

PHYSICS 101
MAJOR CONCEPTS IN PHYSICS
FALL 2009
Course Staff & General Information

Lecturer	Prof. Carl Rosenzweig 319 Physics Building 443-5969 e-mail: rosez@phy.syr.edu	
Office Hours	Prof. Rosenzweig: Tuesday, 4:30-5:30 p.m. or by appointment. Please bring your CLASS NOTES to any office hour discussion.	
Lectures	Mondays and Wednesdays, 3:45-5:05 p.m. Stolkin Auditorium, Physics Building	
Studios	Meet in room 110 in the Physics Building.	
Administrative Questions	Mrs. Arlene Johnston, Course and Undergraduate Secretary Undergraduate Office, Rm. 111, Physics Bldg. (443-1915) For add/drops and ALL administrative issues related to this course.	
Textbook	<i>College Physics</i> by Giambattista/Richardson, Vol. 1, 3 rd Edition, 2010, McGraw-Hill, This text is available at the Syracuse University Bookstore.	
Teaching Assistants	<p><u>Yu Chen</u> 406 Physics Building e-mail: ychen87@syr.edu</p> <p><u>Pramod Padmanabhan</u> 361 Physics Building e-mail: ppadmana@syr.edu</p>	<p><u>Prayush Kumar</u> 415 Physics Building e-mail: prkumar@syr.edu</p> <p><u>David Quint</u> 243 Physics Building e-mail: dquint@syr.edu</p>

COURSE DESCRIPTION

PHY 101, Major Concepts in Physics deals mainly with motion, forces, energy and heat. We will learn how physicists have successfully described our world and enabled us to exert a certain mastery over nature. We will also explore some open questions in our understanding of the Universe. Our study will help you build your scientific understanding of the world around you and it will help you hone skills necessary for critical thinking and problem solving in general. No prior knowledge of physics is required but might be helpful.

PHY 101 qualifies for both the basic and general list requirements in the Natural Sciences and Mathematics Division in the Liberal Arts Core. PHY 101 satisfies the Liberal Arts Core requirement as a course with a laboratory.

PHYSICS CLINIC

Physics Clinic is operated in room 113 of the Physics Building. Hours are posted on the door and on-line at <http://www.phy.syr.edu/Courses.htm> . The clinic is staffed by graduate Teaching Assistants who can help you with this course.

LECTURE

Attendance is important, especially because material will be covered in the lecture that is not available elsewhere. 10-40% of each exam will be drawn from such material. Questions during lecture are welcome. You are responsible for all announcements regarding curriculum, schedule, etc. made during lecture.

STUDIO

In addition to two lectures a week , most weeks will have a studio session In PHY101, studios serve the function of a combined laboratory and recitation. This is a key time to go over difficult concepts, work hands-on with the key ideas in the course, and discuss the homework. In other words, studio time is designed to solidify your understanding.

Every week there will be a **homework** assignment. Working homework problems is one of the most important activities of PHY101, since that is where you clarify concepts and test your understanding. The homework sets are to be handed in during your studio the week following their assignment. Your work will be graded. Exams will be drawn to *some* extent from the homework problems, so doing the homework is also the best way to prepare for exams.

At the end of each week's studio, you will also hand in answers to a few questions based on the lab activity of that week's meeting. This is the other important learning activity of the studio, aside from homework help. It will be graded as well.

ANYONE MISSING MORE THAN THREE (3) STUDIOS WILL RECEIVE A GRADE OF ZERO (0) FOR THE LAB PORTION OF THE COURSE!

LAB FEES

To support the laboratory and demonstrations you have been charged a course fee of \$30. This fee helps pay for 1) handouts and lab manuals which are distributed to you and 2) supplies, lab equipment, computers and maintenance of laboratory equipment.

EXAMS

There are five exams, **October 5, November 2** and **November 23** and a **Final** consisting of two exams. Exams cover all material since the previous exam. Questions come from lectures, texts, studios, and homework. Seats will be assigned and posted in the lobby of Stolkin Auditorium before each exam. I.D.'s **MAY BE CHECKED, SO BRING YOUR I.D. CARD.** All questions concerning the grading of exams should be referred to your TA. **There are no make-ups!**

The Final Exam is on **Thursday, December 17 at 2:45-4:45 PM.** The final consists of two separate exams, Exams IV and V. Exam IV is a regular exam on material covered in the last six lectures. Exam V is a comprehensive exam that covers ALL the material discussed in the course.

GRADING

I will drop your lowest exam grade, and count only your 4 highest grades. Missed exams count as zero. Each exam is worth 100 pts for a total of 400 pts. Your studio grade is worth 135 pts. and HW is 65 pts. Thus, your maximum score will be 600 pts. To pass, you need 360 pts (60%). To be guaranteed an A-, you will need 540 pts. (90%).

GENERAL

Please feel free to see your TA or Prof. Rosenzweig during our office hours or by appointment to discuss any difficulties or questions you have about the lectures, the texts or the homework.

WORKING WITH FRIENDS

In general, I encourage you to work with friends and learn together with classmates. The preparation of the written assignments, however, must be individual work. Do it **ALONE**. It is easy for the TA's to detect copying on the lab work. We will be strict about enforcing this rule.

GENERAL TIPS FOR MAKING PHY101 A SUCCESS

Set aside to study, anywhere from 6-8 hours a week outside of lectures and studios for studying. Most lectures will build on previous material, so it is important not to fall behind.

Attend the lectures I will be exposing you to new concepts throughout the course. They are not always simple. While the book is rather clear, I will relate the new concepts to more familiar ones when possible. These connections are important and will serve to unify the course.

Not only attend, but actively participation in lecture and studio Ask questions, ask questions, ask questions. Need I say more?

Do the homework Lectures and studios will help set the stage, but only by answering questions and doing the problems effectively does the deep understanding arrive! Get help early and often.

ACADEMIC INTEGRITY & DISABILITY POLICY

The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy. It is your responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see <http://academicintegrity.syr.edu>

Students who may need academic accommodations due to a disability are encouraged to discuss their needs with the instructor at the beginning of the semester. In order to obtain authorized accommodations, students should be registered with the Office of Disability Services (ODS), 804 University Avenue, Room 309, 315-443-4498 and have an updated accommodation letter for the instructor. Accommodations and related support services such as exam administration are not provided retroactively and must be requested in advance.” For more information about services and policy, see Office of Disability Services

Physics 101, Major Concepts in Physics Course Calendar, Fall 2009

All readings in College Physics. CQ-Conceptual Questions; MC-Multiple Choice; P-Problems

Week of	Topic	Assignments/Lab for Week	
Monday Aug. 31	<i>Introduction; Powers of 10</i>	Reading HW STUDIO	Chapter 1; Appendix A Chap. 1: MC-2,3; P-9,16,22,43a,52,69 Getting acquainted
Wednesday Sept. 2	<i>Vectors, Inertia</i>	Reading HW	pp. 25-39 Chap. 2:CQ-8,14; MC-9; P-17a,19
Monday Sept. 7	HOLIDAY	STUDIO	Forces
Wednesday Sept. 9	<i>Newton's Laws</i>	Reading HW	pp. 39-43, 46-53 Chap. 2; CQ-16, 17; MC-4,5,7; P-37, 45, 50, 55
Monday, Sept. 14	<i>Gravity, Tension</i>	Reading HW STUDIO	pp. 43-46,53-59; Chap.2: MC-4; P-59,62a,71,76 Visualizing Motion
Wednesday Sept.16	<i>Acceleration, motion</i>	Reading HW	pp. 72-89 Chap. 3 CQ-1,8 MC-2,3,13; P-2b,20,29
Monday, Sept. 21	HOLIDAY	STUDIO	No Studio this week
Wednesday Sept. 23	<i>F=ma app.</i>	Reading HW	pp. 89-100 Ch. 3: CQ14,16; MC-20a,b; P-39,40,48,54,59,99
Monday Sept. 28	HOLIDAY	STUDIO	Review
Wednesday Sept. 30	<i>a=constant; Free fall</i>	Reading	pp. 113-125
Monday, Oct. 5	EXAM I	STUDIO	Projectile Motion
Wednesday Oct. 7	<i>Projectiles</i>	Reading HW	pp. 113-132 Ch. 4: CQ-4,12,19; MC-2,4; P- 6,9,21,23,32,36,39
Monday, Oct. 12	<i>Apparent Weight Circular motion</i>	Reading HW STUDIO	pp. 133-134; 146-155 Ch. 4: MC-8,12,14; P- 46,56,59; CH.5: CQ-1,2; P-3,6 Circular Motion, Weightlessness
Wednesday Oct. 14	<i>Non-uniform circular motion</i>	Reading HW	pp.157-160; 164-168 Ch.5: CQ-9; MC-7,9; P-11,12,20,38
Monday, Oct. 19	<i>Planets and Satellites</i>	Reading HW STUDIO	pp.160-172 Ch.5: CQ-6,8; MC-2,7,9; P-31,34,35,39,44,60 Review

Wednesday Oct. 21	<i>Work and Energy (conserved)</i>	Reading HW	pp.186-196 Ch.6: CQ-2,5; P-2,8,14
Monday, Oct. 26	<i>KE PE</i>	Reading HW STUDIO	pp.195-205 Ch.6: CQ-6,9; MC-1,8;P-16,27,32,40 Work and Energy
Wednesday Oct. 28	<i>Elastic Energy, power</i>	Reading HW	pp. 205-213 Ch.6: MC-3,4;P-43,50,58,66,73
Monday, Nov. 2	EXAM II	STUDIO	Power
Wednesday Nov.4	<i>Momentum</i>	Reading HW	pp.226-234 Ch.7 CQ-2,3,15; MC-5,6,9,11; P-1,4,13,14
Monday, Nov. 9	<i>Center of Mass; Collisions</i>	Reading HW STUDIO	pp. 234-242 Ch.7: CQ-4,12; MC-2; P-19,20,28,34 Collisions
Wednesday Nov. 11	<i>Collisions: Hooke's Law</i>	Reading HW	pp. 242-247; 357-363 Ch.7:CQ-7;P-40,45,47; Ch.10: MC-7; P-2,4,13
Monday, Nov. 16	<i>Simple Harmonic Motion</i>	Reading HW STUDIO	pp. 367-376 Ch.10: CQ-9; MC-1,3,13;P-27,34,35,47,51 Size of Atoms
Wednesday Nov. 18	<i>Atoms</i>	Reading HW	pp. Class handout
Monday, Nov. 23	EXAM III	STUDIO	No Studio this week
Wednesday Nov. 25	HOLIDAY		
Monday, Nov. 30	<i>Temperature</i>	Reading HW STUDIO	pp.458-464 Ch.13: CQ-4,5; MC-10; P-3,8,11,19,20 Temperature
Wednesday Dec. 2	<i>Ideal Gases</i>	Reading HW	pp. 464-475 Ch.13 CQ-10,14; MC-2,3,6; P-28,31,40,57,60
Monday, Dec. 7	<i>Heat</i>	Reading HW STUDIO	pp. 490-498 Ch.14: CQ-2,12; P-1,10,12,19,20,25 Heat Engines
Wednesday Dec. 9	<i>Thermodynamics</i>	Reading HW	pp.528-540 Ch.15: CQ-2,6; MC-2; P-1,4,7,14,21
Monday Dec. 14	<i>Heat transfer</i>	Reading HW STUDIO	pp. 506-517 Ch.14: CQ-20,22; MC-1,12; P-47,52,59,63 No Studio this week
Thursday, Dec. 17	FINAL	2:45 -4:45 PM	