

SPRING 2021 Department of Physics & Astronomy, UGA**PHYS 1112 Introductory Physics - Electricity and Magnetism, Optics**

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

Course Description:	The continuation of Introductory Physics. Electricity and electric circuits, magnetism, geometric and wave optics.
Athena Title:	INTRO PHYS ELEC
Pre or Corequisite:	PHYS 1111-1111L or PHYS 1211-1211L
Grading System:	A-F (Traditional)
Instructor:	Dr. Tho Nguyen
Preferred method of communication:	In-class and during office hours
Office:	Physics 233 (Phone: 706-542-2492)
Emailing Policy:	Before emailing, make sure you read and understood this syllabus in its entirety. I will not respond to your inquiry if the question you are asking had already been answered here. ngtho@uga.edu
Sections:	27133 1:50pm – 02:40pm (MWF) 27144 3:00pm – 03:50pm (MWF)
Online Office hours:	11:00am – 1:00pm (MWF). https://zoom.us/j/99615627449?pwd=V09ycm12ejJkV0hXRTF6NHZqWHFVZz09 Meeting ID: 996 1562 7449; Passcode: 935050
Elc Website	No individual communication via ELC!!! ELC: General announcements; Posting of lecture slides/comments, homework or exam solutions, practice exams.
Text:	<i>Physics</i> , Chapters 19 – 28, 5 th Edition (any other edition is OK), James S. Walker (Pearson Addison-Wesley)
Clickers:	None
Academic Honesty:	<i>As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at: www.uga.edu/honesty. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.</i>
In-class rules:	➤ No any electronic/communication devices (cellphones, ipods.) other than ones that are used for the class activities are permitted in the classroom. ➤ If you are late for class, you must enter in the back of the room.
Attendance:	➤ Is required and will be check frequently.
Labs:	➤ Labs are completely independent of the lectures ➤ The labs will begin the week of January 24-28. ➤ All inquiries related to Labs should be directed to either your respective lab TAs, or our Lab Coordinator, Mr. Tom Barnello, at: tjbar@uga.edu 706-542-2903, Rm. 310
Lab syllabus:	➤ Can be found here: http://www.physast.uga.edu/courses
Exams:	➤ There will be three in-class midterm exams and a cumulative final exam. All exams will be closed-book and closed-notes. You may use a simple scientific calculator that is <i>nonprogrammable, non-graphing, and non-symbolic</i>. (Calculators such as the TI-83 or TI-84 are <i>not allowed</i>.) I'll provide you with a formula sheet for each exam, and will also post it to the Web before the exam. The formula sheet's purpose is to focus your studying on understanding rather than memorization. If you feel you need an equation that's not on the sheet, don't memorize it; learn how to derive it from the equations that <i>are</i> given. ➤ Exams will comprise both conceptual and problem-solving questions, very similar to homework, practice problems, and in-class examples. Unless told otherwise, you must show your work on each problem (e.g. for the problem-solving questions) in order to receive full credit. Partial credit is awarded (based on your work) for incomplete or incorrect answers, so it is usually in your best interest to attempt every problem. Detailed solutions will be posted to the ELC Web after each in-class exam.

- Exams are designed to test your understanding thoroughly and to distinguish among levels of performance. In order for exams to be effective assessments, raw scores is sometimes lower than the expectations created by the “standard” letter grade cutoffs. These raw scores might be “rescaled” into numerical grades. This conversion is based mostly on the difficulty level of the exam and partly on the distribution of raw scores. Your rescaled grade will *never* be lower than your raw score and will be done at the end of the semester. Unlike a “grade curve”, you are *not competing* against your peers; it is possible for everyone to get an A or B, for example. But please do not expect too much on the rescale since it rarely happens. There is **no grade curve** in this course.
- ***There will be no make-up midterm exams.*** If you need to miss a midterm exam for a **serious, documentable reason** (e.g. getting Covid-19, serious sickness...), your final exam grade will be substituted for your one of your midterms, making your final exam worth 35-45% of your overall grade (depending on how this grade compares to your other midterm exam grades). This policy is designed to handle unavoidable situations like medical or family emergencies, or previously scheduled academic or athletic events. You *must* contact me as soon as you know of the conflict (before the exam if at all possible), and you must provide sufficient documentation in a timely fashion. (An example of *unacceptable* documentation is a note stating only that you visited the health center, with no indication of the severity of your illness.) Do not presume that your situation or documentation merits an excused absence; that determination is not your prerogative. ***Unexcused exam absences will result in an exam grade of zero.***
- A make-up final exam will be given only for students with legitimate, documentable reasons as explained above.

Homework:

- Online assignments are an essential part of the course. You will access them with an account on the LON-CAPA system at <http://spock.physast.uga.edu/> (backup server at <http://tuvok.physast.uga.edu/>). Your homework will be automatically graded after the mandatory deadlines in the LON-CAPA system.
- Regular, personal practice with physics problems is crucial to understanding physics, so you will have weekly homework assignments. The assignments will generally be due after a week from the posted date. Assignments will be posted online, and most problems will require you to submit your answers on the Web. However, some assignments may also have a handwritten component, which you should hand in to me directly or put into a assigned box in front of my office, Room 233. (*Do not* slide anything under my office door.) Detailed solutions will be posted to the Web after the due date.
- Each assignment will be weighted equally unless otherwise specified. I will drop your lowest two assignment percentages in calculating your overall score, *with the additional requirement* that you complete the course evaluation at the end of the semester. This dropped-assignment policy compensates for the unavoidable circumstances that may occasionally prevent you from submitting homework on time (e.g., illness, scheduled event, Internet failure, etc.).
- *Late homework will not be accepted or excused.* However, even if you miss the deadline to submit a completed homework answers for credit, you should still make every effort to work through all the problems on every assignment, in order to master the topics covered. You will do very poorly on exams if you don’t work through each assignment in its entirety.
- Teamwork can be a very effective way to learn, so I encourage you to collaborate with your classmates on homework problems. That is in fact a goal of the optional weekly clinics. However, don’t mistake teamwork for plagiarism; *your solutions must be your own.* Copying or paraphrasing someone else’s work, or using *any* outside source of homework solutions, is a violation of academic honesty policies. If you’ve read this far in the syllabus, please put a smiley face next to your major on the questionnaire.
- Since you can’t collaborate on exams, homework is your best opportunity to develop your own problem-solving skills.

Class Activities:	➤ You will often be asked in class to answer conceptual and quantitative questions. ➤ You are required to participate in the lectures and can ask any questions associated with the lectures.
Grades:	Your grades will be posted on the eLC-New, http://elcnew.uga.edu
Grading policy:	20% LABS 15% HOMEWORK 45% MIDTERM EXAMS (20%/15%/10% for highest/middle/lowest grades) 20% FINAL EXAM (cumulative exam) 100% TOTAL ➤ At this moment, all exams are in-class exam and no individual re-scheduling or make up is available. ➤ Your overall grade will become available on Athena after the corresponding deadline. Email me only if you strongly believe there was a mistake in my calculation. Do not ask for a bump-up, a curve, or any extra credit. Make sure to include your class and section number. ➤ Requests for extra credit assignments or activities will be ignored, so don't ask
Cut-offs:	F : [0, 60) D : [60, 68) C- : [68, 70) C : [70, 75) C+ : [75, 78) B- : [78, 80) B : [80, 85) B+ : [85, 88) A- : [88, 90) A : [90, 100] NOTE: No rounding; 89.99 = A-, etc.
Grade appeal:	Grade appeals are resolved by following our departmental due procedure as described here: https://www.physast.uga.edu/policies/policiesonstudentissues/grievance
Incompletes:	No "Incompletes" will be assigned in this class unless requested by the UGA Student Care and Outreach office. You must remove the "I" by the end of the semester subsequent to its assignment.
Hardship withdrawals:	If your course performance is significantly affected by issues beyond your control, please seek assistance promptly from Student Care and Outreach http://sco.uga.edu/ It is always easier to address exceptional circumstances when you raise these concerns as early as possible. Waiting until the end of the semester to take action may limit my ability to provide appropriate support.
Main objective and strategy for success:	In this course, learning how to solve physics problems should be regarded as your ultimate objective. I will not be able to cover everything you are expected to know in class. You will have to independently work through some of the topics at home. Since most of your grade will come from problem solving, do the following: 1. Start working from Day One. - Read each chapter before it is discussed in class. - Attend every lecture. - Take good notes. - Participate actively in discussions. - Ask questions in class or in office hours - Re-read and re-work the chapter and the notes carefully after class. - Re-work problems solved in class - Solve all homework problems accurately. - Concepts first. Think before plugging-and-chugging. - Complete all labs. - Form a study group. - Finally, think about physics on a regular basis. - If everything fails, learn from your mistakes. Drop the class before the deadline and re-take it at a later time.

Tentative Schedule

Week	Day	Date	Reading	Topic
1	M	Jan. 10	25.1-3	Intro to this course; EMW: EM waves; spectrum; Doppler effect HW 1
	T	Jan. 11		
	W	Jan. 12	26.1-2	6 Principles of GO: Reflection, plane mirrors
	R	Jan. 13		
	F	Jan. 14	26.3-4	GO: Spherical mirrors, ray tracing, mirror equation HW 2
2	M	Jan. 17		MLK Day
	T	Jan. 18		
	W	Jan. 19	26.3-4	GO: Spherical mirrors, ray tracing, mirror equation (cont.)
	R	Jan. 20		
	F	Jan. 21	26.5	GO: Refraction & total internal reflection
3	M	Jan. 24	26.6-7	GO: Ray tracing for lenses; thin lens equation HW 3
	T	Jan. 25		
	W	Jan. 26	27.1-2	OI: Human eye, camera, corrective optics
	R	Jan. 27		
	F	Jan. 28	27.1-2	OI: Human eye, camera, corrective optics (cont.) HW 4
4	M	Jan. 31	27.1-2	OI: Human eye, camera, corrective optics (cont.)
	T	Feb. 01		
	W	Feb. 02	27.1-2	OI: Magnifying glass, microscope, telescope
	R	Feb. 03	27.3-5	
	F	Feb. 04		OI: Magnifying glass, microscope, telescope (cont.)
5	M	Feb. 07		Review ch. 26-27 for exam 1
	T	Feb. 08		
	W	Feb. 09		EXAM 1 (Ch. 26, 27), HW 1-4
	R	Feb. 10		
	F	Feb. 11	28.1-2	WO: Superposition & interference; Two-slit experiment HW 5
6	M	Feb. 14	28.1-2	WO: Superposition & interference; Two-slit experiment (cont.)
	T	Feb. 15		
	W	Feb. 16	28.4,6	WO: Single-slit diffraction; diffraction gratings; spectrometers
	R	Feb. 17		
	F	Feb. 18	28.4,6	WO: Single-slit diffraction; diffraction gratings; spectrometers (cont.) HW 6
7	M	Feb. 21	19.1-3	EF: Electric charge; insulators & conductors; Coulomb's Law
	T	Feb. 22		
8	W	Feb. 23	19.1-3	EF: Electric charge; insulators & conductors; Coulomb's Law HW 7
	R	Feb. 24		
	F	Feb. 25	19.1-3	EF: Electric charge; insulators & conductors; Coulomb's Law
	M	Feb. 28	19.4-6	EF: Electric field; field lines; capacitor; shielding & charging by induction
	T	Mar. 01		
	W	Mar. 02	19.4-6	EF: Electric field; field lines; capacitor; shielding & charging by induction HW 8
	R	Mar. 03		
9	F	Mar. 04	19.4-6	EF: Electric field; field lines; capacitor; shielding & charging by induction
	M	Mar. 07		
	T	Mar. 08		
	W	Mar. 09		SPRING BREAK
	R	Mar. 10		
10	F	Mar. 11		
	M	Mar. 14	20.1-2 20.3-4	REVISITING: Energy, WkET & LCE HW 9 EP: Electric potential & energy; energy conservation EP: Electric potential of point charges; equipotential surfaces & E-field
	T	Mar. 15		

	W	Mar. 16	20.5-6	EP: Capacitors & dielectrics; electric energy storage
	R	Mar. 17		
	F	Mar. 18		Review
11	M	Mar. 21		EXAM 2 (Ch.28,19,20) + HW 5-8 + partial HW 9
	T	Mar. 22	21.1-3	DC: Electric current; Ohm's Law; Energy & power in electric circuits
	W	Mar. 23	21.4-5	DC: Simple circuits; resistors in series & parallel
	R	Mar. 24		Withdrawal deadline
	F	Mar. 25		DC: Simple circuits; resistors in series & parallel HW 10
12	M	Mar. 28		
	T	Mar. 29	21.6-7	DC: Kirchhoff's Rules
	W	Mar. 30	21.6-7	DC: Kirchhoff's Rules
	R	Mar. 31		
	F	Apr. 01	22.1-2	MF: Magnetic field; magnetic force on moving charges
13	M	Apr. 04	22.1-2	MF: Magnetic field; magnetic force on moving charges HW 11
	T	Apr. 05		
	W	Apr. 06	22.3	MF: Motion of charged particles in a magnetic field
	R	Apr. 07		
	F	Apr. 08	22.3	MF: Motion of charged particles in a magnetic field
14	M	Apr. 11	22.4-5	MF: Magnetic force on current-carrying wire; loops & magnetic torque(cont.)
	T	Apr. 12		
	W	Apr. 13	22.4-5	MF: Magnetic force on current-carrying wire; loops & magnetic torque(cont.)
	R	Apr. 14		
	F	Apr. 15	23.1-4 23.2-4	EMI: Induced e.m.f. EMI: Magnetic flux; Faraday's Law; Lenz's Rule
15	M	Apr. 18	23.1-4 23.2-4	EMI: Induced e.m.f. EMI: Magnetic flux; Faraday's Law; Lenz's Rule
	T	Apr. 19		
	W	Apr. 20	23.5	EMI: Motional e.m.f.
	R			
	F	Apr. 22	23.6	EMI: Generators & Motors

16	M	Apr. 25	23.7-8	EMI: Inductance; <i>RL</i> -Circuits
	T	Apr. 26		
	W	Apr. 27	23.9-10	EMI: Energy stored in the magnetic field; Transformers
	R	Apr. 28		
	F	Apr. 29		EXAM 3 (Ch. 20, 21, 22,23) + HW 9-11
17	M	May 02		Review for Final Exam
	T	May 03		
	W	May 04		Reading Day
	R	May 05		
	F	May 06		
18	M	May 09		CUMULATIVE MASS FINAL EXAM (Monday, 7–10 pm)
	T	May 10		
	W	May 11		
	R	May 12		

	F	May 13		Commencement
	M	May 16		Grades due (12:00 PM)
19	T	May 17		

Spring 2022 Calendar Based on 50 minute classes (MWF), 75 minute classes (TTH), 15 weeks of classes + Exams

Orientation / Advisement	Jan. 6	Thursday
Registration	Jan. 7	Friday
Classes Begin	Jan. 10	Monday
Drop / Add for undergraduate and graduate level courses	Jan. 10 - 14	Monday - Friday
Holiday: Martin Luther King Jr. Day	Jan. 17	Monday
Midterm	Mar. 3	Thursday
Last Day of Classes prior to Spring Break	Mar. 4	Friday
Spring Break	Mar. 7 - 11	Monday – Friday
Classes Resume	Mar. 14	Monday
Withdrawal Deadline	Mar. 24	Thursday
Classes End	May 3	Tuesday
Reading Day	May 4	Wednesday
Final Exams	May 5 - 11	Thursday - Wednesday
Commencement	May 13	Friday
Grades Due	May 16	Monday, 12 PM

Final Exam Schedule Spring 2022

Monday/Wednesday/Friday Classes		Tuesday/Thursday Classes	
Meeting Time	Exam	Meeting Time	Exam
8:00 am	Mon., May 9 8:00 - 11:00 am	8:00 am	Tues., May 10 8:00 - 11:00 am

**Monday/Wednesday/Friday
Classes**

Meeting Time	Exam
9:10 am	Wed., May 11 8:00 - 11:00 am
10:20 am	Fri., May 6 8:00 - 11:00 am
11:30 am	Mon., May 9 12:00 - 3:00 pm
12:40 pm	Wed., May 11 12:00 - 3:00 pm
1:50 pm	Fri., May 6 12:00 - 3:00 pm
3:00 pm	Wed., May 11 3:30 - 6:30 pm
4:10 pm	Fri., May 6 3:30 - 6:30 pm
5:20 pm	Fri., May 6 3:30 - 6:30 pm
6:30 pm	Thur., May 5 7:00 - 10:00 pm
6:50 pm	Thur., May 5 7:00 - 10:00 pm
7:55 pm	Thur., May 5 7:00 - 10:00 pm
9:00 pm	Tues., May 10 7:00 - 10:00 pm

**Tuesday/Thursday
Classes**

Meeting Time	Exam
9:35 am	Thur., May 5 8:00 - 11:00 am
11:10 am	Tues., May 10 12:00 - 3:00 pm
12:45 pm	Thur., May 5 12:00 - 3:00 pm
2:20 pm	Tues., May 10 3:30 - 6:30 pm
3:55 pm	Thur., May 5 3:30 - 6:30 pm
5:30 pm	Mon., May 9 7:00 - 10:00 pm
6:30 pm	Wed., May 11 7:00 - 10:00 pm
8:00 pm	Mon., May 9 7:00 - 10:00 pm
9:30 pm	Wed., May 11 7:00 - 10:00 pm

Mass Exam Schedule - Spring 2022**PHYS 1112, 1211, 1251, 1252****Mon., May 9
7:00 - 10:00 pm**