



# **Physics 50**

## **Introduction to Mechanics**

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# Overview of Today's Topics

- course information
- background for physics
  - science and some scientific terms

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# Overview of the Course: Textbook Topics

## What we will cover

- background, units, and measurement
- **kinematic motion in 1 & 2 dimensions**
  - describing motion
  - kinematic equations
  - vectors
  - relative motion
  - projectile motion, circular motion
- forces
- energy

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  - tension, gravity, springs, friction
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# Overview of the Course

## Purpose

- Prepare you to take Physics 4A, if you choose to.
- Learn basic physics principles and how to apply them.
- Begin to see how physical principles apply to the world around you.



# Overview of the Course

## Should I take this course?

You should if:

- You are somewhat new to physics.
- You enjoy math and problem solving.
- You are able to spend time out of class working through ideas on your own.
- You will ask questions when you don't understand something.

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You should **not** if:

- You do not have **at least 8 hours of time outside of class** a week to dedicate to this class. (4 unit class)

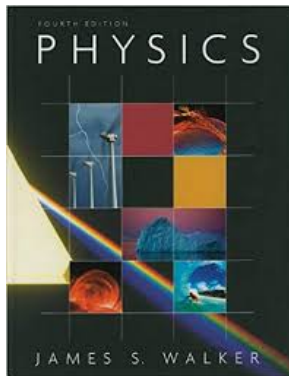
# Overview of the Course: Textbook Topics

## What we will cover

Chapters 1-8(?) of the textbook, pretty much in order.

## Book

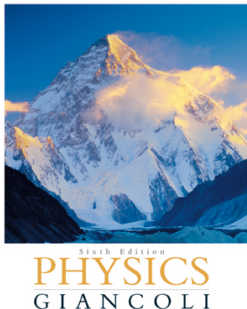
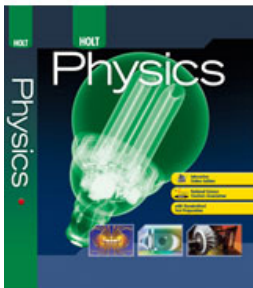
- Physics, 4th Edition, James S. Walker



# Overview of the Course

## Other suggested books

- “Conceptual Physics”, any edition, Hewitt (not enough on its own)
- Holt, “Physics”, any edition.
- Giancoli, “Physics: Principles with Applications”, any edition.



# Overview of the Course

## Evaluation

- Two midterm tests and a final exam.
- Quizzes.
- Some homework or in-class assignments.

## Other Assignments

- Uncollected homework problems from the textbook. (You still need to do them.)
- Read the textbook.

# Overview of the Course

## Evaluation

|                                     |                |
|-------------------------------------|----------------|
| quizzes & incidental HW assignments | 30%            |
| midterms                            | 40% (20% each) |
| final                               | 30%            |

### Projected Grading Scheme:

|            |      |
|------------|------|
| 95% → 100% | = A+ |
| 88% → 94%  | = A  |
| 86% → 87%  | = A- |
| 84% → 85%  | = B+ |
| 75% → 83%  | = B  |
| 73% → 74%  | = B- |
| 71% → 72%  | = C+ |
| 61% → 70%  | = C  |
| 51% → 60%  | = D  |
| 0% → 50%   | = F  |

**How do I do well in this course?**

# Resources

## Resources for when you have questions

- Me. You can email me, ask me before or after class, or come to my office hours.  
**Tu 11:30-12:30pm, Th 11:30-12pm, and Fri 10:30-11am**
- Each other. Work together! It will improve your understanding.
- The Math & Science Tutorial Center.

## Where to look for course materials

- My website on the De Anza Physics page.  
**[nebula2.deanza.edu/~lanasheridan/](http://nebula2.deanza.edu/~lanasheridan/)**



# Overview of the Course

## Note about presentation of work

- For each problem make sure your method is clear.
- If there is an equation or principle you are using, write it out at the start of your solution.
- Underline, box, highlight, or unambiguously emphasize the answer.
- If the reasoning is not clear, the answer is not correct.
- Give your answers to a reasonable number of significant figures.

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**Even correct answers without clear, correct reasoning, will lose most of the possible points.**

# Overview of the Course

## Note about collected assignments

- If you cannot come to class on a due date, **email** me the assignment and **bring the hard copy** to the next class.
- If you are ill, or will have a problem handing in an assignment on time, come talk to me **before** the due date.

# Course Tool

## Mentimeter

- Allows me to ask multiple choice questions or do surveys, and get real-time feedback.
- You can remain anonymous.
- You need a device connected to the internet.

You need to:

- 1 Go to <https://menti.com>
- 2 Enter the CODE.

# Course Survey and Mentimeter Trial Run

- 1 Why are you taking this course?
  - A Because physics is interesting.
  - B To prepare for Physics 4A, 2A, or another physics course.
  - C Because I want to improve my English (science words) before taking harder courses.
  - D Because I have to be here to get the course credit.

# Course Survey and Mentimeter Trial Run

2 How do you feel about math?

A I'm terrified of it.

B I know some algebra, but I'm not confident with it.

C I am confident with algebra and trigonometry.

D I am confident with algebra, trigonometry, and calculus.

# Course Survey and Mentimeter Trial Run

- 3 What is your previous physics experience?
- A This is my first physics course.
  - B Physics 10.
  - C High school physics course.
  - D AP physics or equivalent foreign course.

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# Science

**Science** is a process for reasoning about the natural world and making predictions for its behavior.

# Scientific Statements

A *scientific fact* or *scientific statement* must be

- quantitative and
- falsifiable.

## **quantitative**

able to be measured, precise

## **falsifiable**

able to be proven wrong

# The Scientific Method

The process:

- 1 Ask a question.
- 2 Make a guess about the answer: a **hypothesis**
- 3 Make predictions based on the guess
- 4 Do experiments to confirm or disprove the guess  
IF the guess is wrong: go back to step 2.
- 5 If the guess is right, formulate it into the simplest possible rule.

# Summary

- overview of the course
- science and the scientific method

## Homework

- Get the textbook, James S. Walker, "Physics"
- Read chapter 1