COURSE SCHEDULE

Lecture	Topic
1	Course overview, math review
2	Course overview, math review, orbital basics
3	2 body equation of motion, constants of motion
4	Numerical Integration/Matlab Programming
5	**Lab #1 – Numerical Solution of EOMs****
6	Orbit geometry - circles
7	Orbit geometry – ellipses, parabolas, hyperbolas
8	Coordinate systems and Classical Orbital Elements
9	Calculating COEs
10	Coordinate transformations, RV from COEs
11	**Lab #2 – COEs from RV**
12	Orbit Determination
13	Herrick-Gibbs Orbit Determination
14	**Lab #3 -- Tracking and identifying satellites**
15	Time and Ground Tracks
16	Kepler's Prediction Problem Part 1
17	Kepler's Prediction Problem Part II
18	**Lab #4 – Kepler's Prediction Problem**
19	Orbital Maneuvers, Plane Changes
20	Hohmann transfers and rendezvous
21	Bi-elliptic and noncoplanar transfers
22	Combined Maneuvers
23	Intro to Perturbations
24	Variation of Parameters, Geopotential and drag
25	**Lab #5 – Orbits with perturbations**
26	Interplanetary Part I – Patched conic approach
27	Interplanetary Part II – Non-coplanar, gravity assist
28	Launching Into Space Part I – Launch Windows and Time
29	Launching Into Space Part II –Where and How to Launch
30	Introduction to Advanced Orbital Mechanics Part I
31	Introduction to Advanced Orbital Mechanics Part II
32	Review