

## EM 381—ADVANCED DYNAMICS

Instructor: Jeffrey K. Bennighof

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Office Hours: 10-11 MWF and by appointment

Text: *Analytical Mechanics* by Török, Wiley-Interscience, ISBN 0-471-33207-0, 2000.

Other References:

1. *Analytical Dynamics* by Baruh, WCB/McGraw-Hill.
2. *Principles of Dynamics* by Greenwood, Prentice-Hall.
3. *Methods of Analytical Dynamics* by Meirovitch, McGraw-Hill.
4. *Classical Mechanics* by Goldstein, Addison-Wesley.
5. *Classical Dynamics* by Greenwood, Prentice-Hall.
6. *Dynamics: Theory and Applications* by Kane & Levinson, McGraw-Hill.
7. *Analytical Dynamics* by Whittaker, Dover.

Prerequisites: Undergraduate course in dynamics, or consent of instructor.

### Course Topics

1. Review of Elementary Dynamics
2. Kinematics
3. Analytical Dynamics, including Lagrange's, Hamilton's, Routh's Equations
4. 3-D Rigid Body Dynamics, Dynamic Stability
5. Continuous Systems
6. Other topics

Grading: Grades will be based on two midterm examinations (30% each) and a final examination (40%). Homework is assigned but not graded. Solutions to most or all of the homework problems assigned will be available at <http://courses.utexas.edu>.

Final Exam: Thursday, May 8, 2-5 p.m. Exam locations are posted several weeks before exam week, and can be found online at <http://www.utexas.edu/student/registrar/rose>.

The standard College of Engineering course/instructor evaluation procedure will be used.