Welcome to PY105 !!

Elementary Physics 1

Erik Lascaris

Lecture 01:

Introduction to PY105

Erik Lascaris

The PY105 Team

PY105 instructor

Erik Lascaris

Lecturer + Researcher at BU

From Amsterdam,
The Netherlands

The PY105 Team

PY105 instructor

Erik Lascaris

Lecturer + Researcher at BU

Learning Assistant

Fiona Doolan

Pre-medical student BU

Learning Assistant

Shane Ezepik

Biomedical Eng. student BU

The PY105 Team

Assistant

Ezepik

g. student BU

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Shane Ezepik

Biomedical Eng. student BU

Teaching Fellow (Labs)

Shan Huang

Physics grad student BU

Teaching Fellow (2 Labs + 1 Discussion)

Samuel Kalish

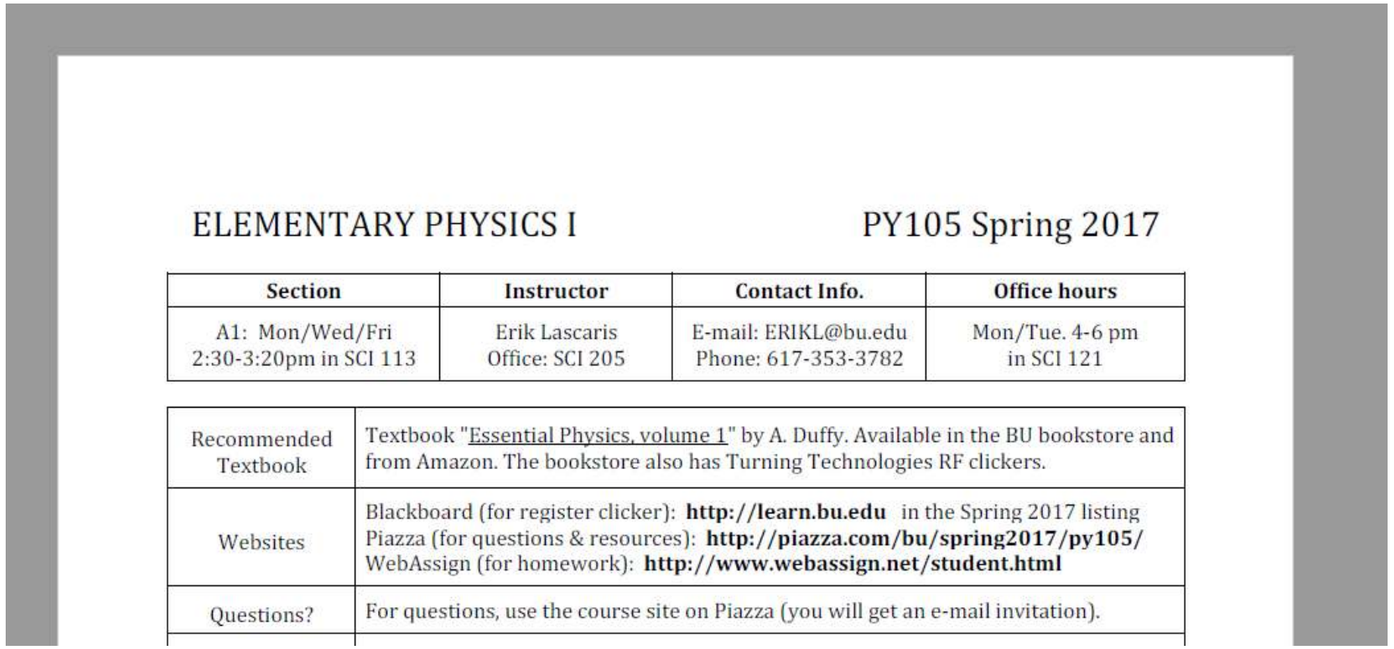
Physics grad student BU

Teaching Fellow (Discussion)

Josh Fernandez

Physics grad student BU

Syllabus



ELEMENTARY PHYSICS I PY105 Spring 2017

Section	Instructor	Contact Info.	Office hours
A1: Mon/Wed/Fri 2:30-3:20pm in SCI 113	Erik Lascaris Office: SCI 205	E-mail: ERIKL@bu.edu Phone: 617-353-3782	Mon/Tue. 4-6 pm in SCI 121

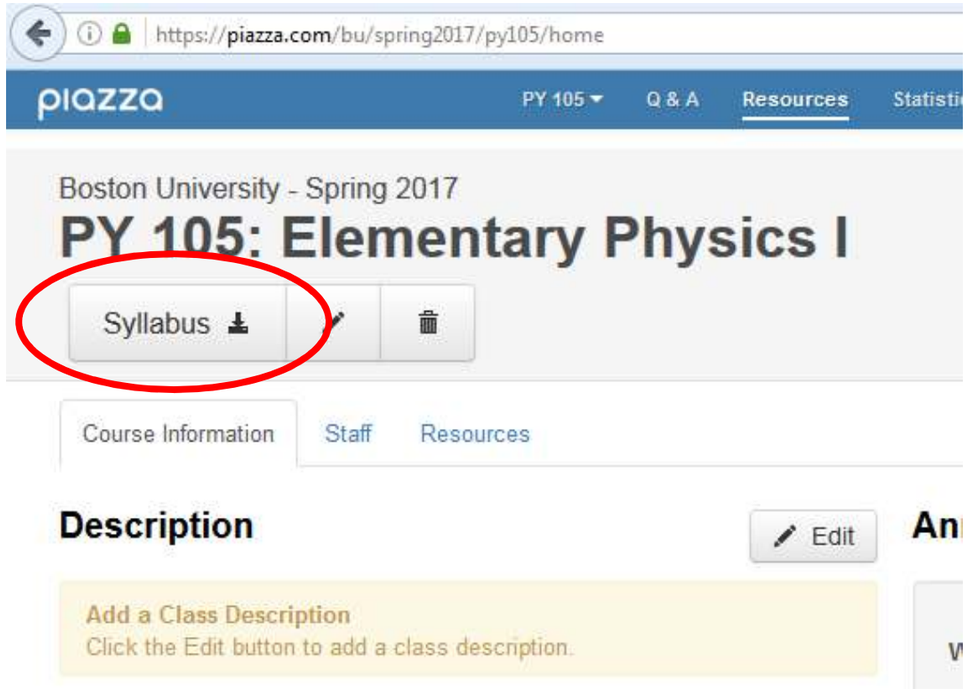
Recommended Textbook	Textbook "Essential Physics, volume 1" by A. Duffy. Available in the BU bookstore and from Amazon. The bookstore also has Turning Technologies RF clickers.
Websites	Blackboard (for register clicker): **http://learn.bu.edu** in the Spring 2017 listing Piazza (for questions & resources): **http://piazza.com/bu/spring2017/py105/** WebAssign (for homework): **http://www.webassign.net/student.html**
Questions?	For questions, use the course site on Piazza (you will get an e-mail invitation).

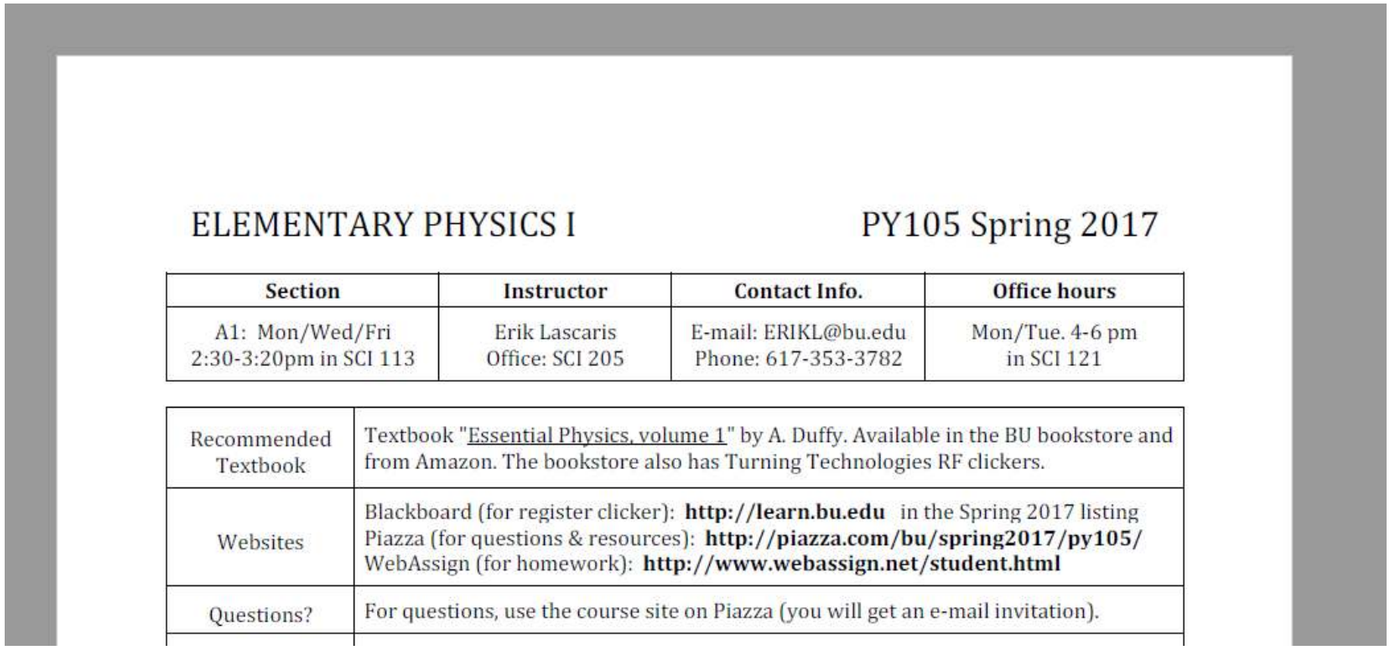
- Available on *Piazza*: https://piazza.com/bu/spring2017/py105/home

  (Piazza will also have these lecture slides)

- Current version: Version 2 (16 Jan 2017)

Syllabus





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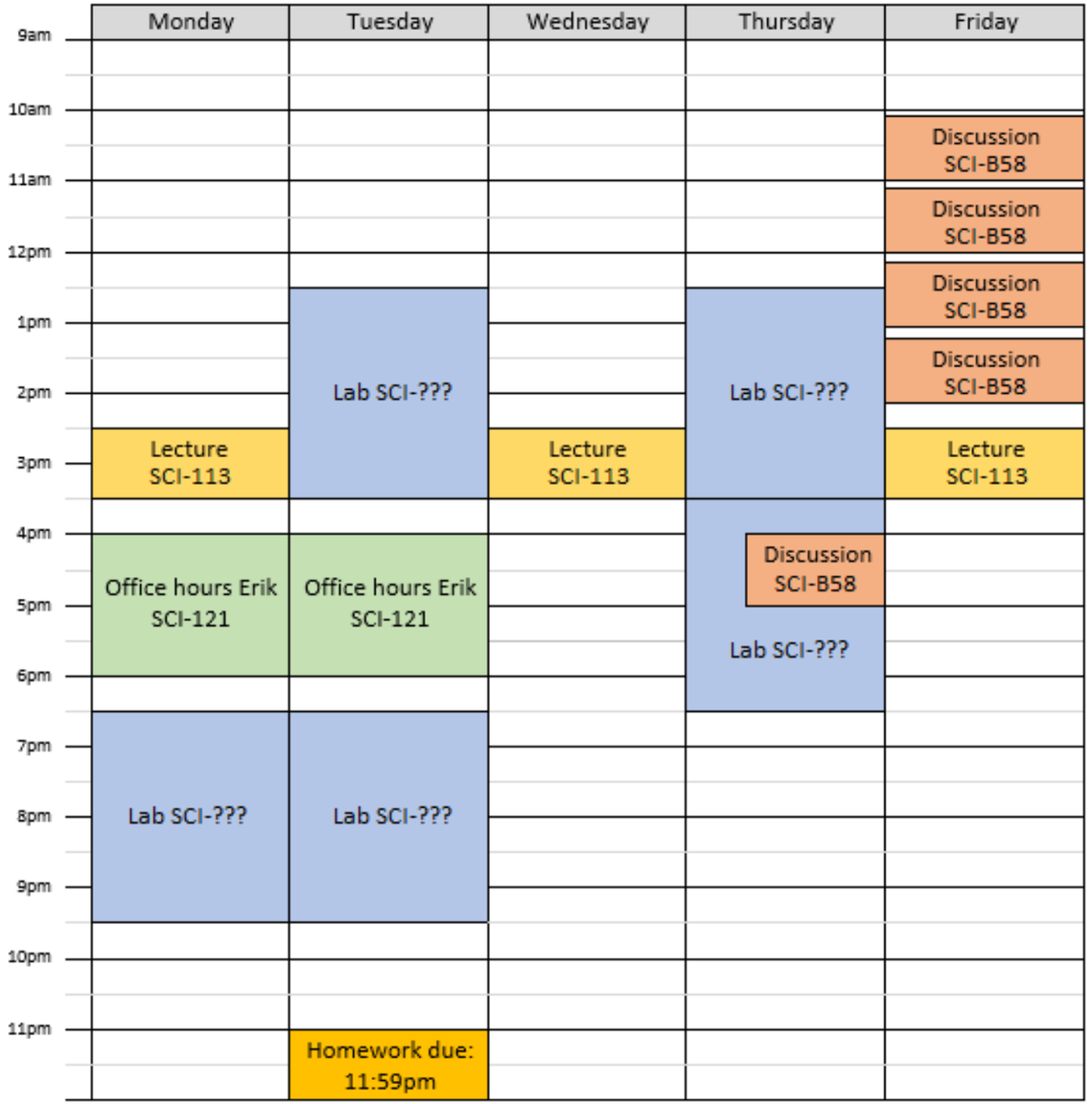
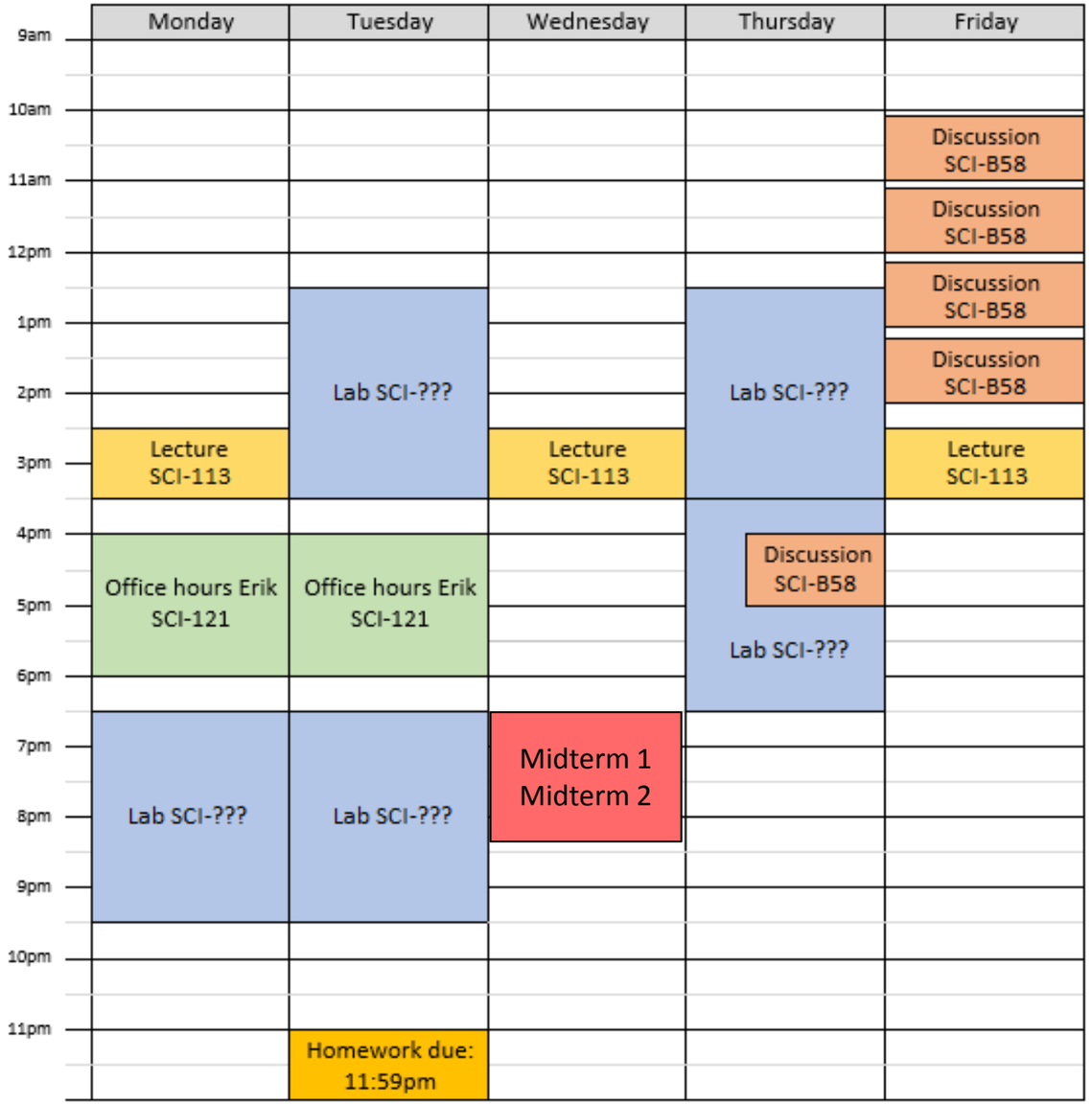
Weekly schedule



- Lectures M/W/F
- 1 Lab section, 8 labs in total (room changes every week!)
- 1 Discussion section each week
- Office hours (4 hours in total)
- Homework due: typically Tuesday at 11:59pm

Weekly schedule



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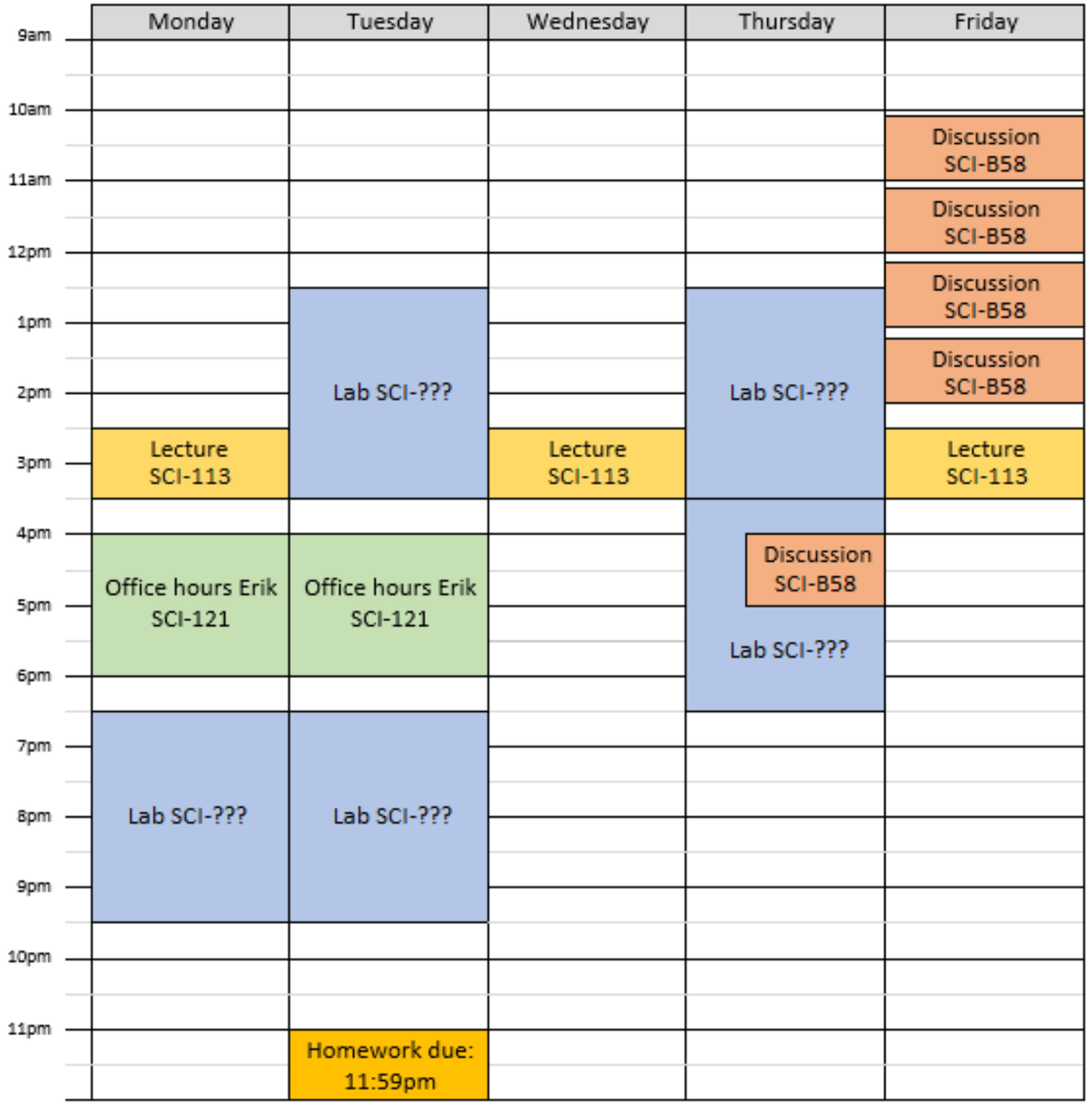
Please come to my lectures!

You will receive participation points (5% of your grade)

Weekly schedule



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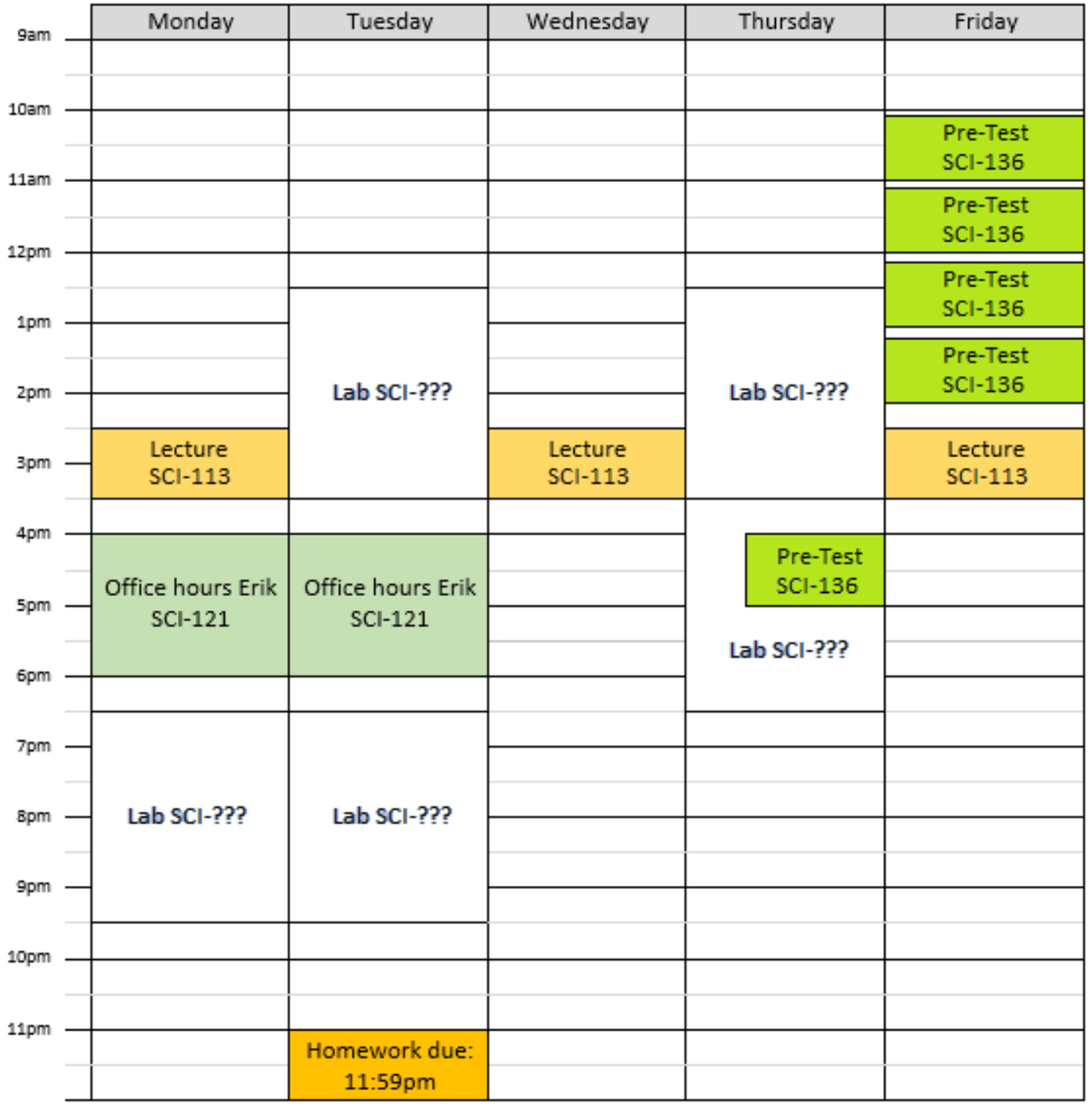
Weekly schedule – NEXT WEEK



- Lectures M/W/F
- NO LAB
- 1 Discussion section each week
  Next week: **pre-assessment test** in room 136 (or 134)
- Office hours (4 hours in total)
- Homework 1 due:
  Tuesday at 11:59pm

Information about the pre-assessment

- Your performance on the pre-assessment will not affect your PY105 grade!!!
  (But you do get points for taking it!)

- The pre-assessment is used to see what you know before the course begins. It will help us improve the course and adjust it to fit your needs.

- Please do not use any outside help (e.g. books, internet, friends, etc.). The results will only be useful if students complete this assessment honestly.

Homework 1

- Already online, on WebAssign! (damn!)

- Concerns Chapter 1, basic things you should probably already know:
  - significant figures
  - vectors

- More details during Lecture on Monday

- Office hours Monday & Tuesday

Websites we'll use for PY105

- **Piazza** = online forum for questions & announcements
- **WebAssign** = online homework & your grades
- **BU Learn / Blackboard** = registration of TurningPoint clicker

Piazza

- Online forum for:
  - course announcements
  - where you can ask questions (answered by me/TF/LA)
  - these lecture slides
  - syllabus, etc.

- You should have received an email invitation (let me know if you didn't)

- **https://piazza.com/bu/spring2017/py105/home**

NOTE:

I'm still missing a few students on Piazza, so let me know if you're missing!

WebAssign

- For online homework & your grades!
  - See page 4 of syllabus

- Exception: 3x this semester we'll have "on-paper" homework
  - as a practice for the midterm exams and final exam

- Due every Tuesday night at 11:59pm
- **http://www.webassign.net/student.html**

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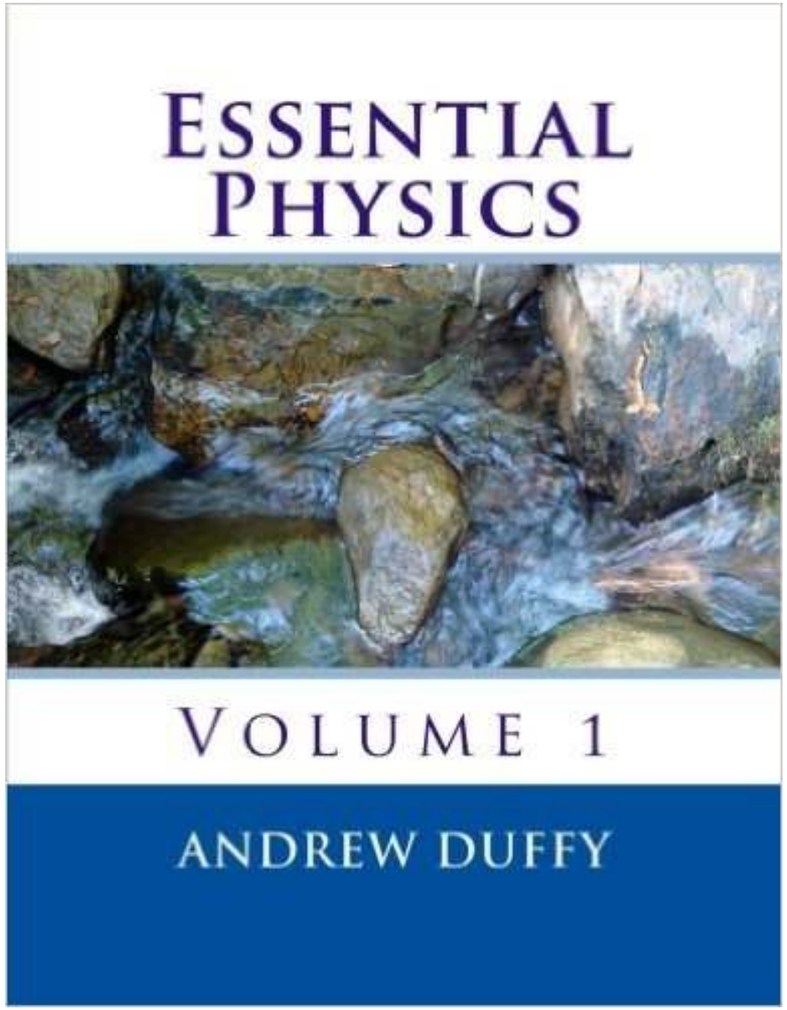
Disclaimer:

It is your responsibility to check that your grades have been recorded correctly!
If any of your grades are missing or incorrect, contact your TF and your instructor.

Blackboard (BU Learn)

- Terrible website, I hate it
- We'll only use it to register your TurningPoint clicker.
  - Follow the instructions in the syllabus, pages 9, 10, 11.
- **http://learn.bu.edu**

Other resources: Textbook

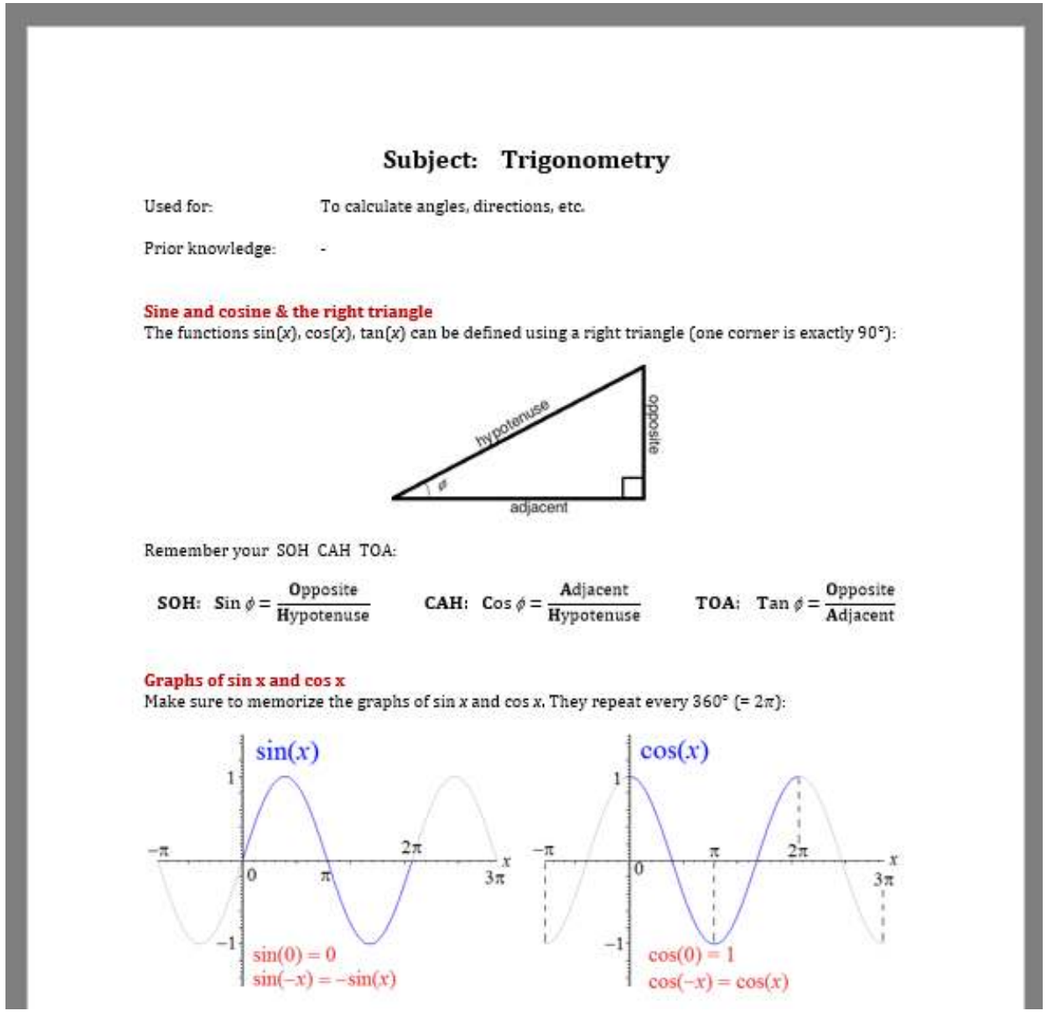


- Essential Physics (volume 1) by A. Duffy

- Also available online: See under "eBook" on WebAssign

Other resources: Erik's Summaries

(Available on Piazza!)



Subject: Trigonometry

Used for: To calculate angles, directions, etc.

Prior knowledge: -

Sine and cosine & the right triangle

The functions sin(x), cos(x), tan(x) can be defined using a right triangle (one corner is exactly 90°):

Remember your SOH CAH TOA:

SOH: $\text{Sin}\,\phi = \frac{\text{Opposite}}{\text{Hypotenuse}}$ **CAH:** $\text{Cos}\,\phi = \frac{\text{Adjacent}}{\text{Hypotenuse}}$ **TOA:** $\text{Tan}\,\phi = \frac{\text{Opposite}}{\text{Adjacent}}$

Graphs of sin x and cos x

Make sure to memorize the graphs of sin x and cos x. They repeat every 360° (= 2π):

- A set of summaries that are constantly being improved
- Hopefully you find them useful
- Let me know if:
  - anything is missing, or
  - could be made clearer

My goal for PY105

- Help you learn all the PY105 concepts and methods
- Make this course not too hard but not too easy for you
- Make physics fun, interesting, and relevant for you

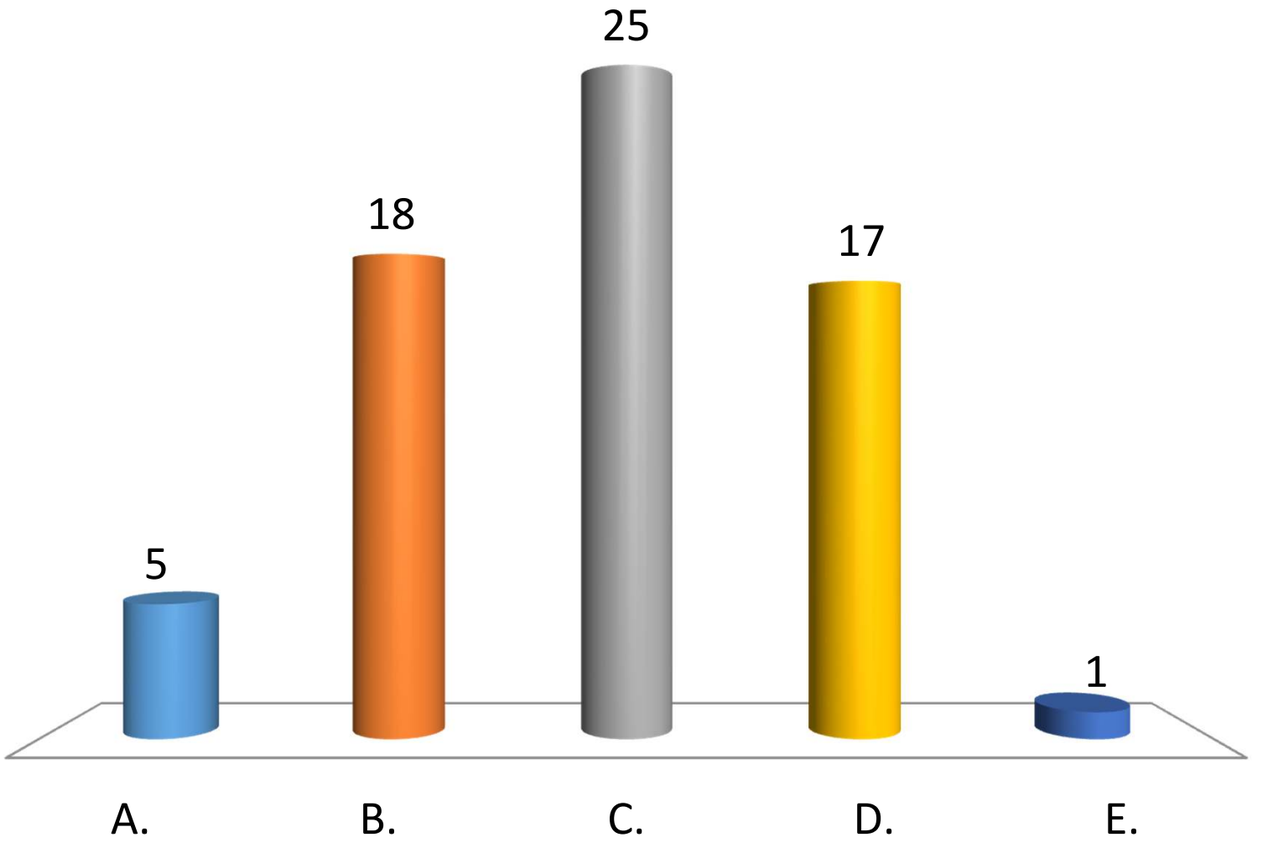
Feedback is always welcome!

Enough about me,

Let's talk about you!

Testing the clickers: how old are you?

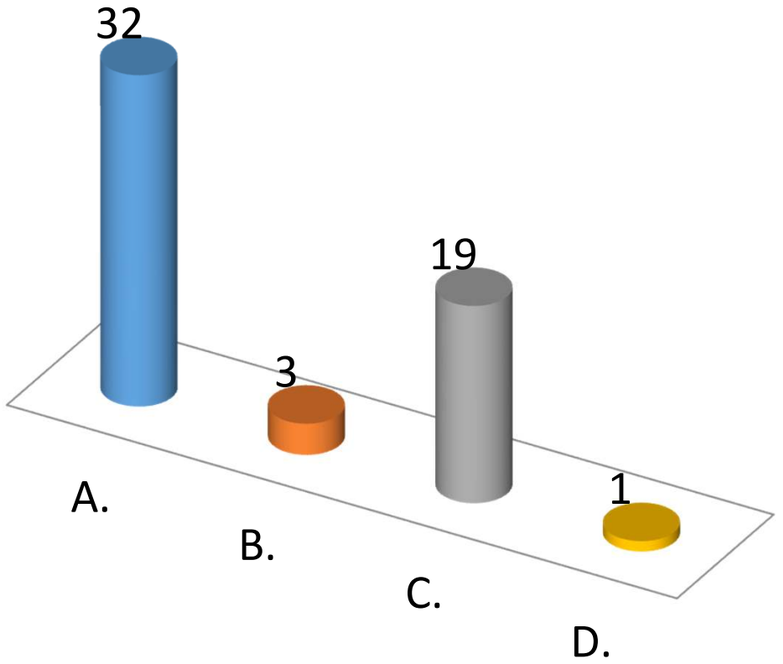
A. 18 years old , or under
B. 19 years old
C. 20 years old
D. 21 years old, or over
E. Prefer not to say



(I'm 35 btw, but don't tell anyone)

Why are you taking physics?

A. My major requires me to take it
B. I'm curious / I want to understand how the world works
C. Both A and B
D. Some other reason



Why physics?

- It helps you make better decisions

Summer 2016

Air conditioning at a local shop...

Why physics?

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Air conditioning at a local shop ?

Why physics?

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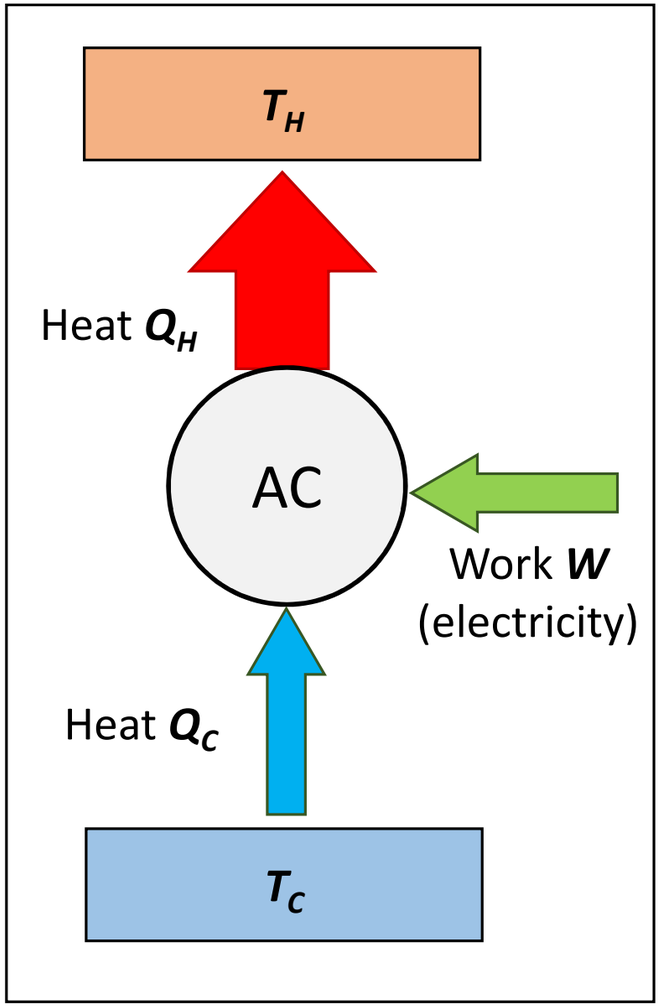
Thermodynamics (PY105):



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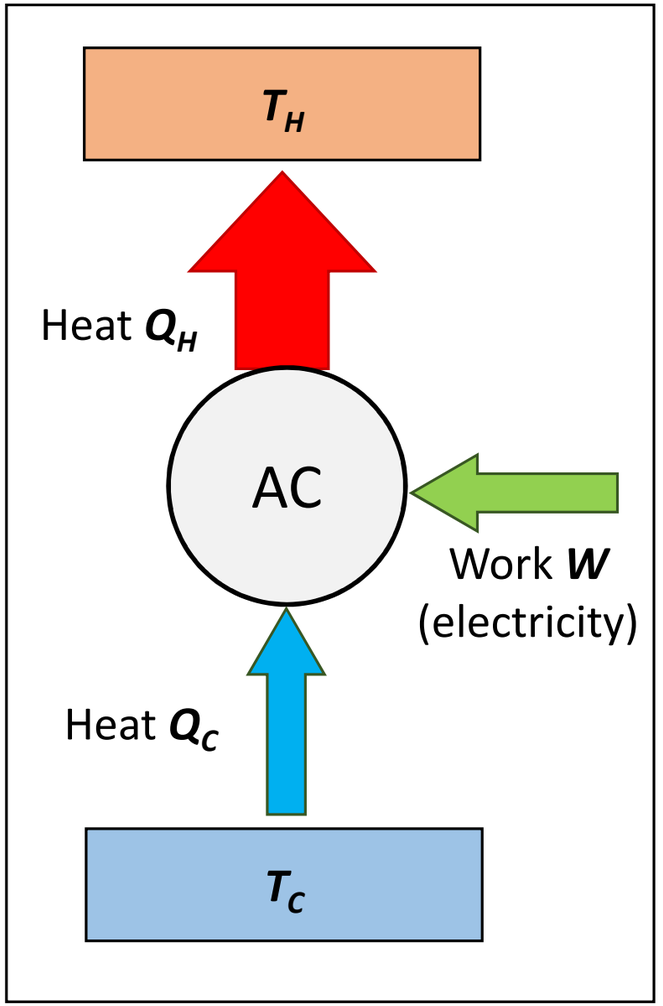
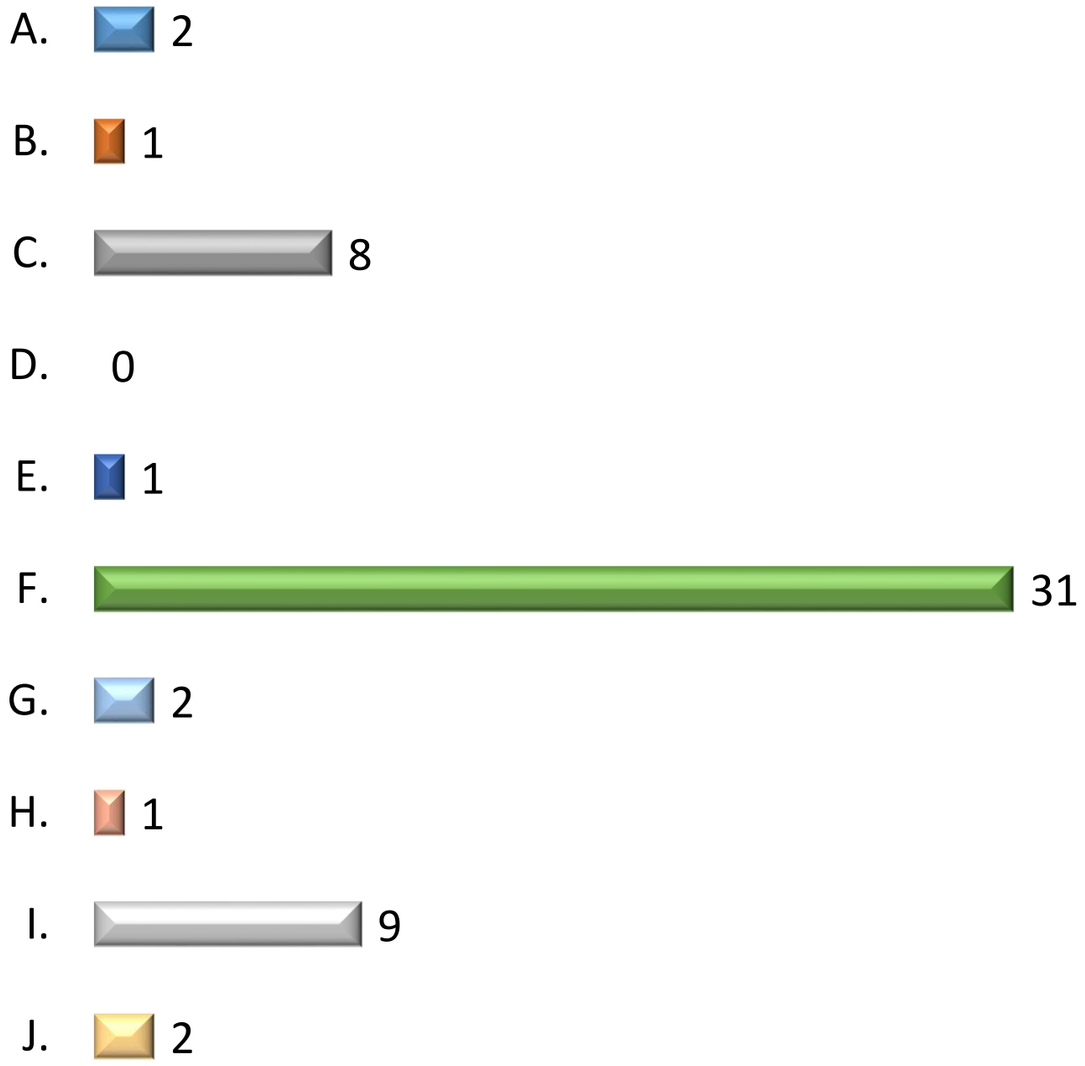


This is not an AC, this is a heater !!

When is the last time you did Physics?



A. Yesterday!
B. During the Winter Break
C. Fall 2016
D. Summer 2016
E. Spring 2016
F. High school
G. Before high school
H. Some other time
I. Never. What's physics?
J. Prefer not to answer

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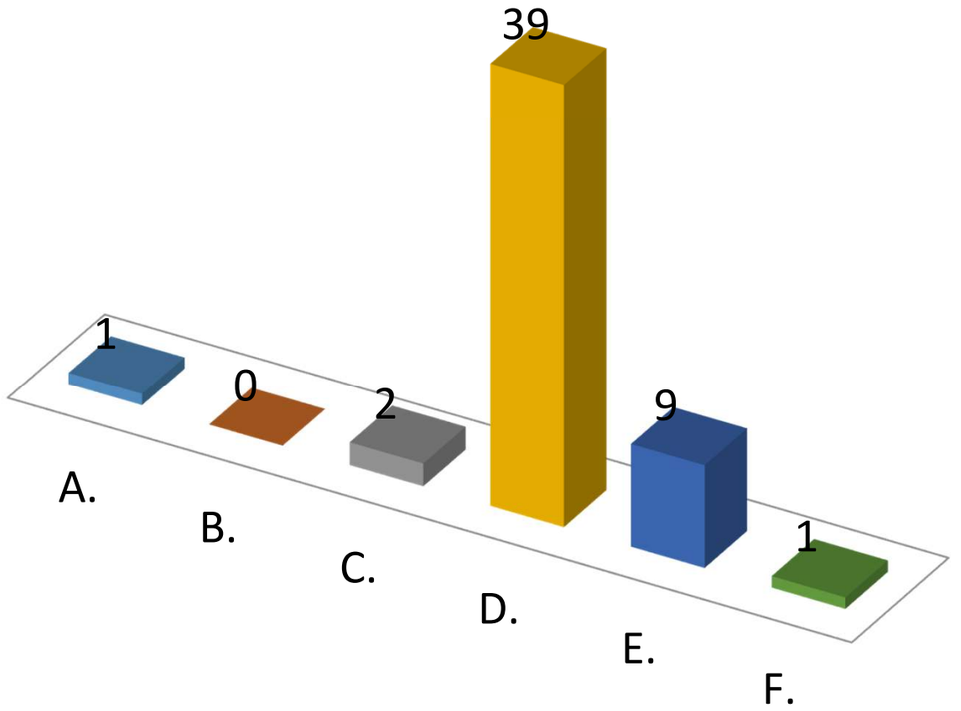
What is your major?

A.	Health Sciences	A. 0
B.	Biology	B. 0
C.	Psychological / Brain Science	C. 0
D.	Physical Therapy	D. 0
E.	Speech, Language & Hearing	E. 0
F.	Economics / Business	F. 0
G.	Chemistry	G. 0
H.	Human Physiology	H. 0
I.	Earth & Environment	I. 0
J.	Other	J. 0

How many courses are you taking this semester (including PY105) ?

A. Only PY105
B. Two courses
C. Three courses
D. Four
E. Five
F. Six or more



Wow, you are really busy!

OK then, let's wrap up this lecture.

One more thing, and then we're done!

Please sign the PY105 Honor Code

Thank you!

See you next time: Monday 23 January at 2:30pm