

Aerospace & Engineering



GENERAL DESCRIPTION

Aerospace is one of those sciences that help shape history. The primary goal of the course is to prepare a student to encounter aerospace topics in higher education and in life. To focus on this goal, we will cover a variety of topics including the history and development of aviation, some of the key aviation figures and discoveries, basic aerospace engineering principles, and the future of aerospace and space exploration. It is hoped that students will have the opportunity to build aerospace models, explore aspects of Aerospace engineering, and enjoy some elements of future scientific theories regarding aviation and aerospace discoveries. Aerospace is the science that incorporates everything above the earth's surface, and this includes meteorology, astronomy, space exploration and all things that fly. This will be a project-oriented course, so be ready to use your hands!

COURSE PURPOSE

The primary goal of the course is to prepare a student to encounter aerospace topics in higher education and in life. To focus on this goal, we will cover a variety of topics including the history and development of aviation, some of the key aviation figures and discoveries, basic aerospace engineering principles, and the future of aerospace and space exploration. It is hoped that students will have the opportunity to build aerospace models, visit some aviation locations, and enjoy some elements of future scientific theories regarding aviation and aerospace discoveries.

COURSE OBJECTIVES

- Ultimately, the study of aerospace can lead a student to encounter the majesty and mystery of the cosmos' Creator. The miracle of flight will lead us to some fascinating topics and perhaps some tough questions. With the study of history comes those ethical discussions and some observations about what is good, beautiful, and true.
- It will be expected of each student to be fully prepared for each class meeting. This will be accomplished by reading the assigned sections and doing all the assigned homework.
- If a student is not present at a class to receive an assignment, it is the student's responsibility to get the assignment, either from the tutor or another student (the expectation of a fully completed assignment at the beginning of class includes students that have missed the previous class).

REQUIRED READING

All books will be either provided electronically or directed by the tutor. Texts and sources will be provided, and students will keep a notebook for the class.

- *Aerospace, The Journey of Flight 3rd Ed* (Electronically shared) Civil Air Patrol Textbook
- One books TBD for personal reading.
- Project materials might need to be purchased individually.

SUPPLIES

Also consult Grade Level Supply List. Please bring at least 4 of the following each day:

- A dedicated class binder with notebook paper
- Writing utensils-Pencils

- Bible (can be electronic on phone)

In addition, students will need to choose and purchase:

- One aerospace individual project - student's choice (models must be the glued type, not snap together) Project must be approved by the tutor before building.
- One personal aerospace related book for a class reading assignment. Student's choice. Book report required.
- We will try to have one WASP Museum field trip. You will need to set aside some money for spending and gas.

GRADING

- **Homework**, class problems, and occasional tests - **70%** of a student's grade
- **Contribution**- **30%**

A note about Contribution Grades

*Contribution Grades primarily assesses four areas: a student's **preparation** for class, his **attitude** towards learning, his **contribution** towards learning during class-time, and his level of **engagement** during the class conversation.*

*A student's **respectfulness** towards God, his tutor, and peers is a prerequisite for a good Contribution Grade.*

Daily Contribution grades will be given for every hour of class. Typically, students are expected to earn 10 points per hour, but the tutor may adjust these values to better reflect the nature of the class time. Daily Contribution grades are not revisable.

Additional Contribution Grades such as Grammar Quizzes, Engagement Notes, etc. may be assigned as needed. All additional Contribution Grades are revisable for 70% of the original value, unless the tutor specifies otherwise.

MASTERY

- Mastery (M) is achieved by obtaining an 85% overall percentage in the class and a student is eligible to earn a Mastery with Honors (MH) for the course after obtaining a 92.5% average for both the first and second semesters and by completing an approved Mastery with Honors project of at least 20 hours.
- MCA utilizes a web-based grading program, FACTS Family Portal. This is a valuable tool for both parents and students to see grades, absences, tardies, contribution, assignments given/received, and also some brief descriptions of a student's conduct in class, and parents are strongly encouraged to use FACTS Family Portal on a regular basis as a way of keeping up with student progress.
- Extra Credit Policy: As this is a senior-level class, the tutor expects students to be responsible for their learning. Occasionally the tutor will offer a small amount of extra credit to the whole class, and the only requirement for earning these points is completing the assignment to the tutor's satisfaction.

REVISIONS

- Through revisions, a student can earn back 70% of the points lost on an assignment and may do revisions twice to regain all possible points. However, students are strongly encouraged to maintain awareness of revision deadlines (typically up to the next test date), after which point revisions will not be accepted.
- Revisions are due by the end of the school day on the posted date. If an assignment is handed in late, the points deducted for being late are not revisable.

LATE ASSIGNMENT POLICY

Assignments are due at the beginning of class, after which point, they are considered “late.” Until a late assignment is turned in, it is entered in the grade book as “missing.” I encourage any student with a MISSING grade to stop by the office and discuss what can be done. Missing grades left too long cannot be fixed.

TUTOR TARDY POLICY

Class will begin precisely at the scheduled time. A student arriving 30 minutes late may be marked as absent for the day. Feel free to text me if you will be late or miss a class and be sure to tell the front office too!

COMMUNICATION

- All students will be required to be members of a GROUPME text group so that rapid class communication can occur.
- Students may call or text me anytime with questions or problems!
- Please try to put all missed assignments on TEAMS and not via email/text.
- Do not wear earbuds or EarPods in class to avoid earning 0/10 Contribution points.

TURNITIN POLICY

Turnitin is an internet-based service and tool that promotes academic integrity and original thought from students. Turnitin screens for similarity (plagiarism) and detects unauthorized A.I. usage in writing.

To better ensure academic integrity and original thought, tutors may ask students to either submit their classwork through Turnitin directly or to email them a digital copy of their classwork, for the tutor to upload through Turnitin screenings.

Tutors may use the feedback Turnitin provides to help them make a more informed determination about the integrity and originality of the student’s work.

FIRST DAY ASSIGNMENT

Read this course description (always a good plan), and read assigned AEROSPACE First Day

NOTE: This is a senior level course. Gone are the days of the one-word scribbled responses on a ripped piece of notebook paper. Time to up your game and show everyone what you are made of as a student. Put in effort, be thorough, apply some brain cells in your answers! Your grades this year will reflect your attention to the little details and the quality of the product you submit!

Reach into the crevices of your intellect and answer these questions for a class discussion:

- 1. What do YOU want to learn this year?**
- 2. What do you think of when you think of AEROSPACE?**
- 4. Name ONE thing about flying that you LOVE/HATE.**
- 5. What is the coolest thing that is happening TODAY with regard to aerospace that YOU know of?**

MCA Schoolwide Policies

MCA ATTENDANCE POLICY

Absence: Parents must inform the school if their student will be absent for any reason. Call the Front Office or email attendance@mcaknights.org prior to the absence or on the morning of the absence. If a student is absent without prior notification by a parent, the school will call the parent to determine the validity of the absence. Call the office, 432-694-0995, or email attendance@mcaknights.org.

In the event an Upper School student is absent for more than one-fourth (1/4) of the class sessions during a semester, the student's parents must meet with the tutor and Head Administrator to determine whether the student will receive credit for the class. Additional and/or make-up work may be required.

Tardy Policy: Tardies will be marked at the discretion of the individual tutors. Students or parents should contact the individual tutors to report reasons for tardies as soon as possible.

Missed Assignment Due Date Guidelines: In the event of an absence, a due date extension will be given. The extension will not exceed the number of school days missed during the absence. Due dates will be established by the teacher or class tutor. Students must complete all work assigned during their absence. However, the teachers or tutors may, at their discretion, excuse the students from any portion of the assignments missed. Students will receive full credit for submitting assigned work. Note: It is the **student's responsibility** to find out what work was assigned. In the case of extended illness, it is recommended that the student or parents contact the tutors directly to find out what assignments were or will be missed.

MCA HONESTY POLICY

All students are assumed to be exhibiting the godly fruit of self-control. We anticipate working with students who are characterized by joy, honesty, and diligence. For this reason, upon enrollment, we require that each student affirm that he or she will maintain the highest standards of honesty and behavior in all work done for Midland Classical Academy. All students will be asked to sign the following.

Pledge of Academic Honesty

I have read and understand the Midland Classical Academy Code of Conduct. I pledge my honor, with God as my witness, to commit myself to the practice and preservation of these standards of academic honesty as long as I am a student of the academy.

As such, the following actions are considered serious violations of our Honesty Policy.

1. Directly copying someone else's work visually, orally, electronically or otherwise.
2. Use of disallowed devices on assignments such as notes, smartphones, books, etc.
3. Getting test questions or essential information from another student who has already completed an assignment that will later be taken, such as a test or quiz.
4. Any other activity that the tutor has explicitly described as cheating.

MCA MASTERY WITH HONORS (MH)

Midland Classical Academy offers honors credit, referred to as "Mastery with Honor", but we offer no "honors" classes.

Mastery with Honor credit for a class is given to those students who

- receive a minimum grade of 92.5 at the end of each semester
- receive a minimum contribution grade of 85 at the end of each semester
- demonstrate character befitting an honor student (1 Corinthians 10:31)
- complete a tutor-approved, 20+ hour project that advances the student's knowledge or skills in the subject while serving either the school or the community in some capacity.

As a student fulfills these requirements in a class at MCA, they receive a Mastery with Honor designated by an "MH" for the class. Mastery with Honor applications and a nominal fee are due at the end of October. The projects themselves are due at the end of March with two scheduled checkpoints in between the application and final deadline.

ARTIFICIAL INTELLIGENCE (A.I.) POLICY

Artificial Intelligence programs are tools that can be used beneficially or harmfully. To the extent that MCA uses these A.I. tools, we desire to use them and instruct our students to use them beneficially. It requires the classical virtue of "Wisdom" to discern the difference between what is beneficial and what is harmful.

Among MCA's core values is "Engaging Minds". Everything we do, including our use of A.I. needs to be in harmony with this value and to cultivate within students the skill of being able to "think for themselves".

MCA offers the following principles for tutors & students to follow as they navigate A.I. in their academic domains. MCA tutors will create and clearly communicate their own instructions for A.I. usage in their classrooms and for their assignments. Students should practice integrity, honesty, and humility in their use of A.I. as in all their work.

Principle 1: *Why to use A.I.* - A.I. should only be used by a student to equip them to better understand the material and to learn in a way that facilitates their critical thinking skills.

Principle 2: *When to use A.I.* - Tutors will explicitly and clearly communicate which assignments a student may or may not use A.I. tools to assist in their learning.

Principle 3: *How to use A.I.* - Tutors will explicitly and clearly communicate the method in which it is acceptable and not acceptable for the student to use A.I. tools.