# PHYSICS 100

Introduction to Physics

- Bridges the gap between school science and Physics 101, Physics 120 or Physics 140
- 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, Wed, Fri. 1:30 — 2:20, SRY 3090
  - Please come on time, stay until the end
  - Be quiet, turn off phones
  - For a better view, sit in front

# Web Site

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

| Physics 100 | day | Knight,Jones &Field | Readings | | topic | Active Learning Lab (Tues) |
|---|---|---|---|---|---|---|
| 5-Sep-07 | W | | Introduction | | Introduction | |
| 7-Sep-07 | F | 1.1-1.3 | Space and Distance | | Position, time, velocity | |
| 10-Sep-07 | M | 1.4-1.7 | Units and Powers of Ten | | sig figs, vectors, models | |
| 12-Sep-07 | W | 2.1-2.3 | Triangulation, Time, Displacement | | motion | Motion 1 |
| 14-Sep-07 | F | 2.4 | | Quiz | acceleration | |
| 17-Sep-07 | M | 2.5-2.7 | Interactive Kinematics Problem | | constant acceleration | |
| 19-Sep-07 | W | 3.1-3.2 | | | vector principles | Motion 1 |
| 21-Sep-07 | F | 3.3 | | | vector components | |
| 24-Sep-07 | M | 3.5-3.6 | | | relative motion | |
| 26-Sep-07 | W | 3.6-3.7 | | | projectiles | Motion 2 |
| 28-Sep-07 | F | | | Quiz | | |
| 1-Oct-07 | M | 3.8 | | | circular motion | |
| 3-Oct-07 | W | 4.1-4.4 | 19.1 - 19.5 | | Force | Motion 2 |
| 5-Oct-07 | F | 4.5-4.6 | | | Newton's 2nd Law | |
| 10-Oct-07 | W | 4.7-4.8 | 19.6-19.7 | | Free Body Diagrams | Force & Motion |
| 12-Oct-07 | F | | | Quiz | Newton's 3rd Law | |
| 15-Oct-07 | M | 5.1-5.4 | 19.8 - 19.11 | | equilibrium | |
| 17-Oct-07 | W | 5.5-5.7 | | | Friction, drag | Force Equilibrium |
| 19-Oct-07 | F | 5.8 | | | ropes & pulleys | |
| 22-Oct-07 | M | 6.1-6.3 | | | Uniform circular motion | |
| 24-Oct-07 | W | 6.4-6.5 | | | Apparent forces and Weightlessness | Projectile Motion |
| 26-Oct-07 | F | | | Quiz | | |
| 29-Oct-07 | M | 6.6-6.7 | Ch 21 | | Universal Gravitation | |
| 31-Oct-07 | W | 8.3, 14.1-14.4 | | | SHM | Harmonic Motion |
| 2-Nov-07 | F | 9.1-9.3 | 22.2-22.3 | | Impulse-momentum | |
| 5-Nov-07 | M | 9.4-9.6 | 22.4 | | Momentum Conservation | |
| 7-Nov-07 | W | 10.1-10.4 | | | Energy | Pulses and Waves |
| 9-Nov-07 | F | | | Quiz | | |
| 14-Nov-07 | W | 10.5-10.6 | | | Kinetic & Potential Energy | Reflection & Refraction |
| 16-Nov-07 | F | 18.1-18.2 | | | Ray Optics | |
| 19-Nov-07 | M | 18.3-18.5 | | | Images | |
| 21-Nov-07 | W | | | | colour, dispersion | Electrified Objects |
| 23-Nov-07 | F | | | Quiz | | |
| 26-Nov-07 | M | | | | | |
| 28-Nov-07 | W | 20.1-20.2 | | | Electric Charges | make up |
| 30-Nov-07 | F | 20.3 | | | Coulomb's Law | |
| 3-Dec-07 | M | | | | | |
| 12-Dec-07 | W | | | Exam | 12:00 - 15:00 | |

# Readings, Labs and Worksheets

1. Readings
2. In-class worksheets
3. Active Learning Labs

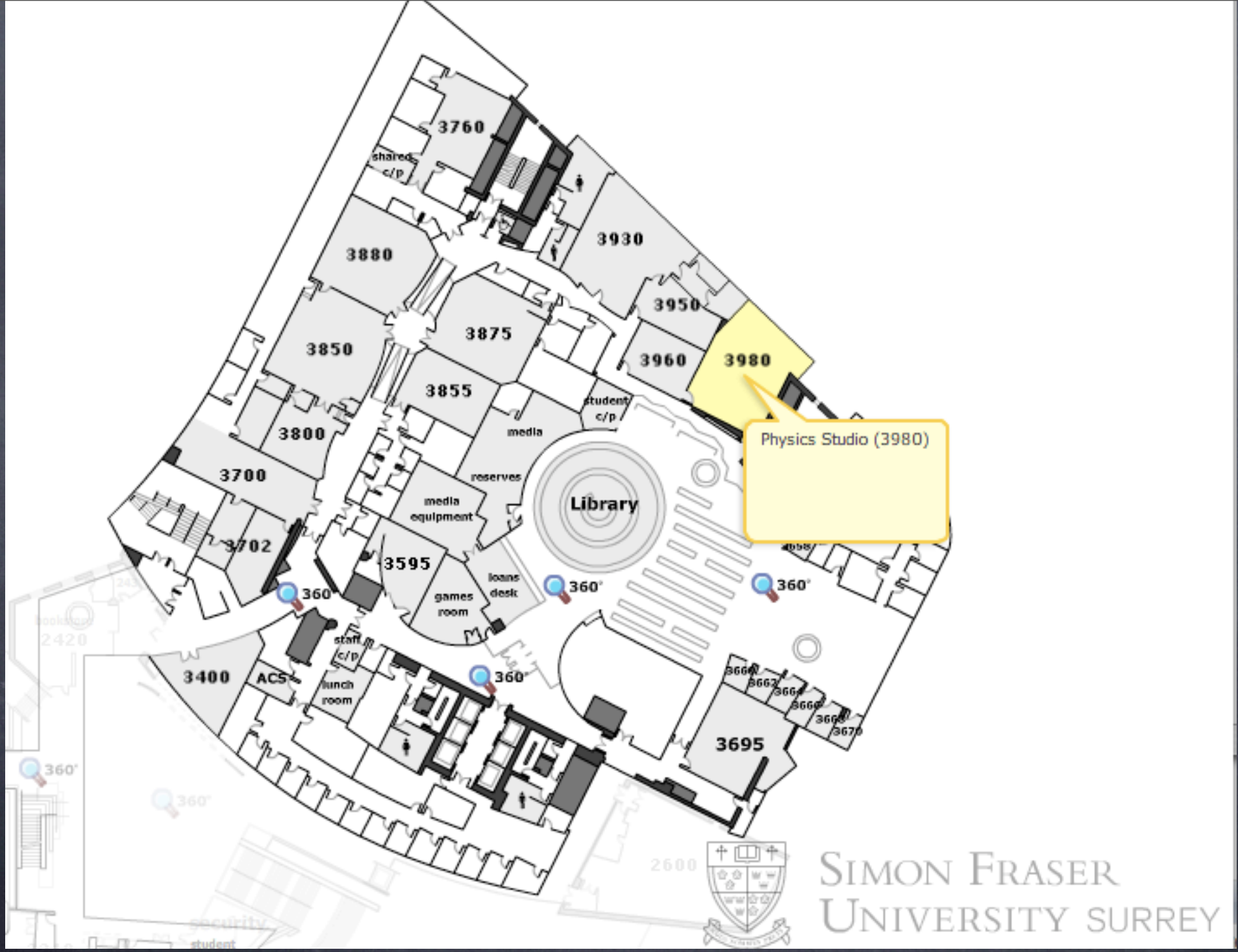
- Already paid for, receive them in tutorial

# 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 Tuesday!
- Every Tuesday


3760
shared c/p
3930
3880
3950
3875
3850
3960
3980
3855
student c/p
3800
media
3700
reserves
media equipment
Library
3702
3595
games room
loans desk
360°
360°
360°
staff c/p
3400
ACS
lunch room
360°
3695
Physics Studio (3980)
SIMON FRASER UNIVERSITY SURREY

# 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 Friday at 5:30 pm
     - > (no late submissions)
     - Problems graded at random.
     - Solutions to be posted after due date

# Physics Help

- "Open Lab"
- In the Physics Studio: SRY 3980
  - Tuesday 1:30 – 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

- Wednesday, Dec. 12
- 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 pass
- Homework: 20%
- 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)