ARIZONA WESTERN COLLEGE
SYLLABUS

AVN 220 WEIGHT & BALANCE / AIRCRAFT PERFORMANCE

Credit Hours: 3 Lecture: 3

PREREQUISITE: None

Course Description
Examines aircraft loading, center of gravity, performance, and operating limitations for general aviation airplanes. Students calculate weight and balance and use aircraft performance data to evaluate takeoff, landing, climb, cruise, fuel, and density-altitude considerations under representative operating conditions.

1. COURSE GOALS
   - 1.1 Develop proficiency in aircraft weight-and-balance calculations.
   - 1.2 Interpret aircraft performance charts and operating limitations.
   - 1.3 Apply loading, environmental, and performance information to safe operational decisions.

2. OUTCOMES

Upon successful completion, students will be able to:

2.1. Explain weight, arm, moment, center-of-gravity, empty-weight, useful-load, and payload concepts.

2.2. Calculate aircraft weight and balance for representative loading conditions.

2.3. Determine whether an aircraft is within approved weight and center-of-gravity limitations.

2.4. Explain how forward and aft center of gravity and excess weight affect stability, controllability, and performance.

2.5. Interpret takeoff, landing, climb, cruise, and fuel-performance information.

2.6. Evaluate the effects of altitude, temperature, wind, runway conditions, and density altitude on aircraft performance.

2.7. Use POH/AFM performance data to determine whether a proposed operation can be conducted within limitations.

2.8. Apply performance and loading information to scenario-based aeronautical decisions.

3. METHODS OF INSTRUCTION
   - 3.1 Lecture
   - 3.2 Multi-media Presentations
   - 3.3 Group Discussions

4. LEARNING ACTIVITIES
   - 4.1 Weight and Balance Calculations
   - 4.2 POH/AFM Performance Chart Exercises
   - 4.3 Aircraft Loading and Performance Scenarios
5. EVALUATIONS
   - 5.1 Quizzes/Exams
   - 5.2 Assignments
   - 5.3 Participation

6. STUDENT RESPONSIBILITIES
   - 6.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
   - 6.2 If a student is unable to attend the course or must drop the course for any reason, it will be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course may be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.
   - 6.3 Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through Accessibility Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.
   - 6.4 Academic Integrity: Any student participating in acts of academic dishonesty—including, but not limited to, copying the work of other students, using unauthorized “crib notes”, plagiarism, stealing tests, or forging an instructor’s signature—will be subject to the procedures and consequences outlined in AWC’s Student Code of Conduct.
   - 6.5 Texts and Notebooks: Students are required to obtain the class materials for the course.
   - 6.6 Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for "No Show" reporting during the first 10 days of each semester. Students who have enrolled but have never attended class may be issued a “No Show” (NS) grade by the professor or instructor and receive a final grade of “NS” on their official academic record. An NS grade may result in a student losing their federal financial aid. For online

classes, student attendance in an online class is defined as the following (FSA Handbook, 2012, 5-90):

- Submitting an academic assignment
- Taking an exam, an interactive tutorial or computer-assisted instruction
- Attending a study group that is assigned by the school
- Participating in an online discussion about academic matters
- Initiating contact with a faculty member to ask a question about the academic subject studied in the course