

Syllabus
MEEG 620 – Intermediate Dynamics

Lecture:

TuTh 11:00–12:15, Memorial Hall 125

Instructor: Bert Tanner

Office: SPL 110
Phone: 831-6888
Email: btanner@udel.edu
Office Hours: Wed 10:00-12:00

Text: *Principles of Dynamics*, D. T. Greenwood, Second Edition, Prentice-Hall.

Description: This source is a first introduction to analytical dynamics for first year graduate students, and undergraduate seniors with solid mathematical background. The approach followed is primarily energetic rather than vector mechanics-based, starting from particle kinematics and culminating to Lagrange formulation of equations of motion.

Material to be Covered: Review of vector analysis and coordinate frames; particle kinematics and dynamics; principles of work, kinetic energy, momentum and impulse; conservative forces; motion of systems of particles; linear and angular momentum in particle systems; kinetic energy; virtual work and D'Alembert's principle; Lagrange equations for systems of particles; holonomic and nonholonomic constraints; introduction to rigid body dynamics.

Evaluation methods: Homework are assigned on a weekly schedule. They will be due on a specific day when we meet and are supposed to be submitted at *before* the lecture begins. Late homework is accepted at the expense of a 20% penalty for each additional day. Homework problems are selected from the textbook for the most part, with the intention to put in practice the material presented during the lecture. There will be a midterm exam scheduled close to (shortly before or after) the spring break. The final exam is scheduled at the time and date specified by the University. No modifications on the time or date of

the final exam can be made. Some homework assignments may have portions tailored to undergraduate or graduate students specifically, and so will the exams.

Grade distribution:

Homework	20%	A	96–100	A-	92–95	B+	88–91	B	84–87
Mid-term	40%	B-	80–83	C+	76–79	C	72–75	C-	68–71
Final Exam	40%	D+	64–67	D	60–63	D-	56–59	F	0–55
Total	100%								

Final Exam: TBD. Open book, open notes. No computation tools allowed other than a hand-held calculator. Bring own paper.

Working Together: Collaboration is accepted on homework, but solutions should be given based on individual justification and reasoning, which needs to be clear on your paper. Collaboration on exams is of course is forbidden.

Absences: You are expected to attend every class. It is not acceptable to give priority to assignment completion over class attendance. The 20% penalty on assignments thus applies also to the case where you choose to miss class in order to finish your assignment.

Plagiarism: The University’s *minimum penalty* for cheating or plagiarism is *a failure in the course*.

Further reading:

- Baruh, *Analytical Dynamics*, McGraw-Hill
- Greenwood, *Classical Mechanics*, 3rd ed., Addison Wesley.

Intellectual Property: No student may distribute notes, audio-visual or other material from the class, whether or not for a fee. If any UD student, whether enrolled in the class or not, distributes such material in contradiction of this prohibition, (s)he will be in violation of the Student Code of Conduct.