

PHYS121
Fundamentals of Physics 1
Fall 2020
(updated 2020-01-26)

Dr. Wendell T. Hill, III
wth@umd.edu or through [ELMS](#)
 IPST Bldg (#085) Rm 2120
 (located east of and adjacent to the Physical Sciences Complex)

Lecture: MWF 15:00 – 15:50; Toll Rm 1412

Office Hours: MW 16:00-17:00 & Th 11:00-12:00

Sec	Discussion Time, Location Lab Time, Location	Disc & Lab TA	TA Email Addresses	Office Hours
0301	M 10:00–10:50, PLS 1113 M 11:00–12:50, PHYS 3306	Jarryd Horn	jahorn@umd.edu	TBD
0302	Tu 12:00-12:50, HBK 0123 Tu 13:00–14:50, PHYS 3306	Orlando Romeo	oromeo@terpmail.umd.edu	TBD
0303	Th 11:00–11:50, PHY 4221 Th 12:00–13:50, Phys 3306	Kavach Gupta	kavach@terpmail.umd.edu	TBD
0304	Th 15:00–15:50, MTH 0106 Th 16:00–17:50, PHY 3306	Arthur Carlton-Jones	acarlton@terpmail.umd.edu	TBD
0305	Tu 16:00–16:50, MTH 0401 Tu 17:00-18:50, PHY 3306	Kavach Gupta	kavach@terpmail.umd.edu	TBD
0306	Tu 09:00-09:50, PHY4221 Tu 10:00-11:50, PHY 3306	Robert Whitlock	rwhitloc@terpmail.umd.edu	TBD
0307	W 10:00-10:50, PHY 1402 W 11:00-12:50, PHY 3306	Landry Horimbere	landry.horimbere@gmail.com	TBD
0308	Tu 18:00-18:50, PHY 1402 Tu 19:00-20:50, PHY 3306	Ethan Zack	ezack@terpmail.umd.edu	TBD

Prerequisites: MATH112 or MATH115 or equivalent.

Credits: 4

Course website: Hosted on ELMS (<https://elms.umd.edu>). The lecture schedule, important notifications and all information related to lecture and discussion activities (assignments, grades, etc.) will be posted on ELMS. Please check regularly.

Course Description: PHYS121 is the first part of a two-semester course on general physics exploring mechanics, heat, sound, electricity & magnetism, optics and modern physics. Note, according to the Registrar, you can receive credit for PHYS121, PHYS131 or PHYS331. PHYS121 together with PHYS122 generally satisfies the minimum requirement of medical and dental schools. This first course (PHYS121) will begin with a brief introduction to measurement, units, vectors and the scientific process. The core subjects covered include Newtonian mechanics, rotation, conservation laws, thermodynamics and fluids.

Course components: The course will consist of lectures (3 hr/week), discussions (1 hr/week) and labs (2 hr/week); see attached schedule. You will receive one grade for the three components. Note, you have to pass the lecture and lab components to pass this course!

Lecture – You are responsible for all information discussed in the lectures. While outlines of what is discussed will be posted online ELMS (<https://elms.umd.edu>), the outlines will generally not be sufficient to grasp the essences of the material needed to pass the course. There will be occasions when material covered in lecture may not be easily extracted from the text. If you miss a lecture, you will need to get lecture notes from a classmate. Occasionally, unannounced quizzes will be given in lecture.

Discussion – It is strongly recommended that you attend the discussions. This is where you will (1) receive help working on problems, (2) have an opportunity to ask questions in a small and (3) take a quiz most weeks. Discussions start the first week of classes but there will not be a quiz the first week. Attendance will be taken, which will help to determine grades in borderline cases.

Lab – Attendance is mandatory. You must complete and submit all the labs to pass this course. Again, you will receive only one grade for this course. **Note, it is the department policy that if you do not perform and turn in a writeups for all the labs you will fail PHYS121 – all labs must be completed and all writeup must be submitted and graded to pass this course!** Please note, the lab is being organized and managed by Dr. Negar Heidarian <nheidari@umd.edu>

Required and Recommended tools for this course:

Expert TA access code and payment (required) – To register and pay, please click on the link in the table below associated with your section and follow the prompts. When asked for an email address, please use your official UMD address issued by the university to avoid any potential complications. If you have problems with the link, please copy and paste the URL manually. **Register only once! Those registering more than once (i.e., dummy accounts) are subject to penalties! If you accidentally register multiple times, cancel it and let me know immediately!**

Section	Expert TA Registration URLs
0301	http://goeta.link/USH22MD-AD5578-1XK
0302	http://goeta.link/USH22MD-D33574-1XJ
0303	http://goeta.link/USH22MD-EE150F-1XI
0304	http://goeta.link/USH22MD-BED619-1XH
0305	http://goeta.link/USH22MD-03351E-1XG
0306	http://goeta.link/USH22MD-BCF9EE-1XF
0307	http://goeta.link/USH22MD-1C371E-1XE
0308	http://goeta.link/USH22MD-DC352B-1XD

Expert TA will be used both for online homework and lab assignments. You will receive and turn in your online homework approximately weekly via Expert TA. The lab manual and pre-lab exercises will be available through Expert TA. Note, Expert TA will be the only means through which this material will be distributed and collected. In addition, extra help to understand the material we will cover in lecture will be made available through Expert TA.

Textbook (recommended) – *College Physics*, 2nd Ed., Freedman, Ruskell, Kesten and Tauck, ISBN-13: 978-1-4641-9639-3 & ISBN-10: 1-4641-9639-7. You can purchase the book from the campus bookstore or online where you may have additional options for less money. It is a good idea to acquire the text as it will have examples and extra problems that will help you master the material.

Graded Components:

Homework – Homework will be assigned nearly every week and comes in two varieties – online (OHW) problems and paper (PHW) problems; these problems will be similar to those in the recommended textbook and designed to develop your ability to set up and solve problems, conceptually and mathematically, with the physical laws you will learn. The OHW problems will be accessed and completed in Expert TA (<https://login.theexpertta.com/Login.aspx>) and the PHW problems will be accessed and submitted through [ELMS](#). Expert TA provides hints and feedback for solving the OHW problems but at a cost. The current settings for the OHW assignments are as follows:

- You will have 10 attempts for each problem with a 5% penalty for each wrong attempt. Thus, I would suggest you solve the problems on paper first before submitting your answers.
- Many of the problems will provide hints and feedback to help you to answer the problem correctly. There is a 3% (4%) charge for each hint (feedback). You might want to re-read the relevant sections of the text and refer to your notes first before accessing these tools.
- Problems will be due at 11:59 pm on Sundays; there will be a 25% charge per day for late assignments.
- Solutions will be provided after the due dates.

There are 11 OHW assignments scheduled of which 10 will count toward your grade; your lowest score will be dropped.

There are 7 PHW assignments each consisting of one problem; again, the lowest score will be dropped. You will need to solve the PHW problems on paper, scan them and submit via ELMS as a pdf file to be graded. The PHW problems will also be due on Sundays at 23:59 with a 25% penalty per day for late submissions. The OHW (PHW) will constitute 80% (20%) of your homework grade.

Quizzes – You will be given a 10-min quiz approximately each week in your discussion sections. The quizzes will be based on homework problems, worked examples from lecture and the recommended text. No quizzes will be given on exam weeks. The quizzes will be closed book; all formulae you will need will be provided. Your lowest quiz score will be dropped from grade consideration. As mentioned above, there will be an occasional quiz given in lecture; these may be written or electronic and will be used to gauge your attendance and how the class is absorbing the material. The in-lecture quizzes will be treated as bonus points.

Exams – Three midterm exams will be given with your two highest scores counting toward your grade. There will be a cumulative final for this course during finals week. The date and time of the final is set by the Registrar. **You are responsible for being present for the final even if the campus changes the date and time! You must take the final to pass the course!**

URL for Registrar:

<http://registrar.umd.edu/current/registration/exam%20tables%20spring.html#common>

Pre-lab exercises – These exercises, which consist of several questions pertaining to the theory or experimental details of the week’s lab, are due before the start of each lab. The information needed to complete these exercises successfully will be found in the lab manual. As mentioned above, the questions and lab manual will be distributed via [Expert TA](#), as will your answers.

Lab reports – Your results of each experiment will be to be organized into a concise report. The reports are due at the start of the following lab, unless specified otherwise. You are encouraged to collaborate with your partner to analyze your data and organizing your results. However, each person must submit his/her own report in her/his own words. The numerical values lab partners submit can and should be the same.

Grading Scheme:

Homework (OHW 80% + PHW 20%)	20%
Quizzes (Discussion sections)	20%
(Lecture)	Extra credit
Lab	20%
Midterms	20%
Final	20%

Attendance, Religious Observances, and University Closures:

Your TA and I will be mindful of who attends lecture and discussions and who comes to office hours, etc. Participating in these class elements will be beneficial not only to help you learn the material, but also in the event of borderline performance. The effort you put forth throughout the course will have a positive influence on grade decisions in borderline cases.

If you have to miss a lecture deadline (e.g., an exam) for a religious observance, illness or other legitimate reason, please notify me as soon as possible, preferably in advance so a makeup or other arrangements can be arranged. If you have to miss an experiment, please let you TA and the lab instructor (Dr. Negar Heidarian Boroujeni) know as soon as possible.

URL for UMD policy on excused absence:

<https://president.umd.edu/administration/policies/section-v-student-affairs/v-100g>

If the university is closed due to inclement weather or some emergency situation on an exam day at the time of the exam, the exam will be given at the next regularly scheduled meeting of the class, e.g., if the university is closed on Friday after 14:00, the exam will be given the following Monday, assuming the campus is open that day. Check ELMS for updates and any deviations to this general rule.

Academic Integrity:

Learning to solve physics problems can be challenging and tedious. Often students find it beneficial to work with a partner or in small groups. Physics is a community industry so working together is encouraged and authorized, unless specifically stated otherwise.

That said, it is crucial that each of you create and submit your own assignments. It is easier than you may think to detect assignments that are identical or copied from someone else or the web.

Always write your assignments in your own words. In taking this course, it is assumed that you have agreed to the university honor pledge:

*I pledge on my honor that I have not given or received
any unauthorized assistance on this assessment.*

For more information on the university's code of academic integrity, please visit the following URL:

<https://president.umd.edu/sites/president.umd.edu/files/files/documents/policies/III-100A.pdf>

Accessibility & Disability Service (<https://www.counseling.umd.edu/ads/>):

Accommodations will be provided to enable students with disabilities to participate fully in the course. Please discuss any needs with me at the beginning of the semester, so that appropriate arrangements can be made. Students who are registered with [ADS](#) and plan to take exams at their facilities should provide the pertinent authorization forms (electronic format is fine) at least one week prior to each exam.

Additional Academic Help

If you find that you need help beyond coming to office hours and talking to your TA, you are encouraged to visit the [Slawsky Clinic](#). The Slawsky Clinic provides physics tutoring for students on a walk-in, first-come, first-served basis. The clinic operates primarily for the 100 and 200 level physics classes. The tutors can answer additional physics questions as their time and knowledge permit. The tutors are retired professors, scientists, and engineers. For more information please visit the following URL:

<https://www.umdphysics.umd.edu/academics/tutoring-a-academic-support/93-slawskyclinic.html>

Course Schedule

The latest lecture and homework schedule, which can be found under the "Syllabus" tab in ELMS, lists the topics to be covered and the sections in the recommended text book for further reading. For best results you should read the material before class. Please understand that * in the "HW Due" column is a reminder that the listed due date means the assignment is due the night before the indicated date. For example, a due date of Feb 3 (when OHW01 and PHW1 are due) means that the assignment is due at 23:59 (11:59 pm) the previous day, Sunday Feb 2. All other listed dates, such as exam dates, are as indicated. The dates are all subject to change depending on how quickly we move through the material and emergency situations like snow days so please check frequently. My priority is to make sure you understand the material. So, if we need to slow the pace we will, which could alter the schedule. The lab schedule can also be accessed under the "Syllabus" tab in ELMS.