

## AE 6504 Modern Methods in Aircraft Flight Control

Catalog Data: Modern Methods in Aircraft Flight Control. 3-0-3.  
Prerequisite: Graduate Standing or Consent of School Linear Quadratic Regulator Design, Model Following Control, Stochastic Control, Fixed Structure Controller Design, Applications to Aircraft Flight Control

Textbook: Bryson, A.E., "Control of Spacecraft and Aircraft," Princeton University Press, 1994.

Coordinator: A.J. Calise

Goals: Theoretical background and illustration of a variety of modern control design methods of practical importance in the design of aircraft flight control systems.

### Prerequisites by Topic:

1. Basic linear systems theory
2. Classical control theory
3. Linear algebra
4. Elementary probability theory

<u>Topics</u>	<u>hours</u>
1. LQR Theory	6
2. Variations of LQR Theory	2
3. Applications to Aircraft Flight Control	2
4. Stochastic Processes	6
5. Optimal State Estimation	3
6. Stochastic Control Theory	3
7. Applications to Aircraft Flight Control	2
8. Robust Control Methods	6
9. Applications to Aircraft Flight Control	2
8. Fixed Structure Optimization Methods	6
9. Applications Applications to Aircraft Flight Control	2
10. Exams and Instructor Option	<u>5</u>
Total	45

### Computer Usage:

Students will be required to perform extensive assignments using MATLAB.

Laboratory Projects: None