I. Course Description:
This course in advanced aerodynamics and flight principles is related to airplane operations and performance. Design concepts for high performance, supersonic and special use airplanes are studied to enable future pilots to understand and predict airplane performance and limitations in a wide range of flight applications with special regard to speed and configuration.

AVSC 2355 typically meets twice each week in a 75-minute segment for 15 weeks, and also meets for a 2-hour final exam. Students have significant weekly reading assignments and are expected to take regular reading quizzes. For every hour a student spends engaging with content, he/she spends at least two hours completing associated activities and assessments outside of class. Minimum student/faculty instruction time is 2250 minutes.

This course is face-to-face

Prerequisite: AVSC 1300

II. Intended Learning Outcomes/Goals/Objectives (Program/Student Learning Outcomes):
The complete listing of the standards associated with the PLOs, SLOs, assignments, and assessments are located on the PCOE website.

Aviation Program Learning Outcomes:
1. Understand career planning, flight certification, and the attributes and behavior of an aviation professional
2. Understand the concepts of a Safety Management System
3. Analyze and explain the role and regulations regarding aviation safety and human factors
4. Understand the role and processes in CRM development, dynamics and management
5. Communicate effectively
6. Function effectively as crew members
7. Describe meteorology and environmental issues as they relate to aviation
8. Apply current knowledge and adapt to emerging applications and technologies in aviation
9. Demonstrate an understanding of aircraft design, performance, operating characteristics, and maintenance as it relates to the student's career goals
10. Understand the basic economic principles of commercial aviation including:
    a. production theory and costs,
    b. cost benefit analysis, economic growth concepts,
    c. and international economic relationships
11. Apply these basic economic principles to the management of aviation operations
12. Understand the basics of proper operations and management of commercial passenger airlines as well as freight operations
13. Apply business accounting and statistical analysis principles to financial situations in aviation
14. Describe the legal and labor issues in national and international aviation operations

**Student Learning Outcomes:**

1. Explain the principles of aerodynamic performance on advanced and high-altitude flight.
2. Use the coefficient of lift equation.
3. Describe how a wing stalls and use those patterns to predict stall characteristics of various wing designs.
4. Discuss the universal gas laws and their use in computing atmospheric conditions.
5. Explain the aerodynamics of a spin and control reversal.
6. Articulate the FAA rules and guidelines for computing take-off, climb, cruise and landing data for large jet aircraft.

**III. Course Assignments, Activities, Instructional Strategies, use of Technology:**

There are two Exams and the Final Exam. All exams are comprehensive.

There will be quizzes over the reading assignments.

A project will be completed. Information will be dispersed once details are arranged with The Maker Space.
IV. Evaluation and Assessments (Grading):

Grading Policy

- Exam 1: 20%
- Exam 2: 20%
- Final Exam: 20%
- Course Project: 20%
- Presentation: 10%
- Reading Quizzes 10%
- Total: 100%

* NOTE: Aviation Science majors making below a C in AVSC 2355 will be required to retake the class

V. Tentative Course Outline/Calendar:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading/Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 Jan</td>
<td>Wing and Airfoil Forces</td>
<td>Pg 1-60</td>
</tr>
<tr>
<td>29 Jan</td>
<td>Planform Effects and Airplane Drag</td>
<td>Pg 61-95</td>
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<tr>
<td>5 Feb</td>
<td>Required and Available Thrust and Power</td>
<td>Pg 96-149</td>
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<tr>
<td>12 Feb</td>
<td>Items of Airplane Performance</td>
<td>Pg 150-200</td>
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<tr>
<td>19 Feb</td>
<td>General Concepts and Supersonic Flow Patterns</td>
<td>Pg 201-215</td>
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<td><strong>EXAM 23 Feb</strong></td>
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<tr>
<td>26 Feb</td>
<td>Configuration Effects</td>
<td>Pg 215-242</td>
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<tr>
<td>4 Mar</td>
<td>Project</td>
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<tr>
<td>11 Mar</td>
<td>Spring Break</td>
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<tr>
<td>18 Mar</td>
<td>Longitudinal Stability and Control</td>
<td>Pg 243-283 Easter Break 28-29 Mar</td>
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<tr>
<td>25 Mar</td>
<td>Directional Stability and Control</td>
<td>Pg 284-294</td>
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<tr>
<td>1 Apr</td>
<td>Miscellaneous Stability Problems</td>
<td>Pg 305-325</td>
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<td><strong>EXAM 5 Apr</strong></td>
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<tr>
<td>8 Apr</td>
<td>Aircraft Loads and Operational Limitations</td>
<td>Pg 331-343</td>
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<tr>
<td>15 Apr</td>
<td>Specific Problems of Flying</td>
<td>Pg 349-412</td>
</tr>
<tr>
<td>22 Apr</td>
<td>Presentations</td>
<td></td>
</tr>
<tr>
<td>29 Apr</td>
<td>Presentations</td>
<td></td>
</tr>
<tr>
<td>8 May</td>
<td><strong>Final Exam</strong></td>
<td>1030-1230</td>
</tr>
</tbody>
</table>

VI. Readings (Required and recommended—including texts, websites, articles, etc.):
VII. Course Evaluations:

“Near the conclusion of each semester, students in the Perkins College of Education electronically evaluate courses (the teaching itself and the content/assignments) taken within the PCOE. Evaluation data is used for a variety of important purposes including:

- Course and program improvement, planning, and accreditation;
- Instruction evaluation purposes; and
- Making decisions on faculty (full-time and part-time) annual evaluation processes, tenure, promotion, pay, and retention.

As you evaluate this course, please be thoughtful, thorough, and accurate in completing the evaluation. Please know that the PCOE faculty is committed to excellence in teaching and continued improvement. Therefore, your response is critical!”

In the Perkins College of Education, the course evaluation process has been simplified and is completed electronically through MySFA. Although the instructor will be able to view the names of students who complete the survey, all ratings and comments are confidential and anonymous, and summarized data will not be available to the instructor until after final grades are posted.

VIII. Student Ethics and Policy

**Institutional Absences (HOP 04-110)**

- An Institutional Absence may be granted to a student who participates as a representative of the University in academic (including research), extra- or cocurricular, or athletic activities. Students will be excused for institutional purposes from otherwise required academic activity only when a valid Institutional Absence is approved by the appropriate administrative unit or official and the documentation of approval is provided to the faculty member at least five (5) days in advance.

Institutional absences will not be approved for keystone events, defined as: a special or unique assignment, test, project, experience, or other academic exercise identified by the Faculty member as critical for successful completion of standards of the class and unable to be missed. These events must be identified on the syllabus at the beginning of the semester and communicated to the students. Events added to the syllabus at a later date will not qualify for Keystone Event status. Keystone Events where the date/time is changed will no longer be considered a Keystone Event. Students should make themselves aware of any Keystone Events identified in the syllabus to ensure there are no conflicts.
For keystone events where the assignment dates vary, it is incumbent upon the students to work with their faculty member to not select a conflicting date.

More information on Institutional Absences, including how to apply, can be found at https://www.sfasu.edu/deanofstudents/student-resources/institutional-absences.

**Code of Student Conduct and Academic Integrity**

The Code of Student Conduct and Academic Integrity (HOP 04-106) outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the coursework because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course to compute the grade point average. For additional information, go to https://www.sfasu.edu/docs/hops/02-206.pdf.

Students with Disabilities
To obtain disability-related accommodations, alternate formats, and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services promptly may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Student Wellness and Well-Being
SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

Other important course-related policies:

***Other SFA policy information is found in the Handbook of Operating Procedures (HOP)

IX: Resources

On-campus Resources:
The Dean of Students Office (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu
SFASU Counseling Services • www.sfasu.edu/counselingservices
The Health and Wellness Hub “The Hub”
Location: corner of E. College and Raguet St.
To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:
- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education

www.sfasu.edu/thehub
936.468.4008
thehub@sfasu.edu

Crisis Resources:
- Burke 24-hour crisis line 1(800) 392-8343
- National Suicide Crisis Prevention: 9-8-8
- Suicide Prevention Lifeline 1(800) 273-TALK (8255)
- Crisis Text Line: Text HELLO to 741-741

X: Other Relevant Course Information:
To maintain FAA standards the attendance policy is as follows:
Attendance will be taken at the beginning of class by instructor. If you have 3 unexcused absences, then your final grade will be reduced one letter grade. If you have 4 unexcused absences, you will receive an “F” in the course. A written and signed notice is required for an excused absence within three class days of the absence. Instructor checks for attendance at the beginning of class according to the official US Naval Observatory master clock (202-762-1069 or time.gov). Failure to show up to class on time results in a tardy (which can be excused if you show excuse for your tardy to instructor that day). Accruing 2 tardy marks results in an unexcused absence.