

**PHYSICS 201****Introductory Physics I - Syllabus**

Fall 2009

**INSTRUCTOR**

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Office hours: Tu 3-4 pm, Th 9:30-10:30 am, Th 3-4 pm or by arrangement  
Course information can be found at <http://homepages.dordt.edu/~zwart/>

**TEXTS**

Halliday, Resnick, Walker Fundamentals of Physics, 8/e  
Engineering and Science lab notebook is also required.

**COURSE  
DESCRIPTION**

Physics 201 is the first semester of the three semester calculus based sequence of introductory physics courses and covers topics in classical mechanics. Pedagogical methodology includes assigned readings, assignments, lectures, demonstrations, videotaped material, laboratories, and in class activities held during lecture and lab time. Or, in plain English, I'll do my best to find a technique to best match your learning and the material being studied.

**COURSE  
OBJECTIVES**

- 1) To develop an understanding of physical aspects of the creation as studied by the methods employed by physicists.
- 2) To develop physical intuition – that important gut level reality check.
- 3) To develop problem solving techniques.
- 4) To develop an understanding of measurement techniques and limitations in laboratory experiments.
- 5) To help you become active learners.

**GRADING  
SYSTEM**

Assignments	15%
Laboratory	25%
Class Participation	10%
Midterm Exams	30%
Final Exam	20%

Scale: A >93.3%, A- 90.0-93.3%, B+ 86.7-89.9%, B 83.3-86.6%, B- 80.0-83.2%, C+ 76.7-79.9%, C 73.3-76.6%, C- 70.0-63.2%, D+ 66.7-69.9%, D 63.3-66.6%, D- 60.0-63.2%, F <60.0%.

**EXPECTATIONS**

It is important for you to come to class on time and well prepared. You should read the material assigned before we discuss it in class (see schedule) and be ready to participate in discussions and other class activities. Laptops may be used in class only for note taking or other specific course applications. Please shut off your cell phone in class. Violations will lead to dire results.

You are responsible for all information discussed in class, even if you miss a particular period. As college policy states, your final grade may be reduced for excessive absences. It is your responsibility to let me know the reason for any absence, at least 24 hours in advance, even in the case of an excused absence associated with another course or college related extracurricular activity. If the absence is due to sudden illness or family emergency, then within 24 hours after class is acceptable. Failure to follow this policy will lead to the absence being considered unexcused. Oversleeping is not a legitimate reason for missing class, nor is leaving campus early for a break.

Homework assignments will be assigned, for the most part, on a weekly basis and are due at the beginning of the designated class period even if you are absent. Late assignments will receive half credit if handed in before graded ones are returned and zero credit thereafter. Exceptions must be negotiated at least 24 hours in advance. Points may be deducted if these guidelines are not followed.

Each assigned question, exercise, or problem must include a brief (but complete) restatement of what is asked. The solution must include the method of arriving at the solution as well as the final answer, rounded to the appropriate number of significant digits. Units, if appropriate, must be included. Put a box around your final answer. Turned in assignments must be in the form of finished work – well organized, readable, no torn edges, full size sheets of paper, your name on it, etc. Multiple pages must be stapled together. Points may be deducted if these guidelines are not followed. See the example below.

### **Sample homework submission**

As given in the text: 1-5 a) Earth is approximately a sphere of radius  $6.37 \times 10^6$  m. (a) What [is] its circumference in kilometers?

Expected home work submission:

The participation score will be based on attendance, possible unannounced quizzes, and good faith efforts on in-class activities.

It is very important to take the exam when it is scheduled. I must be informed in advance if an exam period is to be missed for college related reasons. In this case the exam must be taken within 24 hours of the assigned period, preferably in advance. In the case of illness or family emergency, contact me within 24 hours of the missed exam period so that we can schedule a make-up time. Taking an exam late will result in the earned score being reduced if the instructor deems the reason to be illegitimate. The minimum reduction in score will be 10% per day of delay.

The exams given during the semester will include short questions, exercises, and some longer problems. You may take one 3"x 5" card (no more than 1/16" thick) with whatever handwritten material you desire on it to each exam. For such cards may be taken to the final exam which is cumulative. I will post sample exams on my homepage.

### **ADDITIONAL INFORMATION**

**Academic Integrity:** Academic integrity is expected in every course and of every student. Plagiarism (using another person's words, graphics, or ideas and presenting them as though they were your own) is one form of academic dishonesty, or cheating. To avoid plagiarism, put others', ideas into your own words and properly reference the source; if needed, you may also use direct quotes and properly reference the source. Another form of dishonesty is double-dipping (resubmitting all or part of a paper or project created for another class or occasion). Students who are academically dishonest

will receive an “F” for the assignment or test in question and a letter will be submitted to the Student Life Committee chair. See the Defender for more specific policy information.

**Dordt Students’ Rights to Assistance or Accommodations Policy:** Any student who needs access to accommodations based on the impact of a documented disability should contact the Coordinator of Services for Students with Disabilities (CSSD) in the Academic Skills (ASK) Center. Students should register their needs with the CSSD each semester by contacting Marliss Van Der Zwaag, CSSD, L-168, (712)722-6490, [mvdzwaag@dordt.edu](mailto:mvdzwaag@dordt.edu).

Tutoring for this course is available from the ASK Center.

### Physics 201 Course Schedule and Readings

The schedule below is tentative. The instructor reserves the right to modify it if needed. Unless otherwise indicated, you should read all sections of each chapter of the text before the first day that the topic is discussed in class.

Aug 26	Introduction
Aug 28	Measurements and Units Ch 1
Aug 31, Sep 2, 4	One Dimensional Motion Ch 2
Sep 7, 9	Vectors Ch 3 omit section 3-8 (multiplying vectors)
Sep 11, 14, 16	Two and Three Dimensional Motion Ch 4
Sep 18, 21, 23, 25	Forces and Motion - I Ch 5
Sep 28	Physics and Faith: Some History
Sep 30	Exam #1
Oct 2	No class- reading day
Oct 5, 7	Forces and Motion -II Ch 6
Oct 9, 12, 14	Work and Kinetic Energy Ch 3 sect 3-8, Ch 7
Oct 16, 19, 21	Potential Energy and Conservation of Energy Ch 8
Oct 23, 26, 28	Center of Mass and Linear Momentum Ch 9
Oct 30, Nov 2	Rotation Ch 10
Nov 4	Exam #2
Nov 6, 9, 11	Rolling, Torque, Angular Momentum Ch 11
Nov 13, 16	Equilibrium Ch 12: 12-1 to 12-5
Nov 18, 20, 23	Gravitation Ch 13
Nov 25, 27, 30	No class - Thanksgiving break
Dec 2	Fluids Ch 14
Dec 4	Exam #3
Dec 7	Fluids, continued
Dec 9	Review and summing up
Dec 16	Final Exam 3:30 am - 5:30 pm

## Physics 201 - Laboratory Syllabus

Lab activity instruction sheets will be made available for in-lab use *only* on the day they are done. These instructions may **not** be retained or copied. The *Engineering and Science Notebook* is required

### Objectives

- to develop physical intuition (conceptual understanding of physics).
- to develop an understanding of measurement methods, techniques, tools, apparatus, and limitations in laboratory experiments.
- to provide a set of concrete experiences that illustrate the physical quantities that are discussed in the lecture portion of the course
- to provide opportunities to learn data analysis techniques
- to obtain experience in writing succinct summaries (abstracts)
- to participate in the communal discussion that is typical of physics research.

### Grading System

The *laboratory* accounts for 25% of the grade for Physics 201. It will be based on lab participation (4%), a lab report and responses (15% each), and experiment abstracts (6%). The *participation* portion of the grade includes attendance and making a “good faith effort” for each laboratory. A good faith effort consists of being in demonstrating appropriate attitudes, punctuality, attentiveness, respect for partners and instructors, completing all required steps in each experiment, maintaining a good notebook, and answering each question posed, etc. All written material must go directly into the laboratory notebook (loose pages are not allowed), which is the sole reference available for report writing, responses, or abstract writing (as indicated above, lab activity instruction sheets will be made available for in-lab use *only*). While it is not required that every step be completely correct, it is your responsibility to determine if any problems did occur and to correct them. Lab books may occasionally be collected and reviewed with no advance notice. Specific details regarding the writing of reports, participating in communal discussion, and writing abstracts will be provided later.

Note: It is assumed that you will be in the lab for the full three hours scheduled. Since it difficult to make up a lab (given the heavy use of the facility and equipment) any exceptions must be negotiated at least 24 hours in advance, except in the case of illness or other unforeseen circumstances. In these cases, the instructor should be notified within 24 hours of the lab period.

### Laboratory Schedule

You are scheduled to be in one of the two laboratory sections held Monday afternoon or Tuesday morning.

Lab 1	Aug 31 or Sep 1
Lab 2	Sep 7, 8
Lab 3	Sep 14, 15
Lab 4	Sep 21, 22
Lab 5	Sep 28, 29
Lab 6	Oct 5, 6
Lab 7	Oct 12, 13
Lab 8	Oct 19, 20
Lab 9	Oct 26, 27
Lab 10	Nov 2, 3
Lab 11	Nov 9, 10
Lab 12	Nov 16, 17
Lab 13	Nov 23, 24
Lab 14	Dec 7, 8