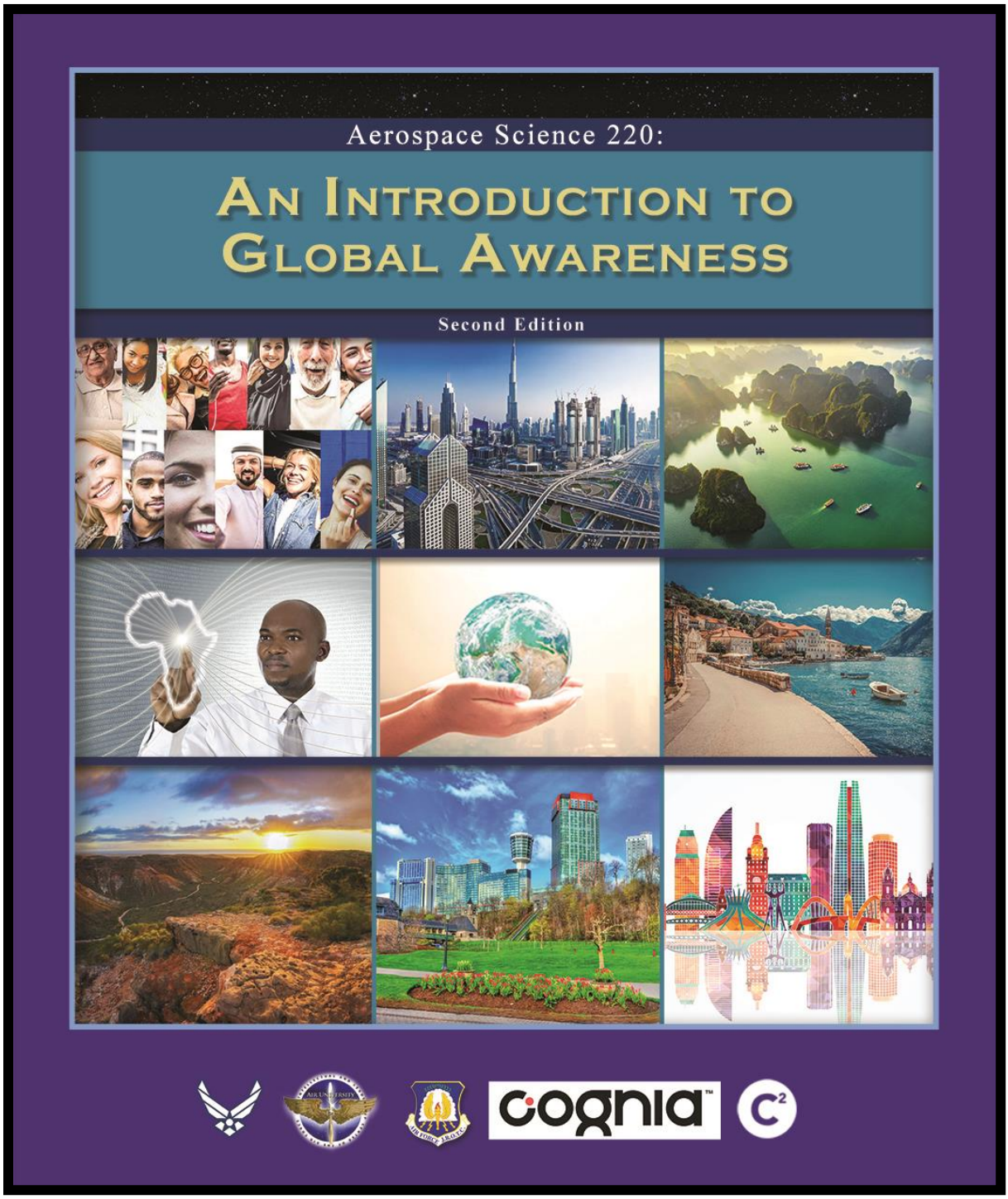
The course outcomes are:

1. Examine the key principles of flight and how aircraft are designed to take advantage of the principles of flight.
2. Examine the current and future methods for powering aircraft.
3. Analyze weather patterns and their effects on flight.
4. Evaluate the impacts of different flight regimes on the human body and methods for protecting humans during flight.
5. Evaluate the fundamental principles of flight navigation.
6. Examine the key aspects of flight safety and potential careers in the aviation industry.

The Science of Flight: A Gateway to New Horizons, 2nd Edition

Chapter	Content	Recommended Hours
Chapter 1	Dynamics of Flight	14
Chapter 2	Powering the Aircraft of Today and the Future	14
Chapter 3	Flight Conditions	12
Chapter 4	Flight and the Human Body	14
Chapter 5	Navigating the Skies	12
Chapter 6	Flight Safety and Careers	6

Chapter Summaries, Learning Outcomes, and Learning Objectives can be found in the Curriculum SuperStore.



An Introduction to Global Awareness
2nd Edition

Published by C² Technologies, Inc.

Aerospace Science 220:
An Introduction to Global Awareness, 2nd Edition

The contents of this course have been completely rewritten and are structured around the Twelve Domains of Culture model developed by the Air Force Culture and Language Center (AFCLC). The cultural domains in this model include family and kinship, political and social relations, sex and gender, economics and resources, sustenance and health, technology and material, religion and spirituality, aesthetics and recreation, language and communication, time and space, history and myth, and learning and knowledge.

This new course provides students with up-to-date information on exploring the concept of global awareness and the cultures of other regions throughout the world. It starts with an introduction of what global awareness is and the effects of technology on global culture. Students are then taken on a journey around the world, through different cultures in the Middle East, Asia, Africa, Latin America, Europe, and Australia. Finally, the students will be provided cultural information regarding Canada and Mexico.

The course contents have been correlated using the Common Core State Standards for English Language Arts and Literacy (CCSS.ELA-Literacy) in History/Social Studies, Science, and Technical Subjects developed by the Common Core State Standards Initiative, and the International Society for Technology in Education (ISTE) Standards for Students (listed for technology activities).

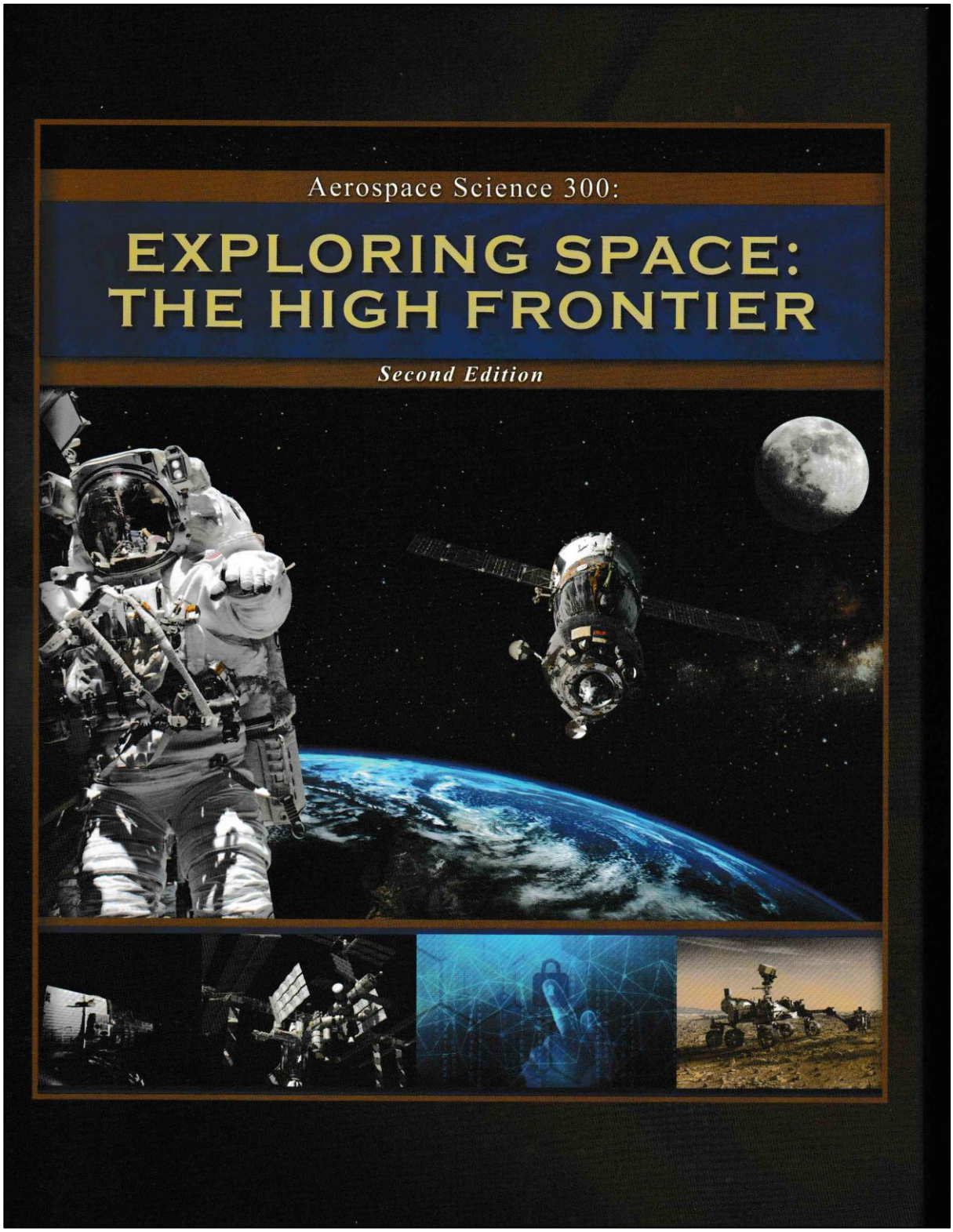
The Course Outcomes are:

1. Explain the importance of understanding cultures of other nations around the world.
2. Differentiate between the cultural aspects of countries in the Middle East.
3. Differentiate between the cultural aspects of countries in Asia.
4. Analyze the cultural aspects of the countries of Africa.
5. Examine the cultural aspects of the countries of Latin America.
6. Examine the cultural aspects of the countries of Europe.
7. Analyze the cultural aspects of Australia.
8. Differentiate between the cultural aspects of Canada and Mexico.

An Introduction to Global Awareness, 2nd Edition

Chapter	Content	Recommended Hours
Chapter 1	Introduction to Global Awareness	6
Chapter 2	The Middle East	10
Chapter 3	Asia	10
Chapter 4	Africa	10
Chapter 5	Latin America	10
Chapter 6	Europe	10
Chapter 7	Australia and Oceania	8
Chapter 8	North America	8

Chapter Summaries, Learning Outcomes, and Learning Objectives can be found in the Curriculum SuperStore.



Exploring Space: The High Frontier
2nd Edition

Published by C^2 Technologies, Inc.

Aerospace Science 300: Exploring Space: The High Frontier 2nd Edition

Aerospace Science 300: Exploring Space: The High Frontier, Second Edition is typically the third/fourth-year science course in the high school sequence of Aerospace Science courses for AFJROTC. This course has been completely rewritten to include the latest information and teaching philosophies, incorporating 21st-century learning strategies. This new course provides students with the latest information on exploring space and an introduction to cybersecurity and technology. It begins with early astronomy and the basic interest in the universe from the Greeks through the Renaissance and Enlightenment ages. Students will be provided with an in-depth view of the solar system, including Earth, the Sun, the Moon, and planets. The text also discusses the history of space travel and more modern space probes and robotics. Students will examine the effects of space on the human body. The text also investigates the history of rockets, launch vehicles, and the coordinated systems required for a successful launch into space. Finally, the text will offer a cybersecurity chapter that outlines the importance of cybersecurity in space and in daily life.

Course Outcomes:

1. Explain the history of astronomy throughout time.
2. Analyze the various elements of the solar system.
3. Investigate the components of space exploration and the current strategic plan for space exploration.
4. Analyze past space programs and the effect of space on the human body.
5. Examine the history of space exploration and the future of space travel.
6. Discuss the role of space probes and robotics in space exploration.
7. Evaluate the science and technology required for space travel.
8. Analyze the concept of cyber security and methods for staying safe online.

Aerospace Science 300: Exploring Space: The High Frontier 2nd Ed

Chapter	Content	Recommended Hours
Chapter 1	The History of Astronomy	9
Chapter 2	The Solar System	9
Chapter 3	Space Exploration	9
Chapter 4	Space Programs	9
Chapter 5	Space Stations and Beyond	9
Chapter 6	Space Probes and Robotics	9
Chapter 7	Orbiting, Space Travel, and Rockets	9
Chapter 8	Cyber Security	9

Chapter Summaries, Learning Outcomes, and Learning Objectives can be found in the Curriculum SuperStore.

Aerospace Science 400: Management of the Cadet Corps

The cadets should be in a leadership position, managing cadet corps programs by their fourth year in the AFJROTC program. Not every leadership position needs to be held by fourth year cadets and AS 400 is intended for 4th year cadets who hold corps management positions. ***However, if necessary due to low number of 4th year cadets, 3rd year cadets may be placed in corps management positions and enrolled in AS 400***. AS 400 is not intended for cadets who do not hold corps management/leadership positions and instructors should ensure only those cadets holding corps management/leadership positions are enrolled in the course. This hands-on experience affords cadets the opportunity to put theories of previous leadership courses into practice. Planning, organizing, coordinating, directing, controlling, and decision-making will be done by cadets. They will put into practice their communication, decision-making, personal interaction, managerial, and organizational skills. Instructors should keep in mind that since there is no textbook for this course, the course syllabus will be structured so that cadets achieve course objectives by completing corps management activities.

The course objectives are:

1. Apply theories and techniques learned in previous leadership courses.
2. Analyze how to develop leadership and management competency through participation.
3. Analyze strengthened organizational skills through active incorporation.
4. Evaluate how to develop confidence in ability by exercising decision-making skills.
5. Evaluate Air Force standards, discipline, and conduct.

Aerospace Science: Management of the Cadet Corps

Unit	Course	Recommended Hours
400a	Management of the Corps	18
400b	Management of the Corps	18
400c	Management of the Corps	18
400d	Management of the Corps	18

Survive • Return

Aerospace Science 410: Survival: Survive • Return

Lesson plans are currently in development for this content.

The *Survival* text is a synthesis of the basic survival information found in Air Force Regulation 64-4 *Survival Training*. The survival instruction will provide training in skills, knowledge, and attitudes necessary to successfully perform fundamental tasks needed for survival. Survival also presents "good to know" information that would be useful in any situation. The information is just as useful to an individual lost hunting or stranded in a snowstorm.

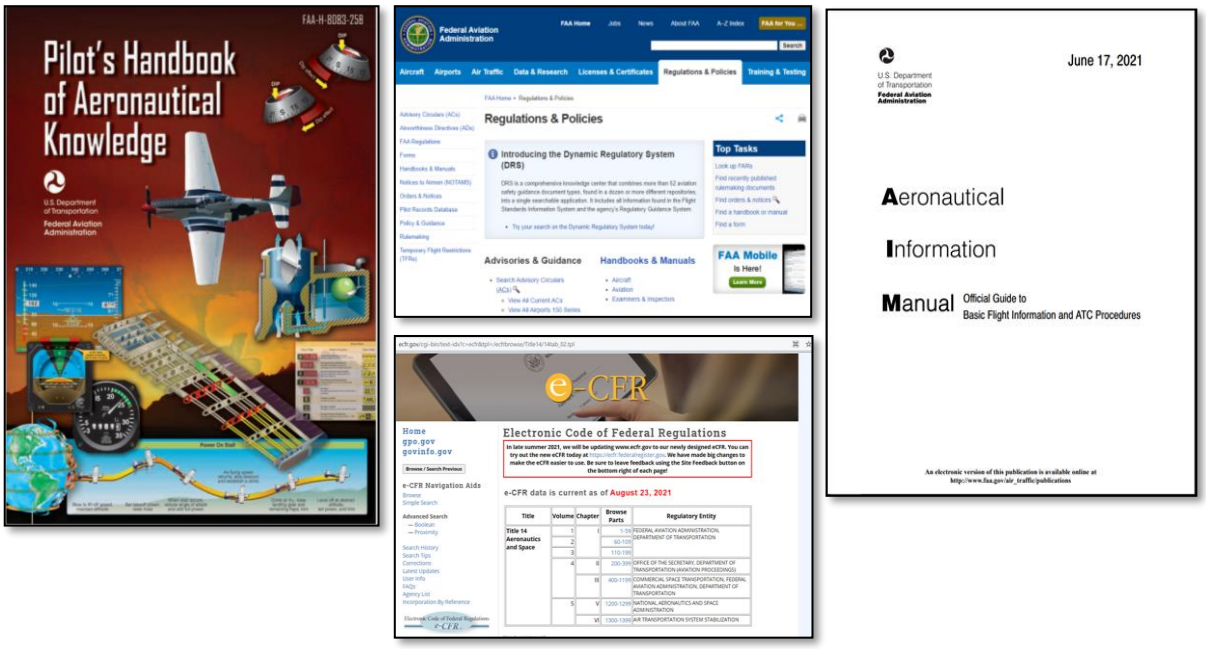
The course objectives are:

1. Know the elements of surviving.
2. Know how medicine procedures, clothing, and shelter can provide personal protection for a survivor in a survival situation.
3. Know the necessities for maintaining life in a survival situation.
4. Know how to travel and prepare for recovery in a survival situation.

Survival: Survive • Return

Unit	Course	Recommended Hours
Unit One	The Elements of Surviving	18
Unit Two	Personal Protection	18
Unit Three	Necessities to Maintain Life	18
Unit Four	Orientation and Traveling	18

Aerospace Science 500: Aviation Honors Ground School



This course is the foundation for students interested in receiving a private pilot's license. The material covered is an advanced, more in-depth study of aerospace topics. Aviation Ground Honors School (AHGS) is taught as the Aerospace Science component of an AFJROTC class. Since AHGS should be taught as a "honors" class, instructors may define this course in WINGS using the 60%-40% AS/LE mix.

Submitting a Waiver to Teach AHGS

AHGS should be taught by AFJROTC instructors who hold appropriate Basic Ground Instructor (BGI), FAA Certified Flight Instructor (CFI) certificates, or Air Force Form 8 indicating primary aircrew instructor/evaluator experience. However, Qualified/certified instructors who are not AFJROTC staff members may teach ground school classes at an AFJROTC unit, if a waiver has been approved for the unit by Holm Center/DEJ. All JROTC instructors wishing to teach AHGS program must first define the course as intended to teach and then request approval from Holm Center/DEJ in WINGS. **When submitting waiver requests, instructors will need to ensure they attach appropriate documents indicating they are qualified to teach the course**. **Or, if utilizing a qualified/certified alternate, ensure his/her documentation is attached to the request.**

AHGS requests are granted based on military and/or civilian experience. Instructors teaching the AHGS course with only AF Form 8s to indicate qualification will still need to have a FAA certified ground or flight instructor sign off that the cadet has received the required ground school training before cadet will be allowed to take exam.

The intent of the program is to provide AFJROTC an academically challenging course for top achievers in the AFJROTC program. Entry into ground school should be earned by high achievement in other AFJROTC courses and involvement in the cadet corps. The course should receive "honors" (i.e. advanced) credit and must have the approval of the principal.

The student must have written approval from the SASI/ASI prior to registering and must be a junior or senior honor student who has demonstrated potential and aptitude; in addition, the student must have successfully completed a minimum of 2 years of AFJROTC coursework (to include AS 200: *The Science of Flight: A Gateway to New Horizons, 2nd Ed.*) and maintained a grade of C or better.

When the course is completed, students should be prepared to take and pass the Federal Aviation Administration (FAA) written examination per FAA requirements. For more information, review the following website:

https://www.ecfr.gov/current/title-14/chapter-I/subchapter-D/part-61

Upon completion of the appropriate exam for the ground school course, the instructor will request Ground School Certificate badges from HQ AFJROTC Logistics.

AHGS curriculum is available digitally in the Curriculum SuperStore. Additionally, you can evaluate your understanding of material introduced in a particular section by completing the associated review questions.

Electronic copies of FAA's Pilot's Handbook of Aeronautical Knowledge (FAA-H-8083-25C) (2023) may be downloaded from:

https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/faa-h-8083-25c.pdf

It is also available in the Curriculum SuperStore.

Note: When necessary, the FAA releases addendums to this manual. It is important that you check the FAA website intermittently to ensure that you have the most updated information.

The course objectives are:

1. Comprehend the fundamentals of flight.
2. Comprehend flight operations.
3. Comprehend the atmosphere and its effect on aircraft operations.
4. Comprehend the basics of navigation using charts and radio aids.
5. Apply the principles of aeronautical decision-making and flight-related physiological factors.

Additional information regarding Aviation Honors Ground School can be found in the Curriculum SuperStore.

Aerospace Science 510: AFJROTC Honors Senior Project

Note: This curriculum is currently under revision.

This project is provided for those units who have students that want to continue in AFJROTC during their senior year and receive honors credit. It will allow top cadets to earn Honors Credit for a more demanding version of "Management of the Cadet Corps" allowing cadets the opportunity to improve their leadership, management, and organizational skills.
This culminating honors project is designed for cadets to demonstrate essential skills through reading, writing, speaking, production, and/or performance. Cadet skills in analysis, logic, and creativity will also be showcased through successful completion of this project.

The Honors Senior Project is primarily targeted for senior cadets in a three- or four-year program. However, it is not uncommon for other academically successful cadets enrolled in Advanced Placement, other Honors, or in an International Baccalaureate program to successfully complete this project.

To retain these cadets in the unit's AFJROTC program and to continue to improve their critical thinking and research skills, selected cadets with demonstrated academic capabilities may also enroll in this class with SASI approval. Successful completion of the Honors Project will allow cadets to receive honors credit while maintaining their enrollment in the AFJROTC program. For cadets to receive honors credit, they must meet state/district/school honors course criteria.

Subject material for AS 510 **MUST** come from Holm Center/DEJ provided curriculum materials. All materials including the grading rubric for the Honors Senior Project are posted in WINGS | Published Files | Directory | JROTC | AFJROTC Curriculum | Honors Senior Project

SCIENCE, TECHNOLOGY, ENGINEERING, & MATH (STEM) COURSES

STEM education is the intentional integration of science, technology, engineering, and mathematics, and their associated practices to create a student-centered learning environment in which students investigate and engineer solutions to problems, and construct evidence-based explanations of real-world phenomena with a focus on a student's social, emotional, physical, and academic needs. To do this, AFJROTC has developed educational partnerships with agencies that provide the materials that will be used in STEM.

STEM education focuses on promoting creativity and exploration in the learning process. This means that educators shift from textbook teaching to more project-based learning. Overall, the benefits of including this type of education are rewarding and simple variations in instruction could change a stagnant classroom into a dynamic learning environment. Knowledge retention is just one major benefit. Critical thinking is another. During project-based learning, students are encouraged to find their own answers and draw their own conclusions.

Cadets are given the opportunity to design, build or program, as they are exposed to STEM concepts. They learn about these concepts in a real-world application and are required to apply them over and over again. These hands-on, mind-on activities help cadets understand how science, technology, engineering, and math are useful in their world and make connections to careers they may not have considered.

STEM education may be used by AFJROTC instructors to support any aerospace science content areas. Additionally, integrating STEM coursework and projects can be used to support Career and Technical Education (CTE) Standards. These STEM courses will require an integrated learning approach where problem solving and engineering practices are included, where technology is seamlessly integrated throughout the lesson.

The following rules apply when using STEM curriculum materials:

1. STEM curriculum is "**ONLY**" intended to supplement, **NOT** replace Aerospace Science curriculum and **WILL NOT** be used in place of LE, Drill, or Wellness/PT curriculum.
2. Cadets **WILL NOT** be allowed to repeat STEM curriculum once taken.
3. STEM curriculum should receive a minimum of elective credit from school/district.
4. STEM curriculum may be offered in place of HQ's provided AS curriculum that equates to one half term of a 4x4 or Block schedule and one quarter of a Trad/Tri/A-B schedule for any academic year.
5. STEM curriculum name and description must be added to the course syllabus.
6. STEM curriculum name and description must be added to the "Unit Defined Courses" when taught.
7. AFJROTC units must receive an approved "Holm Center/DEJ" curriculum waiver to teach content as STEM if not on the Holm Center/DEJ approved STEM curriculum list.
8. LE, Drill, or Wellness/PT **WILL NOT** be used as STEM curriculum.
9. Co-curricular activities not identified as STEM **WILL NOT** be used as a STEM course.
   - Examples of co-curricular activities include CERT, Marksmanship, Orienteering, Drill Teams, and First Responder programs.
10. Instructors will be required to develop lesson plans/PPTs if none are provided by host organization.

11. No CPS/TPC files are provided, instructors are responsible for this action if they desire to use CPS/TPC as part of the lesson presentation.
12. Refer to WINGS | Published Files | Directory | WINGS User Guides & Videos | JROTC Guides & Videos | JROTC Courses with Electives/STEM (*Please note that items in this folder are under revision*)

Learning Outcomes for Aerospace Science STEM Courses

1. Increased enrollment and interest for STEM-related courses in AFJROTC.
2. Increased self-confidence in tackling science classes and related projects.
3. Gains in 21st-century skills, including communication, teamwork, and critical thinking.
4. Higher rate of graduates interested in pursuing STEM-related college majors and/or careers.

Science, Technology, Engineering, & Mathematics

Course	Maximum
Unmanned Aerial Vehicles (UAVS) / Quadcopters	**18**
Model and Remote-Control Aircraft	**18**
Weather Station "Air Environment" (Weather Forecasting)	**18**
Astronomy	**18**
Flight Simulator	**18**
StellarXplorers	**18**
CyberPatriot	**18**
Introduction to Cybersecurity	**18**
Cyber Literacy	**18**
Introduction to Robotics	**18**
Model Rocketry	**18**
Advanced Rocketry	**18**

Science and Engineering STEM:
Unmanned Aerial Vehicles (UAVS) / Quadcopters

Youth can fly remote-controlled quadcopters to learn more about the dynamics and forces of flight. The Civil Air Patrol (CAP) provided Unmanned Aerial Vehicles (UAVs) activity booklet allows instructors to incorporate UAV history and activities with the AS 200, *The Science of Flight: A Gateway to New Horizons, 2nd Edition* curriculum. Each activity has the National Science and Technologies Standards provided. CAP provides both indoor and outdoor quadcopter STEM kits.

The **Indoor Quadcopter STEM Kit** includes everything you need to fly a quadcopter indoors. The Indoor Quadcopter STEM Kit is compact and portable, easy to charge, and all the components fit perfectly inside the included carrying case. Items included in this kit: Removal tool, micro props 0.8mm shaft (set of four-2 sets), 6mm brushed motor x 1, lite flight controller, camera set, cockroach super-durable frame, carrying case, controller box goggles, battery charger, batteries (4), screwdriver and miscellaneous items (antennas, cables, screws, etc.). **Approved applicants can expect to receive one or two Indoor Quadcopter STEM Kits.**

The **Outdoor Quadcopter STEM Kit** includes a remote-control transmitter, an extra battery and a battery charger. For further applications and activities of the kit, download the CAP *Unmanned Aerial Vehicle Activity Booklet* that is available in the *AE Downloads and Resources* section of the CAP member portal, *eServices.* This kit is an extension of the *Model and Remote-Control STEM Kit*; therefore, applicants are encouraged to contact and work with local Academy of Model Aeronautics (AMA) clubs for additional guidance with the kit. Local AMA club(s) can provide mentorship in learning to fly real remote-controlled airplanes, especially in *TAG (Take-off and Grow)* programs. **Approved applicants can expect to receive one or two Outdoor Quadcopter STEM Kits.**

AMA also offers the AMA Flight School where instructors and cadets have access to online learning opportunities such as: *Introduction to small Unmanned Aerial Systems (UAS).* Some of the courses are only accessible after membership. For additional information and resources, visit the AMA Flight School website: http://www.amaflightschool.org/

The FAA also provides guidance for small UAV operation, and outlines who is required to have the Part 107 certificate for UAV operation. Although the AFJROTC provided quadcopter is considered recreational, it must be registered with the FAA. Refer to policy letter dated 1 Feb 2019, which can be viewed at: WINGS | Published Files | Directory | JROTC | AFJROTC Policy Letters.

FAA requires TRUST certification for all operators. Read how to get certification here.

Instructors may also choose to provide instruction to fulfill the FAA Part 107, Remote Pilot in Command certificate. Follow the guidance provided on the FAA website: https://www.faasafety.gov/

Science STEM: Model and Remote-Control Aircraft

Model building and experimentation with flying will lead to learning to fly remote-controlled aircraft. Sky Streak and Cub balsa airplanes are included in CAP's Remote-Controlled (RC) Aircraft STEM kit. This simple model building and experimentation with flying will lead to learning to fly remote-controlled aircraft via a Real Flight Simulator computer program, a hand-held controller, two Skystreak balsa planes and a Mini Apprentice, the remote-controlled aircraft - all of which are included in the kit. Everything a young enthusiast will need to determine if a career in general aviation or either manned or unmanned aerial vehicles will be provided. This kit is designed to promote a beginning interest in aviation and/or remotely piloted aircraft vocations (careers) and avocations (hobbies). This program complements the new CAP *AEX Model Aircraft and Remote Controlled (MARC)* module developed by a CAP volunteer and is included in the kit.

FAA requires TRUST certification for all operators. Read how to get certification here.

The CAP provided AEX Model Aircraft and Remote Controlled (MARC) activity booklet allows instructors to incorporate MARC construction and flight activities with the AS 200, *The Science of Flight: A Gateway to New Horizons, 2nd Edition* and AS 500, *Aviation Honors Ground School* curriculum. Each of these activities will help reinforce aircraft principles of flight, propulsion, and design and has the National Science and Technologies Standards provided.

As with the UAV/Quadcopter STEM course, the Academy of Model Aeronautics (AMA) offers a free youth membership opportunity for cadets 19 years old or younger. Cadets who are enrolled in the AMA youth membership program are eligible for scholarships and AMA model flying insurance coverage. Instructors should take advantage of this opportunity for cadets flying quadcopters or RC aircraft.

AMA also offers the AMA Flight School where instructors and cadets have access to online learning opportunities such as the *Modelers Flight Training Course* and other flight training programs provided various RC clubs. Some courses are only accessible after membership. More information and resources can be found on the AMA Flight School website: http://www.amaflightschool.org/

AFJROTC instructors are highly encouraged to seek out local RC Aircraft clubs for mentorship and guidance if not familiar with RC Aircraft operations. Not only will instructors have access to experienced RC pilots and builders, seeking out local clubs will help build networking relationships.

Science STEM: Weather Station "Air Environment"
(*Weather Forecasting)*

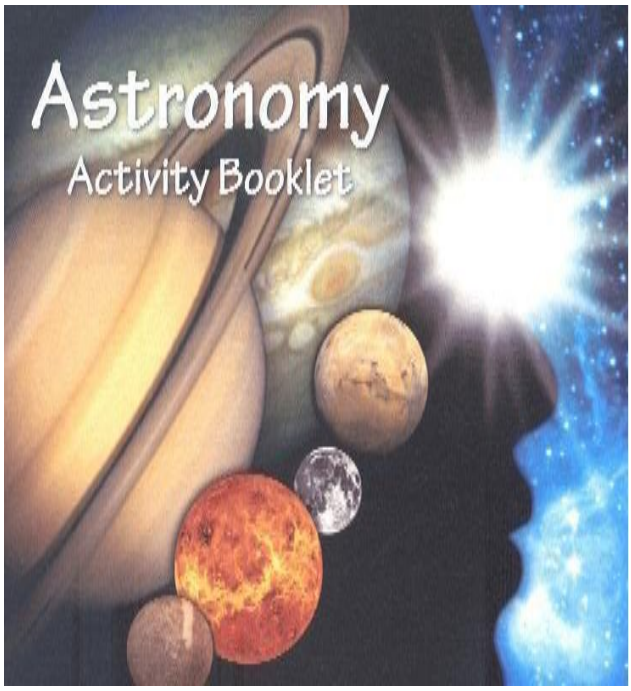
With the *Acu-Rite Professional Weather Station STEM Kit*, learners can measure rainfall, barometric pressure, wind speed, and more. The station also includes programmable weather alarms. Users will need to download the FREE My Backyard Weather Software & App to utilize the weather station to its fullest potential. Self-calibrating forecasting provides personal forecasting of weather conditions for 12 to 24 hours by collecting data from the sensor at your facility. This kit comes with Rainfall Collector Funnel/accessories, display unit, USB cable, power adapter, instruction manual, and mounting hardware. **Batteries for the Rainfall Collector Funnel and display unit are not included.** Before ordering, please review the compatibility requirements for the weather station.

https://www.gocivilairpatrol.com/programs/aerospace-education/programs/stem-kits/available-stem-kits/weather-station-stem-kit

Although *Air Environment: Module 3* textbook provides curriculum material similar to AS 200, *The Science of Flight: A Gateway to New Horizons*, *2nd Edition*; *Chapter 3: Flight Conditions*, the actual benefit of Module 3 is the hands-on activities. Using the weather station in combination with Module 3 activities will provide supplemental STEM-related opportunities for cadets to learn how weather can impact aviation operations and their daily lives.

Approved applicants can expect to receive one Weather Station Kit.

Science STEM: Astronomy



The CAP-provided astronomy STEM kit comes with a Portable Celestron Telescope, CD with Planetarium Software, and *CAP Astronomy Activity Book*. The Celestron Telescope is a portable, light weight tabletop telescope, making it easy to store, transport, and setup. Telescope is very easy to observe; the user simply navigates the night sky by moving the tube in the direction of their desired object.

Although the Astronomy STEM kit includes the *CAP Astronomy Activity Book*, instructors should also order or download the *Astronomy Module* textbook. To order textbook instructors must use CAP's Material Orders service:

https://www.capnhq.gov/CAP.eServices.Web/Default.aspx.

Download the electronic version by clicking "AE Downloads and Resources" in *eServices* once you have logged in.

The *Astronomy Module* is part of the CAP Aerospace Education Excellence (AEX) Program and provides additional astronomy hands-on related activities. The same astronomy activity book that accompanies this module is also sent with the astronomy STEM kit.

Although the *Astronomy Module* textbook provides curriculum material and activities similar to AS 300, *Exploring Space: The High Frontier, Chapters 1, 2, 3, and 4*, the actual benefit of the astronomy module and activity book is the hands-on activities.

The Science Standards used in the module and activity booklet came from the Next Generation Science Standards (NGSS). These standards are based on the *Framework for K-12 Science Education* developed by the National Research Council. To find out more about the NGSS, go to: http://www.nextgenscience.org/

Science STEM: Flight Simulator

The CAP-provided ***Flight Simulator STEM Kit*** includes yoke, rudder pedals and software. The software component of the kit includes Lockheed Martin's Prepar3D v4.5 with a downloadable product code (no disc required). Applicants will need to have access to internet services to run the software.

NOTE: Computers are not included in this kit. Computers need to be equipped with gaming/graphic software to utilize this kit. Microsoft Windows operating system is required to run this program.

For students in classrooms and youth organizations studying aviation education, these flight simulators should provide a realistic piloting experience as the youth begin their own flight training or aviation-related programs. (This is especially pertinent to AFJROTC cadets, and those in the AFJROTC Flight Academy.) The hands-on approach is designed to spark an interest in flying, especially for AFJROTC cadets who are given opportunities for orientation flights and flight training in CAP. Due to the experience of AFJROTC instructors, a variety of aviation careers may be explored through this program.

The following URL contains useful information on membership and how to obtain resources: https://www.gocivilairpatrol.com/

Microsoft Flight Simulator: This is a series of flight simulation programs. The programs include generated scenery and detailed visual effects, various weather systems, cities and airports, air traffic control functions, interactive cockpits, and a variety of aircraft. Use this to supplement AS 200, *The Science of Flight: A Gateway to New Horizons, 2nd Edition* and AS 500, *Aviation Honors Ground School*.

Approved applicants can expect to receive one Flight Simulator STEM Kit.

For more information, visit: https://www.gocivilairpatrol.com/programs/aerospace-education/programs/stem-kits/available-stem-kits/flight-simulator

Science STEM: StellarXplorers

StellarXplorers inspires and attracts high school students to pursue studies and careers in science, technology, engineering, and math (STEM) through a challenging, space system design competition involving all aspects of system development and operation with a spacecraft/payload focus. StellarXplorers is a STEM program supported by the Air and Space Forces Association (https://www.stellarxplorers.org/).

StellarXplorers is an engaging competition designed to excite young people about space and the many opportunities that are available in the space operations field. One of goals of StellarXplorers is for students to learn some of the academic information about space operations. Therefore, teams have been given access to an online space textbook, *Understanding Space*. This textbook is used for the Introduction to Space course at the Air Force Academy.

The *Understanding Space* textbook may be used to supplement *AS 300, Exploring Space: The High Frontier, 2nd edition*, but **WILL NOT** replace it. The AS 300 textbook does not include the higher-level concepts and calculations. While *Understanding Space* is a college textbook, units should only use the sections which are appropriate for high school students.

StellarXplorers provides specific training in the use of system simulation software, Systems Tool Kit (STK), as well as an online textbook as a curriculum supplement and study resource for online "team" quizzes given during the competition. Teams are given a scenario describing the system's mission and constraints and they provide a solution to a typical space design problem, such as orbit determination, satellite component selection, and launch vehicle planning. Typically, Practice Rounds begin in October with Qualification Rounds beginning in November that determine which teams advance to the Semi-Finals in February. The top 10 teams from the Semi-Finals will receive an all-expense-paid trip to the National Finals Competition.

Teams consist of an adult Team Director (usually an instructor) and two to six students. Team Mentors with space experience are encouraged to assist in-person or via the internet; the Program can facilitate finding mentors. **A nominal $200 fee is required to be paid for entry, with waivers available to Title I schools upon request. Contact your RD for non-Title I schools for possible assistance with entry fees.**

For an overview of StellarXplorers, competition and official rules information, a fact sheet, eligible participant information, and tentative scheduling, review the AFA/ StellarXplorers website: https://www.stellarxplorers.org/competition.html

For questions, contact them at 703-914-3066 or info@stellarxplorers.org

Technology STEM: CyberPatriot

CyberPatriot is the National Youth Cyber Education Program created by the Air and Space Forces Association. At the center of CyberPatriot is the National Youth Cyber Defense Competition. The competition puts teams of high school and middle school students in the position of newly hired IT professionals tasked with managing the network of a small company.

CyberPatriot is the National Youth Cyber Education Program created by the Air Force Association to inspire high school, middle school and elementary school students toward careers in cybersecurity or other science, technology, engineering, and mathematics (STEM) disciplines critical to our nation's future and to help students be safe online. In addition to the National Youth Cyber Defense Competition, the program also features AFA CyberCamps. More information on AFA CyberCamps can be found at: http://www.uscyberpatriot.org/

Currently, there are two AFA CyberCamps: Standard and Advanced. Standard AFA CyberCamp teaches beginner students the basics, while the Advanced AFA CyberCamp incorporates more complex concepts geared towards students who have previously participated in a CyberCamp or participated in the CyberPatriot competition. Both the standard and advanced AFA CyberCamps are packaged as 20-hour long materials designed to be taught over five days. All sessions are Monday through Friday, with Friday typically being reserved as the competition day.

For overview, schedule, and technical requirements, go to: https://www.uscyberpatriot.org/afa-cybercamps/overview

PLEASE NOTE: Chromebooks are not compatible with CyberCamp software. Mac computers are acceptable but will not be eligible for technical assistance from the CyberPatriot Program Office. If you use Mac computers for your camp, please contact them directly so that they may assist with proper pre-testing before your camp.

Here is a promotional video for CyberPatriot: https://www.youtube.com/watch?v=-xByv1_1_KU

Questions? Contact AFACyberCamps@uscyberpatriot.org

Technology STEM: Introduction to Cybersecurity

A product of CAP Aerospace Education Division (2019)

This material can be found on the CAP website under Educational Products. Instructors have the have the option of ordering the textbook or they may download the course materials directly from the website:

https://www.gocivilairpatrol.com/media/cms/CAP_AECyberModule_9D4693A49944D.pdf

The purpose of this module is to introduce current threats in Cyberspace and to provide some immediate activities for improving collective awareness and defense. A summary of careers in computer and network security is provided.

An Introduction to Cybersecurity

CAP Cybersecurity Module

Summary of Recent Attacks and Motivation for Action
Activity Group One: Codes, Ciphers and Encryption Awareness

Unit Profile: Room 40 and Bletchley Park
Biography: Alan Turing

Concepts in Information Assurance and Cyber Warfare
Activity Group Two: Vulnerabilities and Basic Defense Skills
Patriot Bio: Gen. Robert J. Skinner

Concepts of Operating Systems and Networking
Activity Group Three: Basic Probing Skills

Unit Profile: 24th Air Force & 67th Network Warfare Wing
Patriot Bio: Col. Kevin B. Wooton

Exploring Careers in Cybersecurity

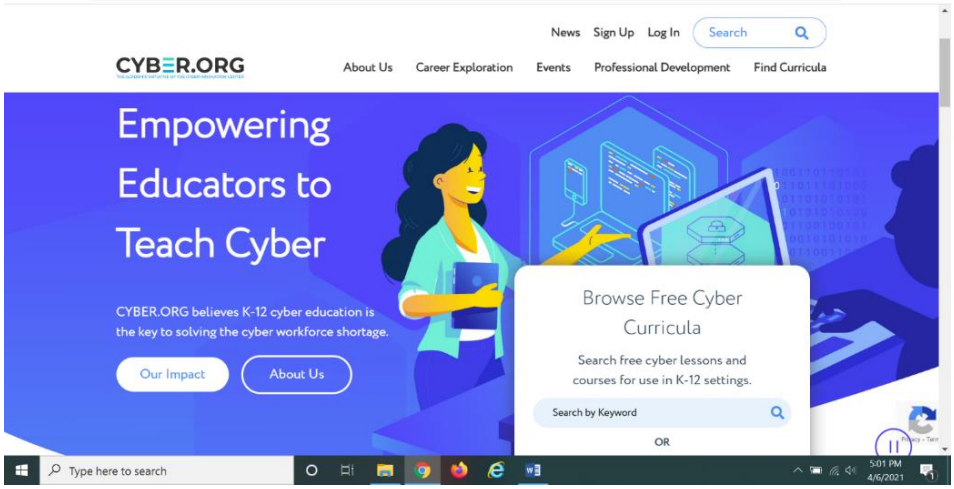
Unit Profile: US CYBERCOM
Patriot Bio: Col. Keith B. Alexander
Bonus Graphic: US CYBERCOM

Conclusion and Next Steps

Appendices

A. Motivational Chronology of Cyber Warfare
B. Glossary of Terms, Threats, and Countermeasures
C. Toolbox of Promotional Resources
D. Toolbox of Technical Resources
E. Solutions to Module Activities

Technology STEM: Cyber Literacy



Cyber.org (formerly The National Integrated Cyber Education Center Research Center (NICERC)) works with its partners to design project-driven, application-based curricula that engages students across primary, secondary, and post-secondary grade levels. Cyber.org curriculum showcases a systems-level understanding of real-world applications of science, technology, engineering, and mathematics. Courses and units provide a hands-on, context-based approach to math and science professional development while incorporating liberal arts components, which allows instructors to embed the curricula across multiple aerospace science courses, empowering students to become the next generation of engineers and cyber professionals.

NICERC was launched in 2012 as an education partner of the Department of Homeland Security and National Initiative for Cybersecurity Careers and Studies. Not only did it offer cyber curricula, but the organization also offered Teacher Resources, Teacher Professional Development, Cyber Camps, and Competitions. Since then, the organization evolved to cyber.org (2020), and continues the mission of bolstering K-12 cyber education. Instructors must sign in to access materials at: https://cyber.org/. Instructors can receive additional information by emailing: info@cyber.org or calling (318) 841-9618.

These are a few of the educational material instructors can gain access to:

Cyber Fundamentals: Introductory coding, robotics, and security concepts using LEGO MINDSTORMS® EV3 and micro bit.

Cybersecurity: Understanding the interconnectedness of devices and how to protect them.

Threats, Attacks, and Vulnerabilities: Students learn to detect and analyze malware and different types of attacks while starting to understand the concepts of penetration and vulnerability testing.

Technologies and Tools: In this unit, students will learn to utilize hardware and software network components to assess and troubleshoot issues to support organizational security.

Architecture and Design: In this unit, students will work with secure network concepts and how systems are designed.

Identity and Access Management: In this unit, students will learn how to install and configure identity and access services as well as management controls.

Engineering STEM: Introduction to Robotics

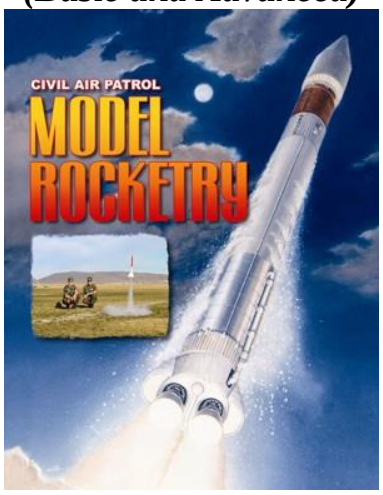
Robotics play an important part in education. With a great emphasis being placed on STEM in the classroom, robotics plays an important part in motivating and exciting cadets about these subjects. Robotics involve multiple types of design: physical design of structures (construction materials, motors, and gears), as well as computational design (writing a computer program to determine how something should move and respond). Robotics will engage cadets in the learning process.

The *Introduction to Robotics* is part of the CAP Aerospace Education Excellence (AEX) Program and provides a history of robotics and hands-on related activities. The purpose of this STEM course is to introduce robotics and encourage cadets to explore robotics technology. The robotics curriculum provides beginning activities that are low-cost and high interest. These activities progress into challenges that will require more resources and ingenuity to perform.

The *Introduction to Robotics* textbook provides curriculum material and activities that can be used to supplement AS 100, AS 200, and AS 300. *Introduction to Robotics* textbook is designed as an introduction to building and understanding robotics; 21 lessons that start with basic, easy activities and progress into increasingly more difficult lessons. The curriculum and activities in these STEM courses have been aligned with the National Science Standards and National Technology Standards.

Members may order a copy through CAP's Material Orders Service in eServices.

Engineering and Mathematics STEM: ModelRocketry (Basic and Advanced)



CAP's Model Rocketry program is an achievement program for cadets interested in the science, technology, and flight of model rockets. There is the basic Model Rocketry program and badge, as well as the Advanced Model Rocketry program.

Basic Model Rocketry Program

The basic Model Rocketry book builds on the foundation of *Aerospace Dimensions Module 4: Rockets* and introduces cadets to the hobby and science of model rocketry. (Both the book and module are downloadable in eServices/AerospaceEducation/AE Downloads and Resources.)

The book begins with simple alternative-power models and progressively challenges cadets to construct more advanced models in ***three stages***. The most current edition of the guide (the second edition) should be used exclusively.

1. The **Redstone Stage** reviews the history of rocketry and its great pioneers, to include Robert Goddard and Werhner Von Braun.
2. The **Titan Stage** details the physical laws which govern objects on the Earth, in the air and in space above us.
3. The **Saturn Stage** presents information on trigonometry for altitude tracking, and physics of impulse and thrust associated with solid propellant motors typically used in model rocketry.

Important Note:

The CAP rocketry program is based on traditional model rocketry that has general wide acceptance throughout the United States (there are alternate rocketry projects for those who live in areas where model rocketry is not permitted). The structure of the CAP model rocketry program is to have cadets build three model rockets of increasing difficulty. For more information on both the basic and advanced rocketry program to include rocketry tips and tools, the new model rocketry tests, resource ordering, and completion certificates, please review the following URL: https://www.gocivilairpatrol.com/programs/aerospace-education/programs/model-rocketry

CAP recommends viewing the Model Rocketry Program informational video created by 2nd Lt Richard Reynolds, of the SWR-TX-351, Pegasus Composite Squadron: https://www.youtube.com/watch?v=sBIk5Wq9ej8

Part III – Leadership Education Courses

Leadership Education is an integral part of each year's instruction. There are separate course materials for the Leadership Education and Aerospace Science academics program, however in practice, the overlap is considerable. The development of writing and speaking skills are categorized as "leadership education topics," yet when used to present subject matter related to what is being taught in the "aerospace science" area, the results are twofold. Additionally, many after-school activities provide a proving ground for newly learned leadership skills. Activities such as drill teams, model rocketry clubs, and the formal cadet corps' operation all require students to accomplish considerable responsibilities.

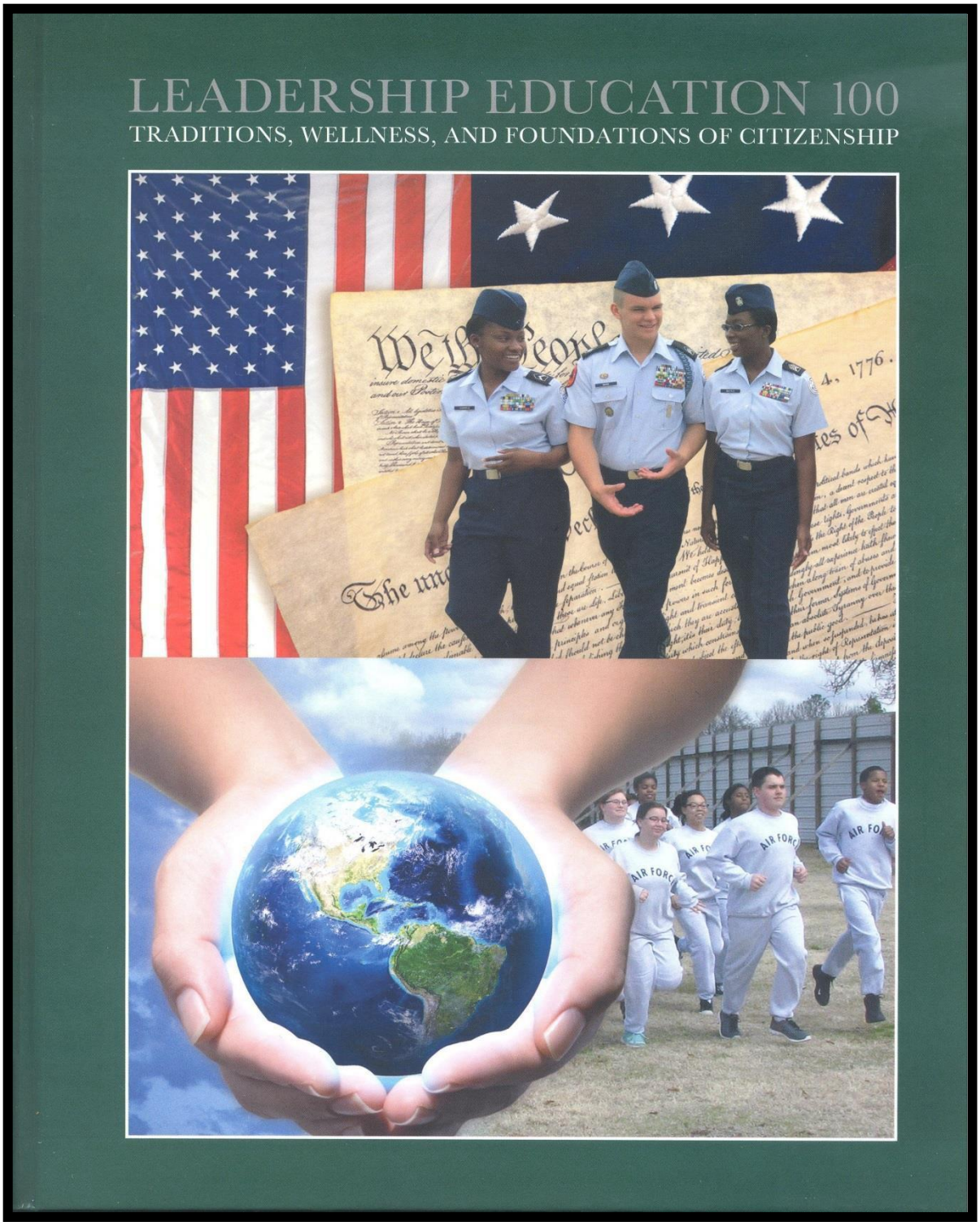
Goals for Leadership Education Courses

Students will learn:

1. The program heritage, organization, and traditions; individual self-control; personal behavior, wellness, personal and environmental health, and US citizenship and government.
2. Effective communication; increased awareness of self and others; values of personal integrity, service, and excellence; and improved leadership.
3. Financial literacy, college and career readiness; and how to prepare for life after high school in the high-tech, globally oriented, and diverse workplace of the 21st-century.
4. Management basics, theories, and approaches; planning and decision-making; organizing to manage change, stress, and innovation; and leading individuals and groups.
5. Drill and ceremonies execution and performance, and how drill helps the individual, builds the team, and develops leaders.

Leadership Education Courses

Course Title	Maximum Hours
Leadership Education 100: Traditions, Wellness, and Foundations of Citizenship	40
Leadership Education 200: Communication, Awareness, and Leadership, 2nd Ed.	40
Leadership Education 300: Life Skills and Career Opportunities	40
Leadership Education 400: Fundamentals of Management	40
Drill Curriculum; Cumulative: Drill and Ceremonies	36
Leadership Education Electives	18



Leadership Education 100:
Traditions, Wellness, and Foundations of Citizenship

Published by the Pearson Learning Solutions

Leadership Education 100:
Traditions, Wellness, and Foundations of Citizenship

This textbook is currently under revision.

LE 100 is a component of JROTC leadership education. It is intended for students who are entering the AFJROTC program and beginning their high school studies. It introduces cadets to history, organization, mission, traditions, goals, and objectives of JROTC for all services. It also introduces key military customs and courtesies, describes how to project a positive attitude, and examines the principles of ethical and moral behavior. It provides strategies for effective notetaking and study skills for academic success. Lessons cover how to be emotionally, mentally, and physically healthy. Avoiding and preventing violence in today's society is also covered. Recognizing types of bullying and how to advocate for prevention of this type of behavior. It covers healthy living, physical fitness, and how to make safe, drug-free, and responsible decisions. This textbook also examines the negative effects of air and water pollution, and how to help keep the environment safe. Cadets will be introduced to civics and our national government, including a historical understanding of the American flag and other important national symbols. The final chapter covers how the US Constitution protects our rights and freedoms as American citizens.

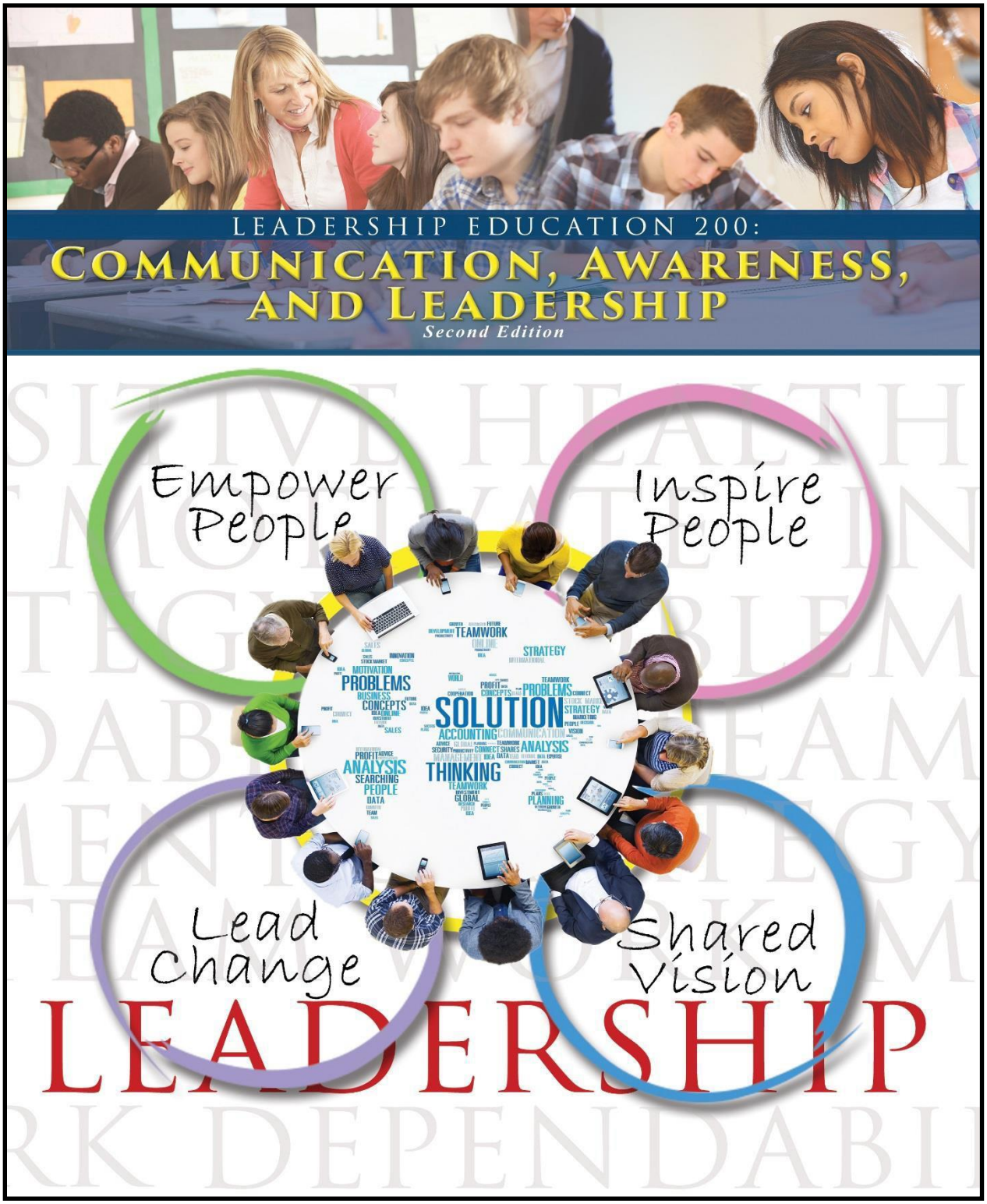
Course Outcomes:

1. Analyze the heritage, organization, and tradition of service programs.
2. Analyze the benefits of positive personal behavior.
3. Evaluate healthy living through physical activity and good nutrition.
4. Apply safe, drug-free decisions.
5. Analyze the importance of citizenship in the United States.

Leadership Education 100:
Traditions, Wellness, and Foundations of Citizenship

Chapter	Course	Recommended Hours
Chapter 1	Introduction to JROTC Programs	8.0
Chapter 2	Personal Behavior	8.0
Chapter 3	Be Health Smart	8.0
Chapter 4	Making Safe, Drug-Free Decisions	8.0
Chapter 5	The Foundations of United States Citizenship	8.0

Chapter Summaries, Learning Outcomes, and Learning Objectives can be found in the Curriculum SuperStore.



Leadership Education 200: Communication, Awareness, and Leadership 2nd Ed.

Published by C^2 Technologies, Inc.

Leadership Education 200:
Communication, Awareness, and Leadership 2nd Ed.

Leadership Education 200: Communication, Awareness, and Leadership, Second Edition, is a customized course designed to improve communication, enhance awareness of self and others, and provide fundamentals of leadership and followership. The course focuses on the AFJROTC mission to "develop citizens of character dedicated to serving their nation and community." Woven throughout is the underlying theme of developing personal integrity. The course also emphasizes leadership and values such as service and excellence. This update incorporates 21st-century teaching, learning, and skills of critical thinking, communication, collaboration, and creativity.

Each lesson includes a "Quick Write" reading and writing activity related to the lesson; a "Learn About" that tells students what they will learn from the lesson; a list of vocabulary words in the lesson; "Talking Points" that highlight specific and interesting facts. The lessons close with a "Checkpoints Lesson Review" that allows students to review what they've learned. At the end of the "Checkpoints" is an "Applying Your Learning" section with a discussion question that gives students a chance to apply what they have learned and reinforce their understanding of the lesson's content.

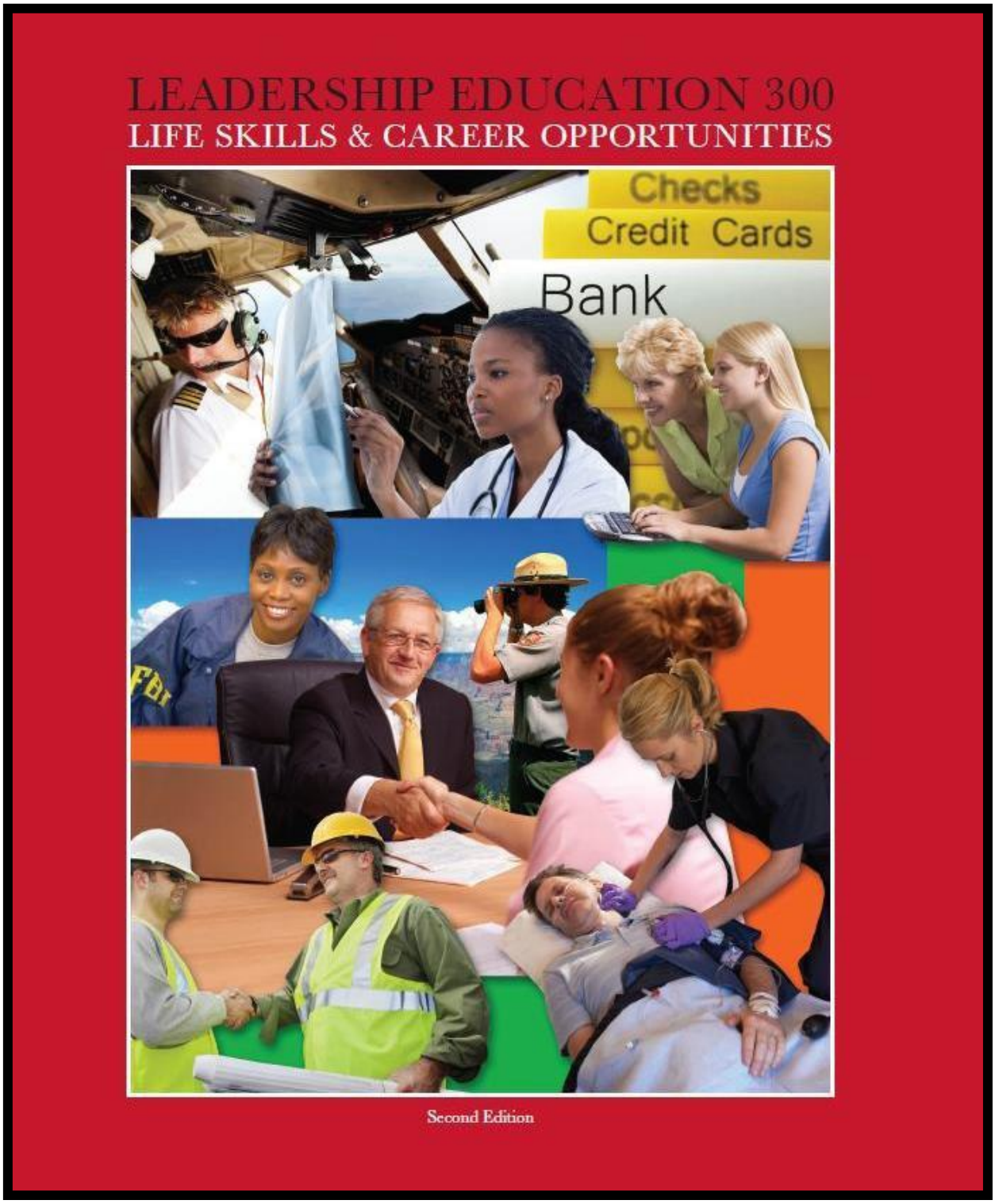
Course Outcomes:

1. Analyze the key factors in communication and critical thinking.
2. Apply the elements of effective writing and public speaking.
3. Analyze the importance of attitude in daily life.
4. Evaluate the ways in which personality and behavior affect relationships with others.
5. Analyze the foundation for an effective team.
6. Apply effective problem-solving and consensus-building methods.
7. Analyze the Air Force leadership model.
8. Evaluate effective leadership and followership.

Leadership Education 200: Communication, Awareness, and Leadership, 2nd Edition

Chapter	Content	Recommended Hours
Chapter 1	Learning and Communication	5
Chapter 2	Communicating Effectively	5
Chapter 3	Understanding Your Attitude	5
Chapter 4	Understanding Your Actions	5
Chapter 5	Developing Vision and Teams	5
Chapter 6	Solving Conflicts and Problems	5
Chapter 7	A Leadership Model	5
Chapter 8	Adaptive Leadership	5

Chapter Summaries, Learning Outcomes, and Learning Objectives can be found in in the Curriculum SuperStore.



Leadership Education 300: Life Skills & Career Opportunities

Published by Pearson Learning Solutions

Leadership Education 300:
Life Skills and Career Opportunities

Leadership Education 300: Life Skills and Career Opportunities, Second Edition provides an essential component of leadership education for today's high school students. This course it is designed to prepare students for life after high school in the high-tech, globally oriented, and diverse workplace of the 21st-century. Students will learn how to save, invest, and spend money wisely, as well as how to avoid credit traps. They learn about real-life issues such as contracts, leases, warranties, legal notices, personal bills, money-saving strategies for grocery shopping, apartment selection, and life with roommates.

In addition, students learn how to select a school that is right for them; how to apply for admission to a vocational or technical school, community college, or college/university; and how to succeed in these learning environments. Information is provided on how to conduct the job search for students who wish to enter the workforce right after high school or after additional education and training. They learn how to prepare a winning résumé, and how to develop effective interviewing skills. The text also provides information on working for the federal government to include careers in the military, aerospace industry, and public service. Finally, students will consider the most important elements of life skills for all Americans: civic responsibilities, such as volunteering, registering to vote, jury duty, and draft registration.

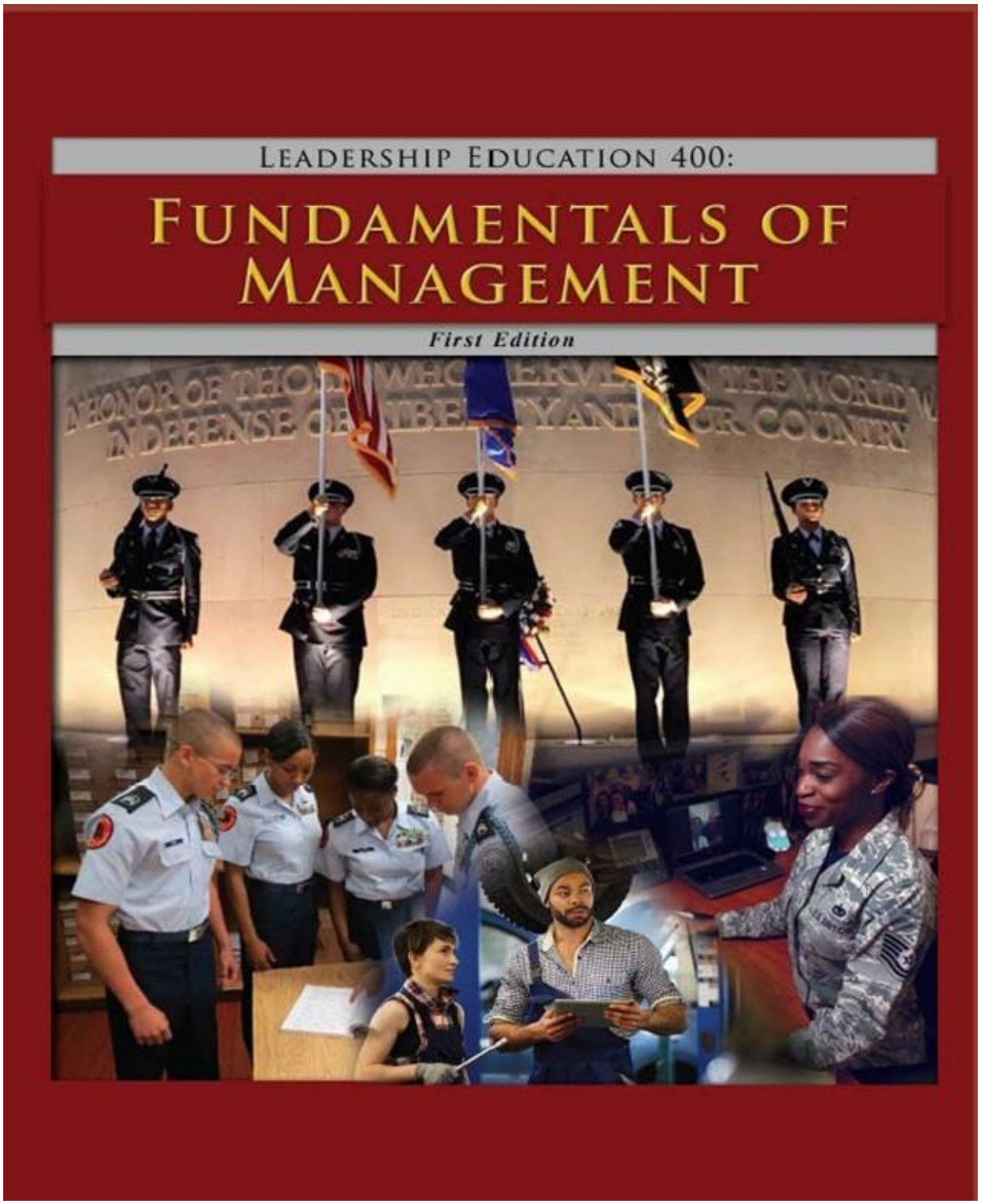
Course Outcomes:

1. Analyze the elements of successful financial management skills.
2. Create a plan to safeguard personal resources.
3. Analyze the different ways of pursuing a career path.
4. Analyze the requirements for applying to a college or university.
5. Analyze positive and negative impact of college life in meeting career goals.
6. Evaluate the essential process for successfully pursuing desired career or job.
7. Evaluate the benefits of working for the Federal Government.
8. Create a plan for successful career development.

Leadership Education 300: Life Skills & Career Opportunities

Chapter	Content	Recommended Hours
Chapter 1	Charting Your Financial Course	5
Chapter 2	Managing Your Resources	5
Chapter 3	Career Opportunities	5
Chapter 4	Aiming Towards a College Degree	5
Chapter 5	Charting Your Course	5
Chapter 6	Applying for Jobs	5
Chapter 7	Working for the Federal Government	5
Chapter 8	Developing Your Career Skills	5

Chapter Summaries, Learning Outcomes, and Learning Objectives can be found in the Curriculum SuperStore.



Leadership Education 400: Fundamentals of Management

Published by C^2 Technologies, Inc.

Leadership Education 400:
Fundamentals of Management

Leadership Education 400: Fundamentals of Management is a customized course designed for the fourth-year Junior Reserve Officers' Training Corps (JROTC) cadet. Its aim is to provide cadets with an introduction to basic management concepts and skills, especially as they relate to managing in a JROTC unit. Along the way cadets will learn some of the history of management studies and encounter elements of more-recent management research.

Each lesson includes a "Quick Write" reading and writing activity related to the lesson, a "Learn About" that tells cadets what they will learn from the lesson, and a list of vocabulary words. "Management Tips" and "Ethical Compass" boxes in the margins contain useful related information, while occasional "Tech Tips" point out how to use technology to your benefit as a manager. Each lesson closes with a "Checkpoints Lesson Review" that will allow cadets to review what they have learned. At the end of the "Checkpoints" is an "Applying Your Learning" section with a discussion question that will provide cadets with an opportunity to apply what they have learned. This provides another way to reinforce understanding of the lesson's content. The text includes eight chapters.

Course Outcomes:

1. Analyze management and its application to JROTC.
2. Analyze the elements of project management.
3. Evaluate the importance of formal planning within an organization.
4. Analyze decision-making within an organization.
5. Evaluate time management and change management within an organization.
6. Analyze concerns managers must consider in managing individuals and groups.
7. Analyze the factors that make work teams productive.
8. Evaluate the interpersonal skills of delegating, negotiating, and mentoring.

Leadership Education 400: Fundamentals of Management

Chapter	Content	Recommended Hours
Chapter 1	An Introduction to Management	5
Chapter 2	Project Management	5
Chapter 3	Planning: Laying the Foundation	5
Chapter 4	Decision Making: Choosing Wisely	5
Chapter 5	Organizing: Managing Time and Change	5
Chapter 6	Leading: Managing Individual and Group Behavior	5
Chapter 7	Understanding Work Teams	5
Chapter 8	Interpersonal Skills	5

Chapter Summaries, Learning Outcomes, and Learning Objectives can be found in in the Curriculum SuperStore.

HQ Holm Center

AIR FORCE JUNIOR RESERVE OFFICERS' TRAINING CORPS (AFJROTC)

DAF Pamphlet 34-1203
DRILL AND CEREMONIES

13 September 2022

Drill and Ceremonies: Drill Curriculum (Cumulative)

The Drill and Ceremonies manual is used to teach the Drill Curriculum (Cumulative) course by providing an in-depth introduction to drill and ceremonies. The course concentrates on the elements of military drill, and describes individual and group precision movements, procedures for saluting, drill, ceremonies, reviews, parades, and development of the command voice. Cadets are provided detailed instruction on ceremonial performances and protocol for civilian and military events and have the opportunity to learn drill. Though each class will follow an established lesson plan, most of the work is to be hands-on. Instructors are provided DAF Pamphlet 34-1203 to teach the Drill and Ceremonies course and may download the latest version from Air Force e-pubs website (https://www.e-publishing.af.mil/). In addition, instructors may order the Army Field Manual 3-21.5 and the Interservice Cross-Index Drill Manual to supplement the teaching of Drill and Ceremonies.

The course objectives:

After successfully completing *DAF Pamphlet 34-1203*:*Drill and Ceremonies*, the student will:

1. Know the importance of drill and ceremonies.
2. Know basic commands and characteristics of the command voice.
3. Apply and execute the concepts and principles of basic drill positions and movements.
4. Know when and how to salute.
5. Apply the principles and procedures of drill movements used with smaller units to the movement of a squadron.
6. Know the function of the group and the wing.
7. Know how groups and wings are formed.
8. Know the purpose and definition of ceremonies and parades.

WELLNESS PROGRAM

Wellness is an official and integral part of the Air and Space Force Junior ROTC program. Wellness curriculum is instrumental in developing citizens of character dedicated to serving our nation and communities. The program is provided as a tool to help develop individualized fitness programs for your cadets. Cadets will be given the opportunity to put into practice the wellness concepts that are taught in Leadership Education 100. Instructors are encouraged to include team sports to keep the Wellness Program fun and motivating. Team sports also provide cadets the opportunity to develop leadership skills and build esprit de corps. Instructors are also encouraged to utilize sites, such as the following, to help develop lesson plans and fitness activities:

- https://peuniverse.com/
- https://www.pecentral.org/
- http://www.pelinks4u.org/index.htm
- https://www.thepeshed.com/

The Wellness Program provides a list of 19 exercises with examples that may be utilized in a 36-week program modifiable to help provide variety and meet individual and district/state goals. Instructors should utilize fitness programs that best fit the requirements within their district/county/state. HQ AFJROTC offers suggested fitness programs that will assist instructors with developing a comprehensive fitness program. Cadet fitness improvement is rewarded by earning the Health and Wellness Ribbon.

The course objective for the Wellness Program is to:

Motivate JROTC cadets to adopt active, healthy lifestyles beyond program requirements and into their adult lives.

The goals of the Wellness Program are to:

1. Create an individualized fitness program based on national standards by age and gender.
2. Identify areas of improvements for each cadet and provide guidance for improvement.
3. Incorporate a physical fitness and wellness education program to reach fitness goals.

Air Force JROTC Fitness Challenge

Regular physical activity in adolescents promotes health and fitness. Compared to those who are inactive, physically active youth have higher levels of cardiorespiratory fitness and stronger muscles. Their bones are stronger, and they may have reduced symptoms of anxiety and depression. Youth who are regularly active also have a better chance of a healthy adulthood. They also typically have a lower Body Mass Index (BMI). Higher BMIs increase the risk for certain diseases such as heart disease, high blood pressure, type 2 diabetes, gallstones, breathing problems, and certain cancers may develop. Adolescents don't usually develop chronic diseases; however, risk factors for these diseases can begin to develop early in life. Regular physical activity makes it less likely risk factors will develop and more likely that adolescents will remain healthy as adults.

Key Guidelines for Adolescents

Regular physical activity in adolescents promotes health and fitness. Compared to those who are inactive, physically active youth have:

- Higher levels of cardiorespiratory fitness and stronger muscles
- Lower body fatness
- Stronger bones
- Reduced symptoms of anxiety and depression

In addition, on March 11, 2020, the US Food and Drug Administration (FDA) launched, "What's in it for you?", an educational campaign to accompany the updated Nutrition Facts label. This is the first major update to the Nutrition Facts label in over 2 decades. The changes reflect new scientific information, including the link between diet and chronic diseases such as obesity and heart disease. More information can be found at: https://www.fda.gov/food/nutrition-education-resources-materials/new-nutrition-facts-label.

Additional downloadable teacher resources can be found here: https://www.fda.gov/food/students-teachers/science-and-our-food-supply#nutrition

Cadet Fitness Assessments

Only one assessment is required per year. In 2020, the Wellness program changed to mirror the Air Force Physical Fitness Test. Considering this, new guidance for the **three required exercises** (sit-ups, 1-mile run, and right-angle push-ups) and physical fitness test instructions have been uploaded to the Curriculum SuperStore for instructor use.

NOTE:

- Ensure DD Form 3203 and Supplemental Participation Form have been completed prior to testing
- Cadets must complete all three exercise requirements
- For additional guidance on conducting PFT assessment contact your RD

Key Exercises for Maintaining Fitness

This program provides 19 exercises which can be conducted with minimal space and with minimal climate dependency (e.g., the 1-mile run). The exercises develop all muscle groups and provide sufficient anaerobic and aerobic intensity. They require no equipment and use only body weight and common objects (e.g., chairs).

The 19 exercises are:

- V-Sit Reach ● One-Mile Endurance Run/Walk ● Push-ups
- Sit-Ups ● Lunges ● Mountain Climbers ● Plank ● Pull Ups
- Bent-Knee Push-ups ● Arm Extended Lunges ● Body Builders
- Feet Elevated Push-ups ● Reverse Extended Lunges
- Hindu Push-ups ● Hindu Squats ● Squat Leaps
- Left Arm and Right Arm Planks ● Flutter Kicks
- Extended Side Push-ups ● Side Lateral Jumps

A typical exercise class may go as follows:

- Warm-up/Stretch
- Pick 6 or more exercises to perform depending on time
- Ensure proper form and technique
- Cadets should strive to complete the number of repetitions indicated on their personal workout plan
- Time and facilities permitting, instructors should allow cadets to participate in an organized team sport
- Cool down/Stretch

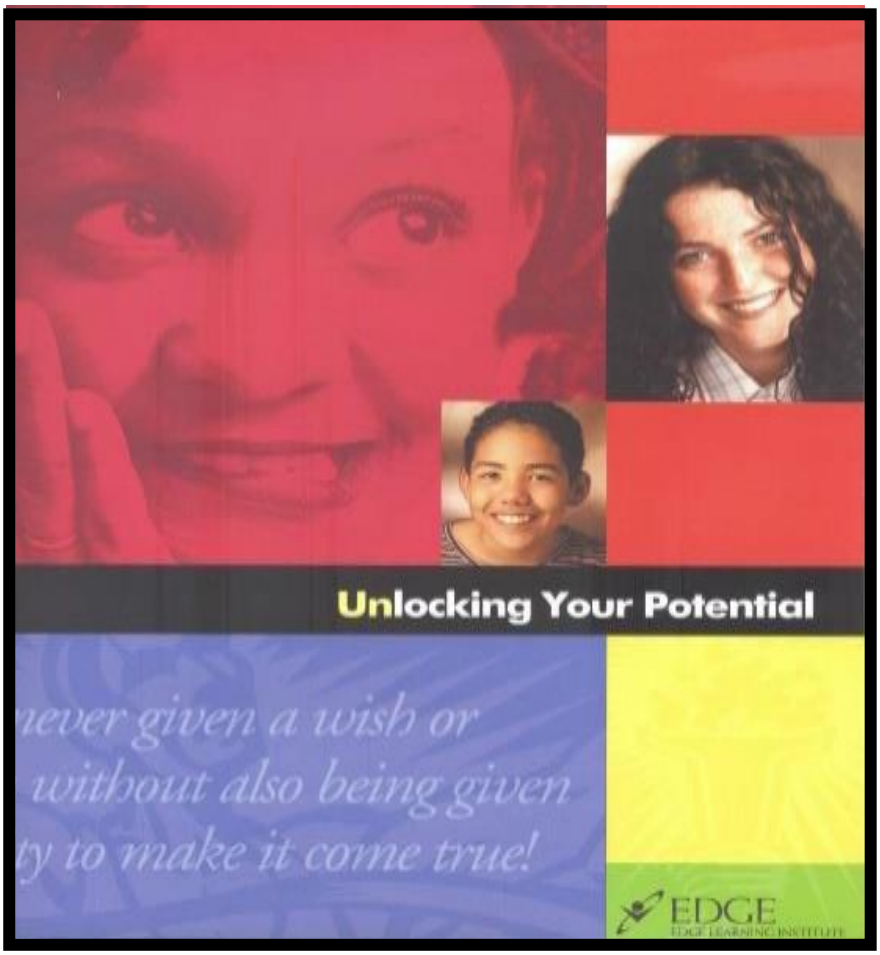
The references below from the Leadership Education 100, 200, and 400 textbooks provide the primary academic support for the cadet Wellness Program.

Location	Material Title	Page Numbers
LE 100, Chapter 2, Lesson 2	"Managing Stress"	140-155
LE 100, Chapter 2, Lesson 3	"Making Positive Decisions"	156-171
LE 100, Chapter 2, Lesson 4	"Mental and Emotional Health Care"	172-188
LE 100, Chapter 2, Lesson 5	"Avoiding and Preventing Violence"	190-201
LE 100, Chapter 3, Lessons 1-5	"Be Health Smart"	204-293
LE 100, Chapter 4, Lessons 1-4	"Making Safe, Drug-Free Decisions	296-378
LE 200, Chapter 3, Lessons 1-3	"Understanding Your Attitude"	106-145
LE 200, Chapter 4, Lessons 1-3	"Understanding Your Actions"	146-177
LE 400, Chapter 4, Lessons 1-3	"Decision-Making – Choose Wisely"	140-165
LE 400, Chapter 5, Lessons 1-2	"Organizing – Managing Time and Change"	166-195

LEADERSHIP EDUCATION ELECTIVES

The following rules apply when using LE elective curriculum:

1. LE electives are "**ONLY**" intended to supplement, **NOT** replace Leadership Education curriculum and **WILL NOT** be used in place of AS, Drill & Ceremonies, or Wellness/PT curriculum.
2. Cadets **should not** repeat LE elective curriculum; the intent is to expose cadets to multiple citizenship opportunities as possible throughout their high school experience.
    - Units with blended classes may teach portions of LE Elective 6 each year to assist first year cadets with a basic understanding of corps requirements.
3. LE electivemust receive a minimum of elective credit from school/district.
4. LE elective may be offered in place of HQ's provided LE curriculum for only one-half term of a 4x4 or Block schedule and one semester of a Trad/Tri/A-B schedule for any academic year.
5. LE elective name and description should be added to the course syllabus.
6. LE elective name and description must be added to the "Unit Defined Courses" when taught.
7. AFJROTC units must receive an approved "Holm Center/DEJ" curriculum waiver to teach content as LE elective if not on the Holm Center/DEJ approved LE electivelist.
8. AS, STEM, Drill & Ceremonies, and Wellness/PT **WILL NOT** be used as LE electives.
9. LDR activities **WILL NOT** be used as LE electives.
    - Examples of LDR activities include CERT, Marksmanship, Orienteering, Drill Teams, and First Responder programs.
10. Instructors will be required to develop lesson plans/PPTs if none are provided by the host organization.
11. LE Elective additional information, when applicable, can be found in the Curriculum SuperStore.



Unlocking Your Potential

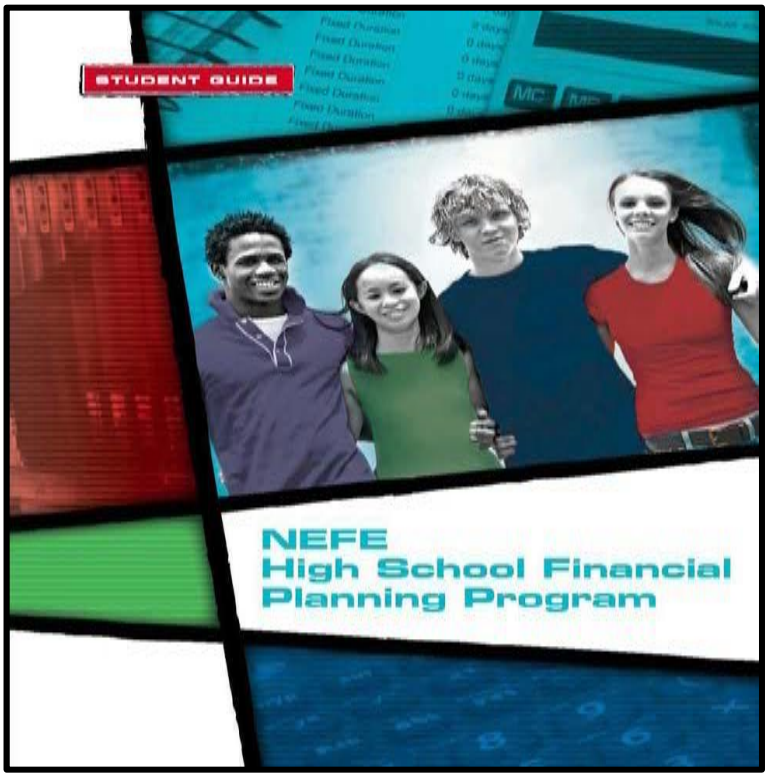
Unlocking Your Potential (UYP) is a 14-unit Life Skills program that prepares and inspires young adults to succeed.

UYP was created by Edge Learning Institute. Its roots are found in Founder Bob Moawad's early experiences in "democratic coaching" as a high school basketball coach and teacher. The premise is simple; catch kids when they are young enough and it's a lot easier to help them develop the right attitudes for success in life. In the years since UYP was created, thousands of students have been positively impacted by the principles and concepts.

Students learn the ingredients that make up a person's potential…how great achievers become successful and how their techniques and systems can be applied. Students also learn how to develop the right attitude, a positive self-image, positive self-talk, techniques for goal setting, characteristics of high performers, and much more. UYP provides students with hope and plays a decisive role in their lives by helping them decide where they are going, and how to get there.

UYP Participant Guide and Videos are available for download via the Curriculum SuperStore.

National Endowment for Financial Education (NEFE) High School Financial Planning Program (HSFPP)®



The High School Financial Planning Program® (HSFPP) retired on July 31, 2021. Although the program has retired, the content is licensed for use by JROTC instructors.

The NEFE HSFPP is a six-unit classroom curriculum that consists of six modules. The student guides are to be used as a workbook for the student. The NEFE High School Financial Planning Program® was designed for the 11th and 12th grade level, though the curriculum text is written at the 5th to 8th grade level. The high school program specifically focuses on basic personal finance skills that are relevant to the lives of pre-teens, teens, and young adults to lay a solid foundation for financial independence and future financial decisions.

The NEFE High School Financial Planning Program® has been correlated to educational standards in every state with financial literacy standards. In addition, it has been bench- marked against seven national educational standards in specific subject-matter areas. The HSFPP is the only financial literacy education program to have done this. The HSFPP curriculum is built around seven target competencies, forty-three learning objectives and fifty- three learning outcomes. The target competencies and learning objectives are used in the standards crosswalks which can be found at https://www.hsfpp.org/ The files are in PDF format and can be downloaded for your use.

As a result of taking part in the NEFE High School Financial Planning Program, students will build confidence, apply practical skills, and exhibit sensible behaviors related to money management.

The NEFE Personal Financial Ecosystem, an infographic, and 6 course modules can be downloaded from the Curriculum SuperStore.

Congressional Medal of Honor Foundation (MHF)

The Congressional Medal of Honor Foundation provides supplemental teacher resources/DVDs ***free of charge (***https://medalofhonornews.com/educational-resources). *Medal of Honor: Lessons of Personal Bravery and Self Sacrifice* is a resource designed by teachers to provide students with opportunities to explore the important concepts of courage, commitment, sacrifice, patriotism, integrity, and citizenship and how these values can be exemplified in daily life. In addition, educators can join *The Medal of Honor Character Development Program,* a free professional learning community providing access to free primary sources and lesson plans to help teach good character in the classroom. Good character is important for us all—but especially for today's students who are tomorrow's leaders. Character is best taught by example...and there are no greater examples than our nation's true heroes. Browse https://www.edweb.net/cmoh for additional details.

You may also contact them directly at:
Congressional Medal of Honor Foundation:
40 Patriots Point Road
Mount Pleasant, SC 29464
Email: info@themedalofhonor.com

The Pennsylvania Veterans Museum

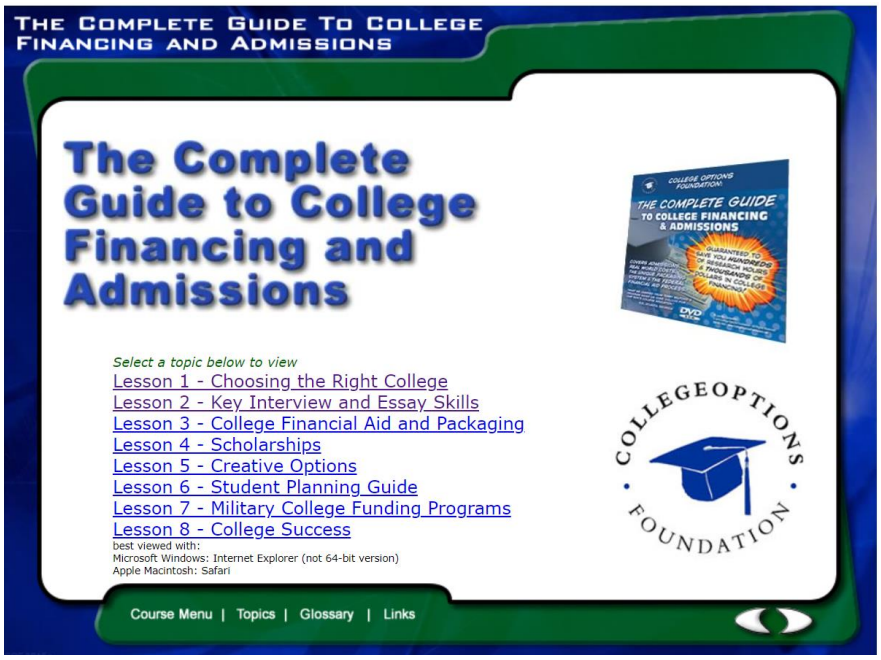
The Pennsylvania Veterans Museum provides supplemental teacher resources/ DVDs ***free of charge***. The museum is dedicated to preserving, protecting, and promoting the legacy and dignity of all veterans of the US military. Their focus is to tell the stories of America's conflicts through the eyes of those who served in them. See the section on curriculum videos for complete descriptions of the DVDs. Some of the material available is listed below. Contact them directly to obtain the materials at: http://paveteransmuseum.org/education/.

- *On Freedom's Wings: Bound for Glory* (Legacy of the Tuskegee Airmen)
- *The American Humanitarian Effort: Out-takes from Vietnam*
- *Their Sacrifice, Our Freedom: WWII in the Pacific*
- *In The Company of Heroes* (101st Airborne: Screaming Eagles)
- *Women in the Military: Willing, Able, Essential*

Veterans National Education Program

This organization provides supplemental educational materials ***free of charge*** teaching US modern history through the understanding of the humanistic and cultural aspects of America's military conflicts and how they have influenced the fabric of our global society. Contact them directly to obtain the materials (https://v-nep.org/) or via email at:

Veterans National Education Program (VNEP)
P.O. Box 354
Newtown Square, PA 19073
E-mail: veterans@v-ep.org



College Options SAT/ACT Prep

The Complete Guide to College Financing & Admissions is a powerful tool to support the Leadership 300: Life Skills and Career Opportunities course. Over the past several years, the packaging has changed, but the content remains consistent. The program covers the following topics:

- Lesson 1 - Choosing the Right College
- Lesson 2 - Key Interview and Essay Skills
- Lesson 3 - College Financial Aid and Packaging
- Lesson 4 - Scholarships
- Lesson 5 - Creative Options
- Lesson 6 - Student Planning Guide
- Lesson 7 - Military College Funding Programs
- Lesson 8 - College Success

The College Options Foundation FAQs can be accessed at: https://cofcontests.com/FAQs.

The Complete Guide to College Financing & Admissions is a step-by-step approach to college financing and admissions. This revolutionary program provides critical information and hundreds of web links that connect students directly to everything they need to know to save thousands of dollars in college costs and get them into the college of their choice.

Collegeoptions.net sponsored four-disc CD set, *The Complete Guide to College Financing & Admissions*, is available to order by sending an email request to: jrotc.curriculum@au.af.edu.

Currently, only free SAT/ACT prep material is available to those cadets who participate in the College Options Foundation's Air Force JROTC Academic Bowl.

Financial Readiness
(Foundation for Financial Education)

This material is intended to provide the building blocks of long-term financial readiness through straightforward, relatable and easy to understand content written at the student's level but also as though the audience is an adult trying to learn these topics. The result is mature, real-world messaging and education delivered in a manner easily consumed by a high school student.

Unfortunately, in today's often materialistic and social media-driven world, it's common for young people to get off on the wrong foot financially and then spend years or even decades trying to get on a better path. These digital publications and the conversations they can stimulate, both in the classroom and at home, have the potential to create a different outcome: one in which students move into adulthood better informed and better equipped to make better financial decisions.

This material is aligned with *LE 300: Life Skills & Career Opportunities*; Chapters 1 & 2, and Chapter 4, Lesson 1.

Units may continue to use the YDraw videos if in their inventory, however they are no longer available for order.

To plant the seeds for long-term financial readiness, we teamed up with a large, nonprofit financial readiness education foundation to create six digital financial readiness publications. The topics covered are:

1) Financial Planning and Goal Setting
2) Building Your Savings
3) Buying a Vehicle
4) Understanding Credit
5) Managing Debt
6) Financing College

Go to https://f3eonline.org/ for additional resources such as free educational videos, workshop information, and other helpful websites you can use for classroom content.

Consumer Financial Protection Bureau (CFPB): Youth Financial Education Program

The Consumer Financial Protection Bureau (CFPB) is a US government agency that aims to make consumer financial markets work for consumers, responsible providers, and the economy. CFPB protects consumers from unfair, deceptive, or abusive practices and takes action against companies that break the law. Their goal is to arm people with the information, steps, and tools needed to make smart financial decisions. Their free practitioner resources are designed to help professionals teach and encourage financial capability, on a wide range of consumer topics, from childhood through retirement.

While CFPB provides many resources for instructors to teach financial literacy, focus should be primarily on resources that provide the most benefit for your cadets.

CFPB's Youth Financial Education program provides educational tools for developing financial knowledge, skills, and habits that will help today's youth create a path to adult financial well-being. The tools and resources on their website support 9–12 financial education. Instructors can access CFPB's home website through the following URL: https://www.consumerfinance.gov/

Note: The CFPB website is periodically updated with information and resources to aid educators teaching financial literacy; please check it for resource availability.

Misadventures in Money Management (MiMM)

The CFPB's Office of Service-member Affairs (OSA) created the MiMM financial education program similar to a "choose your own adventure" story that provides cadets with real-life financial choices in a fun and interactive manner. MiMM is an excellent tool that reinforces financial strategies learned from other CFPB education resources or LE 300, chapters 1, 2, and chapter 4 lesson 1.

More information about CFPB and MiMM can be found at:

https://www.consumerfinance.gov/consumer-tools/educator-tools/servicemembers/mimm/

What Now JROTC Cadet?

Profession of Arms Center of Excellence (PACE)

On 2 March 2015, Chief of Staff of the Air Force General Mark Welsh directed the activation of the Profession of Arms Center of Excellence (PACE). PACE is tasked as the Air Force champion laser focused on infusing Air Force Core Values within the Profession of Arms.

Note to Instructors

Instructors wanting to add *"What Now JROTC Cadet?"* character development modules to their curriculum offerings **MUST** complete the **mandatory** PACE facilitator training. **The Facilitator Guide and PowerPoint can be found in the Curriculum SuperStore.**

PACE is committed to developing Air Force personnel with a professionalism mindset, character, and core values required to succeed today and well into the future."

PACE Goals

The goal of the ***"What Now JROTC Cadet?"*** video series is to make cadets think about moral and ethical dilemmas and appreciate how Air Force Core Values and their Virtues provide a reliable compass for making good decisions. Its focus is to assist decision-making, spur discussion and enhance character development of JROTC cadets.

When facilitated properly, each ***"What Now JROTC Cadet?"*** scenario will:

- Enhance character development through guided discussion of targeted ethical problem areas.
- Promote discussion and provide decision-making opportunities based on ethical/moral dilemmas in a facilitated forum.
- Strengthen the ability to connect Air Force Core Values with mission accomplishment.

- Foster habits of mind that lead to moral courage and ethical judgment.
- Foster mental agility, adaptive behavior, and diversity of thought.

Format

The ***"What Now JROTC Cadet?"*** module has six scenarios. One of the scenarios is to be used for instructor training only. The remaining five scenarios are stand-alone and can be presented in any order.

A scenario with facilitated discussion will normally last 45 – 60 minutes depending on the engagement of the cadets and skill of the facilitator and consists of 6-8 video clips that are 1-2 minutes in length. Each video clip is accompanied by a guided discussion led by a trained facilitator.

The scenario always begins with a main character who explains a situation and a dilemma the situation presents. Then, 4-5 additional characters provide their perspective of the situation and what they would do. The final character provides either a mentor's perspective based on personal experiences or an "authoritative" perspective (including the official Air Force answer).

NOTE: *"What Now JROTC Cadet?" is not designed to be completed in one school year or term. Modules are intended to be spread out over a cadet's four years in JROTC or be presented when issues similar to the provided scenarios arise on the school campus or community.*

What Now JROTC Cadet? – Scenarios

The five scenario titles are:

1) Tough Call
2) The Coach
3) Truth or Dare
4) Party Time
5) It Wasn't Me

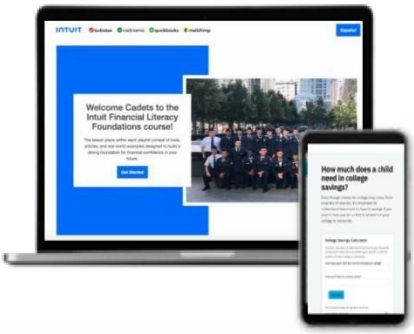
Intuit Financial Literacy Foundations Program

INTUIT for Education

Empower your students with the financial knowledge and skills they need to be financially responsible

Intuit, EVERFI and Air & Space Forces JROTC have partnered together to provide your students with a digital financial education tool to help gain the knowledge and skills they need to be financial responsible. Students will learn more about:

- Healthy financial habits
- Budgeting
- Credit Cards
- Credit Scores and Reports
- Checking accounts
- Savings accounts
- and more!



Program highlights include:

- Series of interactive learning modules on key financial topics
- Mobile and tablet enabled so your students can learn anytime, anywhere
- Short lessons (3-6 minutes each)
- Lessons available in both English and Spanish
- Access to a reporting dashboard to track student progress

Get Started Now: https://intuit-jrotc-air.everfi-next.net/welcome/intuit-jrotc-air-literacy

Additional resources are available here: https://www.everfi.com/k-12/financial-education/

Part IV – Additional Supplemental Materials and Resources

Aerospace Education Member (AEM) of Civil Air Patrol

Air and Space Force JROTC instructors can receive **free** supplemental aerospace (STEM) resources from the Civil Air Patrol (CAP) by joining as an Aerospace Education Member. This unique CAP membership category is designed for educators or others involved in promoting aerospace education in classrooms, museums, and other youth organizations. Resources include national standards-based aerospace education materials to promote STEM subjects and careers, eligibility to apply for grants, STEM kits, and Teacher Orientation Program (TOP) Flights in CAP aircraft.

Civil Air Patrol provides a **complimentary** Aerospace Education membership to all Air and Space Force JROTC instructors to allow access to a variety of free CAP aerospace-related STEM products and programs as found on the CAP Educators Page. Please note that joining online is CAP's preferred method; however, the paper application is available IF there is an online error.

- To join online, click here. (If there is an online error for any reason, use the paper application here.)
- To receive the free Coupon Code for online membership, contact ae@capnhq.gov.
- If you are already a CAP AE member, **remember to respond to the annual free renewal e-mail** sent to you to continue free membership each year.
- If your membership has expired, contact ae@capnhq.gov.

For any further information or assistance, contact CAP's National HQ located at Maxwell AFB in Montgomery, AL, at ae@capnhq.gov.

Note: After you join as an AEM, you will receive an annual free renewal notification. Free annual renewal is NOT automatic. They will ask for two e-mail addresses to ensure this renewal notice is received and not blocked as spam at your school.

CAP STEM kits and activity books are identified as "CAP" provided materials in each STEM description. Some STEM material utilized by AFJROTC instructors may cover multiple STEM areas. The CAP STEM curriculum and kits are provided to instructors as supplemental material to be used with Holm Center provided AS curriculum. Instructors choosing to include supplemental CAP STEM material to reinforce HQ's provided curriculum must include this material in WINGS | Unit Management | Unit Defined Courses.

NOTE: Holm Center Academic Affairs Directorate and CAP are offered as AS STEM courses to supplement, **NOT** replace Holm Center provided Aerospace Science curriculum.

Supporting material included during daily classroom instruction that exceeds 10% of the Defined Course **MUST** be defined by going to WINGS | Unit Management | Curriculum | JROTC Unit Defined Curriculum.

Supplemental materials must not exceed 10% of instruction time without a waiver approved by Holm Center/DEJ.

Video Series and Documentaries

The supplemental materials listed below are no longer part of the AFJROTC provided curriculum. However, if your unit has these materials and you can enhance your learning environment by using them, please feel free to continue using the material. If you do not have any of these materials, we apologize that we will not be able to provide them to you.

Smithsonian Frontiers of Flight Series: This is a 13-part television series examining the history of aviation and early space flight. The series was produced by the National Air and Space Museum and premiered on the Discovery Channel 27 September 1992. The series includes:

1. Powered Flight, 2. Coast To Coast, 3. The Atlantic and the World, 4. U.S.A Europe Non-Stop, Air Transport for All, 6. Golden Age Frontiers, 7. Rocket Power, 8. Jet Power, 9. The Sound Barrier, 10. The Jet Airliner, 11. The Threshold of Space, 12. To Space and Back, and 13. The Last Great World Record.

Basic Aviation Physiology: Can you recognize the onset of hypoxia? Do you know how to compensate for visual illusions that can put you in a dangerous situation? These are just two of the many things you will learn by viewing this videotape. It describes how the different sensory organs give you inputs in flight and how to analyze those inputs. It continues with sections on spatial disorientation, the effects of altitude on the human body, and the reduction in your performance caused by alcohol or drugs.

Weather Hazards: Thunderstorms, wind shear, and microbursts can present serious hazards to your flight operations. This *FlightTime* video program helps you understand the forces behind these phenomena. It shows you the inner workings of a thunderstorm, the varied sources of wind shear, and the tremendous destructive power of microbursts. By increasing your understanding of these subjects, you will improve your ability to avoid the associated hazards.

Weather Flight Planning and the Pilot: Today, you have more options than ever before for obtaining a weather briefing. This video shows the various weather sources and services available and covers some of the common errors in the briefing process.

Final Approach Fix Inbound: The final approach is a crucial phase of any flight, especially in instrument conditions. This video helps you analyze how obstacles, clearance, and protected airspace vary for different types of approaches. It discusses the unique considerations of various kinds of procedures, and it also gives you practical tips for flying the final approach segment.

Mountain Flying: Flying in the mountains presents its own unique challenges and rewards. This video provides information and techniques for flying in the mountains and how to avoid the associated hazards. You can use this video as an introduction to mountain flying before you get a checkout, as a review of mountain flying, or just to broaden your knowledge of different types of flying.

Aircraft Icing: Aircraft Icing emphasizes the many forms of icing and provides effective techniques for avoiding or dealing with the associated hazards. It presents valuable information for both VFR and IFR pilots.

Violence To-Go: Consists of a 12-minute video story and an easy-to-use Resource Guide with information and student activities to reinforce key topics. The video story, *Violence To-Go* contains no violent scenes or inappropriate language but will have students sitting on the tips of their seats. The Resource Guide contains 7 Student Activities with sample lesson plans.

Physics of Flight: Offers an exciting new way to teach and learn physics. *Physics of Flight* teaches basic physics concepts as they relate to flight, as well as highlights the relationship between science, research, and engineering design. Students will enjoy *Physics of Flight's* visual approach

to learning physics as they look inside the cockpit of jets and gliders, reading real flight instruments to study physical forces.

NASA 25 Years: The Greatest Show in Space: An award-winning video series. It is a 10-volume series.

Visual Information Libraries: Additional supplementary materials may be obtained from the following:

a. Air Force films listed in AFP 700-34, Air Force Catalog of Visual Information Production, may be ordered from, Joint Visual Information Activity, Toby Hana, PA 18466-5102.
b. FAA films are listed in the FAA Film Catalog. Order from Film Library, AC44-15, Film Service, c/o Modern Talking Picture Service, Inc., Park Street North, St. Petersburg FL 33709-2800.
c. NASA films are listed in the NASA Film and Video List. Order from the NASA Regional Film Library that serves your state or territory.

Honor and Glory: Their elegant drills are as precise as a Swiss clock. Their rhythmic cadences evoke 200 years of order and unity. Their music stirs a nation's pride. They are the honor guard units of America's military; soldiers whose skills dazzle the world. Get a rare look inside these elite teams, from the rigorously selective acceptance process through the notoriously intense training. Watch in awe as the Marine's famed Silent Drill Platoon spins and tosses bayoneted M1 rifles for 10 minutes without a word. Work escort duty with the legendary Old Guard, the oldest active unit in the Army and march with the prestigious 144-piece Marine Band, known as "The President's Own."

People, Power, and Mission (Air Force History): The stirring, visually rich history of the United States Air Force is presented in compelling style, featuring rarely seen footage. The Air Force Association has joined the Emmy Award-winning production team of Russ Hodge and Tim White and a production staff with more than a half dozen Emmys to commemorate the 50th anniversary of the USAF. This video features interviews with General Brent Scowcroft, General Michael Dugan, Senator Ted Stevens, and Air Force Historian Richard Hallion, as well as more than a dozen interviews with the everyday men and women who have made the USAF the best in the world.

Wings Over Europe: Relive the history of the air war over Europe. Blitzkrieg: Screaming Stuka dive-bombers rain destruction on Allied troops. In the sky above Europe, Spitfires, Messerschmitt's, Mustangs, and Focke-Wulfs fight it out. Over Britain, the RAF, with a few brave fighters, stands off the concentrated might of the Luftwaffe. It was a time of great deeds and great planes. The Discovery Channel now brings you the story of those great planes, and the men who flew them.

Wings Over The Gulf: Is a new technology; and a new kind of war. Some of the most important aircraft that flew in Operation Desert Storm are profiled stem-to-stem. Wings Over The Gulf features recently declassified military combat footage. You will see all the hardware, the tacticians, the high-risk missions, and the men who flew them. In Harm's Way: Tornado – The sleek, sophisticated, European strike plane. A-6 Intruder – The backbone of the Navy's air campaign. The Final Assault: F-16 Falcon – The multi-role work horse of the Gulf War. A-10 Thunderbolt II – The deadly "warthog" built for punishment.

Nighthawk: Secrets of the Stealth Fighter: An unprecedented look at America's super weapon. After years of secrecy, rumors, lies and controversy, the F-117 Nighthawk proved itself in battle during the Gulf War. This action-packed video gives you total access to the Stealth's classified history – and an exclusive chance to see it in action.

Cartographic Materials

The Muir S. Fairchild Research Information Center (MSFRIC)/AU Library staff has designed an AFJROTC Standard Map Package. AFJROTC teachers can requisition any of these cartographic materials from MSFRIC at AUL/LRC, Maxwell AFB AL 36112-6106; Commercial phone: (334) 953-2747, DSN: 493-2747. MSFRIC stocks over 162,000 maps to support the AFJROTC curriculum. From the link provided above, you can obtain contact information for AUL staff and submit the map request form.

FILE	TITLE
8205 XMILINST	U. S. Military Installations Map (34” x 44”)

The following item is Political, Page-Size (Approximately 8" x 10"):

FILE	TITLE
690-37	Commonwealth of Independent States (CIS)

FILE	TITLE
5301XPAKISTAN	Pakistan Reference Briefing Map
504-5FF	Historical Boundaries Eastern Europe
596-2FF	Former Yugoslavia
700-17FF	Africa
608-4FF	Southwest Asia
604-2FF	Northeast Asia
600-9FF	Eurasia
500-49FF	Europe
400-3FF	Latin America
051-20FF	Pacific
010-85FF	World
625-02FF	Korean Peninsula
650-01FF	Afghanistan
609-18FF	Middle East
----------	Worldview Muslim Distribution
675-05	Iraq
690-37	Commonwealth of Independent States (CIS)

Other page size maps are available for countries and regions worldwide. Maps are also available via the United Nations map website at https://www.un.org/geospatial/mapsgeo. Users are required to follow all copyright restrictions. For additional information go to https://fairchild-mil.libguides.com/maps2.

Publications and Forms

To access AF and AETC publications and forms, go to: http://www.e-publishing.af.mil
To access DD and SF forms, visit: http://www.e-publishing.af.mil/otherpublishingsites.asp

Note: JRS is the OPR for the AFJROTC publications and forms only.

Publications

Number	Title
Air Force AFI 36-2903	Dress and Personal Appearance of Department of the Air Force Personnel
AFI 36-2010	Junior Reserve Officers' Training Corps (JROTC) Program
DAF Pamphlet 34-1203	Drill and Ceremonies

Forms

Number	Title
AF IMT 601	Equipment Action Request
AF IMT 2005	Issue/Turn-in Request
AFJROTC Form 97	Air Force Junior ROTC Instructor Outstanding Instructor Award Nomination
AFJROTC Form 98	Air Force Junior ROTC Instructor Evaluation Report
AFJROTC Form 99	Air Force Junior ROTC Instructor Departure Evaluation
AFJROTC Form 308	AFJROTC Certificate of Recognition
AFJROTC Form 310	AFJROTC Certificate of Completion
AF Form 1256	Certificate of Training
DD Form 2767	Junior Reserve Officer Training Corps (JROTC) Instructor Annual Certification of Pay and Data
DD Form 3200	Junior Reserve Officers' Training Corps Instructor Prohibited Activities Acknowledgement
DD Form 3202	Memorandum of Agreement Between Military Service and School District to Establish and Operate a Junior Reserve Officers' Training Corps Unit
DD Form 3203	Junior Reserve Officers' Training Corps Student Code of Conduct and Parent/Guardian Consent Form

NASA Educator Resource Centers

The purpose of the NASA Educator Resource Centers is to help teachers learn about and use NASA's educational resources. Personnel at ERCs located throughout the United States work with teachers to find out what they need and to share NASA's expertise. The ERCs provide educators with demonstrations of educational technologies such as NASA educational Web sites and NASA Television. ERCs provide in-service and pre-service training utilizing NASA instructional products. Educators also can preview, copy, and receive NASA instructional products.

The Field Center ERCs are located on or near NASA centers. These ERCs service educators from states within their geographical region. These ERCs have a close association with NASA specialists, scientists, and engineers who often act as resources for workshops and special events.

The Educator Resource Centers by State listing include the Field Center ERCs, along with ones that are in planetariums, museums, on college or university campuses, or other nonprofit organizations. These ERCs often have partnerships with their state's education department or regional educational organizations. They also may be part of a resource center that offers educational resources in addition to NASA related ones. Most states have one ERC, but a few have more than one.

Additionally, you can find NASA teaching materials at the following URL:

https://www.nasa.gov/stem/foreducators/k-12/index.html

To locate an alphabetical list of NASA educational publications available, go to: https://www.nasa.gov/audience/foreducators/topnav/materials/A-Z_Pubs.html

ALABAMA: NASA's MSFC Educator Resource Center, U.S. Space & Rocket Center; Huntsville, AL
ALASKA: NASA Educators Resource Center for Alaska; Anchorage, AK
ARIZONA *(currently served by the following location):* NASA's Dryden Flight Research Center Educator Resource Center; Palmdale, CA
ARKANSAS: Center for Mathematics and Science Education NASA RERC; Fayetteville, AR
CALIFORNIA:
NASA Ames Research Center Educator Resource Center; Moffett Field, CA
NASA Dryden Flight Research Center Educator Resource Center; Palmdale, CA
NASA Jet Propulsion Laboratory JPL Educator Resource Center Village at Indian Hill; Pomona, CA
California Science Center Amgen Center for Science Learning; Los Angeles, CA
California State University, Fresno Instructional Technology and Resource Center; Fresno, CA
Endeavour Center Maple High School; Vandenberg Air Force Base, CA
COLORADO: Space Foundation Discovery Institute NASA RERC; Colorado Springs, CO
CONNECTICUT: Eastern Connecticut State University NASA ERC; Willimantic, CT
DELAWARE: Delaware Aerospace Center; Bear, DE
DISTRICT OF COLUMBIA: University of the District of Columbia Science & Engineering Center; Washington, DC 20008
FLORIDA: NASA Kennedy Space Center Educator Resource Center; J.F. Kennedy Space Center, FL

GEORGIA: Museum of Aviation NASA Regional Educator Resource Center; Warner Robins, GA
HAWAII: State of Hawaii Department of Education Barbers Point Elementary School; Kapolei, HI
IDAHO: University of Idaho College of Education—IMTC NASA RERC; Moscow, ID
ILLINOIS: Museum of Science and Industry NASA Educator Resource Center; Chicago, IL
INDIANA: Science Central; Fort Wayne, IN
IOWA: Science Center of Iowa; Des Moines, Iowa
KANSAS: Kansas Cosmosphere and Space Center NASA Educator Resource Center; Hutchinson, KS
KENTUCKY: Murray State University NASA ERC; Murray, KY
LOUISIANA: Louisiana Tech University NASA Educator Resource Center; Ruston, LA
MAINE: Challenger Learning Center of Maine NASA Educator Resource Center; Bangor, ME
MARYLAND: NASA Goddard Space Flight Center Education Resource Center; Greenbelt, MD
MASSACHUSETTS: Framingham State University Henry Whittemore Library, NASA ERC; Framingham, Mass.
MICHIGAN:
Central Michigan University SMTC/NASA RERC; Mount Pleasant, MI
Northern Michigan University – The Seaborg Center NASA ERC; Marquette, MI
MINNESOTA: St. Cloud State University Learning Resources and Technology Services Miller Center; St. Cloud, MN
MISSISSIPPI:
NASA Stennis Space Center Educator Resource Center; Stennis Space Center, MS
Jack son State University Joseph E. Jackson School of Education; Jackson, MS
Mississippi Band of Choctaw Indians Choctaw Tribal Schools; Choctaw, MS
MISSOURI: *(currently served by the following location):* NASA's MSFC Educator Resource Center US Space & Rocket Center; Huntsville, AL
MONTANA: The University of Montana, Western Lucy Carson Library, NASA RERC; Dillon, MT
NEBRASKA: University of Nebraska at Omaha Mallory Kountze Planetarium Durham Science Center; Omaha, NE
NEVADA: College of Southern Nevada Planetarium/NASA RERC CSN; N. Las Vegas, NV
NEW HAMPSHIRE: McAuliffe-Shepard Discovery Center; Concord, NH
NEW JERSEY: Georgian Court University Sister Mary Joseph Cunningham Library NASA ERC; Lakewood, NJ
NEW MEXICO: New Mexico State University NASA ERC Ed & Harold Foreman Engineering Complex: Las Cruces, NM
NEW YORK *(currently served by the following location):* NASA Goddard Space Flight Center Education Office; Greenbelt, MD
NORTH CAROLINA: University of North Carolina-Charlotte NASA RERC/Atkins Library Charlotte, NC
NORTH DAKOTA: University of North Dakota Department of Space Studies Regional Educator Resource Center; Grand Forks, ND
OHIO:
NASA Glenn Research Center NASA Educator Resource Center; Cleveland, OH
University of Cincinnati College of Education, Criminal Justice and Human Services (CECH) Library; Cincinnati, OH
OKLAHOMA: Oklahoma State University NASA APDC; Stillwater, OK

OREGON: Oregon Museum of Science and Industry NASA RERC; Portland, OR
PENNSYLVANIA: University of Pittsburgh NASA ERC; Pittsburgh, PA
PUERTO RICO: NASA Regional Educator Resource Center University of Puerto Rico Resource Center for Science and Engineering; Mayaguez, PR
RHODE ISLAND: Rhode Island College Physical Science Department; Providence, RI
SOUTH CAROLINA: Stanback Planetarium South Carolina State University; Orangeburg, SC
SOUTH DAKOTA:
Black Hills State University Center for the Advancement of Math and Science Education; Spearfish, SD
Washington Pavilion of Arts & Science The Dept. of Community Education and Learning Sioux Falls, SD
TENNESSEE: The Millard Oakley STEM Center for Teaching and Learning of STEM Tennessee Technological University ERC; Cookeville, TN
TEXAS:
Educator Resource Center for NASA Johnson Space Center Space Center Houston; Houston, TX
University of Texas at Brownsville Library NASA ERC East Library; Brownsville, TX
U.S. VIRGIN ISLANDS: U.S. Virgin Islands Department of Education St. Croix Curriculum Center; Kingshill, U.S. VI
UTAH:
Utah State University Adele & Dale Young Education Technology Center Logan, UT
Weber State University NASA ERC; Ogden, UT
VERMONT *(currently served by the following location):* NASA Goddard Space Flight Center Education Office; Greenbelt, MD
VIRGINIA:
Educator Resource Center for NASA Langley Research Center Virginia Air and Space Center; Hampton, VA
GSFC/Wallops Flight Facility Visitor Center RERC; Wallops Island, VA Radford University Teaching Resources Center; Radford, VA
WASHINGTON *(currently is served by the following location):* NASA Ames Research Center; Moffett Field, CA
WEST VIRGINIA:
NASA (IV & V) Facility Goddard Space Flight Center; Fairmont, WV
Wheeling Jesuit University Classroom of the Future; Wheeling, WV
WISCONSIN *(currently served by the following location):* NASA Glenn Research Center Educator Resource Center; Cleveland, OH
WYOMING: University of Wyoming Learning Resource Center; Laramie, WY