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College Physics A (PHY 2053C)

Syllabus: Fall 2004

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Welcome

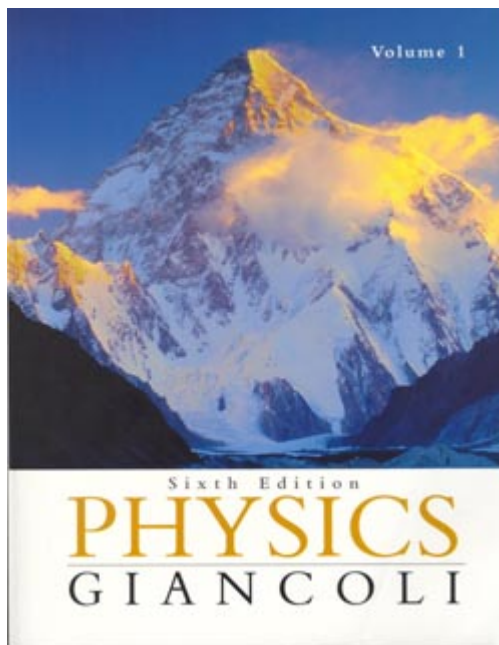
We're happy to have you with us this semester. Our goal is to give you the opportunity to gain an understanding of the basic concepts of physics. We (your instructors) are "Physics True Believers" - we believe that **every science** is built around **physics**, and that a deep understanding of physics makes you a better scientist, clinician, or teacher. We are hoping to share some of our enthusiasm with you this semester!

Class Meetings

This course uses the Textbook: Douglas C. Giancoli, Physics, **6th edition**, Prentice-Hall
ISBN 0-13-060620-0 or ISBN 0-13-035256-X (*NOTE: This is a new edition of the text and is different from that currently used by the PHY2054c course!!!*)

Each student is registered for four class meetings.

- **Three lectures:** Monday, Wednesday, and Friday in 101 Richards Building (UPL) from 10:10 to 11:00am
- **One laboratory session** in 107 or 109 UPL



The Monday and Wednesday lectures will be used to outline the course material for which the student is responsible along with experimental demonstrations, to discuss examples of problems. Lecture highlights will be posted on the course web page. These highlights will indicate the exact topic covered during lecture and which textbook

sections they were drawn from. However, these highlights **do not** contain all the information and explanations which will be presented during the lectures. Therefore, students are strongly encouraged to attend the lectures, since it is a demonstrated fact that there is a **strong** correlation between lecture attendance and student performance. To underline this statement, you can earn **bonus points** by attending these and the Friday lectures.

The Friday lecture class will be a "recitation style" session, during which the focus will be on working through assigned problems (either from the CAPA homework set or from the recommended textbook problems) . This session will be particularly valuable since the exams will consist of problems very similar to those that will be discussed on Fridays. The graded mini-exams will also generally be returned during the Friday class.

The purpose of the laboratory sessions is to gain hands-on experience with laboratory apparatus, to develop skills in performing experiments, to learn methods for analyzing scientific data and to relate the physics concepts covered in lectures with real experimental situations. Each student must complete a lab report, following the format prescribed by the lab instructor, *before* leaving the lab session.

Laboratory classes will meet as listed below. Lab manuals can be downloaded from the course web site.

Laboratory schedule

Section	Day	Time	Room
1	Tuesday	12:30-03:30pm	107UPL
2	Tuesday	01:30-04:30pm	109UPL
3	Tuesday	03:45-06:45pm	107UPL
4	Tuesday	04:45-07:45pm	109UPL
5	Tuesday	07:00-10:00pm	107UPL
6	Thursday	12:30-03:30pm	107UPL
7	Thursday	12:30-03:30pm	109UPL
8	Thursday	03:45-06:45pm	107UPL
9	Thursday	03:45-06:45pm	109UPL

Completion and Grading of the Course

A student will have completed the course and will be eligible for a grade **greater than "F"** only if the student does the following:

- **Attends all** laboratory sessions and **submits** satisfactory reports to the lab instructor for **each** session;

- Attempts all seven mini-exams;
- Attempts the final exam

The final course grade will be calculated using the grades from the seven biweekly mini-exams, the laboratory reports, the CAPA homework sets, and the final examination. These components will be weighted in the following way:

Area	Grade
7 mini-exams	50 %
Laboratory	15 %
CAPA homework sets	15 %
Final Examination	20 %

Attendance for each lab session is required to pass the course !

Bonus points

A system of bonus points will be implemented, which will allow each student the opportunity to have **two** extra percentage points (2 %) added to his/her final accumulated score. Two methods will be available to receive credit toward bonus points: (1) *class participation* through answering questions using the personal response system (PRS) or other other participation as determined by the instructor, and (2) *preparedness checks* through handing in a written summary at the beginning of Monday lectures of the topics covered that week. Details of exactly how the bonus point system will work will be outlined during a lecture.

Your final grade will be based on your total score in the four areas listed above. The total course average will be converted into a letter grade, using the table shown below:

Total Score (%)	Grade
88.0-100.0	A
84.0-87.9	A-
80.0-83.9	B+
76.0-79.9	B
72.0-75.9	B-
68.0-71.9	C+
64.0-67.9	C

60.0-63.9	C-
55.0-59.9	D
below 54.9	F

CAPA Homework Sets and Recommended Textbook Questions and Problems

Completing the weekly CAPA problem set and attempting and becoming competent in doing the recommended textbook questions and problems listed for each week in the syllabus are the best ways to prepare for the mini-exams and the final exam. The CAPA problem set will usually be available very early on Tuesday morning and must be completed by the required deadline (usually the Wednesday of the following week, at 5:00 am). The recommended textbook questions and problems will not be turned in for grading, but they are a very useful resource for completing the CAPA assignments and emphasizing the physics subjects we consider important. Solutions to selected homework problems

The examination problems will be based on the subjects covered in both the CAPA and the textbook problem sets. Remember the "Blank Paper Test" in your examination preparation: try to solve the problems yourself first without looking at the solutions; if you need to use the solutions for help (which many times you will), go back and try the same problems again afterward to see if you have learned how to do them on your own. Memorizing the solutions will not help you, since the goal of this course is to teach you the physics *concepts* and how to apply them in different situations. The CAPA problems, the textbook questions and problems, and other items related to these will be discussed during the Friday lecture.

Final Exam

The final exam will be held on Wednesday, December 8 at 10:00 in 255 Fisher Lecture Hall (FLH), **which not in our usual lecture hall**. The exam is a university block exam and must be taken at the time listed.

Biweekly Mini-Exams

Preparing for the seven biweekly mini-exams has the most important impact on your final grade, since they account for 50 % of the available points (See table "Calculation of the Course grade"). Below are a few rules and common questions about the exams:

- Seven mini-exams will be given during the semester. Each exam contributes 7.14 % towards the final score. **All the exams count toward the final grade.**
- These mini-exams will be given on the designated Wednesdays and each will take the time of an entire lecture.

- The material covered in each exam will be that specified in the syllabus and based on concepts related to the recent CAPA assignments and recommended textbook questions and problems.
- Students who can not attend one of the seven-mini exams for **medical reasons** and want to make up for it have to provide the documentation to the **dean of students** office. The make-up exam will have to be scheduled *within two weeks* of the original exam date.
- Students arriving late will be required to submit their exams by the same deadline as the rest of the class.
- **Each student is responsible for bringing a working calculator to each exam. No sharing is allowed.**
- Do not program formulae into your calculator - this is cheating and will be treated as such.
- **Don't cheat.** the first cheat on an exam results in a grade of zero points for that exam, the second results in an "F" for the course. Remember the FSU Honor Code.
- **Any questions you have with the grading of the exams must be resolved *within 2 weeks* of the hand-back date.**

Resources for Students

We want you all to do well in this course. Several resources are available to help you toward this goal:

- **Classes** Attend lectures and recitations. What you retain from these classes may surprise you.
- **Professor's Office Hours** Each of the faculty members teaching this course have scheduled office hours to help students with homework problems and other matters that arise during the course. We have set these times so that they may be most usefule to you as you finish each CAPA set or prepare for mini-exams. These times are given below. Other times may be arranged by call ing the respective faculty member. Please don't hesitate to call or email us.

(all office hours held in UPL 211)

Dr. Van Winkle: Tuesday 9:30 - 10:30am and 4:30 - 5:30pm

Dr. Lind Tuesday 10:30am-12:30pm

Dr. Yang Tuesday, 2:30-4:30pm

- **Physics Department Consultation Sessions** A graduate student is available to assist you with homework problems and preparing for the exams. The times for these sessions will be announced later.

Course Information and CAPA on the World-Wide-Web

The class web page is an extremely useful source of information for this course. This syllabus, a link to the CAPA web page solutions, to textbook problems, the laboratory manual and other information related to this course (announcements, old exams and problems, etc.) can be found on the Web via the Blackboard homepage at <http://campus.fsu.edu/>. You need a garnet user account to access the Blackboard system. During the first 2 weeks, you can get most of the web content also via the Physics Department homepage at <http://www.physics.fsu.edu/> and clicking on the `Courses` icon, then choosing `Fall 2004` and the `PHY2053C` from the menu of courses. It is a good idea to check the class web pages **at least once a week**. In order to read many of the files on the web page, you need to have an Adobe Acrobat Reader installed on your computer. You can download the software free of charge from the Adobe web site: <http://www.adobe.com/products/acrobat/readstep.html>

In order to attempt CAPA assignments, you must have access to the web. There are numerous computer labs on campus and in the libraries. The Physics Department also has a number of computers that may be used for CAPA (e.g. in every small classroom in UPL). If you have any difficulties locating a computer, please contact Dr. Lind or Dr. Yang. there is a CAPA web page at <http://capa1.fsu.edu>, which contains useful information. You need your user name and password to attempt CAPA problems. If you forget your password, you may obtain a new one through the web or email Dr. Yang.

Some Sensible Advice

We want everyone to have fun passing this course. Unfortunately some people find doing physics rather difficult. Below are a few tips which might help out:

- This course is no pushover, physics is based on *understanding* not remembering. We will do all we can to help you, but you have to be prepared to put some serious effort in to make sure you really understand the *concepts*. Only you know if you really understand something or not! Remember the "blank paper test"! Try it on some additional problems to test if you have understood the concepts.
- Attend *all* lectures. It is a demonstrated fact that there is a *strong* correlation between lecture attendance and student performance, and you can earn bonus points by attending the lectures!
- The mini-exams form the most important component of the course. In order to prepare for the exams make sure you understand and can do all the CAPA problems and the recommended homework problems.
- In answering any problem, always ask yourself "Is this answer sensible?". Remember to put units in.
- Use the book, you paid good money for it. Try and find time to look over a chapter before it is covered in class. Remember you can earn extra credit by handing in chapter summaries. The Study Guide can also be quite useful.
- Find a study partner. We strongly encourage students to study together.
- Finally, don't give up or sit for hours in vain trying to do the homework. Come and see one of the faculty instructors; usually you will be much closer than you think to being able to solve a problem.

- If you are seriously thinking about dropping the course at any point, please come and talk to Dr. Yang or Dr. Van Winkle or myself first.

CAPA-underground

We know that out there is the Capa-underground website, and we do not like it. It may or may not give you the right formula for our capa-problems, but since it keeps many students from understanding what the problems even mean, it does real harm. One could say that this website is a conspiracy of good students who want to look even better by keeping the not-so-good from understanding the material. You will not have the CAPA-underground website during the exams, so do yourself a favor and work the problems *yourself* or in small groups! Do not fall into this trap and think you can pass this course on a perfect CAPA-score alone (look at our grading table).

Immanuel Kant (1784): *Enlightenment is man's emergence from his self-imposed immaturity.*

David Lind (2004): *Do not use the CAPA-Underground!!*

ADA statement

Students with disabilities needing academic accommodations should register with, and provide documentation to, the Student Disability Resource Center (SDRC) and bring a letter from SDRC to Dr. Lind indicating your needed academic accommodations. Please do this during the first week of class.

A Note about the Master Table

The following table outlines the week-by-week flow of the course, with reference to the chapter covered, the laboratory project for the week, the mini-exam schedule and material covered. You will also see listed two sets of homework problems: (a) the CAPA sets, which must be done because it is part of your final course grade; and (b) the recommended textbook problems and questions, which do not need to be handed in. We have chosen the textbook problems to further emphasize the physics *principles* which are important. We have posted solutions to these problems on the web. They provide a useful resource to enhance your understanding of each weekly chapter, to help with the CAPA assignment, and to act as exam preparation material.



The schedule is not completely updated yet, but will be shortly.



(the lectures, mini-exams, CAPA, and lab dates are all updated, only the homework questions and problems you need for studying are not quite finished)

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Date	Reading and Homework	Mini-Exam CAPA	Laboratory
M Aug 23	Introduction; Ch 2: Motion in 1d;	Set # 1 open	No Lab
W Aug 25	Questions: Ch 1: 4,9 Ch 2: 1,7,9,11,13*		this week
F Aug 27	Problems: Ch 2: 3,8,16,19,27,28,35,42,47,59*		
M Aug 30	Ch.3: Motion in 2d;	Set # 2 open	Math Review A:
W Sep 1	Questions: Ch 3: 2,4,9,14*	Set #1 due	Algebra &
F Sep 3	Problems: Ch 3: 4,7,10,20,24,31,61,63,68*		
M No Class			Math Review B:
W Sep 8		Set #2 due Exam 1	Geometry,
F Sep 10	Ch. 3: Projectiles	(Ch 2 & 3)	Trigonometry
M Sep 13	Ch.4: Newton's Laws;	Set # 3 open	Expt I
W Sep 15	Questions: Ch 4: 1,3,9,17,19,20*		Vectors
F Sep 17	Problems: Ch 4: 4,8,17,19*,39,54a,69,74,81		
M Sep 20	Ch.5: Circular Motion and Gravity;	Set # 4 open	Expt II
W Sep 22	Questions: Ch 5: 2,5,9,13,16	Set #3 due Exam 2	Newton's Laws
F Sep 24	Problems: Ch 5: 1,8,9,12,18,30,42,43	(Ch 3 & 4)	
M Sep 27	Ch.6: Work and Energy;	Set # 5 open	Expt III
W Sep 29	Questions: Ch 6: 3,8,12,13,18,25	Set #4 due	Circular Motion
F Oct 1	Problems: Ch 6: 3,5,17,25,26,38,40,44,50,66		
M Oct 4	Ch.7: Linear Momentum;	Set # 6 open	Expt IV
W Oct 6	Questions: Ch 7: 1,3,6,10,13	Set #5 due Exam 3	Computer
F Oct 8	Problems: Ch 7: 2,4,8,15,16,23,33,38,62	(Ch 5 & 6)	Analysis
M Oct 11	Ch.8: Rotational Motion;	Set # 7 open	Expt V
W Oct 13	Questions: Ch 8: 2,4,10,13,15,16,22	Set #6 due	Linear Momentum
F Oct 15	Problems: Ch 8: 4,6,7,17,20,26,53,55,63		
M Oct 18	Ch.9: Equilibrium and Torques;	Set # 8 open	Expt VI
W Oct 20	Questions: Ch 9: 2,5,8,14	Set #7 due Exam 4	Rigid Bodies
F Oct 22	Problems: Ch 9: 3,4,6,11,19,20,27,31,34	(Ch 7 & 8)	Torques
M Oct 25	Ch.13:Temperature and Kinetic Theory;	Set # 9 open	Expt VII

W Oct 27	Questions: Ch 13: 3,5,6,15,18,19	Set #8 due	Ideal Gas Law
F Oct 29	Problems: Ch 13: 1,7,26,29,31,38,39,46		
M Nov 1	Ch.14: Heat;	Set # 10 open	Expt VIII
W Nov 3	Questions: Ch 14: 1,3,5,7,9,18,27	Set #9 due Exam 5	Specific Heat
F Nov 5	Problems: Ch 14: 4,6,15,17,22,25,35,37,44	(Ch 9 & 13)	
M Nov 8	Ch.15: Thermodynamics;	Set # 11 open	Expt IX
W Nov 10	Questions: Ch 15: 3,4,11,17,20	Set #10 due	Harmonic
F Nov 12	Problems: Ch 15: 1,4,8,9,21,23,58		Motion
M Nov 15	Ch.10: Fluids;	Set # 12 open	Expt X
W Nov 17	Questions: Ch 10: 2,4,7,12,16,18,23	Set #11 due Exam 6	Waves
F Nov 19	Problems: Ch 10: 2,4,8,17,20,22,33,43,44,63	(Ch 14 & 15)	
M Nov 22	Ch.11: Vibrations;	Set # 13 open	No Lab
W Nov 24	Activities with Sound, Questions: Ch 11: 1,4,5,7	Set #12 due	This Week
F No class	Problems: Ch 11: 3,7,9,16,21,26,29,31		
M Nov 29	Ch.11 and 12: Waves and Sound;	Set # 14 open	No Lab
W Dec 1	Questions: Ch 11: 10,14; Ch 12: 2,5,17	Set #13 due Exam 7	This Week
F Dec 3	Problems: Ch 11: 55,57; Ch 12: 3,29,37,53	(Ch 10 & 11)	

Final Exam: **Wednesday, December 8 at 10:00-12:00 in unknown room (as of now)**

2004-08-25