

Phys 2212K evening section – Fall 2009 – **Syllabus**

CRN 8108 & CRN 8110: Tuesdays and Thursdays at 6:00 PM, in H203.

Every student signed up for this lecture section must also be signed up for a lab section.

**Professor for the course:** Dr. James Whitenton, Office: E145

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**Textbook:** Essential University Physics by Richard Wolfson

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

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

*Note: Since it’s possible that not all of you will be in the lab section I’m teaching, it seems more appropriate to hand out a separate “lab syllabus” to those who are.*

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	Thursday, September 10	13 g.p.
Test 2	Tuesday, September 29	13 g.p.
Test 3	Thursday, October 15	13 g.p.
Test 4	Tuesday, November 3	13 g.p.
Test 5	Thursday, December 3	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.*” This course covers most of what’s in chapters 20 – 32.

Test 1 will probably cover chapters 20, 21 and 22. 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 10 (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 each test. We generally won't know for sure what's covered on any particular 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 (including any material that might be covered after our fifth test). 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'll give 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 aren't on the formula sheets. For example:

- be sure you know the Mega, kilo, centi, milli & micro prefixes!
- Circles/circular-motion: circumference =  $2\pi r$ , area =  $\pi r^2$ , and  $a_{\text{radial}} = v^2/r$
- how to interpret info on the formula sheets, & how to use your calculator(s),
- basics of vectors, calculus, properties of logarithms & the exponential function,
- the fact that when speed is constant then  $speed = distance/time$
- Newton's second law:  $\sum \vec{F} = m \vec{a}$
- Kinetic energy ("energy of motion"):  $K = \frac{1}{2} m v^2$
- how the unit Watt and the unit Joule are related ( $W = J/s$ )
- relating electric current & charge (*examples: see first 2 equations in chapter 24*)
- "macroscopic version" of Ohm's Law (*Eq. (24.5) on page 405 in the book*)
- the transformer equation (*Eq. (28.15) on page 501 in the book*)
- the fact that intensity is power divided by area
- the fact that the index of refraction for air is approximately 1.0
- how (*for a wave*) velocity relates to frequency and wavelength ( $v = f\lambda$ )

It should also be noted that in some places on the formula sheets there are formulas that you haven't used while doing the homework. Those – where they are written on the formula sheets – are usually stated with some reference to an Example, derivation, or discussion in the textbook. Since the need for these formulas does sometimes arise on tests, please think of those references as a guide to your reading; the preview copy of the formula sheet packet is, therefore, an aid to your studying in addition to its other more obvious purposes.

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 H (perhaps on his way to go home instead of into H203) while the tests are ready to be picked up and worked on, then that student is not really absent; if he doesn’t come into H203 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) getting less than 8 of the 15 total Lab Score g.p.’s gives an F in the course

We’ve been asked to list the pre-requisites in the syllabus: Phys 2211K and Math 2254 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 calculus and 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 2212K – Textbook Homework Assignment**

Note: none of these problems are meant to be turned in. They (as well as some of the calculations you do in Lab) are meant to help you gain an understanding of the material and study for the exams. They can also help you to find out those things you might need to know which go beyond plugging in to formulas on the Formula Sheets. As the semester proceeds, I may find it necessary to modify this homework list.

**Chapter 20:** 18, 23, 24, 26, 28, 30, 31, 40, 46, 47, 50, 56, 57, 59, 64, 70

**Chapter 21:** 30, 34, 35, 36, 37, 38, 47, 65

**Chapter 22:** 16, 28, 30, 37, 38, 39, 41, 44, 49, 67, 69, 73, 76

**Chapter 23:** 19, 22, 24, 26, 27, 28, 29, 34, 50, 58(a), 67

**Chapter 24:** 14, 18, 19, 20, 22, 23, 25, 29, 30, 31, 32, 33, 41, 44, 49

**Chapter 25:** 17, 18, 20, 21, 28, 33, 35, 36, 48, 59, 61, 66, 74

**Chapter 26:** 18, 19(a)(c), 22, 28, 32, 33, 35, 36, 39, 44, 45(a), 56, 74

**Chapter 27:** 15, 18, 20, 21, 24, 25, 26, 27, 29, 31, 32, 36, 38, 46

**Chapter 28:** 17, 19, 20, 24, 25, 29, 30, 31, 37(a), 68

**Chapter 29:** 17, 19, 22, 29, 31, 32

**Chapter 30:** 17, 18, 19, 37, 38, 39, 40, 51

**Chapter 31:** 22, 24, 25, 27, 47, 49, 50, 53

**Chapter 32:** 12, 18, 19