SPRING TERM 2017, PHYS 1114, GENERAL PHYSICS

Instructor: Jacques H.H. Perk  Office Hours: When available in room PS 219 (Please knock)

Phys 1114 Website: http://physics.okstate.edu/perk/1114/

Lecture Sections: PHYS 1114_0 Monday-Wednesday-Friday 8:30 a.m.–9:20 a.m. Room PS 141

Textbook: “College Physics by OpenStax,” ISBN#978-1-938168-00-0, downloadable for free at https://openstax.org/details/books/college-physics either in high resolution (102.1 MB) or low resolution (29.9 MB). Alternatively, the needed first 17 chapters can also be downloaded as an iBook for $2.99 at https://itunes.apple.com/us/book/id1138877479. One can buy a hard bound copy for $48.50 at the SU Bookstore, but that is not required.

For the homeworks you must also purchase the “Expert TA Access Code,” ISBN#978-0-9961646-0-3, for $38.50 at the SU Bookstore as soon as possible. Finally, you must purchase the “Physics 1114 & 2014 Lab Manual” for $25.00 at the SU Bookstore, which is required the second week.

Laboratory Sections: Labs start in the second week of classes. There are 14 lab sections. To find the correct time and place, and your section number PHYS1114_0 (with 0 replaced by 1 = 23597, 2 = 23602, 3 = 23605, 4 = 23607, 5 = 23609, 6 = 23611, 7 = 23613, 8 = 23615, 9 = 23618, 10 = 23620, 11 = 23621, 12 = 23623, 13 = 23625, 14 = 23627. Sorry, the new Banner system is not yet logical!), you may login to your own Class Schedule, using for example http://registrar.okstate.edu/content/viewing-my-class-schedule. All questions about the lab should only be directed to Ms. Melissa Edwards in room PS 057B, or the appropriate lab teaching assistant under her supervision.

Prerequisites: Proficiency in high-school algebra or equivalent is required. More precisely, in https://uat.okstate.edu/placeScience it is stated that a minimum of 75 is required on the OSU Math Placement Exam, or a “C” or better in Math 1513 (College Algebra) or any higher math course. Some pre-knowledge of trigonometry is recommended, but not required. A brief review is given in the first week of classes.

Course Objectives: This is the first half of a two-semester algebra-based (non-calculus based) course covering basic concepts of physics and presenting practical examples of the role of physics in other disciplines. This course is a prerequisite for the second semester course (PHYS 1214), and for several more advanced courses in science and engineering. The material is necessary to understand concepts, procedures, and equipment in the medical sciences. Many of the topics also appear on professional entry exams such as the MCAT and science teacher qualification examinations.

Apart from these, the objectives are three-fold. First, to acquaint you with basic physical phenomena; second, to familiarize you with the basic laws of physics; third, to provide a deeper experience in problem solving.

Brief Course Outline: Mathematical preliminaries, units, vectors, kinematics, Newton’s four laws of mechanics, circular motion, work and energy, impulse and momentum, rotational motion, elasticity, fluids, heat, waves, sound, thermodynamics.

Mode of Teaching: Lecture 50% Big-class lectures, demonstrations, one-hour exams. Recitation 25% In class problem solving, recitations and some quizzes. Laboratory 25% Hands-on experience in observing and reporting.
Lectures: The lecture classes will be utilized for a detailed introduction of the theory, for the demonstration of the concepts with experiments and movies, and for the working out of examples of problem solving using the equations introduced. Certain equations will be classified “basic” by being boxed—as to be shown in webpages to be added at http://physics.okstate.edu/phyx/1114/—and they must be memorized; other equations will be provided with the exams if needed. Additional prioritizing will be done. This should help you organize the course material. **No formula sheets will be provided during exams.**

The textbook gives excellent coverage of the material of this course, but it does this in about 600 pages. If carefully read and studied, it should help you understand the material and thereby do well on the exams.

It would be most helpful if you spend 30-40 (concentrated) minutes of preparation before each class, making a few notes and trying a few example problems. In this way, you can listen and make fewer notes, without getting bogged down in detailed note-taking and missing more important remarks.

Recitations, Homeworks and Quizzes: Part of the theory classes will be devoted to solving problems and review. Weekly several homework problems will be assigned to be solved online using ExpertTA. The first homework due at the end of the first week is to familiarize yourself with the ExpertTA system.

Occasionally there may be an unannounced quiz. The first Friday there will be a diagnostic math test, participation counting for 10 bonus points. You will not be discounted for wrong answers in this quiz. If you have difficulty to get 4 of 10 answers correct, your math skills are below the prerequisite level and you will want to do extra work to improve. You can come for help in the “help room” PS 052, where there is free tutoring by TA’s and where your graded work will be returned by the instructor or by his grader TAs.

There will always be two versions of the quiz in two different colors, so that your neighbors will not have the identical problems. Typically, you are expected to solve the quiz in 15-20 minutes. Be sure to add your full name in legible print on the sheet.

Each quiz (and exam) will be graded on the basic correctness, clarity of explanation, proper use of units and significant figures, effective use of diagrams, and also the understanding of the basic principles involved. Your class attendance will only be recorded through the quizzes and exams.

Laboratory Experience: Laboratory Experience with some of the physical phenomena is essential for understanding the physical principles presented in class. The department has designed the laboratory such as to provide you with explicit examples of well defined physical phenomena. This should help increase your common-sense gut feeling about physics, relating the material in class to your daily experiences, helping you understand the theory part. The laboratory stands for one full credit hour. Doing poorly on the laboratory part of the course will have severe consequences for the cumulative final grade, as the majority of the students typically score highest in the lab.

Laboratory Fees: You must purchase a lab manual, the price of which should include all fees. **Be sure to attend the first lab meeting, which takes place in the first week of classes** at the different times scheduled. Here you will learn more.

Enrollment: You are automatically enrolled in the one theory section and in one of the lab sections, simultaneously. You cannot carry credit over from one of these two sections to a later semester.
**Midterm and Final Exams:** Exams need to be done by writing the appropriate answers in the available spaces of the exam papers. No additional paper must be handed in, but scratch paper will be provided upon request. You are to bring only your writing material (pencil, eraser, etc.) and a simple calculator (no physics formulae stored) to the exam. You may be asked to show your picture ID or calculator during the exam.

Graphical calculators, phones, iPads and other programmable devices will not be allowed during the exams. Typical allowed calculators include Texas Instruments TI 36Xa ($8.94), and the two solar powered TI 36xIIS ($12.97) and Casio fx-260 ($8.47), all with their current prices at Walmart.

In the case of a fire alarm during the exams, follow the instruction of the proctors, as the exam may be continued in another building. Failing to do so will give you zero for that exam.

The three **Common Midterm exams** are scheduled from 5:30 to 6:30 p.m., Tuesdays February 14, March 7 and April 11 in PS 141, PS110, PS153, see http://registrar.okstate.edu/sites/default/files/Documents/Exams/Spring2017CommonExamSchedule.pdf. First PS 141 will be filled with alternating occupied and empty rows from front to back. Then PS 153 and PS 110. The **Common Final Exam** is from 4:00 to 5:50 p.m., Tuesday May 9 in the same rooms, see http://registrar.okstate.edu/sites/default/files/Documents/Exams/Spring2017FinalExamSchedule.pdf. Details follow later (see also http://registrar.okstate.edu/Exams for other details).

**Make-up Exams, Cheating:** No written make-up exams will be given. If you are late, you are allowed to take the exam, possibly with an extra allotment of time at the discretion of the proctors. **No show—no credit!** Special arrangements will not be considered, unless accompanied with written documentation, such as an official medical declaration. With such an acceptable excuse the score of the missing Midterm is to be replaced by the average of the other two Midterm scores; a missing written Final typically is to be rescheduled as an oral exam.

Cheating or other academic misconduct will not be tolerated and will in principle—as required by the current University Policy—be reported to the University Administration. (The University Policy that we are to follow is stated in the “Oklahoma State University Catalogue 2016–2017,” pp. 68–70 http://registrar.okstate.edu/University-Catalog, as also spelled out in http://academicintegrity.okstate.edu). The minimum punishment is an ‘F’ counted as a strict zero for the exam in question. You are expected to take the examinations entirely on your own without any outside influences. Outside influences during any of the exams include, but are not limited to, obtaining information of any kind from fellow students, obtaining information from class notes or a book, and obtaining preprogrammed information from programmable calculators. All necessary formulae that are needed but were not classified basic in the lecture classes will be provided on the exam papers.

**Grading Procedures:** FINAL GRADE to be determined as follows (No curving!):

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework and Quizzes</td>
<td>25%</td>
<td>A = 88 – 100%</td>
</tr>
<tr>
<td>Laboratory</td>
<td>25%</td>
<td>B = 75 – 87%</td>
</tr>
<tr>
<td>Three one-hour exams</td>
<td>30%</td>
<td>C = 62 – 74%</td>
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<tr>
<td>Final exam</td>
<td>20%</td>
<td>D = 50 – 61%</td>
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<td></td>
<td></td>
<td>F = 0 – 49%</td>
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Policy on Attendance: Attendance of all lectures and laboratory sessions is mandatory. Those who attend the lectures, well-prepared ahead of time, surely will reap the benefits during the quizzes and four exams. Note that attendance is implicitly checked during quizzes and exams. Precise regulations for missed laboratory sessions are discussed in the lab manual.

In all cases, being absent without prior permission or without showing a valid written medical statement at the earliest next occasion after recovery, could be proportionally penalized in the final grade calculation.

Drop and Add Policy: Current university policy will be strictly followed. (See the “Oklahoma State University Catalogue” pp. 6, 31–33, 63–70; and the Oklahoma State University Syllabus Attachment, Spring 2017, https://academicaffairs.okstate.edu/sites/default/files/Spring%202017%20Syllabus%20Attachment.pdf). In short (http://registrar.okstate.edu/Academic-Calendar-Spring-2017):

- Last day to drop any course with no grade: Tuesday, January 24
- Last day to drop any course with “W” grade: Friday, April 14
- Last day to drop all courses with “W” or “F”: Friday, April 28

Assistance and Advice: For assistance, you should come to the office hours of the instructor or the teaching assistants in PS 052. The precise hours will be announced as soon as possible. Occasionally additional help sessions may be arranged. A list of private tutors may be available in the Physics Office (PS 145).

This class moves fast! It is essential that you do not fall behind and spend enough time each week.

Learning Assistants and Grader TA’s: The two Grader Teaching Assistants are Mr Debsuva Mukhopadhyay and Mr Egor Antipov. Their office hours in PS 052 will be announced later.

The two Learning Assistants are Mr Kazsa Fahrenthold and Mr Kyler Moody. They will have sessions in PS 210 at times to arranged later. You need be signed in in at least 10 sessions to get a bonus of 5% added to the final course percentage grade.
