

Syllabus for AERO 3323 – Aerospace Structures I Spring 2023

1.0 Overview

This 3-credit hour sophomore-level class is the first course in analysis and design of aerospace structures. Topics covered will include: properties of wing and fuselage sections; buckling of beams and plates torsion of thin-walled and skin-stringer multiple-cell sections.; failure mechanisms and predictions; nonsymmetrical bending of skin-stringer sections; flexural shear in open and closed thin-walled and skin-stringer sections; deflection by energy method; introduction to composite structures.

2.0 Course Information

Instructor: Dr. Jack Chessa

Email: jfchessa@utep.edu

Office Hours: TBD

Office: A-124 or via MS Teams (jfchessa@utep.edu)

Required Textbook: “Aircraft Structures for Engineering Students”, 4th edition, T.H.G. Megson, Butterworth-Heinemann

Reference Textbooks: “Aircraft Structures”, David Perry, Dover; “Mechanics of Aircraft Structures”, C.T. Sun, Wiley; “Understanding Aircraft Structures”, John Cutler, Blackwell Publishing.

Prerequisites: MECH 2332 - Mechanics of Materials

Meeting Times: Old Main 214 - TTH 12:00 -1:20

2.1 Course Delivery

This course will be delivered fully face-to-face. Class will be held at the assigned meeting times and attendance is required. The course material will be mostly on the course a shared OneNote drive, and in the textbook.

Each week you will be assigned the following:

- Reading in the textbook,
- A set of homework problems

These will be posted on Blackboard typically.

2.2 Course Topics

	Topic	Lectures
1	Review of strength of materials and introduction to elasticity	2
2	Introduction to elasticity	1
3	Design criteria and determination of loads	4

4	Torsion of thin-walled structures	5
5	Bending of thin-walled structures	5
6	Composite materials	3
7	Materials selection and failure theory	3
8	Buckling design of structural elements	4
9	Deflection analysis of structures	3
	Exams (two in class and a final exam)	2

3.0 Grading

There will be two grading equations used to calculate two raw final grade scores. You will be given the higher of these two raw grades. The raw scores will be calculated as given in the table below

	Raw 1	Raw 2
In-class exams (3)	60%	30%
Quizzes and attendance	15%	20%
Project(s)	10%	25%
Homework	15%	25%

3.1 Exams

There will be three in class exams given during the semester with the third being given during the final. The final exam is not cumulative but has the same weight as the other exams.

3.2 Quizzes and Attendance

Attendance is required in this class. There will be unannounced short quizzes (approx. 15 minutes) periodically in class. The quiz material will be based on prior reading or homework. These are to be done individually, there will be no discussion between students on this.

3.3 Projects

There will be one to two projects assigned in this class. These projects will be assigned, and a specific report format will be required.

5.0 Course Policies

Most of these course policies are consistent with the Mechanical Engineering standard course policies. Please read them carefully.

5.1 Academic Honesty

During exams and quizzes, you are not allowed to use any form of wifi-enabled electronic device, including cell phones or other electronic communication devices or methods (wristwatches, earbuds, etc.).

If you are suspected of scholastic dishonesty you may or may not be directly confronted about your conduct by the instructor or proctor. You will, however, be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) and your exam may not be admissible. Your grade in the class may not be available

until OSCCR makes a final ruling, this may adversely impact your ability to enroll in other classes.

Scholastic dishonesty on homework, lab assignments, and all other class assignments will be held to the same standards and requirements of academic honesty as quizzes and exams.

5.2 Class Attendance Policy

Attendance is mandatory. Anyone with 5 or more absences will be dropped from the class. A drop for not attending will count toward the State Allowed Six Drop Limit. If you are failing the class at the time of the drop you may also be given a WF designation. Be advised that a drop could adversely impact visa status, financial aid, and other programs.

As per UTEP rules, you may be asked to show a UTEP ID at any time during class. Anyone who is present and not registered in the class will be subject to disciplinary action unless the instructor gives prior approval.

5.3 Excused Absence for Exams

The UTEP catalog allows Exam Absence to be excused ONLY for university-recognized Activities and very specific other situations. Medical absence is NOT allowed in the UTEP catalog. For consistency with the catalog, students will NOT be excused from exams due to illness.

5.4 DSS

If you feel you may have a disability which will make it difficult for you to carry out the work as I have outlined and/or if you need special accommodations/assistance due to a disability, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, go to Room 106E Union, or email cass@utep.edu.

5.5 COVID-19 Precautions

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org