Online PHY1220: College Physics II  
Summer 2017  
University of Missouri

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VIRTUAL OFFICE HOURS: NOT AVAILABLE (due to my travel abroad this summer)  
TEACHING ASSISTANT: TBD

COURSE DESCRIPTION
This is the second course in the algebra-based introductory physics series. It covers electricity and magnetism, optics, special relativity, quantum physics, atomic and nuclear physics.

SUMMER COURSE
This course is designed for delivery online, over an eight-week period, and we will cover the same material as in a typical fall or spring semester, which is 16 weeks long. This abbreviated timeline means that you should expect to spend twice as much time per week on this course as you would during a fall or spring semester.

COURSE GOALS (OR LEARNING OBJECTIVES)
There are two major goals in this course:

1. To build a strong and robust understanding of the fundamental concepts of physics
2. To develop the skills of applying physics principles and laws to solve problems

Upon successful completion of this course, learners will be able to:

1. Describe the fundamental concepts in electricity, magnetism, optics, special relativity, quantum physics, atomic and nuclear physics
2. Identify the key factors involved in the fundamental concepts, and the impacts of changes in these factors on the quantities that are related to the concepts
3. Apply physics principles and laws to solve problems related to electricity, magnetism, optics, special relativity, quantum physics, atomic and nuclear physics. The problem solving is at two levels: the direct application of individual concepts/principles, as well as the synthesis of multiple concepts/principles.

PREREQUISITES
College Physics I (with a grade of C- or better)

ONLINE COURSE ACCESS
You may access the course via http://courses.missouri.edu. Under course login, select Blackboard and enter your PawPrint. If you have difficulty logging in to the course or you do not see the course listed, please contact the Mizzou IT Help Desk at 573/882-5000. You MUST enable Compatibility View with Internet Explorer 8.

REQUIRED COURSE MATERIALS

MasteringPhysics (www.masteringphysics.com) will be used in this course for homework assignments (see below). Every NEW textbook purchased at MU bookstore is packaged with a Student Access Kit to MasteringPhysics.

(If you already have an account on Masteringphysics and the account is within 24 months since it was created, you can use it in this course.)

If you use a used textbook and you don’t have an account on masteringphysics you need to purchase a Student Access Code to MasteringPhysics at www.masteringphysics.com. There are two options to the Student Access Code: without e-book, or with e-book. Check the pricing information for the two options. (If you choose the with e-book option, you may not need the hardcopy textbook.)
You must get the Student Access Code and set up your Masteringphysics account as soon as possible, to start working on the homework assignments. Detailed instructions can be found in “Start Here” on the main menu of the Blackboard site. I strongly encourage you to get the text as soon as possible, as it will be utilized throughout the duration of this course. The textbook may be purchased in person or online from the MU Bookstore, http://www.themizzoustore.com/

**Course Components**

- Pre-recorded lecture videos (with accompanying notes in pdf files), textbook reading
- Online discussions (graded based on participation)
- Additional practice problems (Graded based on submission, not on the correctness.)
- Assignments (graded) on masteringphysics website.
- Labs (graded)
- Online conceptual quizzes (graded) on Blackboard
- 3 proctored exams (graded) on paper

All the learning activities are designed to help you achieve the goals of the course. Specifically,

- In the lecture videos, I introduce and discuss fundamental physics concepts and laws. I also post conceptual questions for you to identify the correct descriptions of concepts and their key factors prior to giving my explanations. These questions are meant to prompt you to review the lectures, or/and to clarify typical confusions, or/and to correct typical misconceptions.

- In the lecture videos, I use examples to show how to apply the newly introduced concepts /principles/ laws to solve problems (These examples focus on the new topics). Some examples involve previously learned topics (these examples are to demonstrate how multiple concepts / principles can be synthesized into more comprehensive problems and how to solve them).

**The examples in lectures serve as the first step in building your problem solving skills. Therefore it is very important that you be able to solve all the lecture examples ON YOUR OWN before moving on to solving more problems.**

- The textbook gives more explanations of concepts, and provides additional conceptual questions and quantitative examples.

- Online discussions give you chances to exchange thoughts with and learn from others.

- The additional Practice Problems are carefully selected to consolidate and enhance your understanding of the concepts and your problem-solving skills. I truly believe that you will benefit to the maximum if you make attempt to solve these problems on your own before looking at the solutions. Therefore, I require you to submit your attempt before releasing the solutions.

- You will practice describing fundamental concepts and identifying their key factors and applying them in the Assignments on MasteringPhysics. The Assignments on Masteringphysics website have conceptual questions and quantitative problems. Some quantitative problems involves applications of individual concepts/principles, and there are plenty of multi-step and multi-concept problems.

- You will have another chance to apply your skills of conceptual description/identification and problem-solving in lab simulations activities. Some lab activities are exploratory – you perform qualitative and/or quantitative experiments and summarize the experimental results into physics laws. In other labs you perform experiments, and apply physics concepts / principles and /or use calculations to explain the experimental results. Some of the labs include additional conceptual questions and additional problem-solving exercises.

**Weekly Schedule (Learning Modules)**

You are expected to login to the course site and study each day. The learning activities have been arranged on weekly bases. Each week of the course will have a corresponding Learning Module, where learning activities include watching the pre-recorded videos, reading the relevant materials in the textbook, participating in online discussions, solving the practice problems, completing assignments (on masteringphysics website), completing labs and taking online quizzes.
**ONLINE DISCUSSIONS**

- **Group discussions on CONCEPTUAL QUESTIONS:** I will post conceptual questions on the "Required Discussions" for you to discuss. Grading is based on participation only. Each week you give a participation score (out of 10 points in the 5 weeks with no exams; out of 5 points in the three exam weeks) to each of your group members (except for yourself). The average of the scores you receive from your group members is your weekly participation grade for this category. This category counts a total of 50 points (capped) to the final grade.

- **Pair discussions on PRACTICE PROBLEMS:** There are 21 sets of practice problems. You are required to attempt these problems on your own first and submit your attempt. Your attempt will be read by another student in your group. Fully worked-out solutions are available after the late submission deadlines. Grading is based on submission, not on the correctness. Submission of each set counts 5 points before due time. Late submission (up to one day) counts 4 points. This category is capped at 50 points to buffer all the inconveniences.

**ASSIGNMENTS**

For the homework assignments on Masteringphysics, a tutorial is to provide you with information on completing and submitting your assignments.

For each problem in assignments (on masteringphysics website), you are allowed 5 attempts. You don’t have to use all the 5 attempts in one sitting. Also for each assignment you don’t have to finish all the problems in one sitting.

For the problems that you enter answers, there is no credit deduction for wrong answers submitted before exhausting the 5 attempts.

For the multiple-choice questions, there is credit deduction for wrong answers (with the purpose of preventing random guessing).

All the assignments will collectively contribute 200 points (capped) to the final grade (points beyond 200 will be discarded in calculating the final grade). To buffer all the inconveniences, there is a total of 258.25 points available.

**LABS**

There are 6 simulation labs in the course. You will follow detailed instructions in the lab files to perform activities from the Physics Education Technology Web site (http://phet.colorado.edu/simulations/). You are required to answer questions related to the activities. Some of the labs include additional questions and additional problem-solving exercises, which you are also required to do. Point allocations for the 6 labs are: Lab 01 (30 points), Lab 02 (25 points), Lab 03 (30 points), Lab 04 (30 points), Lab 05 (25 points), and Lab 06 (10 points). For each lab, there is a file detailing points breakdown, so that you can check points deductions for the errors you make and discuss with the teaching assistant who grades the labs.

The 6 labs collectively contribute 150 points to the final grade. You must pass the lab component (more than 75%) to pass the course.

Instructions on submitting lab works can be found in “How to” in the main menu.

**QUIZZES AND EXAMS**

This course uses online quizzes on Blackboard to assess your understanding of the fundamental physics concepts. There is one quiz in each Topic, and the quizzes are distributed in the learning activities of each topic. There is also a syllabus quiz in “Start Here”. Quizzes are timed (the timer, a yellow box, will be located in the upper right of your screen). You may take each quiz TWICE and the highest score will be counted. The following are key considerations to successfully completing a quiz:

- All other learning activities (lecture videos/notes, textbook reading, discussions, practice problems, assignments, and labs) are meant to help you achieve the two learning goals – a robust understanding of fundamental physics concepts / laws and applying them to solve problems. Doing these activities prior to completing the online quizzes should help your performance in the quizzes.

- To ensure Blackboard logs every answer, click the “Save” at the bottom of the page every two or three questions. You must click “Submit” in order to have your quiz graded.
• You **MUST** enable Compatibility View with Internet Explorer 8. A complete list of supported browsers is available [online](#).

All the quizzes (including the syllabus quiz) will collectively contribute 100 points (capped) to the final grade. There is a total of 125 points available to buffer all the inconveniences.

Three Exams are scheduled on the following dates:
- **Exam 1** Thursday June 22 (morning), 2017 (Week 3) (1 hour 50 minutes)
- **Exam 2** Thursday July 13 (morning), 2017 (Week 6) (1 hour 50 minutes)
- **Exam 3** Friday June 27 (morning), 2017 (Week 8) (1 hour 50 minutes)

**All exams:** closed book, closed notes, a formula sheet will be provided.

For detailed information, go to the relevant weeks in "Weekly Learning Modules". Each exam contributes 150 points to the final grade.

**The exams are proctored and taken on paper.** The Mizzou Online Office has the instructions on administrating the exams, and will arrange for the proctored exams.

**Late Work Policy:**

For **assignments** on masteringphysics **late submissions** after the due time are acceptable, with 33% discounted credits for each day late (this 33% credit discount is actually pro-rated to hours. If you submit soon after the due time, the credit discount will not be significant). If you have circumstances that affect your ability to complete assignments, please contact me **at least 3 days in advance** of the due date.

For practice problems, late submissions (earning 4 points for each set) after the due time are acceptable up to one day.

For **lab work**, **late submissions** after the due time are acceptable, with 2 points deduction for each day late, up to three days after the due time. Lab work more than 3 days late will not be accepted unless **prior arrangements** have been made.

To make prior arrangements for assignments and lab work, I will require you to submit proper written documentation.

For **online quizzes**, **under NO circumstance will late submission be allowed**. (This is because answers will be released after the due times.) All the quizzes are made available on the first day of the summer semester, check the calendar for the due times of the quizzes, plan ahead so that you will not miss any quiz.

**Communications and Feedback**

**Virtual office hours**

In the summer of 2017 I will travel abroad, and will not be able to hold virtual office hour due to the time difference. However, I will check emails and discussion board daily. Please allow 24 hours for a response. (If I travel and cannot have internet access in transit, I will make announcements.)

**Discussion Board**

The Discussion Board is divided into two parts: the general (voluntary, ungraded) part and the required (graded) part.

The “**General Discussion Board**” is where all the participants of this course including students, instructor and teaching assistant introduce themselves and communicate about the course contents in general. It has been organized by topics (Forums). Each topic (forum) is also organized by learning activities. Post questions in the correct Forums and correct Threads so that it is easy for other people to follow. Before posting a question, make sure to read the threaded discussions to check if your questions have been answered. I as well as the teaching assistant will be monitoring this discussion board throughout the week and can respond to general questions there.

The “**Required Discussions**” is where you participate in group discussions on conceptual problems and practice problems. It is organized by week.

**Feedback**

- Assignments on masteringphysics: immediate feedback to each question of assignments is provided by the online system. In addition, after the due time of each assignment, I will look at your performance and contact you if I see that you have difficulty.

- Practice problems: fully worked-out solutions are available after the late submission deadlines.
Labs: your submitted lab works will be graded within 3 days after being received, and lab grades will be posted. In case of logistic difficulties, announcements will be made about the adjusted timelines. You can request copies of your graded lab work.

Online Quizzes: quizzes will be graded immediately upon submission. Grades will be posted after the due times. Correct answers and submitted answers are available after the due times.

Exams: exams will be graded within 5 days after being received and grades will be posted. In case of logistic difficulties, announcements will be made about the adjusted timelines. You can request copies of your graded exams.

Course Policies

Re-grading policy
You have the chances to discuss with the graders (either the instructor or the teaching assistant) about the grading of the exams and the lab work. Re-grading an exam or a lab amounts to a careful re-evaluation of the problem(s) you wish the grader to reconsider. In the process, the grader may find that additional points are warranted, that the problem was given all the points it deserved, or that the problem was given too many points. In any case, the grader will correct the score. So be aware that when you submit your re-grading request, your score may go up, stay the same, or go down.

Make-up exams
The make-up exams will be given only under exceptional and documented circumstances. If you cannot take the exams on the scheduled dates, you must contact the instructor well in advance to get permission to take Make-up exams. In case of medical emergencies, you should contact the instructor and provide medical documentation as soon as possible to make arrangements for make-up exams. Make-up exams may not be in the same format as the regular exams.

Technical Skills Required
This class is fully online and minimal technical skills such as using Blackboard, attaching documents, and using Word are necessary for succeeding in the course. In addition, having reliable access to Internet and a computer is necessary.

Library Resources and E-Res
Access to the library will be critical to your academic success. You may access the University of Missouri Library Distance Education Support Service page at: http://mulibraries.missouri.edu/distance/.

Tutoring Service
Check in with Mizzou's Learning center for help sessions related to Physics.

Expectations

- What to Expect from a Technology-Enhanced Course - This course is designed to meet virtually. It is essential that you access the course site Monday through Friday for course announcements, interact with your small discussion group, submit assignments, take online quizzes, etc.

- What the Instructors and Your Peers Expect from You - By enrolling in this course, you have agreed to contribute to weekly discussions by accessing the Discussion Board regularly. This will require a team effort, with respect and help for each other, as we build a community of learners. We also expect that you will have a foundational understanding of Internet terms and functions. All general class correspondence should be submitted to the relevant Discussion Board forums and threads; only personal or confidential matters should be directed to the instructor in e-mail.

- What You May Expect from the Instructor – I will monitor and facilitate class discussions (Monday through Friday), respond to private questions within 24 to 48 hours, a teaching assistant will provide timely feedback on lab materials, and together we build a learning community.

Course Success
There are three guidelines for this to be a successful class:

- **Be Actively Engaged**
  - Be fully prepared for each and every class session. Watch the recorded videos, do the required reading, participate in group discussions, do the practice problems, complete the assignments and labs, to the best of your abilities.
  - On the discussion board (which will be a major communication channel of this class) the whole class will benefit if every student enthusiastically contributes.

- **Respect**
  - Your classmates/instructors. Each student is expected to "give their best" so a meaningful learning experience can occur. Classmates' perspectives – Listen/Read First, Think Second, Talk/Type third.

- **I’m the Instructor but It’s YOUR Course**
  - My role is to efficiently guide you through the difficulties you may have in learning the physics concepts and solving problems. But you must take the ownership of your own learning. The More You Put In – The More You’ll Take Away

**Grade Distribution**

Here is the grade breakdown for the components of this course.

<table>
<thead>
<tr>
<th>Components</th>
<th>Point Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Discussions in group</td>
<td>50 points (Capped)</td>
</tr>
<tr>
<td>Required Practice Problem submissions</td>
<td>50 points (capped)</td>
</tr>
<tr>
<td>Assignments on masteringphysics</td>
<td>200 points (capped)</td>
</tr>
<tr>
<td>6 Labs</td>
<td>150 points</td>
</tr>
<tr>
<td>Quizzes (including the syllabus quiz)</td>
<td>100 points (capped)</td>
</tr>
<tr>
<td>3 exams</td>
<td>150 points x 3 = 450 points</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1000 points</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>&lt; 600</td>
<td>F</td>
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<tr>
<td>601 - 700</td>
<td>D</td>
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<tr>
<td>701 - 730</td>
<td>C-</td>
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<tr>
<td>731 - 770</td>
<td>C</td>
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<tr>
<td>771 - 800</td>
<td>C+</td>
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<tr>
<td>801 - 830</td>
<td>B-</td>
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<tr>
<td>831 - 870</td>
<td>B</td>
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<tr>
<td>871 - 900</td>
<td>B+</td>
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<tr>
<td>901 - 930</td>
<td>A-</td>
</tr>
<tr>
<td>931 - 960</td>
<td>A</td>
</tr>
<tr>
<td>&gt; 961</td>
<td>A+</td>
</tr>
</tbody>
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**Help Available**

If you are having any technical difficulties (e.g., logging in, accessing the discussion board) please email helpdesk@missouri.edu or contact the DoIT Help Desk (for out-of-area MizzouOnline students, toll-free at 866/241-5619).

**Online Class Netiquette**

Your instructor and fellow students wish to foster a safe on-line learning environment. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea but you are not to attack an individual.

Our differences, some of which are outlined in the University's nondiscrimination statement below, will add richness to this learning experience. Please consider that sarcasm and humor can be misconstrued in online interactions and generate unintended disruptions. Working as a community of learners, we can build a polite and respectful course ambience.

**Academic Integrity Policy**

Academic honesty is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, or collaboration, consult the course instructor.
Academic Dishonesty includes but is not necessarily limited to the following:

A. Cheating or knowingly assisting another student in committing an act of cheating or other academic dishonesty.

B. Plagiarism which includes but is not necessarily limited to submitting examinations, themes, reports, drawings, laboratory notes, or other material as one's own work when such work has been prepared by another person or copied from another person.

C. Unauthorized possession of examinations or reserve library materials, or laboratory materials or experiments, or any other similar actions.

D. Unauthorized changing of grades or markings on an examination or in an instructor's grade book or such change of any grade report.

**Academic Integrity Pledge:** "I strive to uphold the University values of respect, responsibility, discovery, and excellence. On my honor, I pledge that I have neither given nor received unauthorized assistance on this work." Students are expected to adhere to this pledge on all graded work whether or not they are explicitly asked in advance to do so.

The University has specific academic dishonesty administrative procedures. Although policy states that cases of academic dishonesty must be reported to the Office of the Provost for possible action, the instructor may assign a failing grade for the assignment or a failing grade for the course, or may adjust the grade as deemed appropriate. The instructor also may require the student to repeat the assignment or to perform additional assignments. In instances where academic integrity is in question, faculty, staff and students should refer to Article VI of the Faculty Handbook. Article VI is also available in the M-Book. Article VI provides further information regarding the process by which violations are handled and sets forth a standard of excellence in our community.

**Restrictions on Disclosure and Distribution**

**Students** may make audio or video recordings of course activity unless specifically prohibited by the faculty member. To foster a safe environment for learning, however, the redistribution of audio or video recordings of statements or comments from the course to individuals who are not students in the course is prohibited without the express permission of the faculty member and of any students who are recorded. Unauthorized distribution of such materials is a violation of academic standards and may violate copyright laws and/or privacy rights. Students found to have violated this policy are subject to discipline in accordance with the provisions of Section 200.020 of the Collected Rules and Regulations of the University of Missouri pertaining to student conduct matters.

**University of Missouri Notice of Nondiscrimination**

The University of Missouri System is an Equal Opportunity/ Affirmative Action institution and is nondiscriminatory relative to race, religion, color, national origin, sex, sexual orientation, age, disability or status as a Vietnam-era veteran. Any person having inquiries concerning the University of Missouri’s compliance with implementing Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Americans With Disabilities Act of 1990, or other civil rights laws should contact the Assistant Vice Chancellor, Human Resource Services, University of Missouri, 1095 Virginia Avenue, Columbia, Mo. 65211, 573/882-4256, or the Assistant Secretary for Civil Rights, U.S. Department of Education.

**Students With Disabilities (Residential & Online Courses)**

If you anticipate barriers related to the format or requirements of this course, if you have emergency medical information to share with me, or if you need to make arrangements in case the building must be evacuated, please let me know as soon as possible.

If disability related accommodations are necessary (for example, a note taker, extended time on exams, captioning), please register with the Office of Disability Services (http://disabilityservices.missouri.edu), S5 Memorial Union, 573-882-4696, and then notify me of your eligibility for reasonable accommodations. For other MU resources for students with disabilities, click on "Disability Resources" on the MU homepage.

**Intellectual Pluralism Statement**

The University community welcomes intellectual diversity and respects student rights. Students who have questions concerning the quality of instruction in this class may address concerns to either the Departmental Chair or Divisional leader or Director of the Office of Students Rights and Responsibilities (http://osrr.missouri.edu). All students will have the opportunity to submit an anonymous evaluation of the instructor(s) at the end of the course.

**Grievance Policy**

Information concerning student grade appeal procedures and non-academic grievances and appeals may be found in the Student Handbook.