What is Physics?

If you ask the questions like why and how long enough, you end up at physics

Examples:
- Throwing a ball up in the air
- Letting the ball bounce
- Why is it so much harder to open a door near the hinge?
- How do ships float on water?
- Why do planets, galaxies, and stars exist the way they do?
- Where do the rules of chemistry come from?
- Why do astronauts float in space?
- How does sound work? (How are you hearing me right now?)
- What is energy?

All of these are questions about the interactions between forms of matter

There is a fundamental set of rules which governs the behavior of and matter and interactions: the laws of physics. The process of discovering and applying these rules is physics.

We have intuitive understanding of a lot of these things (why is a collision with a train worse than a collision with a car) physics formalizes these principles using the language of mathematics

What is matter?

How does matter interact with other matter?

What is matter?

- anything that has mass & occupies space (volume)

What is mass?

Formal defn to come...

Types of matter

Matter made up of atoms

atoms: protons, neutrons, electrons

protons, neutrons: quarks

atoms ⟶ molecules

molecules ⟶ solids, liquids, gases

Read 1.1 – 1.3

Need ppl to switch from morning to afternoon lab
Afternoon lab: Thursdays 3pm-4:50pm

Syllabus stuff:

- Overview of the course
- Homework
  - Purpose, WebAssign
- Quizzes
- Exams

How to succeed in this class:

- Read the book (for understanding, not completion)
- Work and understand homework problems
- Ask questions!
- Do the lab reports (free points!)