Instructor: Mehran Mesbahi  
Associate Professor of Aeronautics & Astronautics  
Gug 318E; Tel: (206) 543-7937  
Email: mesbahi@aa.washington.edu  
Web: http://faculty.washington.edu/mesbahi/pmwiki/  

Instructor’s Office Hours: W:2:00-4:00 pm; F: 1:30-2:30 pm + by appointment  
Class website: http.courses.washington.edu/aa31008  
Class Room: Gug 218  
Class Time: MWF: 9:30-10:20 am; T: 9:30-10:20 am (in Gug 306)  

Teaching Assistant: Kyle Hughes  
Gug 306; Email: kyleh5@u.washington.edu  
TA’s Office Hours: M: 12:30-2:30 pm; T: 1:30-2:30 pm  


Handouts: I will provide hand-outs or post papers/notes on the class website on topics of interest during the course.

The topics that we will cover in this course include: two body problem, central force motion, Kepler’s Laws, conic sections, orbit determination, rocket dynamics, orbital maneuvers, Hohmann transfer, interplanetary trajectories, and depending on students’ interest, spacecraft attitude dynamics or restricted three-body problem.

Orbital mechanics is a fascinating subject. It has roots in one of the most important scientific revolutions of the past five hundred years and it technological significance is second to none.

The class website is a living document. Check it regularly as its gets updated often. I will post homeworks, homework solutions, hints, thoughts, notes, references, etc., on it.

Homeworks: We will have weekly homework assignments, assigned every Wednesday and due the following Wednesday. The contribution of homework toward the class grade is 20%.

1Rev. 0; September 24, 2008
Midterm/Final: We will have one midterm and a final. The midterm will contribute 20% and the final 35% to the class grade, respectively. Both exams will be closed book/notes; however, you are allowed to bring a one-sided 8.5” × 11” handwritten-notes. The midterm will be held on the week of October 27, 2008.

Quizzes: We will have a 5-7 minutes quiz in the discussion session every other week; the total contribution of these quizzes to the course grade is 10%.

Project: We will have a project for the course (%15 of the course grade). We will talk more about the scope, format, teams, etc.

The chronological outline for the course is: (1) mathematics and physics background, notation, basic concepts (2) two-body problem, Kepler’s laws (3) geocentric orbits, orbit shaping, orbital transfers (4) orbital elements, orbit determination (5) interplanetary missions, sphere of influence, patched conics (5) rocket equation, staging (6) restricted three-body problem (7) spacecraft attitude dynamics.