MENG 383S Mechanical Engineering III: Dynamics

Instructor: Corey O'Hern, Professor of Mechanical Engineering & Materials Science, Applied Physics, Physics, and Computational Biology & Bioinformatics
Mason Lab, Room 203
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Email: corey.ohern@yale.edu

When: MW 6:00P-9:15P

Where: Remote via Zoom

Office Hours: any time, best to make an appointment first via email

TA: Arthur MacKeith (4th year Ph.D. student in MEMS; arthur.mackeith@yale.edu)

Problem-Solving Sessions: twice each week, conducted by teaching fellow, attendance monitored and strongly encouraged (Tues./Thurs. 10-11A EST)

Course Textbooks:

(primary) Stephen T. Thornton and Jerry B. Marion, "Classical Dynamics of Particles and Systems", 5th Edition, Brooks & Cole 2005

(secondary) Anthony Bedford and Wallace Fowler, "Engineering Mechanics: Dynamics", 4th Edition, Prentice Hall, 2005

Topics:

1. Units, Newtonian Gravitation (week 1)
2. Motion of a Point (week 1)
3. Force, Mass, and Acceleration (week 2)
4. Energy Budget (week 2)
5. Momentum Budget (week 2)
6. Planar Kinematics of Rigid Bodies (week 3)
7. Planar Dynamics of Rigid Bodies (week 3)
8. Energy and Momentum Methods in Rigid-Body Dynamics (week 3)
9. 3D Kinematics and Dynamics of Rigid Bodies (week 4)
10. Vibrations and Nonliner Dynamics (week 5)

Grading:

1. Weekly homework assignments (20%)
2. Class Attendance and Participation (20%)
3. In-class mid-term exam (30%); Wednesday, July 16
4. In-class end-term exam (30%); Friday, August 1

Statement on Academic Integrity: Students are allowed to collaborate on homework assignments, however, each student should write up and turn in their own homework assignments. The exams are not collaborative and will be proctored by the instructor. See additional guidance at http://ctl.yale.edu/writing/wr-instructor-resources/addressing-academic-integrity-and-plagiarism.