

AE 1601 – Introduction to Aerospace Engineering

CLASSROOM

Weber SST III Room 1

INSTRUCTOR (Section C)

Ms. Sabina Maranto

Office Hours:

Mondays 1-2PM

Wednesdays 11AM-12PM

MK-325 Conference Room (This is in the Montgomery Knight Building on the 3rd Floor)

Office hours start the second week of classes. There will not be office hours during Official Institute Holidays and Student Recesses. Please check the GT official academic calendar for these dates.

Email: smaranto3@gatech.edu

In your emails, please include AE 1601 in the email subject line and use your GT email account. I will do my best to answer e-mails within 24-48 hours. If you have not heard back in this time frame, please feel free to reach out again in case your e-mail was misfiled or undelivered. Please be professional and respectful in all communications.

Co-Instructor (Sections A and B)

Dr. Turab Zaidi is the instructor for the AE 1601 A and B sections. Both AE 1601 instructors work together closely as all the sections will be following a common curriculum.

TEACHING ASSISTANTS

TAs are shared between AE 1601 Sections. Joint Office Hours:

Graduate Teaching Assistant: Michael Pena

Email: mpena38@gatech.edu

Office Hours: Thursdays 11am-12pm in the Weber hallway area outside the AMS

(Office hours will start the second week of class.)

Undergraduate Teaching Assistant: Milo Karnes

The best way to reach our TAs is via e-mail. The Graduate Teaching Assistant should be the first point of contact for questions about grading. TAs are also a valuable resource for help on

assignments. Please be respectful and professional in all communications with the TAs. Allow 1 business day for a response.

COURSE GOALS

The purpose of this course is to provide a big picture understanding of the field of Aerospace Engineering. This includes exposure to various aerospace vehicles, their operational environment, and design constraints and considerations. It also includes exposure to the different technical disciplines within Aerospace Engineering along with the engineering design process. Finally, the course provides exposure to the curriculum you will experience in GTAE and to the industry you are joining.

This course will cover the basics of the following technical topics:

- Aerodynamics
- Propulsion for Aircraft and Spacecraft
- Basic Rocket Performance and Stability
- Aerospace Structures
- Aircraft Dynamics and Controls
- Basic Aircraft Performance
- The Standard Atmosphere

In addition, we will cover the following topics related to the aerospace industry and your future careers:

- Engineering Ethics
- The Global Aerospace Industry
- Interactions with practicing aerospace professionals

It is my hope that this course will help you better understand your major and the industry you are joining, and help you get excited about and prepared for your future!

COURSE TEXTBOOK AND WEBSITE

There is no assigned textbook for this course. Course materials will be provided to students throughout the semester. A good optional reference is Anderson, Introduction to Flight, Seventh Edition, McGraw Hill, ISBN 0072990716, 2004.

Canvas will be used as the course website.

We will also use Microsoft OneNote which can be accessed through Canvas. Please use the Desktop version of OneNote and not the in-browser version.

COURSE COMMUNICATION

Outside of announcements in the classroom, Canvas will be the primary means of communication for this course. Please make sure you are set up in Canvas to receive announcements to your e-mail inbox so you do not miss them. **You are responsible for announcements made in class, regularly checking Canvas, and for being aware of the content of announcements and assignment due dates.**

COURSE STRUCTURE

This is an in-person class with a significant amount of group work and hands-on classroom experiences. Thus, it is expected that you will attend class in-person regularly unless you have an illness, emergency, or other excused absence. If you must miss class, please notify the instructor via email as soon as possible so that we can properly accommodate your situation.

The course will include the following types of activities:

- **Lectures:** Over the course of the semester, there will be lectures on a variety of aerospace topics. These will be delivered in the regular classroom.
- **Portfolio Activities:**
 - **In-class:** Alongside the lectures, a series of hands-on activities has been designed to enhance understanding of course material. You will put these together into a portfolio to help you connect the course material to the real world.
 - **Hands-on Experiences:** During some class periods, we will do experiments and/or projects using various lab spaces on campus. These will be done during our regularly scheduled class time but may take place in locations other than the classroom.
 - **Take-home Activities:** There will be several take-home assignments during the semester. Some of these will be done in teams and have an in-person component while others will be individual. A schedule will be provided with details about the dates and nature of these activities.
 - **Enrichment Experiences:** In addition to in-class activities and assignments, you will need to attend 2 aerospace-related activities outside of class. These can include lectures, seminars, workshops, tours, or meaningful participation in AE-related clubs.
- **Group Projects:** There will be 2 design-build-fly group projects during the semester (a rocket and a glider). You will be given a significant amount of in-class time to work with your group on the project.

ASSIGNMENTS AND GRADING

This is a project-based course that includes a series of activities. There are no exams and no final for this course. Please note that there will be an assignment due on the final instructional day.

Grades will be determined based on a combination of in-class and take-home activities, with the grade breakdown as follows:

- Rocket Activity: 20%
- Glider Activity: 20%
- Portfolio: 60% (15% for checkpoints and 45% for final portfolio)

Grades will be assigned according to the breakdown below. There will be no curve and grades will not be rounded. Please note that the total grade on Canvas may not accurately reflect the weight of each assignment. The instructor will determine the final grades of the course according to the breakdown in this syllabus.

A: >90%

B: 80%-90%

C: 70%-80%

D: 60%-70%

F: <60%

Extensions and Late Assignments: Assignments turned in after the published due date on Canvas will be penalized 10 percentage points per day late for up to 3 days, after which you must speak with the instructor to potentially receive partial credit. If you have technical issues with Canvas around the submission deadline, you should immediately e-mail your instructor with the assignment attached and a brief explanation of the issues.

Extensions may be granted in cases where extenuating circumstances prevented the student from reasonably completing an assignment on time. Examples include illness, emergencies, family situations, and institute excused absences. The Office of the Vice President and Dean of Students can assist students with documented emergencies by contacting professors on behalf of the student. You can get more information on this process here: <https://studentlife.gatech.edu/dean-students/class-attendance>. **Please note that a high workload in your other courses is not grounds for an extension.**

Attendance: Attendance is required in this course and will be tracked as part of your overall grade for the course.

Note that institute approved absences will not be penalized and students will be permitted to make up missed work.

Reasonable accommodation and exception will be made for illness and emergencies. **If you are ill, please do not come to class.** Your health takes priority and your fellow students will thank you for not exposing them. Please e-mail the instructor as soon as possible to arrange to learn what you missed and come up with a plan to get back on track. **Your grade will not be penalized for missing class when you are feeling ill, provided you reach out to the instructor within 24 hours of the missed class to make accommodations.**

If you ever find yourself in any situation in which an unexpected personal challenge is preventing you from performing your best in the course, please reach out so we can come up with a plan for you.

COURSE ETHICS

The School of Aerospace Engineering values honesty and integrity of all members of our community, and creating a welcoming and fair learning environment is really important to me personally. An important element of this value is the academic honor code.

Georgia Tech Honor Challenge Statement: I commit to uphold the ideals of honor and integrity by refusing to betray the trust bestowed upon me as a member of the Georgia Tech community.

Students are expected to uphold high ethical standards including adherence to the Georgia Institute of Technology Honor Code, Academic Regulations and Student Regulations. Honor Code: http://policylibrary.gatech.edu/student-affairs/academic-honor-code#Article_I:Honor_Agreement

Below are some course-specific guidelines to help you understand what constitutes appropriate academic behavior in this course:

- Students are not permitted to review or use materials from previous semesters. This includes the use of old homework, exams, projects, or solutions.
- Students are permitted and encouraged to work collaboratively on assignments and seek help from one another, but the work that is turned in must be the student's own work. Copying another student's work is not permitted.
- On group assignments students are expected to do their fair share of the work. If there is an instance where a student is not contributing to a group project, the team members should notify the instructor as soon as possible.
- Plagiarism of any kind is not permitted.
- AI should not be used to assist in completing assignments for this course unless specifically stated in the assignment.

TIPS FOR SUCCESS

Successful learning requires significant effort from both the instructor and the student. I will do everything in my power to make this course a success and provide you with the resources you need to learn. However, being successful will require you to do your part as well. Here are a few tips to help you be successful in this course.

- **Come to class!** (And also come on time.)
- **Engage with the material.** Understanding the concepts in engineering comes because of working through examples problems and stretching your understanding. Do not be tempted to shortcut your learning process by looking up solutions online or copying from a friend. If you are stuck, ask for help, but do not be tempted to just copy the answer. Your learning will come through the (sometimes painful) process of working through the connections.
- **Ask for help when you need it.** Office hours are a great time to get help with homework, ask questions about the material covered in class, discuss your own performance in the course, or just to come and chat. These are a resource for you, and I encourage you to use it!
- **Your peers are a resource.** Talking out a problem with a classmate can be a fantastic tool to enhance learning for all parties. Explaining your thought process to someone else is often all it takes to get un-stuck. Plus, your current peers are the start of your professional network.
- **Focus on your problem-solving process.** Rather than focusing on simply learning the equations or memorizing a set of problems, focus on learning an approach to use when faced with a new problem. This skill will serve you well in all your courses and beyond.
- **Make sure you contribute to your group projects.** These are designed to help you learn the material. Plus, your peers are the first of your future professional network. Do not start off with a bad impression!

STUDENTS WITH ACCOMODATIONS

Your experience in this class is important to me. If you have already established accommodations with the Offices of Disability Services, please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course.

If you have not yet established services through Disability Services, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), please contact the Office of Disability Services at 404.894.2563 or dsinfo@gatech.edu or disabilityservices.gatech.edu.

Disability Services offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Disability Services. It is

important to the Georgia Institute of Technology to create inclusive and accessible learning environments consistent with federal and state law.

RESOURCES FOR STUDENTS

Georgia Tech and the School of Aerospace Engineering understand that many students experience stress through a variety of academic, financial, and personal experiences. We value you and want to make you aware of resources available to you should you need them. Your well-being and mental health are important, and we are here for you.

Center for Assessment, Referral, and Education (CARE): <https://care.gatech.edu/>

Tech Ends Suicide Together: <https://endsuicide.gatech.edu/>

Counseling Center: <https://counseling.gatech.edu/>

Collegiate Recovery Program: <https://counseling.gatech.edu/content/collegiate-recovery-program>

Stamps Psychiatry: <https://health.gatech.edu/services/psych>

Vice President and Dean of Students Office and Student Referral Form: <https://referral.studentlife.gatech.edu/>

Georgia Tech CARE: 404.894.3498

Georgia Tech Counseling Center: 404.894.2575

Georgia Tech Police Department: 404.894.2500

Georgia Crisis and Access Line: 1.800.715.4225

National Suicide Prevention Lifeline: 1.800.273.TALK (8255)

National Hopeline Network: 1-800.784.2433

GEORGIA TECH SCHOOL OF AEROSPACE ENGINEERING VALUES

WELL BEING: The School of Aerospace Engineering values the complete well-being of all members of its community, which includes professional, physical, spiritual, emotional, and social dimensions. There are numerous resources to support the health and well-being of all members of our community: <https://gatech.instructure.com/courses/108574>

NON-DISCRIMINATION: As a matter of policy, Georgia Tech is committed to equal opportunity, a culture of inclusion, and an environment free from discrimination and harassment in its educational programs and employment. Georgia Tech prohibits discrimination, including discriminatory harassment, on the basis of race, ethnicity, ancestry, color, religion, sex (including pregnancy), sexual orientation, gender identity, national origin, age, disability, genetics, or veteran status in its programs, activities, employment, and admissions.

<http://policylibrary.gatech.edu/equal-opportunity-nondiscrimination-and-anti-harassment-policy>