

**Department of Aerospace Science  
AFJROTC KS-931  
Washington High School  
Kansas City, KS**

**AS 200  
SY 2019 -2020  
Instructor: Lt Col Patrick McCormack  
Telephone: (913) 627-7908  
E-mail: Patrick.mccormack@kckps.org**

## **AS 2 Science of Flight**

### **INTRODUCTION**

The mission of Air Force Junior ROTC is to “Develop citizens of character dedicated to serving their school, community, and nation.” As a member of the Washington High School Corps of Cadets, an elite, professional organization, you will be presented with many opportunities to challenge yourself as you attempt to assume the responsibilities associated with becoming an exceptional student, cadet, citizen, and 21<sup>st</sup> century leader. As such, you will be held to higher standards of conduct and integrity required of all members of an elite, professional organization. These standards are spelled out in your Cadet Guide. You alone are responsible for your level of personal and professional conduct and your personal and professional development; a level ultimately determined by the strength of your personal commitment. In other words, you alone determine what you will become. You will quickly realize that this is not just a program or just another course; it’s a way of life. Developing 21<sup>st</sup> professional skills in a safe effective environment. Build character, increase your knowledge, and strengthen your discipline; make yourself count! Excuses don’t lead to mission accomplished. In order to grow tomorrow, you have to do your homework today. It’s all about attitude and commitment; make the impossible inevitable, defy the limits of physical and mental endurance. Remember, “the beginning determines the end.”

**Course Catalog Title: Science of Flight AS2**

### **COURSE DESCRIPTION**

**Aerospace Science:** “The Science of Flight: A Gateway to New Horizons” is an introductory course that focuses on how airplanes fly, how weather conditions affect flight, flight and the human body, and flight navigation. This course is designed to complement materials taught in math, science physics, and other science related courses. The textbook has four chapters, each of which contains a number of lessons. Chapter 1: “How Airplanes Fly,” describes the principles of flight; Chapter 2: “Working Through Flight Conditions,” explores how weather conditions affect flight; Chapter 3: “Flight and the Human Body,” covers how flight affects the human body; Chapter 4: Flying From Here to There,” discusses flight navigation and the purpose of navigation aids.

By the time you finish this course, you will have a greater understanding of the science of flight. This knowledge can help you pursue a career in aviation, learn how to fly, or even make you a more knowledgeable passenger on an airplane---seize the opportunities that the science of flight has set before you!

Aerospace Science will comprise 40% of your total class time.

**Leadership Education:** “Communication, Awareness, and Leadership.” You will continue to develop and hone your 21<sup>st</sup> century professional skills. Emphasis is on communication skills tied into cadet corps activities. Written reports and speeches are designed to compliment academic materials. Cadet corps activities include holding positions of responsibility within the corps organization that require the planning and execution of corps projects. Cadets study the concepts of effective communication; learn to understand themselves in relation to others and the society they live in; learn to understand individual and group behavior; comprehend how teams work to succeed in improving quality and productivity; and, comprehend that leadership is a very

complex art that is essential to the success of the mission. Cadets will comprehend the importance of adhering to Air Force Core Values and participate in the same events as the AS 100, 300 and 400 level cadets while applying Air Force customs and courtesies and dress and grooming standards. Cadet corps projects are planned, organized, and performed. Leadership Education will comprise 40% of your total class time.

**Drill and Ceremonies:** As a part of Leadership Education (LE) course instruction, cadets will become proficient in formation marching, drill of the flight, individual facing movements, and military commands. There will be a strong focus on attitude and discipline. The drill and ceremonies portion of leadership education will take place in both a classroom setting and on a drill pad (Enclosed Parking Lot or Gym) during LE 200 class time.

**Wellness Program:** It is AFJROTC policy that cadets be capable of participating in the school's standard physical education program as a condition for admission into the cadet corps. Both Title 10 USC and DODI 1205.13 reference the enrollment requirement of physically fit students.

The AFJROTC wellness program at Washington High School is designed to develop leaders of character who are physically and mentally tough by engaging cadets in activities that promote and enhance a healthy life style, physical fitness, movement behavior, psychomotor performance and esprit de corps. Wellness class will normally be held every Wednesday or Thursday, which are Block Schedule days. Uniform for the Wellness Program class is the issued AFJROTC PT uniform or approved Physical Education attire. All students are required to "dress out" for their Wellness Program class in the prescribed uniform. The goal of the wellness program is to motivate cadets to lead active, healthy lifestyles beyond program requirements that continue into their adult lives. Focus is on individual base line improvements as measured against national standards established by the Presidential Physical Fitness Program, calculated with age and gender considerations. All cadets will complete the 5-event Presidential Physical Fitness challenge during the fall semester to establish baseline scores in each event and create an individual training/improvement plan. All cadets will complete the 5-events again during the spring semester to gauge individual improvement in each event as well as overall age and gender national standing. Additionally, cadets will be evaluated and graded on their 1-mile run time and the number of pushups and sit-ups that they complete in 2 minutes. Worth 20% of your final grade and 20% of your overall class time.

## TEXTS

### **Aerospace Science**

*The Science of Flight: A Gateway to New Horizons* (Textbook)

Selected Video tapes and DVDs

### **Leadership Education**

*Communication, Awareness, and Leadership* (Textbook)

AF Manual 36-2203, *Personnel Drill and Ceremonies*, V-2627

Cadet Guide

Selected Video tapes and DVDs

## **COURSE OBJECTIVES Outline in Attached PACING GUIDE**

### **COURSE REQUIREMENTS/POLICIES**

**Academic performance is your NUMBER ONE priority in ALL of your courses.**

#### **Course Schedule:**

Monday.....Aerospace Science

Tuesday.....Leadership and Uniform Day

Wednesday (Even Block Classes)...Wellness Program/PT Uniform Required

Thursday (Odd Block Classes)...Wellness Program/PT Uniform Required

Friday.....Aerospace Science/Leadership

**Class Attendance/Participation:** Class attendance and participation demonstrate your level of commitment; reflect your character, and your ability and willingness to accept responsibility. Therefore, unexcused class absences will be regarded as a failure to accept and meet individual responsibility. More importantly, your true character will be exposed and noted accordingly. You are expected to come to class prepared to intelligently discuss assigned material. In some cases you will find that current events center directly on your assigned readings. It would be very beneficial to you, both personally and professionally, to watch CNN/CNN Headline news and read *USA Today*, *The Wall Street Journal*, *The New York Times*, *The Christian Science Monitor*, *The Washington Post*, *The Kansas City Star*, etc. Most, if not all, are available free of charge on the Internet and may also be available at the Library for you to read. As a student, citizen, and cadet, you have a significant vested interest in the events that shape the world. Be a responsible citizen/student. Educate yourself on the issues that have an impact on your quality of life.

**ID Cards:** ID cards are required; as such, you will be expected to show your ID card upon request. ID cards will be checked on a random basis as you report to class. Reference your Student Handbook for additional guidance.

**Tardiness:** Classes will begin and end on time. Cadets are expected to be in their seats and ready to participate when the bell rings. Cadets who arrive late without a pass will be counted as tardy. Keep in mind that it takes extra time to get to North Campus; you do not have time to “chat” after class or to take a leisurely stroll over to North Campus. You are a professional student, be responsible. Don’t be late.

**Uniform Wear:** All cadets are required and expected to wear their issued uniform every Tuesday for the entire school day. Upon initial issue, you and your parents/guardians will be required to sign a uniform contract that details your responsibilities concerning the issued uniform items. You will be taught how to wear and care for your uniforms during your leadership education classes and will be inspected each week on uniform wear day. There is no cost to you for your uniform items unless you lose or damage any item. You are expected to properly clean and care for each item that you are issued. Basically, if it's dark blue, dry clean only; if its light blue, wash and iron. Uniform items are replaced as they wear out or you grow out of them; all issued uniform items will be dry cleaned/laundered and turned in once you complete your time with AFJROTC. Reference your Cadet Guide for additional instructions.

**Personal Appearance:** All cadets are required and expected to be in full compliance with established dress and grooming standards for every class. The school dress code will be adhered to and enforced, to the letter, without exception. You are fully expected to **BE THE EXAMPLE**. Your character and personal/professional pride are reflected through your conduct and appearance. Don't ever forget who/what you represent, whether you're in uniform or not. (Note: For additional information concerning the dress code, reference the Cadet Guide and/or the Student Handbook).

**Classroom Conduct:** Strict adherence to customs and courtesies is essential to the success of your learning experience. Classroom conduct is basically the same as any other class you may have, with one exception, you are expected to follow the directions of your Flight Commander/Flight Sergeant. Eating and drinking approved items is at the discretion of the lead instructor in the classroom. Each instructor will make his or her classroom policies clear at the beginning of each semester. The Flight Commander and Flight Sergeant are responsible to insure the policies are followed.

**Academic Freedom:** Academic freedom is recognized in class. To enhance intellectual and perhaps controversial discussion, there will not be any type of reprisal for students stating their opinions. Cadets will ensure that stated personal opinions are not offensive to other students. Mutual respect will be maintained at all times. Open, frank discussion is encouraged; however, mature common sense is expected.

**Academic Integrity:** Integrity is a Core Value. As a cadet you must always demonstrate unquestionable integrity, "do the right thing, even when no one is looking." Plagiarism and cheating are but two examples of behavior that reflect a lack of integrity and very poor judgment. There is zero tolerance for this type of conduct. Breach of integrity will be cause for an immediate investigation that may result in a failing grade for this course and removal from the AFJROTC program. Strict adherence to the Cadet Honor Code is required and expected. Reference "Cadet Honor Code," and the Cadet Guide for additional information.

**Learning Scale and Depth of Knowledge:** As you approach each lesson and begin your research packet you will find learning scale and depth of knowledge levels for each specific lesson covered in the research packet. Cadets are encouraged to go beyond the stated level for each lesson. At the completion of your examination covering each lesson, you should measure your performance against the established levels for that lesson.

## **Learning Scale Levels**

1. **Novice:** With help, demonstrates partial understanding of some of level 2. Determine meaning of symbols, key terms, and phrases.
2. **Apprentice:** Demonstrates lower level foundational knowledge. Student is successful with foundational content, key vocabulary, foundational skills and concepts with no major errors or omissions.
3. **Practitioner:** The target level for each learning goal. Demonstrates simple and complex skills and informational knowledge of level 2 with no major errors or omissions. Summarize complex concepts citing specific evidence.
4. **Expert:** Demonstrates master of level 3 and is able to apply to new situations or infer to a higher level than was taught. Student has significant depth of understanding of level 3 content and is able to integrate and evaluate multiple sources of information and identify gaps and inconsistencies.

### **Depth of Knowledge**

1. **Recall:** Focus is on specific facts, definitions, details, or using routine procedures.
  2. **Skill/Concept:** Focus is on applying skills and concepts, relationships (compare, cause-effect).
  3. **Strategic Reasoning:** Focus is on reasoning; reasoning is explicitly required. Complex and abstract thinking is required, deep content knowledge.
  4. **Extended Reasoning:** Requires complex reasoning, planning and thinking (level 3 with connections).
- \* Relate concepts among other content areas or within that content area and across major topics.
  - \* Make real-world applications in new situations.

**Examinations:** There will be four examinations: an examination prior to each quarterly report card, this will be a mid-term and a final at the end of each semester. Examinations may consist of multiple-choice, fill in the blanks, and short answer/essay type questions that will come directly from your classroom research packets, your textbook, classroom discussions, lectures, and current events.

**Event Participation:** As an integral part of your classroom experience you are invited to participate in several “hands-on” activities that are designed to enhance your understanding of material taught in the classroom. Cadets must be in good academic and disciplinary standing (with a cumulative grade of C or better) in order to participate in events that will require time out of other classes. Cadets that miss classroom time due to off campus events are required to make up missed work. If a cadet fails to make up assigned work, they will not be allowed to participate in future events. During year there are two mandatory ROTC events, cadets are expected to attend these events and a grade will be administered for participation. A cadet may be excused with prior coordination between the Cadet, their Parent and the SASI. The first is the Parade of Heroes held on an evening in the fall at the Legends shopping area. The second is our Annual Awards Night, held in April each year. Unexcused absence from these events could result in dismissal from the program

**Flight Commander/Flight Sergeant:** Each quarter one cadet will be competitively selected to serve as your flight commander and one cadet will be competitively selected to serve as your flight sergeant. The Cadet Operations Group Commander will make recommendation to the Instructor Cadre. The Instructor Cadre will announce their selections after approval. **Leadership abilities of the flight commander and the flight sergeant will be reflected through the overall performance of the flight.** Remember, a chain is only as strong as its weakest link. You are one team, with a vested interest in how well the flight, as a whole, performs.

### **Grading Policy:**

Performance Grades	70%
Practices Grades	30%

### **Grading Scale**

90% or above = A  
80% or above = B  
70% or above = C  
60% or above = D  
Less than 60% = F

**Records Review/Counseling:** It is very important that your AFJROTC records be correct and that you understand all of the opportunities available to you. The more I know of your goals and desires, the easier it will be for me to provide effective guidance designed to enhance your ability to reach your full potential.

Life as a cadet is as rewarding as it is difficult. Cadets adhere to a strictly regimented daily schedule. Life as a cadet takes dedication, sacrifice, stamina, strong self-discipline and excellent time management skills. However, the rewards include lifetime friendships, honor, personal development and pride

I look forward to working with you as you move closer to completing your high school education on your way to becoming a productive and responsible citizen. I will always be available to talk with you about any questions or concerns you may have. I expect you to be fully committed to yourself in doing **WHAT EVER IT TAKES** to be the absolute best that you can be. Enjoy your AFJROTC experience, be an active participant in the total array of activities that are available on campus and throughout our wonderful community, as well as cadet corps activities; strive to make a difference as you endeavor to become a member of an elite team. You are expected to always do your best. Do your duty as a professional student and a responsible citizen to the best of your ability. Walk worthy and finish well. One more piece of advice before you begin your journey: "Never mind searching for **who you are**---Search for the person **you aspire to become.**" It doesn't matter where you came from---it only matters where you're going. It's all up to you. It's your life. Live it to the fullest!

PATRICK E. MCCORMACK, Lt Col (Ret), USAF  
Senior Aerospace Science Instructor