

PHYS 111: Basic Physics I

Instructor Information

| Instructor | Email | Course Format | Number of Credits |
|------------------|------------------|---------------|-------------------|
| Anthony Davidson | adavid3@umbc.edu | Lecture, Lab | 4 |

General Information

Delivery Format

In-Person

Prerequisite /Co-requisite:

MATH106

Course Materials

Currently Used Materials

- College Physics a Strategic Approach 2nd Edition by Knight, Jones, and Field (required)
- Mastering Physics: Electronic Homework for College Physics (required)
- Turning Technologies Clickers (required)

These are available at the university bookstore; and the textbook and clickers are available used. Laboratory Experiments are available through the Blackboard Course Website

Course Objectives/Learning Outcomes:

This course is the introductory, algebra-based physics course. In general, this is the intro physics course for life-science majors or for general education credit. The list of topics covered in this class include: motion and forces, momentum, energy and work, and thermal and fluidic properties of matter. The goals of this course are (1) that you can demonstrate an understanding of the topics listed above, (2) that you are able to acquire, analyze, interpret, and model experimental data, (3) that you can apply scientific reasoning and mathematical techniques that you practice in the homework, (4) that you can communicate your reasoning processes clearly.

Potential Topics Covered:

Concepts of motion

1-D Motion

2-D Motion

Forces

Newton's Laws
Friction and Drag
N-Law Applications
Circular Motion
Orbits
Stable Equilibrium
Springs and Elasticity
Momentum and Energy
Impulse and Collisions
Energy and Work
Potential & Thermal Energy
Conservation of Energy
Using Energy
Temperature and Heat
Engines and Refrigerators
Atomic Model
Ideal Gas
Thermal Properties
Heat Engines & Refrigerators
Fluids and Pressure
Buoyancy and Dynamics

Additional Information and Resources

| | |
|--------------------------------|----------|
| Daily quizzes | 5% |
| Two in-class exams | 20% each |
| Final exam (last day of class) | 15% |
| Mastering Physics homework | 20% |
| Paper-based homework | 10% |
| Lab | 10% |