

AE 6520 Advanced Flight Dynamics Fall 2002

<http://www.ae.gatech.edu/~ejohnson/ae6520-fall2002/ae6520-fall2002.html>

- Instructor: Dr. Johnson
Room 415-2 Knight Building
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Office hours: MWF, 12pm – 1pm, or by appointment
- Class: Room 304 Smith Building
MWF, 11:05am – 11:55am
- Topics:
1. Definitions, reference frames, and transformations
 2. General equations of unsteady motion
 3. Applications to fixed-wing, rotary-wing, and space vehicles
 4. Small disturbance theory
 5. Static stability
 6. Dynamic stability
 7. Flight in atmospheric turbulence
 8. Coupled and nonlinear behaviors
- Grading: Homework 50%, Midterm 15%, and Final 35%
- 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. Etkin, Bernard, *Dynamics of Flight Stability and Control*, 3rd Edition. John Wiley & Sons, Inc., 1996. (required text)
2. Etkin, Bernard, *Dynamics of Atmospheric Flight*, John Wiley & Sons, Inc., 1972.
3. Wiesel, William, *Spaceflight Dynamics*, 2nd Edition, McGraw-Hill Book Co., 1997.
4. Thompson, William, *Introduction to Space Dynamics*, Dover, 1986.
5. Stevens, Brian and Lewis, Frank, *Aircraft Control and Simulation*, John Wiley & Sons, Inc., 1992.
6. Nelson, Robert, *Flight Stability and Automatic Control*, McGraw-Hill Book Co., 1989.
7. Abzug, Malcom and Larrabee, Eugene, *Airplane Stability and Control: A History of the Technologies That Made Aviation Possible*, Cambridge University Press, 1997.