

AE 3521 Flight Dynamics  
Fall 2001

Class: Room 442 Guggenheim Building  
TTh, 12:05pm – 1:25pm *and* F 11:05am – 11:55am

Instructor: Dr. Eric N. Johnson  
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Office: Room 415-2 Knight Building  
Office hours: TTh, 11am – 12pm, F 10am – 11am, or by appointment

Topics:

1. Introduction
2. Equations of motion, vehicle kinematics
3. Spacecraft attitude dynamics
4. Gyroscopic instruments
5. Spacecraft stability and control
6. Aircraft dynamics
7. Aircraft static stability and control
8. Aircraft dynamic stability

Grading: A 90%, B 80%, C 70%, D 60%

Weights:	Homework	35%	
	Midterm	15%	October 12, 11:05am – 11:55pm
	Final Exam	50%	December 13, 2:50pm – 5:40pm

Policies: Students are encouraged to discuss homework *verbally* with each other, but you may not work together when preparing written answers – nor may written answers be compared. When homework is turned in that looks too similar, *points will be deducted*. Homework is due at the beginning of class on the day it is due. Late homework will be graded, but will not necessarily receive any points.

Selected References:

1. Abzug, Malcom and Larrabee, Eugene, *Airplane Stability and Control: A History of the Technologies That Made Aviation Possible*, Cambridge University Press, 1997.
2. Etkin, Bernard and Reid, Lloyd, *Dynamics of Flight Stability and Control*, 3<sup>rd</sup> Edition. John Wiley & Sons, Inc., 1996.
3. Etkin, Bernard, *Dynamics of Atmospheric Flight*, John Wiley & Sons, Inc., 1972.
4. Nelson, Robert, *Flight Stability and Automatic Control*, McGraw-Hill Book Co., 1989.
5. Perkins, Courtland and Hage, Robert, *Airplane Performance Stability and Control*, John Wiley & Sons, Inc., 1949.
6. Stevens, Brian and Lewis, Frank, *Aircraft Control and Simulation*, John Wiley & Sons, Inc., 1992.
7. Thompson, William, *Introduction to Space Dynamics*, Dover, 1986.
8. Wiesel, William, *Spaceflight Dynamics*, 2<sup>nd</sup> Edition, McGraw-Hill Book Co., 1997.