

AVSC 3530 – X51

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: <https://catalog.uvu.edu/>

Semester: Spring

Year: 2025

Course Prefix: AVSC

Course and Section #: 3530 X51

Course Title: Flight Aerodynamics

Credits: 3

Course Description

Teaches the aerodynamics involved in commercial aircraft. Includes aircraft turning and accelerated climb performance, take off velocity, load factors, hypersonic flight, and laminar flow airfoils. Includes demonstration, examples, experiments, and class discussion.

Course Attributes

This course has the following attributes:

- General Education Requirements
- Global/Intercultural Graduation Requirements
- Writing Enriched Graduation Requirements
- Discipline Core Requirements in Program
- Elective Core Requirements in Program
- Open Elective

Other: *Click here to enter text.*

Instructor Information

Instructor Name: Kennington, Aaron

Student Learning Outcomes

- Explain the aerodynamic forces acting upon aircraft in flight.
 - Analyze aircraft flight performance, stability and control as they relate to aircraft design.
 - Examine principles of high speed flight and aircraft design.
 - Explore methods for aerodynamic testing.
 - Survey modern and future design concepts.
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Course Materials and Texts

Illustrated Guide to Aerodynamics 2ND by Smith, Hubert. ISBN: 978-0-8306-3901-4

Technology Tools

- Internet browsers such as Google Chrome or Firefox are preferred. Web browser compatibility can be found at [Canvas Questions and Answers](#).
- Microsoft Office (Word, PowerPoint, and Excel) is required. UVU students have free access to Microsoft 365. See [UVU Microsoft Office 365](#).

- A laptop or desktop computer with a camera and microphone may be required for Kaltura video submission assignments. Instructions for downloading and using Kaltura can be found in the modules where a camera and microphone are necessary. [Computer requirements for Kaltura Capture](#).

Course Requirements

Course Assignments, Assessments, and Grading Policy

For this three (3) credit-hour course students should expect to spend up to 9+ hours a week completing course activities. As a student, you can expect this course to challenge and engage you as a learner. You will be expected to: engage in weekly discussions, complete reading assignments, quizzes, and additional assignments as required, and succeed as a student in this course.

Canvas is where course content, grades, and communications will reside for this course.

Copyleaks: Assignments have a plagiarism detector that checks your work's originality. Should your instructor have any concerns about plagiarism they will contact you directly. Please refer to [Copyleaks Ltd's Privacy Statement](#) to read how Copyleaks cares about your rights and personal data.

Discussions will be opportunities to explore topics together. Posts to the discussion should add significantly to the conversation and support your point of view. Comments that do not add significantly to a discussion will receive no credit. It is okay to disagree in a discussion. In fact much learning happens when we disagree. However we need to be respectful and keep our online classroom a safe place to learn.

Due dates for discussions correspond with the initial post date which is usually a Wednesday. Follow up comments are due by Sunday. Follow up posts are expected to be after the due date and are not marked late. Discussions conclude by the Sunday following the due date. After this, posts will be marked late.

Assessments:

Reading reviews are short quizzes that are administered online through Canvas. Their purpose is to assess your understanding of the reading material.

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Percent	94-100	90-93	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	0-59

Activity	Points
Assignments	200
Discussions	110
Reading Reviews	120
Exams	150
Presentations	225

Exams will administered online through Canvas. They are due on the date indicated and no later than 11:59 MST/MDT.

Required or Recommended Reading Assignments

Illustrated Guide to Aerodynamics 2ND by Smith, Hubert. ISBN: 978-0-8306-3901-4

General Description of the Subject Matter of Each Lecture or Discussion

Module 1 - Principles of Aerodynamics (Section 1: Flight Forces)

Module 2 - Lift & Weight (Section 1: Flight Forces)

Module 3 - Drag (Section 1: Flight Forces)

Module 4 - Thrust (Section 1: Flight Forces)

Module 5 - Basic Airfoil Design (Section 2: Airfoil Design & Performance)

Module 6 - Stability & Control (Section 2: Airfoil Design & Performance)

Module 7 - Basic Performance (Section 2: Airfoil Design & Performance)

Module 8 - Advanced Performance (Section 2: Airfoil Design & Performance)

Module 9 - Advanced Design (Section 3: High Speed Aerodynamics)

Module 10 - High Speed Aerodynamics (Section 3: High Speed Aerodynamics)

Module 11 - Aerodynamics & Emergency Procedures (Section 3: High Speed Aerodynamics)

Required Course Syllabus Statements

Generative AI

You may use AI programs e.g. ChatGPT to help generate ideas and brainstorm. However, you should note that the material generated by these programs may be inaccurate, incomplete, or otherwise problematic. For example, AI-generated language programs are known to "hallucinate", i.e. create references to non-existent resources. Beware that use of AI may also stifle your own independent thinking and creativity.

You may not submit any work generated by an AI program as your own. If you include material generated by an AI program, it should be cited like any other reference material (with due consideration for the quality of the reference, which may be poor).

Any plagiarism or other form of cheating will be dealt with severely under relevant UVU Plagiarism policies as described in the [UVU Student Code of Conduct](#), UVU Policy [541](#).

Using Remote Testing Software

This course does not use remote testing software.

This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities

Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU [Accessibility Services](#) at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their [rights and responsibilities](#). In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in [UVU Policy 541: Student Code of Conduct](#).

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a [specially dedicated space](#) for meditation, prayer, reflection, or other forms of religious expression.