

PHY 3610: Mechanics I, Fall 2020

Instructor: Evgeniy Khain

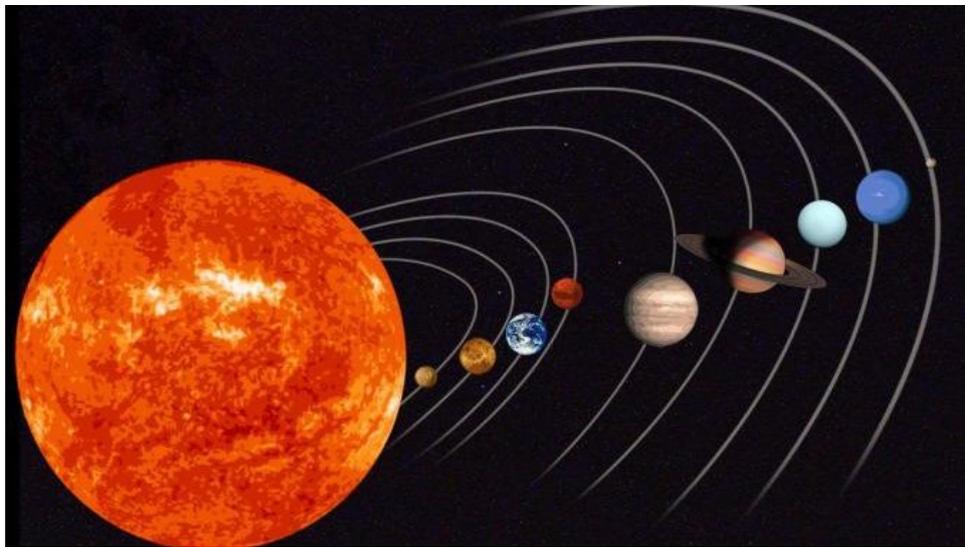
Class hours: Tu,Th 5:30 - 7:17 pm, Room: Hannah Hall 123

Office hours: by appointment (272 Hannah Hall, 248-370-3412)

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Textbooks: Fowles and Cassiday, Analytical Mechanics (seventh edition). I plan to cover Chapters 1-7 and some parts of Chapters 8 and 10.

We will discuss fascinating topics such as the oscillations of a periodically driven pendulum, the stability of planets' orbits, and how to explain the optical phenomenon of mirage using Lagrange minimization ideas.



Learning Outcomes: Students will learn how to apply Newton's laws of motion to a specific problem, driven and free oscillations, motion of planets around the Sun, rolling motion and more. They will become familiar with non-trivial mathematical methods such as dimensional analysis, linearization near the equilibrium and solving minimization problems. By the end of the course students will learn how to apply mathematical machinery to solve problems in Mechanics.

Homework: There will be approximately 7-8 homework assignments. Solutions of homework problems will be distributed in class a week after the answers are collected. Late assignments will not be graded.

Homework format: use 8"x11" paper, write on only one side, write your name and G-id on the cover page, solve the problems in order, staple at left corner.

Examinations: There will be two midterm exams (closed books) and a final exam (closed books). You may bring an 8.5" x 11" hand written sheet containing formulas (one page, two sides); the formula sheet must be submitted with the exam.

Grades: Midterm Exam 1 - 20%, Midterm Exam 2 - 20%, Final Exam - 40%, Homework - 20%. Grades for homework and exams are given in a range from 0 to 100. Final grade will be calculated and transformed to OU grading system (letter grade) as follows:

Letter Grade	Percent scale
A	95-100
A-	88-94
B+	81-87
B	75-80
B-	70-74
C+	65-69
C	60-64
C-	57-59
D+	53-56
D	50-52
F	<50

Attendance: Attendance to the lectures is strongly recommended. Poor attendance usually correlates with poor course grade.