

**ENG ME406 Dynamics of Space Vehicles****Spring 2015**

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Text: Howard D. Curtis, *Orbital Mechanics for Engineering Students*,  
Elsevier, 2009.

<u>Week Beginning</u>	<u>Topics</u>	<u>Reading</u>
1/19	Two-body problem	Secs. 2.1–2.11
1/26	"	"
2/2	Elliptical orbits	Secs. 3.1–3.4
2/9	Earth satellite orbits	Secs. 4.1–4.5
2/16	Orbital maneuvers	6.1–6.5
2/23	Relative motion and rendezvous	Secs. 7.1–7.6
3/2	Interplanetary orbits	Secs. 8.1–8.11
3/9	Kinematics of moving reference frames	Ch. 1
3/16	Spring recess	
3/23	Rigid body dynamics	Secs. 9.1–9.11
3/30	Satellite attitude dynamics	Secs. 10.1–10.10
4/6	"	"
4/13	Rocket dynamics	Secs. 11.1–11.5
4/20	Three-body problem	Sec. 2–12
4/27	"	"

Grading: Three examinations, each worth 25% of the final grade.  
Homework assignments, together worth 25% of the final grade.  
Optional course project.

References: W. E. Wiesel, *Spaceflight Dynamics*, McGraw-Hill, 1997.  
R. H. Battin, *An Introduction to the Mathematics and Methods  
of Astrodynamics*, AIAA, 1987.