Nebraska Wesleyan University

PHYS 3000 Mechanics

Catalog

2025-2026

Course Description

An advanced study of the mechanics of particles, systems of particles, and rigid bodies, with an emphasis on Newton's laws, conservation of energy, and conservation of linear and angular momentum. The behavior of moving, rotating, and oscillating systems will be studied, using both analytical and numerical approaches. Lagrangian and Hamiltonian formalisms will be introduced as complementary to Newtonian mechanics. Vector calculus will be developed and used as needed.
Three lectures per week.
One recitation per week.
Prerequisite(s): PHYS 1700 Principles of Physics II or PHYS 2100 General Physics II; MATH 1610 Calculus II and computer programming skills or permission of the instructor.
Corequisite(s): MATH 2600 Calculus III or MATH 3100 Differential Equations.
(Normally offered alternate fall semesters.)

Course Hours

4 hours

Departments

1. Physics