
Instructor Information

- Instructor: Dr. Benjamin Grossmann
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- Office Phone: (406) 243-2013
- Office Location: CHCB 232
- Office Hours: Monday 10am–11am, Tuesday 11am–12pm, Wednesday 10am–11am, Thursday 2pm–3pm
If you need to meet with me outside my office hours, you can also make an appointment.

Course Information

- Course Request Number: 74137
- Credits: 3
- Lecture Schedule: Tuesday, Thursday 9:40 am–11:00 am
- Lecture Location: CHCB 230
- Prerequisites:
 - PHSX 301 (Introduction to Theoretical Physics) or an equivalent course
 - M 311 (Ordinary Differential Equations and Systems) or an equivalent course

Course Materials

- Textbook: *Classical Mechanics*, John R. Taylor

Course Overview and Objectives

This course has traditionally been one of the more time consuming and difficult courses of the undergraduate curriculum for physic majors. A new level of mathematical sophistication is required and the analysis of the world around us becomes far more subtle. The reward for this hard work is a refinement of the cognitive tools you already have and a stronger foundation upon which to build your further education.

The topics covered in this course will include different formulations of dynamics (Newtonian, Lagrangian, Hamiltonian), reference frames (inertial and non-inertial), central forces, and motion of rigid bodies. Because this University has a course dedicated to oscillations and waves, we will not be specifically covering the corresponding chapter in the book. Although, if we require any results from those chapters, we may make a brief detour.

By the end of this course I hope the following objectives have been met.

- You gain a more fundamental understanding of classical physics.
- You improve your ability to set up and approach complicated problems.
- You improve your mathematical abilities.
- You improve your ability to work in different coordinate systems.
- You acquire an understanding of the connection between Newtonian, Lagrangian, and Hamiltonian mechanics and the advantages of each approach.

Homework

Homework will usually be assigned every week, and will normally be due one week later by 5:00 pm the day it is due. Any homework turned in late will be reduced in credit by 25% for each day late (excluding weekends and holidays). Even if you have not completed an assignment when it is due, turn in the problems that you did complete.

You are encouraged to work with others in the class, but your homework should be your own. You should have a clear understanding of everything you hand in—don't just copy from a classmate.

Exams

There will be two exams during the semester and a final exam. Exam problems will not be identical to homework problems because of the limited time frame. Most problems will probe your understanding and insight as well as your ability to do mathematics. You will be expected to memorize only the most fundamental equations. A sheet with useful equations and information will be provide. All exams will be taken with books and notes closed. The final exam will be comprehensive over the entire semester.

- Exam 1: During class, September 29
- Exam 2: During class, November 3
- Exam 3: Finals week, December 15, Tuesday, 10:10 am–12:10 pm

The dates scheduled for exam 1 and exam 2 are subject to change if necessary, depending on how much progress we've made through the course material. Final exams are subject to the University schedule, which can be found on-line.

Finals Week Schedules

<http://www.umd.edu/registrar/students/finalsweek2/default.php>

Grading

Course grades are determined from a weighted sum of the following course components:

- 40% from homework problems.
- 20% from exam 1.
- 20% from exam 2.
- 20% from the final exam.

Some consideration may be given to any improvement you make during the semester; however, students should expect that no course curving will occur.

Academic Honesty

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online.

The Student Conduct Code

http://www.umd.edu/vpsa/policies/student_conduct.php

Students with Disabilities

If you are a student with a disability and wish to discuss reasonable modifications for this course, contact me privately to discuss the specific modifications you wish to request. Please be advised I may request that you provide a letter from Disability Services for Students verifying your right to reasonable modifications. If you have not yet contacted Disability Services, located in Lommasson Center 154, please do so in order to verify your disability and to coordinate your reasonable modifications. For more information, visit the Disability Services website.

Disability Services for Students

<http://life.umd.edu/dss/>