

Elements of Physics – Spring 2008 Dr. Davis

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Description

Physics 151 – Elements of Physics:**Room:** Brace 211**Section 150:** M,W,F 11:30 – 12:20

This is a descriptive course about some of the fundamentals of physics. A broad range of topics from Kinematics, Newton's Laws of Motions, to some basic Thermodynamics, Optics, and Electromagnetism are presented. The course is an algebra based course and calculus is not required.

Instructor

Name: A. Davis**Office:** Ferguson 215A**Office Hours:** M,W,F 9:00 – 10:00 (though students may come by anytime)**Email:** davis@cse.unl.edu

Course Materials

Course Website: <http://physics.unl.edu/~davis/phys151/>. This site contains links to the preclass lectures and the assessments. Students will probably want to bookmark this page.**EDU Website:** <http://calculus.unl.edu/edu/classes/phy151S2008Davis/> allows direct access to results and available assignments.**Required Text:** *Physics* by James S. Walker, 3rd ed.**Clicker:** A PRS clicker from the university will be used in this course. This clicker is used by multiple courses on campus. Only one clicker is required for all the courses utilizing it. The student is solely responsible for the registration, location, and upkeep of their clicker.**Calculator:** Any basic scientific calculator should suffice.

General Policies

Instruction: This is not a traditional lecture-based course. While there will be some lecturing, the learning-cycle implemented in this course is different and is basically as follows:

1. Student engages preclass lectures (login: physics151, password: Newton47).
2. Take a short quiz (login is your blackboard id without the s-, see [help](#) section for initial password).
3. Student self-supplements understanding with textbook or online reading.
4. Student attends class where instructor *and* peers clarify, correct, and fortify concepts.
5. Student practices the exam problems to assess understanding.
6. Student repeats above steps where necessary.

The Preclass Lecture content is limited to UNL students and a login and password are required (login: physics151, password: Newton47).

The instructor has the job of providing clear direction on what information a student should know to be “educated” in physics at a beginning level, assisting the student wherever possible, and

assessing the understanding so the university can declare the student's learning. Ultimately, however, it is the student who is responsible for learning the material.

Time Commitment: You should expect and decide to spend 5 to 9 hours per week engaged in the learning-cycle described above. You are responsible for covering all material in the assigned reading, in handouts and exercises, presented in lecture, and posted on the class home page. You are required to complete all assigned activities according to the Course Schedule. No late assignments or make-ups will be accepted.

Attendance and Participation: It is essential that you attend every class period and participate fully. This is a rapidly paced course where much of the subject matter builds upon previously covered material. Numerous exercises will be done in class to help you master the material. This is a complicated course, with many inter-related activities in class, online, and out of class. If you miss class or fall behind in your work, it will be very difficult to catch up.

Academic Integrity: Do not dismiss *academic honesty*. All materials submitted for grade must be substantially your own product. It is plagiarism and therefore a violation of the Student Code of Conduct to represent as your own the work of others or to provide improper assistance to another student, whether from peeking over a shoulder during an exam, copying from someone else's homework solutions, or downloading from the internet. It is acceptable, even beneficial, to discuss course material and assignments with other students, as long as you work out and prepare the answers yourself. Academic dishonesty in any form will result in sanctions ranging from receiving zero points for a particular assignment, to failing the course, to facing University Disciplinary Proceedings.

Student Conduct: It is the responsibility of all members of the University of Nebraska community to conduct themselves in a courteous, respectful, and scholarly manner. This includes being an active participant in class, being respectful of the rights and opinions of others, and not engaging in behavior disruptive to the class or detrimental to the learning experience of other students. Please be seated and ready to participate at the beginning of class and wait until class is over before packing up your things. Disable all audible electronic devices and anything else that goes 'beep' or 'ding' or 'bling-bling' or the like. In my experience, there have been few instances of disruptive behavior in class, and these were cleared up after a brief discussion.

Instructor Availability: I will be available at the posted office hours or by appointment. You may drop in without an appointment, but may be asked to come back later if I am busy. You may ask questions by email. This usually works best for short questions about a specific concept or fact. I will also try to help resolve technical problem with the online components. Please do not ask for basic information about deadlines, schedules, etc., that is readily available on the Course Home Page.

Feedback: At several points in the course, you may be asked to provide anonymous feedback in the form of surveys and course evaluations. Please take the surveys seriously as they will help us

provide a more effective and pleasant learning experience.

Disabilities: It is the policy of the University of Nebraska to not discriminate on the basis of sex, sexual orientation, disability, race, color, religion, national or ethnic origin in its educational programs. Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

Assessment

As stated previously, the instructor has the obligation to provide the university some guidance as to whether or not the student has learned what is intended by the course. To that end, assessment in this course will be carried out by five mechanisms – preflight quizzes, tests, participation, practice problems, and recitation.

Exams: The course is split into six segments. Each segment has an exam associated with it which will be administered in the **Arts & Sciences Testing Center**. This will be 75% of a student's final grade (see below). Each exam will be worth 12.5% of the final grade. Each test has a practice test that can be taken as many times as the student wishes. Each test can be taken once per day while up at the testing center with only the highest score counting. Each test can **not** be taken until the student has shown they can pass the practice problems for each segment.

Practice Problems: Each segment has practice problems associated with it. They can be taken repeatedly. Not until a student "passes" each segment's practice problems, can the test be taken for that segment.

Preflight Quizzes: In class instruction can not be a replacement for personal study by a student (nor does it even try). The preflight quizzes provide a measure of whether or not students are keeping up with the material. Each quiz can be taken up to 4 times with only the highest score counting. These quizzes are 6.25% of the grade. Of the 36 quizzes, the lowest 3 will automatically be dropped. Each quiz is equally weighted.

Recitation: Recitation labs are required for this class. Each is a physlet lab where an attendant worksheet must be turned in. Recitations are 6.25% of the grade.

Participation: One of the unique advantages of a university environment is access to many like-minded, similarly goaled individuals. While some in-class activity will include be lecture by the instructor much of it will be activities designed to facilitate student's utilizing this unique university resource of peers. The participation will include the following:

- **PRS questions:** conceptual questions designed to be discussed and voted on giving both student and instructor immediate feedback.

- **Group Discussion:** groups form and discuss issues and present ideas to the rest of the class.
- **Worksheets:** worksheets designed to correct and fortify physics concepts.
- **Demos:** short demonstrations of physical phenomena, often accompanied by questions.

The participation grade will be based on a mixture of in-class worksheets which are turned in and PRS clicks. Because some clicks can be missed the scale will be set to 90% of the clicks by any one student.

Final Exam: There is no comprehensive final exam. The last unit exam concludes during finals week.

Grade Summary

	Weighting	Approximate Letter Grade
6 exams (12.5% each)	75.0%	>85% Some type of A
preflight quizzes	6.25%	>75% Some type of B
recitation	6.25%	>65% Some type of C
practice problems	6.25%	>55% Some type of D
participation	6.25%	

The weighting and approximate grade scale will be similar to that shown. The exact scale will not be defined until the end of the course. Borderline cases will be carefully considered. Grades will be fair, impartial, and final – they cannot be negotiated. Incompletes will only be given for verifiable extenuating circumstances, such as a long-term hospitalization. Although great care is taken in the recording of grades, errors do occur and it is your responsibility to notify the instructor of any errors! The final letter grade distribution, including +'s and -'s will not be determined exactly until the end of the term. It will not, however, deviate much from the above list.

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