

AVIATION 101
AVIATION FUNDAMENTALS
Fall, 2009
5 Credits

Instructor: Chris Ward
Phone: (Office) 253-833-9111, ext. 4708

Office Hours: M-F 08:00 to 09:00
Office: Tech Center Room 135 (in the TC 133 Office complex)
E-mail: cward@greenriver.edu,
Web Site : www.instruction.greenriver.edu/aviation

Course Description:

This course covers basic aviation principles including time/distance/speed computations, weather theory, aircraft performance factors, Federal Aviation Regulations, navigation principles, basic flight planning and an introduction to aviation publications. The course also includes an introduction to the basics of modern aircraft systems including electrical, hydraulic, pneumatic, and pressurization systems as well as the operational basics of both piston and jet engines. The class is intended to provide the students with an understanding of basic principles used of aviation that will be expanded further in other aviation classes. In addition AVIA 101 will introduce the student to resources aviation professionals use in every day operations within the aviation industry to facilitating resource management in other aviation classes. The course includes 5 hours of simulator training with an instructor.

Required Materials for the Course:

Publications for the Class

- FAR/AIM - Current Year
- Sectional Chart – Seattle Sectional
- E6-b Manual Flight Computer

Additionally, there are several other significant FAA publications the class will review (see list below). Students may choose to download copies of the **bolded** publications from the www.faa.gov/atpubs website

- **FAA Manual 8083.3 - Airplane Flying Handbook**
- **FAA Manual 8083.25 - Pilot's Handbook of Aeronautical Knowledge**

Learning Objectives:

At course completion students will be able to explain, demonstrate and perform tasks relating to the basic aviation operations including developing the ability to assess and analyze pertinent aviation data and solve aviation operations problems using basic mathematical calculations. Student will be able to understand and use a VFR Sectional chart.

Instructional Methods:

Lectures, video presentations, computer data projector presentations, internet use, study assignments in-class exercises, quizzes and tests. 5 hours of flight simulator instruction is included and required for completion of class.

Student Code of Conduct:

Refer to GRCC Catalog (2009-2010)

Evaluation Standards, Grading & Academic Honesty:

Grades will be from graded exams and participation in simulator training. Minimum overall percentage for passing is 62%. Cheating in any form will earn a zero score with no retake allowed.

Testing, Test Make-up, Retakes & Grading

Testing will occur as the class progresses. We will set test dates in class based on student readiness for testing (class vote-majority decision, instructor will have over-ride of class votes). Late testing of missed tests will be allowed if arranged with the instructor. No make up tests will be allowed more than 10 class days after the initial test date. Re-takes of tests to improve student scores will be allowed under the following guidelines:

- 1. No re-takes of any test will be allowed more than 10 class days after the initial test date.**
- 2. The final score for any test given will be the average of the initial test and the re-take.**
- 3. Only 1 re-take of any given test will be allowed.**
- 4. No re-takes will be permitted after the official “study day” listed in the college calendar for the quarter (normally the week before finals).**
- 5. No re-takes will be allowed for the final exam.**

Final grade will be based on points earned. Points available are as follows:

5 tests worth 100 points each.....	= 500
Final exam worth 300 points.....	= 300
Completion of 5 hours of simulator training.....	= 200
TOTAL.....	= 1000

Attendance/Absence/Tardiness Policy:

This class covers an immense amount of material all of which will be on the Final Exam. If you can't attend a class, please try to let me know beforehand so I can tell you what to prepare for when you return. We test often in this class. You should expect a test or quiz almost every day. Come prepared every day. If you miss class, make up missed work as soon as possible.

GRCC decimal grading scale

%	GRCC	%	GRCC	%	GRCC	%	GRCC
100	4.0	90	3.5	80	2.5	70	1.5
99	4.0	89	3.4	79	2.4	69	1.4
98	3.9	88	3.3	78	2.3	68	1.3
97	3.9	87	3.2	77	2.2	67	1.2
96	3.8	86	3.1	76	2.1	66	1.1
95	3.8	85	3.0	75	2.0	65	1.0
94	3.7	84	2.9	74	1.9	64	0.9
93	3.7	83	2.8	73	1.8	63	0.8
92	3.6	82	2.7	72	1.7	62	0.7
91	3.6	81	2.6	71	1.6		

GRCC Campus-wide Outcomes:

Green River Community College (GRCC) identified specific fundamental knowledge, skills, behaviors, attitudes, and values that GRCC students must possess to be successful after leaving the Green River Community College environment, to wit:

1. Student's sense of individual responsibility to the community
 - Demonstrate knowledge of and willingness to accept stated/agreed expectations, policies, behavior, and procedures.
 - Demonstrate accountability (be punctual, prepared, ready to learn), integrity (do your own work, do your share of shared work), initiative (seek help when you need help), and tolerance (be awareness of your own biases). Actively and appropriately interact with others while respecting everyone's opinion.
 - Measured by occurrences of student readiness for class, participation in class, timely assignment submissions, and effective group membership.
2. Quantitative and symbolic reasoning
 - Student can evaluate and interpret information and data, can recognize which processes or methods are appropriate for solving a given problem, can estimate a solution, and correctly implements those processes.
 - Student can translate data into various formats such as graphs, tables, formulas, and sentences.
 - Measured by student work in class, on projects, homework, and tests.
3. Critical Thinking:
 - Student provides reasons for the conclusions he or she reaches and assesses

the relevance and adequacy of those reasons.

- Student connects past learning with current topics.
- Measured by student work in class, on projects, homework, and tests.

4. Written & Oral Communications skills suitable for the modern business environment

- Student becomes involved with the material and can express a clear sense of purpose, unity, and focus in his or her writing or speaking.
- Student can organize of his or her thoughts in written and oral communications clearly and effectively using well-organized, logical writing and using correct grammar and spelling.
- Measured by student work in projects, test answers, and class and group participation

Special Needs:

If, because of a disability, you (the student):

- Needs special accommodations (adapt a course activity, have additional assistance, etc.),
- Has emergency medical information the instructor should know about, or
- Has a need for special assistance in the event of a building evacuation,

Please contact the instructor and be sure the instructor fully understands your special need. Students may use alternate modes to communicate Special Needs information (email, phone). In any case, and using any format, students should inform the Instructor as soon as possible after the start of school.

**Students should also contact Disability Support Services (DSS) in LSC 277
Phone DSS at: 253-833-9111, ext. 2631 or TDD at 253-288-3359.**

AVIA 101 Course Outline:

Weeks One and Two

- Introduction to the E6b mechanical flight computer
- Basic Aviation Calculations for calculating time, fuel, distance traveled and ground speed
- Introduction to VFR aeronautical charts - latitude-longitude references and chart topography, chart symbology
- Operation of 4 stroke piston engines.

TEST #1

Weeks Three and Four

- Fuel calculations using the E6b mechanical flight computer
- Work with VFR aeronautical chart symbology and chart airport information
- Introduction to aerodynamics of flight.
- Basic design of fuel systems and induction systems
- Introduction to turbine engines
- Introduction to FLIPs (Flight Publications)
 - Civil Flight Rules//Federal Aviation Rules (CFR/FAR)
 - Aeronautical Information Manual (AIM)

TEST #2

Weeks Five and Six

- Wind Side Calculations using the E6b mechanical flight computer, airspeed conversions (True to Ground), converting Magnetic Courses to Magnetic Headings
- Work with VFR aeronautical chart – Plotting courses, course conversion (True to Magnetic)
- IFR vs. VFR Flight
- Airspace classification and use
- Density Altitude
- Basic hydraulic system design
- Basic pneumatic system design

TEST #3

Weeks Seven and Eight

- Course Planning exercises using E6b and VFR Charts
- Work with Weight and Balance Calculations
- Aviation Weather Services and Briefings
- Airport operations
- Basic electrical system design
- Basic vacuum system design
- Flight Control system design
- Introduction to Minimum Equipment List (MEL)

TEST #4

Weeks Nine and Ten

- Work with Weight and Balance Calculations
- Work with METARS and TAFs and basic weather theory
- Converting temperatures and pressures
- Braking system design
- Flight control system design
- Fire Protection system design

TEST #5

Week Eleven

Misc. topics as class progress and interest allows
Review all topics, prepare for the Final Exam,
Take Final Exam