

# PHYSICS 111K

Fall 2015

**Instructor:** Dr. David B. Slavsky

**Class Meetings:** Lectures: T, Th 11:30-12:45 in Cudahy 202

Discussion: Th 1:25-2:15 in Cudahy 207

**Office Hours:** T 9:30-10:30 and 2:00-3:00; Th 9:30-10:30

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**Text:** Physics for Scientists and Engineers, 3<sup>rd</sup> edition, by Randall Knight, Pearson Publishing

**Course web page:**

<http://luc.edu/faculty/dslavsk/courses/phys111/phys111-2015.shtml>

## Course Description

PHYS 111K is an introduction to the study of physics. The main topics for this semester will include motion in one and two dimensions, Newton's Laws of Motion, and the concepts of energy and momentum. These topics will be extended to include the effects of rotation. Finally, we will study oscillations and if time permits introduce the physics of materials and thermodynamics. The course will make use of differential and integral calculus as appropriate ; Math 161 is a corequisite or prerequisite for this course.

## Grading

Your grade in the course will be determined by grades on homework assignments, three hour exams and a final exam.

**Homework** will represent an important component of this course: mastering the concepts and skills of this course (or any science/math course) requires in-depth investigation of the material. Homework assignments will provide the practice you will need to achieve fluency in physics. Homework will be assigned each week throughout the semester (except for those weeks in which we have hour exams). All homework assignments must be submitted in class on the due date. I will post solutions to the course website immediately after class on the due date, so no late homework assignments will be accepted for credit

**Hour Exams** will be given three times during the semester. The first will be on Thursday 17 September, the second one will be on Tuesday, 20 October and the third hour exam will take place on Tuesday 17 November. The first hour exam will cover all the material from the beginning of class, and the next two will cover (primarily) the material covered since the previous exam, although for purposes of continuity, some material from an earlier exam may appear on a later exam. The exact scope of the exams will be discussed thoroughly in class prior to exam dates.

The **final exam** will be given in this room (Cudahy 202) on Tuesday 8 December from 9:00-11:00 am. The final exam will be comprehensive, covering everything we have studied during the semester.

Your **final grade** will be calculated according to:

Final average =

$$0.25 \times \text{homework avg} + 0.40 \times \text{hour exam avg.} + 0.35 \times \text{final exam}$$

Final averages > 90% will earn an A for the course; final averages > 80% will earn a B for the course; final averages > 60% will earn a C for the course; passing will require a final average > 50%. I reserve the right to lower the thresholds for certain grades, in other words, final averages in the 80s might earn A's, but I will not under any circumstances raise the thresholds for grades.

### **Format for homework assignments**

We will both spend a lot of time this term on homework. For homework assignments to serve the purposes we want, I ask for your help in facilitating my ability to grade them quickly and return them to you as soon as possible. Your homework sets must be legible (I can't grade what I can't read) and must show your complete solutions (in other words, I must be able to follow the logic you used to reach a final answer). Full credit can be given only for correct answers showing complete work. If your assignment includes multiple pages (and there will include multiple pages), they must be stapled (not paper clipped, not pages folded over) so that pages do not separate as I work with them or transport them. Write only on one side of the paper; this will save a lot of time in grading. (Assignments will lose 20% of their credit if they do not follow this format.) As noted earlier, homework assignments must be submitted in class on their due date; no credit will be given for homework submitted late.

### **Policy for missed exams and assignments**

Students are expected to take exams on the scheduled dates and times. Make up exams for hour exams will be given if and only if one (or more) of the following conditions is met:

- Illness or hospitalization requiring physician's intervention.
- Death of a close family member.
- Unavoidable court date (including jury duty).
- Representing Loyola in an official capacity which requires your absence from class (i.e., debating team, model UN, intercollegiate athletics).
- Religious observance that prohibits normal work/school activities on that day.

Travel, unless it is travel for one of the reasons listed above (or for an interview with a graduate or professional school), is not an approved reason for missing exams. In all cases, students must provide written, relevant and verifiable documentation of the circumstances.

If homework is late due to one of the five reasons listed above, I will work with the student to determine an appropriate alternate assignment.

### **Policy Regarding Academic Dishonesty**

It is my expectation that each of you will continue to meet the high standards of conduct that I have come to expect from Loyola students.

Homework must be the result of your own effort. While it is often very useful for students to work together on homework, be careful that the work you submit must clearly be the result of your own efforts. Students will receive a grade of zero for the first instance of copied homework during the semester; a second such instance will result in a grade of F for the course.

Academic dishonesty on exams, which includes specifically but not exclusively copying from another's paper, using crib notes, transferring information to another student during the exam, will result in a grade of F for the course.

In all cases of academic dishonesty, I will send copies of the material to the Dean's Office for inclusion in your permanent Loyola file.

You can review Loyola's policies on academic honesty by reading the following links:

[www.luc.edu/education/academics\\_policies\\_integrity.shtml](http://www.luc.edu/education/academics_policies_integrity.shtml)

[http://www.luc.edu/education/academics\\_policies\\_main.shtml](http://www.luc.edu/education/academics_policies_main.shtml)

Please see section below for the policies regarding use of electronic devices in class.

### **Use of electronics during class period**

To maintain the proper atmosphere during class, all electronic devices must be turned off and stored out of sight during class period. If you wish to take notes on a laptop (which I imagine would be very difficult given the extensive use of diagrams, equations and special symbols), please sit toward the back of class so as not to disturb your neighbors.

Prior to the hour exams and final exam, I will remind you to turn off and store out of sight all electronic devices. The visible presence of any electronic device (with internet

and/or communications capabilities) will constitute academic dishonesty and will result in a grade of zero on the exam.

**Accommodations for Persons with Disabilities:** Students who have disabilities which they believe entitle them to accommodations under the Americans with Disabilities Act should register with the Services for Students with Disabilities (SSWD) office. To request accommodations, students must schedule an appointment with an SSWD coordinator. Students should contact SSWD at least four weeks before their first semester or term at Loyola. Returning students should schedule an appointment within the first two weeks of the semester or term. The University policy on accommodations and participation in courses is available at: <http://www.luc.edu/sswd/>

### **General Comments**

This is a course where students are encouraged to be active participants in the study of physics. I urge you to ask questions in and/or out of class; don't leave class without asking those nagging questions that you can't figure out (but assume you will get upon further reflection doing homework). This is material that requires thought and practice, and the more ways we have of analyzing a problem the more we can expand and enhance your understanding of how to frame and solve interesting problems in physics.

In past years, my syllabus has included the statement: "I will give reading assignments with the expectation that you will have read the material prior to coming to class." There are two important elements in this statement that I would like to spend time discussing on the first day of class.

The first involves class attendance. I know all your professors extol the virtues of class attendance, but having taught introductory and advanced physics and math courses for a number of years (several decades now, actually), I have empirically observed the high correlation between unsatisfactory outcomes and absenteeism. In other words, if you miss a lot of class, you are likely to receive a poor grade or have to withdraw from the course.

The second describes *how* you should read a math or physics text. While learning new techniques of solving problems is important, the focus of your studies should be concentrated more on deriving equations and learning how physical conditions can be expressed in mathematical form. Thus, as you read the text, you should have a notebook or pad in which you can reproduce the derivations the author is describing. By deriving each result in the text, you will gain deeper understanding of the topic, and you will no longer need to (or feel the need to) resort to rote memorization of equations.

I will also make use of email and the course website to communicate with the class in aggregate, so please check your (Loyola) email and the course website frequently.

There are a number of resources available to help you achieve success in this course. Always feel free to contact me and come to my office. If my posted office hours are not

convenient for you, I will gladly work with you to find a mutually convenient time. In addition, there is drop-in help in the Physics Help Room (Cudahy 316, staffed by physics majors). The times will be announced but they are usually there in late afternoons M-F. The tutoring center in Sullivan can provide support for this class; check with them for their tutoring schedule.