

Syllabus – Graduate Classical Mechanics

Website: <http://www.lions.odu.edu/~lweinste/courses/603s21.html>

Class: 1:30 to 2:45 Tuesday and Thursday, OCNPS 202

Instructor: Dr. Lawrence Weinstein
Eminent Scholar and Professor of Physics
Physical Sciences Building 2100H
757 683 5803 (not useful when we're meeting remotely)
<http://www.lions.odu.edu/~lweinste>
Office hours: by appointment

Required textbook: H. Goldstein, C. Poole and J. Safko: Classical Mechanics – 3rd edition, Addison Wesley 2002

Optional Textbooks: G. Arfken: Mathematical Methods for Physicists, Academic Press, Inc.

Any number of other Mechanics books, e.g. A.S. Fetter and J.D. Walecka (Dover), K.R. Symon (Addison Wesley), J.B. Marion (Academic Press), Landau & Lifschitz (Pergamon Press)

This is a one-semester course on Classical Mechanics. It lays the foundation for all branches of Physics, including Electrodynamics, Quantum Theory and Statistical Mechanics. We will discuss major topics like the central force problem, motion of a rigid body, oscillations, and some continuum mechanics using the tools of Lagrangian and Hamiltonian formalism. We will also discuss the formalism of Special Relativity. Overall, we will follow the textbook rather closely, omitting some topics and maybe treating others in more depth. Required course work includes attendance at the lectures, solving homework problem sets (approximately 1 each week), one midterm exam (take home) and one comprehensive final exam (take home). In addition, all students must contribute a “participation project” in form of a lecture note, short presentation, or a computer simulation of a non-trivial mechanical system.

Grading Scheme: Approximately 30% based on homework problem sets, 15% on participation (including asking questions in class), 15% on midterm, and 40% on the final exam.

Policy on Classroom Etiquette

Please follow the general rules of courtesy and respect. This means: Do **not** come late or leave early, and while in class, refrain from all other activities (including eating and drinking, talking to others, using electronic devices etc.). If you cannot concentrate fully on class work or cannot participate for the full duration, I prefer you do not come to class (but there might be a grade

penalty if you miss too many classes). I reserve the right to ask students to leave if they disrupt the learning experience of their classmates.

Policy on Cooperation

I consider it advantageous if students cooperate with each other on homework and other course-related items. In fact, I encourage students very strongly to meet up with each other for regular discussions and to tackle assignments together.

However, I require that each student turn in their own (hand- or computer- written) version of each homework and assignment. Also, NO cooperation is allowed on the Midterm and Final Exams – everybody has to do ALL of the work her/himself. I consider it unethical and a violation of the honor code to copy the solution of a homework problem or an Exam from another student's solution or from a book. All material used (other than informal discussions) must be properly cited.

University policy: Any official sanction for cheating, including the assignment of a grade of F for a quiz or for a course as a penalty for cheating, will appear on the student's permanent academic transcript.

Accommodation Statement

Students are encouraged to self-disclose disabilities that have been verified by the Office of Educational Accessibility by providing Accommodation Letters to their instructors early in the semester in order to start receiving accommodations. Accommodations will not be made until the Accommodation Letters are provided to instructors each semester.