

MMAE 441: Aircraft and Spacecraft Dynamics

Syllabus

Instructor: Matthew M. Peet

Location:LS-152

Instructor Matthew M. Peet, Assistant Professor of Aerospace Engineering. Office: E1-252B.

Office Hours MW 3:10-5:00.

Teaching Assistant Aditya Gahlawat. Office: E1-030.

TA Office Hours TTh 5:00-7:00.

Homework Due biweekly on Friday by 5:00 to the TA (box or office).

Problem Session T 4:00-5:00.

Content *Aircraft Dynamics*: Linearized equations of motion. Modes and natural motion of aircraft. *Spacecraft Dynamics*: Orbits and Orbital Elements. Orbital Insertion and Transfer. Interplanetary Trajectories.

Schedule MW 1:50-3:05. There will be an Mid-Term examination on Aircraft Dynamics. There will be a final examination on Spacecraft Dynamics.

Prerequisites Courses on Matrix Analysis, Differential Equations.

Text The textbooks are

“Flight Stability and Automatic Control” by R. Nelson, 2nd edition.

“Orbital Mechanics” by J. Prussing and B. Conway.

Evaluation Homework will be the basis for 30% of the grade. Problem sets will be given on a bi-weekly basis. Late homework will be graded for 50% credit. Submit late homework directly to the TA. An in-class midterm and an in-class final exam will be given, each for 35% of the grade. **Note:** These percentages are approximate and are subject to change based on performance. Grade distribution is at the discretion of the instructor.