



Syllabus

Fall, 2006

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Course: Advanced Dynamics

3 credits

Prerequisite: Dynamics

Lecture: Mon. 3:10 - 6:00PM

Office hours: Mon, Tue, Thr, Fri: 11:00AM ~ 6:00PM or by appointment

Textbook:

Haim Baruth, *Analytical Dynamics*, McGraw-Hill, 1999. (Imported by 滄海書局)

References:

1. Donald T. Greenwood, *Advanced Dynamics*, Cambridge University Press, 2003.
2. Donald T. Greenwood, *Principles of Dynamics*, 2nd Ed., Prentice Hall, 1988.

Course Objective:

Kinematics of motion, particle dynamics, Lagranges equations. Rigid body dynamics including Eulers equations, the Poinot construction, spin stabilization, the rotation matrix. Vibrations of coupled systems, orthogonality relationships, generalized coordinates and generalized system parameters.

Hamiltons equations, canonical transformations, and Hamilton-Jacobi theory. Applications to orbital problems.

Grading Police:

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| 1. Homeworks, Participation | 50% |
| 2. Midterm Exam: | 20% |
| 3. Final Exam: | 30% |