PHYSICS 100

Introduction to Physics

- Bridges the gap between school science and Physics 101, Physics 120, Physics 125 or Physics 140
- Only for those WITHOUT Physics 12 or equiv. (C+ or better). If you have Physics 12 (C+ or better) you'll be dropped from the course sooner or later. The computer system doesn't do this automatically.
- Can also serve an a science elective but is not Q or B
  - Physics 190 (Astronomy), Physics 192 (Physics of Music) might be better.

Lectures

- Neil Alberding, Senior Lecturer
- Mon, We, Fri. 9:30 — 10:20, B9201
  - Please come on time, stay until the end
  - Be quiet, turn off phones, close laptops
  - For a better view, sit in front
  - During lectures there will be occasional iClicker questions
    - Homework credit for participation

Web Site

- http://www.sfu.ca/phys/100
- Course info, Lecture notes, review material...
- Couse schedule:
  - http://www.sfu.ca/phys/100/1104/Schedule.pdf

Physics 100	Day	Knight, Jones & Field	Readings	Tests	Topic	Active Learning Lab (Tues or Wed)
12-May-10	W		Introduction		Introduction	
14-May-10	F	1.1-1.3	Space and Distance		Position, time, velocity	
17-May-10	M	1.4-1.7	Units and Powers of Ten		sig figs, vectors, models	
19-May-10	W	2.1-2.3	Triangulation, Time, Displacement		motion	Motion 1
21-May-10	F			Quiz		
24-May-10	M	Holiday				
26-May-10	W	2.5-2.7	Interactive Kinematics Problem		constant acceleration	Motion 1
28-May-10	F	3.1-3.2			vector principles	
31-May-10	M	3.3			vector components	
2-Jun-10	W	3.5-3.6			relative motion	
4-Jun-10	M			Quiz		
7-Jun-10	M	3.6-3.8			projectiles	Motion 2
9-Jun-10	M	3.8			circular motion	
11-Jun-10	W	4.1-4.4	19.1 - 19.5		Force	Motion 2
14-Jun-10	F	4.5-4.6			Newton's 2nd Law	
16-Jun-10	W	4.7-4.8	19.6-19.7		Free Body Diagrams	Force & Motion
18-Jun-10	F			Quiz		
21-Jun-10	M	5.1-5.4	19.8 - 19.11		equilibrium	
23-Jun-10	W	5.5-5.7			Friction, drag	Force Equilibrium
25-Jun-10	F	5.8			ropes & pulleys	
28-Jun-10	M	6.1-6.3			Uniform circular motion	
30-Jun-10	W	6.4-6.5			Apparent forces & Weightlessness	Projectile Motion
2-Jul-10	F			Quiz		
5-Jul-10	M	6.6-6.7	Ch 21		Universal Gravitation	
7-Jul-10	W	8.3, 14.1-14.4			SHM	Harmonic Motion
9-Jul-10	F	9.1-9.3	22.2-22.3		Impulse-momentum	
12-Jul-10	M	9.4-9.6	22.4		Momentum Conservation	
14-Jul-10	W	10.1-10.4			Energy	Collisions & Explosions
16-Jul-10	F			Quiz		
19-Jul-10	M	10.5-10.6			Kinetic & Potential Energy	
21-Jul-10	W	18.1-18.2			Ray Optics	Reflection & Refraction
23-Jul-10	F	18.3-18.5			Images	
26-Jul-10	M				colour, dispersion	
28-Jul-10	W					Electrified Objects
30-Jul-10	F			Quiz		
2-Aug-10	M	Holiday				
4-Aug-10	W	20.1-20.2			Electric Charges	Pulses and Waves
6-Aug-10	F	20.3			Coulomb's Law	
9-Aug-10	M				Review	
11-Aug-10	W				Review	Make up
16-Aug-10	M		15:30-18:30	Exam		

Supplementary Material

- Readings
- In-class worksheets (on-line, print yourself)
- Active Learning Labs
  - You need to print these and take them to the lab

Textbooks

- Knight, Jones and Field, College Physics Custom Edition
- Useful to consult other textbooks
  - Library
  - Used
  - Giancoli — Walker — Halliday & Resnick
    - "College Physics" — algebra only
    - "University Physics" or "Physics for Scientists and Engineers" — some calculus (that's ok)

Active Learning Labs

- Scheduled in the tutorial session, P9412
- Graded pass/fail
- All labs must be passed to complete the course
- Start next Tuesday or Wednesday!
- Every Tuesday or Wednesday

Homework

- One assignment each week, usually
  1. Mastering Physics online physics homework
  2. Written Problems to be handed in to the Physics 100 box
     - ✓ Due Tuesday at 5:30 pm (to be confirmed)
     - > (no late submissions)
     - Problems graded at random.
     - Solutions to be posted after due date
- 20 % of mark

Physics Help

- "Open Lab"
- Place: RCB6125
- Times: Tuesday 12:30-5:20
- We will explain concepts and give some guidance for doing the homework.
- My Office hours: P9444, Mon & Wed 11—12

Quizzes

- One quiz every second week : 6 in all
- Fridays
- Length: about 25 min
- 2 written problems or 10 multiple choice
  - ✓ Similar to assignment questions
- No midterms
- 30% of total mark

Final Exam

- Thursday, Aug. 16
- Location: TBA
- 3:30 – 6:30 pm
- 1/2 written problems, 1/2 multiple choice
- Similar to quizzes
- 50% of grade (at least)

Grading

- Labs: all must be done with a passing grade
- Homework: 20%
  - iClicker questions = 1 assignment
- Quizzes: 30% (5% for each one)
- Final Exam: 50%

Missed term work

- Any term marks missed (for whatever reason) will be added to the value of the final exam.
- If you miss a quiz, then then final exam is worth 55% for you.
- If you take the quiz but get it 1/2 right, the final exam is worth 52.5% for you.
- This goes for all quizzes and homework.
- If you don't get any term work marks, your grade is based 100% on the final exam.

Grade Formula

- G = T + (100%-T)F/50%
  - G is the final grade
  - T is your term work grade, max 50%
  - F is your final exam grade, max 50%

Example

- You get 40% out of 50% on quizzes and homework
- You get 30% out of 50% on the final exam

- G = 40% + (100%-40%)(30%/50%) = 76%
  - instead of 70%

Letter Grades

A+ 90% - 100%
A 85% - 89%
A- 80% - 84%
B+ 76% - 79%
B 72% - 75%
B- 68% - 71%
C+ 64% - 67%
C 60% - 63%
C- 55% - 59%
D 50% - 54%
F 0% - 49%

Topics

1. Dealing with space and time mathematically (1 wk)
2. Kinematics : measurement of motion (2 wks)
3. Vectors : describing 3-d space (1 wk)
4. Dynamics : How forces cause motion to change (2 wks)
5. Circular Motion & Gravitation (1 wk)
6. Momentum and Mechanical Energy (2 wks)
7. Optics (geometrical) (1 wk)
8. Electricity (static) (1 wk)