



PLATTSMOUTH HIGH SCHOOL AFJROTC COURSE SYLLABUS AEROSPACE SCIENCE II



Course Title: Aerospace Science II
NDE Course Number: 230101
Course Instructor: Lt Col DeSimone
Career Academy: STEAM

I. MISSION STATEMENTS

District Mission: Working in partnership to ensure Academic achievement, responsible Behavior and Civic engagement.

Plattsmouth High School Mission: To challenge all students to reach their full potential, to become lifelong learners, responsible citizens, and productive members of society. Plattsmouth students and staff will be **Positive, Respectful, Intentional, Determined, and Engaged.**

AFJROTC MISSION, GOALS, and OBJECTIVES

The **mission** of the Plattsmouth High School Air Force Junior Reserve Officer Training Corps (AFJROTC), NE - 951, is to develop citizens of character dedicated to serving their nation and community.

The **goals** of the program are to instill values of citizenship, service to the United States, personal responsibility, and a sense of accomplishment in high school students.

The **objectives** of AFJROTC are to educate and train high school cadets in citizenship; promote community service; instill responsibility, character, and self-discipline; and provide instruction in air and space fundamentals.

II. COURSE DESCRIPTION

The Science of Flight is the Aerospace Science component of Aerospace Science II. The Science of Flight course is designed to acquaint cadets with the aerospace environment, the human requirements of flight, principles of aircraft and rocket flight, and principles of air navigation. **Communication, Awareness, and Leadership** is the Leadership Education component of Aerospace Science II. Communication, Awareness, and Leadership provides cadets with information on communication theory, awareness, and an introduction to the leadership principles that will be fully explored in Aerospace Science IV. Drill and ceremonies is also part of the Leadership Education portion of the course. **Wellness** is the third component of Aerospace Science II and consists of physical conditioning exercises and sports competition to promote physical fitness.

Course Objectives

The Aerospace Science II curriculum has three focal points: Leadership Education II, Aerospace Science II, and Wellness.

A. Leadership Education: (40%)

(1). Leadership Education II - Communication, Awareness and Leadership includes communicating effectively, understanding groups and teams, preparing for leadership, solving conflicts and problems, and personal development. Course objectives are:

- (a). Apply the key factors of effective communication.
- (b). Know the ways in which personal awareness affects individual actions.
- (c). Know the key elements of building and encouraging effective teams.
- (d). Apply the key behaviors for becoming a credible and competent leader.

B. Aerospace Science (40%)

(1). Aerospace Science: The Science of Flight is designed to acquaint the student with the aerospace environment (the atmosphere and weather), the human requirements of flight (physiology), principles of flight (lift, weight, thrust and drag), and principles of navigation (charts, course plotting and wind effects). Course objectives are:

- (a). Know the atmosphere/environment.
- (b). Know the basic human requirements of flight.
- (c). Know why Bernoulli's principle and Newton's Laws of Motion are applied to the theory of flight and the operating principles of reciprocating engines, jet engines, and rocket engines.
- (d). Know the basic elements of navigation, the basic navigation instruments, and the current methods of navigation.

C. Wellness (20%)

(1). Encourage cadets to lead active, healthy lifestyles beyond program requirements and into their adult lives.

- (2). Participate in individual and group physical fitness activities one class day per week.

III. TEXTBOOKS/KEY RESOURCES

Leadership Education II – Communication, Awareness and Leadership.
Aerospace Science: The Science of Flight.
Plattsmouth High School AFJROTC Cadet Guide

IV. COURSE STANDARDS

N/A

V. CAREER READINESS STANDARDS

1. Applies appropriate academic and technical skills
2. Communicates effectively and appropriately
3. Contributes to employer and community success
4. Makes sense of problems and perseveres in solving them
5. Uses critical thinking
6. Demonstrates innovation and creativity
7. Models ethical leadership and effective management
8. Works productively in teams and demonstrates cultural competency
9. Utilizes technology
10. Manages personal career development
11. Attends to personal and financial well-being

VI. ASSESSMENT AND SUPPORT

Grading Procedures

Grading procedures used in AFJROTC courses are designed to provide students, parents and the instructors a framework for accurately reporting student achievement. Students will be given reassessment opportunities when they are not proficient or fail an assessment. Students will be held accountable for completing their work. If a student chooses not to complete an assessment by a given deadline, near the end of the grading term, a zero will be earned. The term grade for AFJROTC courses is calculated using the results of academic achievement and compliance (summative assessments) and academic practice (formative assessments).

A. **Academic Practice (Formative Assessments)** – (Not more than 30% of the final grade). This grade is meant to communicate how a student is doing during the learning process (class work, homework, rough drafts, quizzes and wellness participation).

B. **Academic Achievement (Summative Assessments)** – (Not less than 70% of the final grade.) This grade reflects what a student knows and is able to do after adequate study (tests, exams, assignments, projects, and presentations) and the level of success a student achieves in meeting the compliance requirements of being a cadet in the AFJROTC program (PHS

AFJROTC Cadet Guide). If a student is not proficient on an assessment they will be reassessed after doing self-assessment and re-teaching.

Uniform Days

Mondays and Tuesdays have been designated as the uniform days for all Plattsmouth High School AFJROTC cadets, depending on which day they have class. The uniform will be worn during the entire school day and to and from school. **The course instructor must approve any exceptions to this requirement in advance.** Cadets will wear appropriate physical training attire to include the issued AF grey PT shirt on AFJROTC Wellness days (usually on Friday but subject to change).

Make-Up Course Work

Cadets are responsible for checking with the course instructor to determine what make-up work is required following a period of absence. They are allowed two days to complete make-up work for every day they are excused from school. Previously announced projects and tests will be turned in or taken upon the student's return to school.

VII. COURSE OUTLINE

Approximate Dates:	Subjects:
18 Aug – 18 Sep	LE Ch 1 & 2, drill and wellness
19 Sep – 18 Oct	AS Ch 1 and wellness
19 Oct – 18 Nov	LE Ch 3 & 4, drill and wellness
19 Nov – 18 Dec	AS Ch 2 and wellness
9 Jan – 9 Feb	LE Ch 5 & 6, drill and wellness
8 Feb – 7 Mar	AS Ch 3 and wellness
8 Mar – 14 Apr	LE Ch 7 & 8, drill and wellness
15 Apr – 15 May	AS Ch 4 and wellness

VIII. COURSE PROJECTS/PROJECT BASED LEARNING (not a complete list)

A. Freshmen Boot Camp Leaders

Train and administer fitness test to incoming freshmen

B. SERE

Prepare and participate in Survival, Evasion, Resistance and Escape training at Camp Ashland.

C. Military Ball Planning

Coordinate details of military ball

D. KC-135 Flight

Participate in a Nebraska ANG KC-135 flight (if possible)

E. Offutt RC-135 Simulator

Perform hands-on flying in the flight simulator at Offutt AFB

IX. CAREER CONNECTIONS

A. Academy: STEAM

B. Academy Mission: STEAM emphasizes academic rigor with visual learning in science, engineering, aeronautics, and math.

C. Academy Alignment:

Course Name: Aerospace Science II (STEAM)	How course content is aligned for students interested in the following career clusters
AS-200 The Science of Flight (STEAM)	Relates well to core science classes via discussions on aerodynamics, lift, Newton’s Laws, and Bernoulli’s principle. The lift equation uses concepts learned in math classes.
LE-200 Communications, Awareness and Leadership (STEAM)	Relates to writing and speaking concepts covered in core English classes.

X. BEHAVIOR EXPECTATIONS AND CONSEQUENCES

Daily Class Expectations

Cadets are expected to be on time and prepared for class every day. They should be in the AFJROTC classroom when the final bell rings and bring a pen or pencil, paper, their laptop computer, and the Cadet Guide.

Standards of Conduct and Behavior

Standards of conduct and behavior for AFJROTC cadets are described in the Plattsmouth High School Student Handbook, Plattsmouth High School AFJROTC Cadet Guide and the "NE-951 Cadet Contract/Agreement".