

# PHYSICS 100

## Introduction to Physics

- Bridges the gap between school science and Physics 101 or Physics 120
- Only for those without Physics 12 or equiv. (C+ or better)
- Can also serve as a science elective
  - Physics 190 (Astronomy) might be better.

# Lectures

- Neil Alberding, Senior Lecturer
- Mon, Tues, Fri. 1:30 — 2:20, SRY 3170
  - 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...
- Course schedule:
  - <http://www.sfu.ca/phys/100/1097/Schedule.pdf>

Physics 100	Day	Knight, Jones & Field	Readings	Tests	Topic	Active Learning Lab (Thurs)
8-Sep-09	D		<a href="#">Introduction</a>		Introduction	
11-Sep-09	F	1.1-1.3	<a href="#">Space and Distance</a>		Position, time, velocity	
14-Sep-09	M	1.4-1.7	<a href="#">Units and Powers of Ten</a>		sig figs, vectors, models	
15-Sep-09	T	2.1-2.3	<a href="#">Triangulation, Time, Displacement</a>		motion	Motion 1
18-Sep-09	F	2.4		Quiz	acceleration	
21-Sep-09	M	2.5-2.7	<a href="#">Interactive Kinematics Problem</a>		constant acceleration	
22-Sep-09	T	3.1-3.2			vector principles	Motion 1
25-Sep-09	F	3.3			vector components	
28-Sep-09	M	3.5-3.6			relative motion	
29-Sep-09	T	3.6-3.7			projectiles	Motion 2
2-Oct-09	F			Quiz		
5-Oct-09	M	3.8			circular motion	
6-Oct-09	T	4.1-4.4	19.1 - 19.5		Force	Motion 2
9-Oct-09	F	4.5-4.6			Newton's 2nd Law	
12-Oct-09	M	Holiday				Force & Motion
13-Oct-09	T	4.7-4.8	19.6-19.7		Free Body Diagrams	
16-Oct-09	F			Quiz	Newton's 3rd Law	
19-Oct-09	M	5.1-5.4	19.8 - 19.11		equilibrium	
20-Oct-09	T	5.5-5.7			Friction, drag	Force Equilibrium
23-Oct-09	F	5.8			ropes & pulleys	
26-Oct-09	M	6.1-6.3			Uniform circular motion	
27-Oct-09	T	6.4-6.5			Apparent forces & Weightlessness	Projectile Motion
30-Oct-09	F			Quiz		
2-Nov-09	M	6.6-6.7	Ch 21		Universal Gravitation	
3-Nov-09	T	8.3, 14.1-14.4			SHM	Harmonic Motion
6-Nov-09	F	9.1-9.3	22.2-22.3		Impulse-momentum	
9-Nov-09	M	9.4-9.6	22.4		Momentum Conservation	
10-Nov-09	T	10.1-10.4			Energy	Pulses and Waves
13-Nov-09	F			Quiz		
16-Nov-09	M	10.5-10.6			Kinetic & Potential Energy	Reflection & Refraction
17-Nov-09	T	18.1-18.2			Ray Optics	
20-Nov-09	F	18.3-18.5			Images	
23-Nov-09	M				colour, dispersion	Electrified Objects
24-Nov-09	T			Quiz		
27-Nov-09	F					
30-Nov-09	M	20.1-20.2			Electric Charges	make up
1-Dec-09	T	20.3			Coulomb's Law	
4-Dec-09	F				Review	

# The Motion Chronicles

- 📌 Readings

- 📌 In-class worksheets

- 📌 Active Learning Labs

- \* Already paid for, receive them in class on Friday

# 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, SRY 3980
  - The "Physics Studio" room
- Graded pass/fail
- All labs must be passed to complete the course
- Start next Thursday!
- Every Thursday

# Homework

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

# Physics Help

- "Open Lab"
- In the Physics Studio: SRY 3980
  - Thursday 12:30 — 3:20
- We will explain concepts and give some guidance for doing the homework.

# 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, Dec. 17
- Location: TBA
- 12:00 — 3:00 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)