

Aviation 211
Aerodynamics for Pilots
Fall 2009
3 Credits

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TC 134
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Course Section: A

Course Description:

Covers aerodynamics forces, symbols-equations, airspeed measurements, the four forces of flight, jet aircraft performance, propeller aircraft performance, helicopter aerodynamics, stability, takeoff, and landing performance.

Materials For Course:

Text: Jeppesen Sanderson: Flight Theory For Pilots
Calculator: Math 100 level
Art supplies to build airfoils

Learning Objectives:

This class will seek to expand the pilot's basic knowledge of flight aerodynamics. It will try to explain, as simply as possible the basics of aerodynamics as they apply to flying an airplane and helicopter. In some cases formulas are derived or presented, but they are simplified to some extent and a real insight into the subject can be obtained even if they are ignored completely.

Instructional method: Lecture, video presentation, computer data projection and discussion. Study assignments may be done on in-class computers or at home.

Student Code of Conduct:

Refer to GRCC Student Handbook (2006-2008) pages 215-224

Course Outline:

Chapter 1 – Introduction

Chapter 2 – Air Flow and Airspeed Measurement

Chapter 3 – Aerodynamic Forces on Airfoils

Chapter 4 – Lift and Stall

Chapter 5 – Drag

Chapter 8 – Prop Aircraft basic Performance *

Chapter 11 – Hazards of Slow Speed Flight *

** (Optional, time permitting)*

Campus-wide Outcomes: Green River Community College has identified ability areas that we believe encompass knowledge and are the most important skills, behaviors, attitudes, and values that students will need in order to be successful after leaving the college. Among these ability areas, this class will address Responsibility, Quantitative/Symbolic Reasoning, Critical Thinking, and Written & Oral Communications. Outcomes in these ability areas and where they will be demonstrated in your work are listed below.

Responsibility:

1. Student demonstrates a knowledge of and a willingness to accept stated/agreed upon expectations, policies, behavior, and procedures.
2. Student demonstrates accountability (punctual and ready to learn), integrity (does own work and pulls own weight in collaborative tasks), initiative (seeks help when needed), and tolerance (develops awareness of own biases).
3. Student actively and appropriately interacts with others respecting everyone's opinion.

Demonstrated by preparedness for lectures and discussions, handing assignments in on time, and group accountability.

Quantitative/Symbolic Reasoning:

1. Student evaluates and interprets information / data.
2. Student recognizes which processes or methods are appropriate for solving a given problem, and correctly implements those processes.
3. Student demonstrates the ability to estimate a solution to a presented problem
4. Student translates data into various formats such as graphs, tables, formulas, and sentences.

Demonstrated through your answers in class, on projects, homework, and tests.

Critical Thinking:

1. Student provides reasons for the conclusions they reach and assess the relevance and adequacy of those reasons.
2. Student connects past learning with current topics.

Demonstrated through your explanations in class, on projects, assignments, and tests.

Written & Oral Communications:

1. Student demonstrates involvement with the material by expressing a clear sense of purpose, unity, and focus in their writing or speaking.
2. Student demonstrates clear organization of their thoughts in written and oral communications.
3. Student demonstrates well-organized and logical writing with correct grammar and spelling.

Demonstrated in projects, test answers, and class and group participation.

Special Needs:

If you need course adaptations or special accommodations because of a disability, if you have emergency medical information, or if you have special accommodations that need to be shared with me in the event that the building needs to be evacuated, please contact me. If you use an alternate medium for communicating please let me know as soon as possible so that appropriate

accommodations can be made. Disability support services is located in LSC 277 and may be contacted at: 253-833-9111, ext. 2631 or TDD at 253-288-3359.

Attendance/Tests:

Test 1 (chapters 1, 2, 3)	100 points
Test 2 (chapter 4)	100 points
Test 3 (chapter 5)	100 points
Lab Participation	100 points
<u>Test 4 (chapters 8&11)</u>	<u>100 points(Optional)</u>
Final	<u>100 points</u>
<u>Total</u>	<u>500 points (Optional –600)</u>

Grading Policy:

99-100	4.0	79	2.4
97-98	3.9	78	2.3
95-96	3.8	77	2.2
93-94	3.7	76	2.1
91-92	3.6	75	2.0
90	3.5	74	1.9
89	3.4	73	1.8
88	3.3	72	1.7
87	3.2	71	1.6
86	3.1	70	1.5
85	3.0	69	1.4
84	2.9	68	1.3
83	2.8	67	1.2
82	2.6	66	1.1
81	2.6	65	1.0
80	2.5		

Attendance/Absence/Tardiness Policy:

Attendance is expected. Any absence must be approved by the instructor. Students will find that their academic standing in a situation where absences are incurred is jeopardized. However, students WILL NOT be penalized because of sickness/emergency or college approved absence. An absence will not excuse a student from completing all prescribed class and course requirements. One point from your final grade will be deleted for each unexcused class absence. Students who are habitually late or absent from class may be penalized the class participation percentage of their final grade.

Exams

All exams must be taken on the assigned date. Unless a prior arrangement is agreed with the instructor, a no-show will be considered a failing grade for that particular exam. Any exam taken late, will be penalized 10 points for every late day.

Makeup Examinations/Quizzes:

Makeup examinations/quizzes are provided for excused absence only. The student is responsible to coordinate with the instructor to take any examination or quiz missed. If an examination/quiz is not made up the student WILL NOT receive credit for that examination/quiz in the computation of the final grade (it will be designed a grade of “0” in the computation). All examinations/quiz materials will be retained by the instructor.

Class Notes:

- **Cell phones will not be allowed to be “ON” in class.**
- **Chatting or laughing about subjects other than those pertaining to class will not be tolerated. Please respect your fellow students.**
- **If you are late, please come in quietly and sit at your station.**
- **Browsing the internet while a lecture or other instructional activity is in progress will not be permitted. One letter grade will be deducted if caught playing or doing work not related to class.**
- **No food will be allowed in the classroom.**
- **Avoid surfing the internet while lecture is in progress**
- **There will be no use of computers while the class is in session unless computer work is required**