Physics 125 - General Physics

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* Course web site:
  http://classroom.sdmesa.edu/mcrivello

  There you can find: Syllabus (contains all class info)
  Homework format examples
  Answers to even # problems
  Lab experiments and Lab Logistics
  Graph Paper
  Homework format examples

* Please remember to print out the lab each week.

* Begin reading Cutnell Chapter 1-2

* We will mostly use a portion of either the Tuesday or Thursday session as a problem solving session for homework and/or lab questions.

* Please give me your folder and signed contract ASAP!!

* Please begin working on the Homework Problems in Chapter 1 and turn them in on Thursday, February 4, along with your Trigonometry Worksheet.

* Please remember that you must follow the homework format as outlined and detailed for you in the syllabus.

* If you would like to go online and find a quadratic equation program for your calculator it will save you a lot of time.
$ax^2 + bx + c = 0$

I know all of this sound like a lot of rules and regulations, and each of your instructors may have their own rules, but I believe that following all of these requirements will lead to success in both your academic and professional careers.

Physics 125: Mechanics

Just as Dr. Phil  and 

Dr. Laura talk about relationships and commitment, PHYSICS is the study of the relationships between *matter* and *energy* in the universe ( → ), and this course will require a huge time commitment from you.

That's why it's called a college '***degree***'.

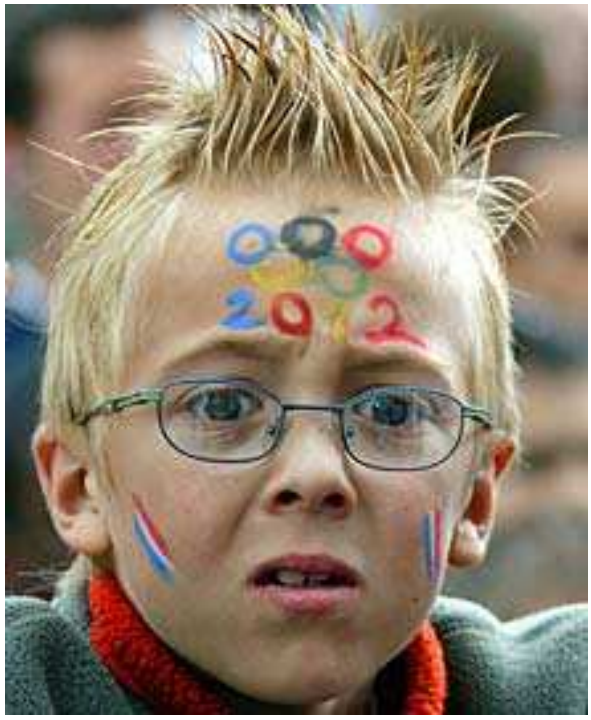
You are studying your particular field of study to achieve a certain 'degree' of knowledge in that field.

Physics can be frustrating!

Before Physics 125:

You and your lab partners.

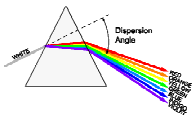
During Physics 125:



Some good news …

Biology terms	Physics terms
enzymes	length
eukaryote	mass
ectoplasm	time
transcription	speed
translation	velocity
archaea	acceleration
biomass	projectile
endospores	force
eukarya	energy
evolution	momentum
gene expression	friction
genetic engineering	rolling
genus	rotation
Koch's postulates	frequency
metabolism	
mutation	
nucleoid	
prokaryote	

- 125: **Mechanics** $\sum \vec{F} = m\vec{a}$
- 126: Electricity & Magnetism



  & Optics and Modern Physics: $E = mc^2$

So where do *we* start?

Measurement: Every physical property can be expressed in terms of one or more of *only 4* fundamental properties:

- Length
- Mass (?)
- Time
- Electric Charge (next semester)

Units

If your boss offer$ you 475/hour, would you take it?

Measurements of any physical property must be expressed in terms of a *number* and a *unit*.

Le **S**ystème **i**nternational d'unités

denoted as SI in all languages.

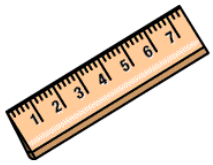
The SI system uses the metric system – a base 10 system.

The Metric System

Prefix:	Symbol:	Magnitude:	Meaning (multiply by):	Ex.
Yotta-	Y	10^{24}	1 000 000 000 000 000 000 000 000	
Zetta-	Z	10^{21}	1 000 000 000 000 000 000 000	
Exa-	E	10^{18}	1 000 000 000 000 000 000	
Peta-	P	10^{15}	1 000 000 000 000 000	
Tera-	T	10^{12}	1 000 000 000 000	
Giga-	G	10^{9}	1 000 000 000	
Mega-	M	10^{6}	1 000 000	
myria-	my	10^{4}	10 000	
kilo-	k	10^{3}	1000	1km = 1000m
hecto-	h	10^{2}	100	
deka-	da	10	10	
deci-	d	10^{-1}	0.1	
centi-	c	10^{-2}	0.01	100cm = 1m 1cm = 10^{-2} m = 0.01m
milli-	m	10^{-3}	0.001	1000mm = 1m 1mm = 10^{-3} m = 0.001m
micro-	μ (mu)	10^{-6}	0.000 001	1000000 μm = 1m 1 μm = 10^{-6} m = 0.000001m
nano-	n	10^{-9}	0.000 000 001	
pico-	p	10^{-12}	0.000 000 000 001	
femto-	f	10^{-15}	0.000 000 000 000 001	
atto-	a	10^{-18}	0.000 000 000 000 000 001	
zepto-	z	10^{-21}	0.000 000 000 000 000 000 001	
yocto-	y	10^{-24}	0.000 000 000 000 000 000 000 001	

Included in the SI system is the mks system.

m: all *lengths* are measured in meters



k: all *masses* are measured in kilograms

s: all *time* is measured in seconds

Mass: A measure of a body's quantity of _____.

Sometimes we have to convert from our 'regular units' to the metric system.