

**COURSE TITLE:** Theory of Flight  
**COURSE NUMBER:** AERO/EXL 1020  
**COURSE SEMESTER CREDIT HOURS:** Three Hours  
**INSTRUCTORS NAME:** Nate Callender  
**CONTACT INFORMATION:**

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<b>Suggested Textbook:</b>	<b>Required Text:</b>	<b>Materials:</b>
<u>Aerodynamics for Naval Aviators</u> Author: H. H. Hurt, Jr. Publisher: ASA, Inc.	<u>Publication Manual of the APA, 6<sup>th</sup> Ed.</u> Publisher: American Psychological Association	Glider building materials to include:  balsa wood, glue, and clay which can be purchased at local hobby/craft stores

**Method of Presentation:**  
 The material will be covered using the lecture format as well as hands-on experiential activities.

<b>Method of Evaluation:</b>		<b>Grading Scale:</b>	
Four Tests:	15% each	90 – 100	A
Homework and Quizzes	10%	80 – 89	B
R & D Paper/Glider	15%	70 – 79	C
Final Exam	15%	60 – 69	D
		Below 60	F

**Student Outcomes:**

1. Students will demonstrate the ability to apply concepts from mathematics and physics to aviation scenarios
2. Students will demonstrate the ability to analyze and interpret atmospheric and aerodynamic data
3. Students will demonstrate the ability to apply classroom knowledge to real world problems involving aircraft design
4. Students will demonstrate the ability to effectively communicate technical content in writing using appropriate aviation terminology
5. Students will show completion of a five hour flight requirement (or equivalent)

**ADA Statement:**

Reasonable Accommodations for Students with Disabilities: If you have a disability that may require assistance or accommodations, or if you have any questions related to any accommodation for testing, note taking, reading, etc., please speak with me as soon as possible. You may also contact the Office of Disabled Student Services (898-2783) with any questions about such services.

**Attendance:** ATTENDANCE IS EXPECTED (See catalog)

**Policy Regarding Make-Up Work:**

There will be NO MAKE-UP TESTS given with the exception of verifiable emergencies. If due to some emergency situation a student must miss a scheduled test, he or she is responsible for contacting the instructor AS SOON AS POSSIBLE. Only one make-up test may be given. All other missed tests will receive a grade of zero.

**Research & Design Papers:**

A balsa wood glider research and design project will be performed and documented in the form of an APA formatted paper. An APA style manual should be consulted and can be found in the campus bookstore or library. LATE PAPERS WILL BE AUTOMATICALLY REDUCED BY A LETTER GRADE. Each additional day will reduce the grade by another letter.

**Flight Requirement:**

A five hour flight requirement must be met in order to pass the course. The flight requirement will be laid out in more detail by the department chair on the second day of class. HINT: Schedule your flights as soon as possible as the aircraft may become harder to schedule towards the end of the semester.

**Tennessee Education Lottery Scholarship:**

To retain Tennessee Education Lottery Scholarship eligibility, you must earn a cumulative TELS GPA of 2.75 after 24 and 48 attempted hours and a **cumulative** TELS GPA of 3.0 thereafter. You may qualify with a 2.75 **cumulative** GPA after 72 attempted hours (and subsequent semesters), if you are enrolled full-time and maintain a **semester** GPA of at least 3.0. A grade of C, D, F, or I in this class may negatively impact TELS eligibility. Dropping a class after 14 days may also impact eligibility; if you withdraw from this class and it results in an enrollment status of less than full time, you may lose eligibility for your lottery scholarship. Lottery recipients are eligible to receive the scholarship for a maximum of five years from the date of initial enrollment, or until a bachelor degree is earned. For additional Lottery rules, please refer to your Lottery Statement of Understanding form, review lottery requirements on the web at <http://scholarships.web.mtsu.edu/telsconteligibility.htm>, or contact the Financial Aid Office at 898-2830.

**WEEKLY GUIDE**

Week:	Material Covered:
1 (Jan 20-23)	Review Syllabus and Introductions, Flight Experience Introduction with Matthew Torres, Aircraft Vocabulary Textbook:
2 (Jan 26-30)	Airframe Components, The Atmosphere, <b>Evidence of Flight Exemption Due</b> Textbook:
3 (Feb 2-6)	The Atmosphere Cont., Flight Instruments Textbook:
4 (Feb 9-13)	Airspeeds, Altitudes, and V-Speeds, Test 1 Review, <b>Paper 1 Due</b> Textbook:
5 (Feb 16-20)	<b>TEST 1</b> , The Four Forces, Airfoils and Wings, Textbook:
6 (Feb 23-27)	The Introduction to Lift, Bernoulli's Equation, Momentum Theory, Circulation Theory Textbook:
7 (Mar 2-6)	High Lift Devices, Wing Design, Test 2 Review, <b>TEST 2</b> Textbook:
8 (Mar 9-13)*	Thrust, Propellers, <b>Paper 2 Due</b> Textbook:
9 (Mar 16-20)	Reciprocating Engines, Turbine Engines Textbook:
10 (Mar 23-27)	The Introduction to Drag, Induced Drag, Parasite Drag Textbook:
11 (Mar 30-Apr 3)	Drag Finalized, Test 3 Review, <b>TEST 3, Paper 3 Due</b> Textbook:
12 (Apr 6-10)	Weight and Balance, Load Factors Textbook:
13 (Apr 13-17)	Axes of Motion, The Introduction to Stability and Control Textbook:
14 (Apr 20-24)	Stability and Control Finalized, High Speed Flight Textbook:
15 (Apr 27-29)**	Test 4 Review, <b>TEST 4</b> Textbook:
15, 16 (May 1-7)	<b>Signed Flight Experience Certificate Due, Final Exams</b> Textbook:

\* Spring Break, no classes.

\*\* Study Day, April 30<sup>th</sup>, no classes