

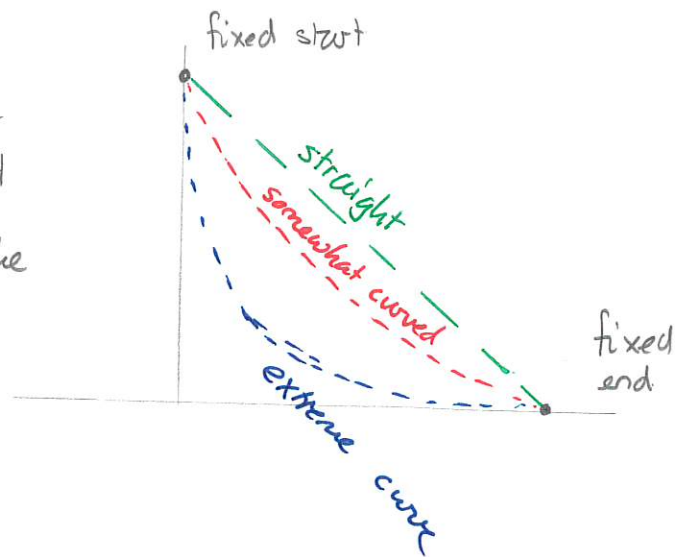
Introduction

- * name contact
- * handouts - syllabus
 - attendance sheet
 - intro survey
- * my background
- * student intros - first name, major.

Examples of physics situations

i) Objects sliding down ramps/surfaces

Think about an object that can slide along a track whose beginning and end are fixed. What shape should the track have so that the time taken to travel from start to finish is shortest?



* Introduce yourself to neighbor

* Discuss your answers?

- what is your choice? why did you choose this? what reason supports your choice? what factors matter?

- what did your neighbor say? How would you assess your neighbor's response?

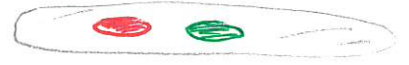
DEMO: - Brachistochrone demo.

- Hotwheels brachistochrone video

This question was first addressed successfully in 1697 (by Newton + the Bernoullis) using a physical framework developed by Isaac Newton in the 1680s.

2) Objects floating on the surface of a liquid.

Consider two small objects on a surface of a liquid. What do they do to each other?



DEMO: Cheerios effect YouTube video.

3) Rotating sticks

DEMO: Rotating sticks

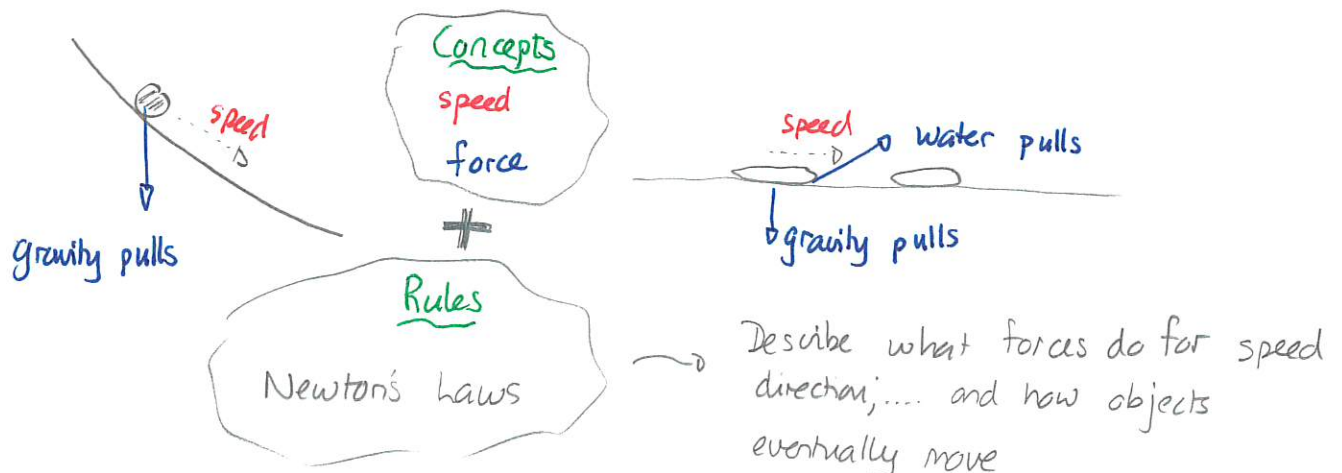
Scope of physics

Physics addresses questions like these above. It asks

- what will occur?
- how will this occur?
- why does this occur?

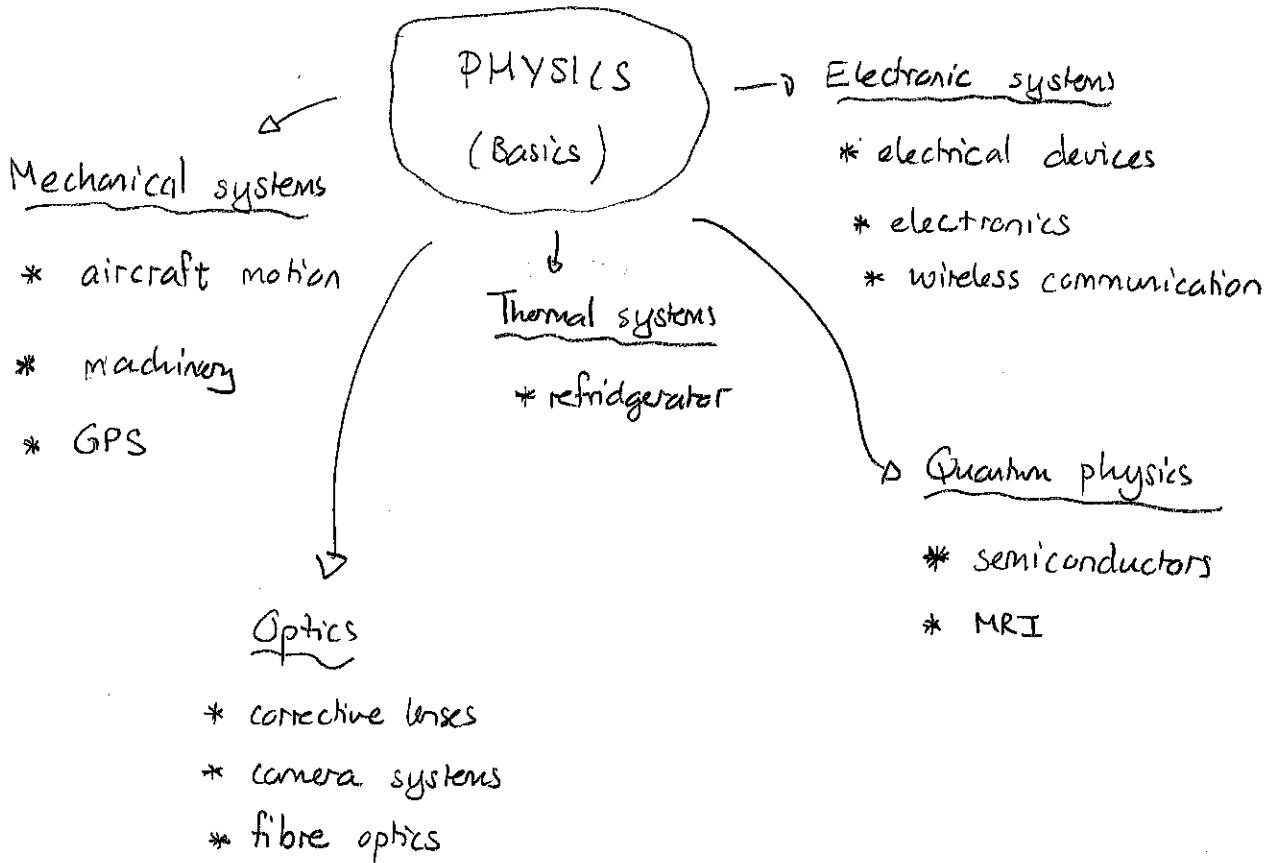
In general physics tries to find a few basic concepts and rules that eventually describe a wide range of situations.

The first truly general physics framework (theory) appeared in the 1680s. This is classical mechanics (developed by Isaac Newton). It has a universal structure that can explain all of the above phenomena.



Why is physics important?

- It allows us to understand the physical world
- It " " " make predictions about the physical world.
- It has many applications



Scope + goals of Phys 100

Physics 100 offers

* introductory survey of physics

that

* covers some but not all areas of physics.

Topics surveyed include:

- 1) solar system
- 2) classical mechanics
- 3) energy
- 4) electricity + magnetism
- 5) light
- 6) quantum physics

The goals of this course are:

- 1) introduce you to physical phenomena
- 2) introduce you to concepts, laws and frameworks for understanding the physics world
- 3) introduce you to the methods of thinking used to understand physical situations
- 4) show that there is a systematic way to understand the world.

Background needed:

- 1) no knowledge of physics is needed.
- 2) some arithmetic and substitution into word formulas.

What this course is not

- 1) a technical problem-solving physics course.

↳ Phys 111 / 112
131 / 132

Course details

- 1) syllabus - contact info -
- CMU email.
- 2) website - course page
- materials page
- 3) assignments - HW
- Group exercises.
- 4) tests / exams - dates.
- 5) Intro survey - Return Weds.