

**AA528**  
**Spacecraft Dynamics and Control**  
**Department of Aeronautics & Astronautics**  
**Winter 2013; Syllabus<sup>1</sup>**

**Instructor:** Mehran Mesbahi  
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<http://faculty.washington.edu/mesbahi/pmwiki/>

**Instructor's Office Hours:** T: 11am-1pm

**Class website:** Please see: <http://faculty.washington.edu/mesbahi/pmwiki/> under "courses"

**Class Room:** Loew 206

**Class Time:** T,Th: 9:30 am-10:50 am

**Textbook:** *Atmospheric And Space Flight Dynamics: Modeling And Simulation With Matlab And Simulink*, Ashish Tewari, Birkäuser, 2007 (required).

**Other useful references:**

*Space Vehicle Dynamics and Control*, B. Wie, AIAA, 2008.

*Fundamentals of Astrodynamics*, R. R. Bate, D. D. Mueller, and J. E. White, Dover, 1971.

*Orbital Mechanics for Engineering Students*, H. Curtis, Butterworth-Heinemann, 2005.

*Space Mission Analysis and Design*, W. Larson and J. Wertz (Editors), Microcosm Press and Kluwer, 1999.

*Spaceflight Dynamics*, W. E. Wiesel, McGraw-Hill, 1989.

*Spacecraft Attitude Dynamics*, P. C. Hughes, Dover, 2004.

**Handouts:** I will provide hand-outs or post papers/notes on the class website.

The topics that we will cover in this course include: rigid body kinematics and dynamics, attitude control, basic orbital mechanics, three body problem, Hill's theory, and related topics.

The class website

<http://faculty.washington.edu/mesbahi/pmwiki/pmwiki.php?n=Main.Aa528>

will be updated frequently. **Check it regularly.** I will post homework assignments, thoughts, notes, references, etc., on it.

**Homework:** We will have weekly homework assignments; the homework will be assigned on Tuesdays and due Wednesdays at noon on the dropbox address

<https://catalyst.uw.edu/collectit/dropbox/mesbahi/25383>

The contribution of the homework toward your class grade is 20%

**Midterm:** We will have one midterm that contributes 30% to your class grade. The date of the midterm will be determined in class.

**Final:** We will have a final for the class that contributes 30% to your class grade.

**Project:** We will also have a project for the course; it will contribute 20% to your class grade. We will talk more about the project's scope and format.

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<sup>1</sup>version 0.1; January 6, 2013