

Interactive syllabus (with hyperlinks): <http://www.phyast.pitt.edu/~savinov/courses/now/>

Syllabus for Physics 0111

Course: Introduction to Physics 2, Fall Term 2101, Class# 11428

Instructor: Dr. Vladimir Savinov (Dr.S.)

Class meets in Alumni Hall, 343, MWF, 1:00–1:50, except for **October 16, when the class is held at David Lawrence Hall 120** (see map at <http://www.tour.pitt.edu/tour-032.html>)

Notice that October 12's Monday class will be held on TUESDAY, October 13!

Contact information for Dr.S.:

Email: vps3@pitt.edu

Office hours: *usually* on M and W, 2:30–4:00, location will be announced electronically.

Course Description: Physics 0111 is the second part of a two-session introductory (non-calculus based) physics lecture/demonstration sequence that introduces students to the basic elements of both classical and modern physics. The subjects covered in Physics 0111 are wave motion and sound, electricity and magnetism from electrostatics through electromagnetic waves, geometrical and physical optics, special relativity, and selected topics in modern physics. This course sequence is especially designed for students who are interested in the life sciences or health-related professional fields. Thus the emphasis will be on describing and demonstrating the underlying basic principles rather than on mathematical formalism. I have been told that the correlation between material in this course and what is covered in the MCAT exam is excellent. Weekly homework problems are assigned to develop analytical skills and deepen understanding of the concepts. Students are expected to be familiar with elementary high school algebra, geometry, and trigonometry, and have a solid knowledge of Physics 0110 material.

Course's web site: <http://www.phyast.pitt.edu/~savinov/courses/now/>. All official communications about the course will be posted on course's web site. Please regularly check there for all important announcements, assignments, and updates to this Syllabus. The course's web site maintained by Dr.S. will be your gateway to the rest of online material, including links to homework assignments, solutions, online practice problems, your grades and other "stuff". You should visit course's web site at least once a week. All critical information and announcements will also be distributed via e-mail sent to students' e-mail addresses at Pitt.

Homework: about 10 problems will be assigned each week (visit course's web site regularly!). The homework will be due on Fridays at class, one problem will be graded, 50% of the homework score will be for this problem, the rest 50% "for the effort" (assuming your solutions are correct!). Some of the homework problems will be tested at weekly quizzes conducted by the TA at recitation sessions.

The textbook: “Physics” by John D. Cutnell and Kenneth W. Johnson (7th Edition). Notice that while we will be using primarily second volume, Chapters 16 and 17 are in the first volume. A used copy of the textbook would do perfectly fine. We will NOT be using either WileyPlus nor WebAssign systems (*i.e.* the students will not have to pay for any additional resources).

Reading and Lectures: Students should read the textbook according to the schedule shown at the end of this Syllabus. I most strongly recommend reading the material before lectures – you will gain much more from the lectures if you have already tried to digest some of the material beforehand. Notice that the lectures can not possibly cover all material from the textbook, this is one more reason to read the textbook before each class.

Recitation sections meet once per week (including the first week of classes!). These sessions are taught by a graduate Teaching Assistant and provide students with the opportunity to ask questions about the lecture material or the homework and to work out sample problems in a small-group setting. The TA will maintain a recitation grade based on participation and quizzes that he will administer. The graduate teaching assistant this term is Xiaohui (\ 'Shuo 'hui \) Liu (xil41@pitt.edu).

Final exam: The final exam is scheduled for Saturday, December 19, noon-1:50 PM.

Hour exams: Are given during class time, on the date indicated in the class schedule appended at the bottom of this document. No credit is given for a missed exam and no makeup examinations are foreseen.

Homework is assigned each week. Homework due dates can be found on the web site. Homework assignments will normally be due on Friday at class. The solutions will be posted on the web regularly. Normally your graded work will be returned to you within a week. I recommend that you make an electronic copy of your work before you turn it in, especially before the exams.

Your final course grade will be a combination of the six elements of your performance:

Quiz/Recitation:	10%
Homework:	10%
Hour exams:	20% for each of the two midterms (a.k.a. hour exams)
Final exam:	40%
Extra credit:	up to extra 10% for solving problems <i>weekly</i> using LON-CAPA system at http://nplq1.phyast.pitt.edu/
Extra credit:	up to extra 10% for conducting simple experiments at Physics Exploration Center (see http://www.phyast.pitt.edu/~pec/)

Notice that *maximum* possible amount of extra credit is 20%. Additional information concerning these two ways to accumulate extra credit will be distributed electronically. No other options to earn extra credit will be made available.

The grade scale will be determined in the following manner:

below 40% points: D-
below 55% points: C-
below 70% points: B-
below 85% points: A-

Department of Physics and Astronomy maintains Resource Room (this is a *very* useful resource, please see http://www.phyast.pitt.edu/resources/education/resource_room.php) and Exploration Center (<http://www.phyast.pitt.edu/~pec/>) for the benefit of the students in the introductory courses. They are both accessible through room 312 on the third floor of Thaw Hall. The room is always staffed with graduate teaching assistants (check the schedule on the web), all of whom are knowledgeable about the material presented in this course and are there (Thaw 312) to help you. You may also find help at the Academic Support Center (WPU 311).

Students can meet with the instructor or with the graduate teaching assistant during their office hours, and are especially encouraged to do so if they encounter difficulties understanding the material. In case you need to discuss some confidential matters (unrelated to class material) with the instructor, send him (*i.e.* me) an e-mail at vps3@pitt.edu to request an appointment. **Tutoring** is available via Academic Resource Center (visit <http://www.as.pitt.edu/undergraduate/offices/arc/index.html>). **Peer instruction** may be offered, when and if such option becomes available, specific information concerning this will be distributed electronically.

Special Accommodations for Disability: If you have a disability that requires special testing or other accommodations, you need to notify both the instructor and the Office of Disability Resources and Services (DRS) no later than the 2nd week of the term. You may be asked to provide documentation of your disability to determine the appropriateness of accommodations. The Office of Disability Resources and Services is located in the William Pitt Union, Room 216. Call 648-7890 (Voice or TDD) to schedule an appointment. A comprehensive description of the services provided by DRS office can be obtained at <http://www.drs.pitt.edu>.

Academic Integrity: All students and instructors in this course are expected to follow the University of Pittsburgh academic integrity guidelines. If you are not aware of the specifics, you should obtain a copy of these guidelines from the CAS Dean's Office, 140 Thackeray Hall, or look them up online at <http://www.as.pitt.edu/faculty/policy/integrity.html> Violations of these guidelines by a student may result in a zero score for an examination or a failing grade for the entire course.

—>>> **An important remark** <<<—

concerning the course outline/schedule shown on the next page:

I am rarely (if ever) going to teach the “starred” (*i.e.* “*”) sections (that you are encouraged to study for your general education on your own) of the textbook, however you simply must read and study “Concepts & Calculations” section of each chapter (in addition to the sections listed in the course outline shown on the next page of this Syllabus)!

Month	Day	Lecture Subject	Sections/Comments
August	31	Introduction	Logistics
September	2	Waves	16.1–16.3
	4	Sound	16.5–16.8
	9	The Doppler Effect	16.9–16.10
	11	Interference	17.1–17.3
	14	Interference, Standing Waves	17.4–17.6
	16	Electric Charge and Electric Force	18.1–18.5
	18	Electric Field & Gauss's Law	18.6–18.9
	21	Electric Potential Energy and Electric Potential	19.1–19.3
	23	Equipotential Surfaces and Capacitance	19.4–19.5
	25	Electric Circuits: Resistance, Series and & Parallel Circuits	20.1–20.9
	28	Electric Circuits: Kirchoff's Laws & RC Circuits	20.10-20.14
30	Magnetic Forces	21.1–21.4	
October	2	Magnetic Fields	21.5–21.9
	5	Induction: Motional EMF, Magnetic Flux	22.1–22.3
	7	Induction: Faraday's Law, Lenz's Law & Generators	22.4–22.9
	9	Capacitive and Inductive RC Circuits	23.1–23.3
	13	AC Circuits and Resonance	23.3–23.5
	14	Review (chapters 16–22)	TUESDAY!!!
	16	Hour Exam I	
	19	EM Waves: Nature, Spectrum & Speed of Light	24.1–24.4
	21	EM Waves: Energy, Doppler Effect & Polarization	24.5–24.6
	23	Reflection of Light	25.1–25.3
	26	Spherical Mirrors & Images	25.4–25.6
28	Refraction of Light	26.1–26.5	
30	Lenses and Optical Instruments	26.6–26.14	
November	2	Interference of Light	27.1–27.4
	4	Interference of Light	27.5–27.9
	6	Special Theory of Relativity	28.1–28.4
	9	Special Theory of Relativity	28.5–28.7
	11	Light as a Particle	29.1–29.3
	13	The de Broglie Wavelength, Heizenberg Uncertainty Principle	29.4–29.6
	16	The Atom & Bohr's Model	30.1–30.4
	18	The Exclusion Principle and Periodic Table	30.5–30.8
	20	Review (Chapters 23 – 29)	
	23	Hour Exam II	
30	Nuclear Physics	31.1–31.3	
December	2	Radioactivity	31.4–31.9
	4	Ionizing Radiation, Nuclear Energy	32.1–32.5
	7	Elementary Particles, Cosmology	32.6–32.6
	9	Cosmology	32.7
	11	Final Review	
December	19	Final Exam noon-1:50 pm	SATURDAY