

## Phys 1112K evening section – Fall 2009 – Syllabus

CRN 8086. This lecture section meets in room D156 at 6:00 p.m. Mondays and Wednesdays. Every student in this course needs to be also signed up for a lab.

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**Textbook:** Physics (7<sup>th</sup> ed.) by Cutnell and Johnson

*Note: Volume 2 of this book covers the material of this course. In some versions it is available with “WileyPLUS,” but we do not use WileyPLUS in this course.*

**Lab Manual: Physics II Laboratory Manual by Russell S. Patrick**

*Note: I have decided not to include much information here about the lab section, such as the lab schedule and how exactly the lab grade is figured. If you have me as your lab instructor, then I will probably hand out (at the first lab) something like a “lab syllabus” detailing that sort of information.*

Incidentally, if you want to look into the possibility of using a previously completed 2212/1112 lab score to serve as your lab score this semester, please see the secretary or Chairman in E183 to fill out the appropriate form; the completed form has to be turned in to the secretary or Chairman no later than September 4.

The last day in which the student may withdraw himself from this course with a grade of W (“Drop day”) is Tuesday, October 13.

Holidays: September 7 & November 25–27.

**The grade point distribution is:**

Lab Score	15 g.p.
(5) Tests	(see test schedule, below) ( <i>the test total is 65 g.p.</i> )
Final Exam	20 g.p.

where g.p. stands for “grade points” (based on the idea that the sum of all the grade points, for someone who did “perfect” on everything, should add up to 100 at semester’s end) The dates for the five tests are as follows:

Test 1	Monday, September 14	13 g.p.
Test 2	Wednesday, September 30	13 g.p.
Test 3	Wednesday, October 21	13 g.p.
Test 4	Monday, November 9	13 g.p.
Test 5	Monday, December 7	13 g.p.

Each of these scheduled test-dates should be considered reliable (unless the school is officially closed (for example, due to bad weather)), but what about the coverage of each test? Basically, a test covers the material that has been covered in class (or that which I’ve indicated that you should know, communicated either by emails, announcements in class, or by what is stated in this Syllabus). For this reason (among many others) it is very important to attend class regularly; the phrase that best conveys my attitude is “*attendance is expected.*” The coverage of this course is *most* of what’s in chapters 18 – 32.

Test 1 will probably cover all of chapters 18 and 19. We will all know more definitely which chapters will be covered by test 1 as we get closer to the test date. Note: the date for each test is not in question. For instance, Test 1 will definitely (unless campus is closed for some reason or unless I’m in a car wreck or something like that and can’t make it to class & can’t send someone in my place) take place on September 14 (starting at or a few minutes before 6:00). Assume that you’ll have the entire class period to work on the test.

The only thing here that's not completely certain (at the time of writing this Syllabus) is exactly what material will be covered on the test. We generally won't know for sure what's covered on any up-coming test until one or two class-days prior to that test. This "flexibility" in coverage is needed, since I don't provide any flexibility regarding the actual test dates.

You should expect the Final Exam to be cumulative. The Registrar has not yet (at the time I'm writing this Syllabus) told us when we'll have our Final Exam.

On the first day of class, I provide the class with the Syllabus and a "preview copy" of the formula sheet packet. The latter provides a preview of the formula sheet packet that I'll give out with the five tests and the Final Exam. It looks exactly (*except for maybe its title and color of paper*) like the formula sheet packet that I give to you with each test (and Final Exam). Do not have out the **preview** copy version of the formula sheets during any test; I provide a fresh version of the formula sheet packet for you to use during the tests. Having out the **preview** copy of formula sheet packet – or any papers other than what I provide at test-time – while you're taking the test will be considered cheating and will result in getting a zero on the test. Certainly, there are many formulas and techniques that you'll need to know that are not in the formula sheet packet. For example, you should know:

- how to use your calculator(s),
- how to work with vectors,
- basic algebra and trig (like,  $\tan(\theta) = \text{opposite side divided by adjacent side}$ ),
- the fact that when speed is constant then  $\text{speed} = \text{distance}/\text{time}$ ,
- how to interpret info on the formula sheets,
- Newton's force law ( $\Sigma F = m a$ ),
- the fact that density equals mass divided by volume,
- dielectric constant for vacuum is exactly 1 (by definition),
- dielectric constant for air is approximately 1 ( $\kappa_{\text{air}} = 1$  to good approximation),
- Ohm's law ( $V = IR$ )
- how to convert between *degrees* and *radians* and revolutions (*cycles*),
- the transformer equation (Equation (22.12) on page 712),
- the fact that intensity is power divided by area,
- the "optics sign conventions" discussed in class and in the book
- index of refraction for air is approximately 1 ( $n_{\text{air}} = 1$  to good approximation),
- the equation for the thickness of a non-reflecting coating on a lens (same as the equation for the thickness of pits on a CD) (see bottom of page 862 and section 27.8)

A special difficulty arises if all or part of the campus is officially – and unexpectedly – **closed** (for example, due to bad weather) at a time we were scheduled to have a test. Being as specific as possible: if the campus is closed at a time when we are scheduled to have a test, then the test will be given at our next regularly scheduled class (when the campus is open again). Now, a question sometimes arises regarding the class prior to a test date: "what if class *right before the test date* gets cancelled?" In that case, the test will still be given on the date as scheduled (assuming the campus is open at that time). If SPSU is closed for an extended period of time (say, a week or more) then several rules stated in this Syllabus would have to be changed; after consulting with my Chairman or the Dean, I would send out a revised Syllabus in that case and, if deemed appropriate, start "meeting" the class via the internet. For this reason and others, check your SPSU email often.

If a student misses a test then in most cases (*see the qualifying remarks in the next paragraph*) his score for that test will be figured from the student's performance on the corresponding problems on the Final Exam. For example, if problems 5, 6, 7 and 8 on the Final Exam correspond to the material covered by test 2, and a student who missed test 2 gets problems 7 and 8 right but problems 5 and 6 wrong (which means he's gotten 50% of

this set of problems right), then his score on test 2 will become 50% of the 13 grade points available for that test; that is, my grade books will show that he got “+6.5” for test 2. I’ve based this example on a presumed format (of a Final Exam that consists of 20 multiple-choice problems), but our Final might have a different format.

This paragraph has a couple of remarks related the previous one. It’s important to note that the phrase “student [who] misses a test” refers to someone who is actually absent (for legitimate reasons) during the time the test is available to be taken. For example, if I recognize a student (from this class) walking through building D (perhaps on his way to go home instead of into D156) while the tests are out on the front desk ready to be picked up and worked on, then that student is not really absent; if he doesn’t come into D156 and take the test then he would receive a zero on it. It’s also important to note that the above policy does not continue to apply when a student has missed more than two tests. In such a case, the student will either not be allowed to take the Final Exam at the end of the term, or – if he does take it at that time – it will not be graded and he will receive an F in the course.

Your Total Course Score (the basis for your grade in the course) is simply the sum of all the grade points you’ve earned during the semester. I assign grades based on 89 for A/B, 79 for B/C, 63 for C/D, and 59 for D/F. Ask me if you aren’t clear on what I mean by this (it’s a straightforward calculation, and I’d be happy to explain). Sometimes I’m asked about “rounding”; for instance, a student might ask me, “does a total of 58.5 grade points get me a D or an F?” In a case like that, 58.5 would round up to 59 and count as a D. However, if the student had 58.4 grade points at the end of the term, then he would receive an F. Note that with this simple (and straightforward) method for figuring the grade, there’s no room for “extras.” That is, there’s no extra credit, no “dropping” of the lowest test score, and no flexible-curving for exams (which is one of the reasons I never bother calculating exam averages).

The following are the policies among the physicists in my department governing all the sophomore-level physics courses. They are assumed to be in effect for this course, unless they are changed by department or administrative action during the semester:

- 1) no one can exempt the Final Exam or take it early
- 2) the ending time for the Final Exam must be enforced
- 3) anyone getting less than 8 of the 15 total Lab Score g.p.’s gets an F in the course

We’ve been asked to list the pre-requisites in the syllabus: Phys 1111K (or Phys 2211K) and Math 1113 or their equivalent. And we’ve been asked to include the following in the syllabus: “Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the counselor working with disabilities at (678) 915-7361 as soon as possible to better ensure that such accommodations are implemented in a timely fashion.” We’ve also been asked to list the following *learning outcomes*, referring to what students should be able to do as a result of taking this course: explain and interpret physical situations as stated in a word problem; identify the physical laws appropriate to the physical situation at hand; predict the behavior of representative physical systems using mathematics/physical laws as a tool; interpret the outcome of a physical system; use various types of data collection tools for the experimental investigation of physical laws; and, represent physical systems in multiple representations (mathematically, pictorially, graphically, etc).

### **Physics 1112K – Homework Assignment**

Note: none of the problems in the following list are meant to be turned in. They are meant to help you gain an understanding of the material and study for the exams. They can also help you to find out what you might need to memorize. As the semester proceeds, I may find it necessary to modify this homework list.

- Chapter 18: Work Problems 1, 2, 8, 11, 13, 17, 22, 23, 27, 31, 33, 37, 55
- Chapter 19: Work Problems 2, 7, 12, 13, 14, 27, 28, 29, 31, 34, 37(a), 38, 39, 41, 43, 51
- Chapter 20: Read the first ten sections. Answer Conceptual Questions 6, 9 & 16  
Work Problems 1, 5, 7, 11, 21, 41, 43(a), 45, 49, 51, 53, 61 & 75(a)(b)
- Chapter 21: Read the first seven sections. Conceptual Questions 5 & 14  
Problems 1, 5(b), 11, 13, 15, 17, 22, 29, 37, 39, 47, 49, 55, 57, 65 & 71
- Chapter 22: Read the whole chapter.  
Problems 2, 3, 5, 6, 7, 11, 17, 24, 35, 39, 44, 48, 52, 54, 57, 63, 64 & 66
- Chapter 23: Read the first four sections.  
Problems 1, 5(b), 9, 11, 13(a), 15, 19(a), 26, 29, 38 & 39(a)
- Chapter 24: Read the first three sections.  
Problems 3, 7, 21, 22, 25, 26, 41, 43, 45 & 48
- Chapter 25: Read the whole chapter. Conceptual Questions 2, 3 & 7  
Problems 5, 17, 23 & 35
- Chapter 26: Read the first eight sections.  
Problems 9, 11, 13, 49, 103(b) & 105
- Chapter 27: Read sections 1, 2, 7 and 8. Also read that one paragraph from section 3 that relates to non-reflecting coatings on lenses.  
Problems 1, 5, 13, 37, 38, 39, 40 & 41
- Chapter 29: Read the first three sections. Conceptual Questions 5 & 6 (but ignore part (e) of Conceptual Question #6). Problems 1, 4, 5, 7, 8, 38(a)(b) & 44
- Chapter 31: Read the first four sections. Conceptual Questions 7 & 9  
Problems 2, 4, 10, 12, 13, 20, 22, 25 & 47
- Chapter 32: Read sections 2, 3, 4 & 5. Conceptual Questions 6 & 9.  
Problems 15, 17, 18, 20, 26(a), 28 & 29