

How Things Work

Physics 105
Fall 2004
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Outline of Introduction

- Course Concept
- Goals
- Expectations
- Syllabus
- Ethics and Integrity
- Getting Started
- General Advice

Course Concept

- The Physics of Everyday Life
- Designed from the start for non-scientists
- Reverse of traditional approach
- Essentially “Case-Study Physics”
- Real physics on a need-to-know basis
- Revisits concepts over and over again

Goals

- Develop understanding and intuition
- See the role of physics in your world
- Learn to enjoy science, not fear it
- See universe as predictable, not magical

Expectations

- You’ll have to think rather than memorize
- Focus on concepts rather than formulas
- Learn to understand and apply concepts
- Absence of calculations
 - less distractions from concepts
 - less opportunities for mindless plug & chug
 - doesn’t make the course easier
- I assume no prior study of physics

Syllabus – Course Schedule

- Lecture and Reading Topics
 - Read ahead in the book
- Assignments
 - Keep up with the work on your own

Syllabus – Course Policy

- Textbook
- Web Site
- Office Hours
- Coursework
 - 10 Problem Sets (plus PS0)
 - 2 Exams (Midterm and Final)
 - 1 Term Paper

Syllabus – Course Policy (con't)

- Late Policy
- Guests and Visitors
- Grading Information
- Term Paper Incentive
- Evaluation Incentive

Syllabus – Course Rules

- It is your responsibility to read rules
- Key individual work rules are:
 - You must write up problem sets on your own
 - You must author term paper entirely yourself
- Ask me for exceptions in advance
- If you do all the work, you won't fail

Syllabus – Web Sites

- <http://rabi.phys.virginia.edu/105/2004>
- ... or <http://www.toolkit.virginia.edu>
- EClass link
- Office Hours link

Ethics and Integrity

- Academic and Intellectual Integrity
 - a foundation of scholarship
 - too important to compromise
- A Community of Trust
 - supports integrity and scholarly environment
 - an ideal basis for elevated discourse

Ethics and Integrity (con't)

- An Honor System
 - one way to achieve a Community of Trust
- UVa's Student-Run Honor System
 - A pledge
 - A judicial system with only one punishment
 - ... a huge void in between

Ethics and Integrity (con't)

- Thoughts about ethics and integrity
 - Put education ahead of credentials
 - Academic misconduct isn't victimless crime
 - Spoils the scholarly environment
 - Steals credentials from others
 - Cheapens those credentials
 - Rather than misbehave, please talk to me

Ethics and Integrity (con't)

- Thoughts about your Honor System
 - Don't tolerate misbehavior; take action!
 - Don't expect privileges without responsibility
 - Don't expect faculty to do your work for you
 - Reform the "single sanction"

Getting Started

- Sign the attendance sheet today
- Complete Problem Set #0 soon
- Read the Syllabus, including on-line parts

Advice

- Don't aim at deadlines
- Ask questions and volunteer in class
- Try the demonstrations after class
- Talk to me (in person, not by email)
- Room is open before and after class
- Turn off electronic toys during class
- Use rear entrance during class