

**PHY302L: GENERAL PHYSICS II (Electricity / Light / Nuclear)**  
**Fall 2016, TTh 9:30 – 11 AM, PAI 4.42**  
**UNIQUE # 55540**

**Instructor:** Prof. Keji Lai, [kejilai@physics.utexas.edu](mailto:kejilai@physics.utexas.edu), 475-9128, RLM 13.324

Office Hours: TTh 11 am – noon at RLM 13.324. Other times by appointment.

**Teaching Assistant:** TBD

Discussion Sections: TBD

Office Hours: TBD

**Extra Help:** Extra TAs are available regularly for coaching on the 5th floor of RLM. Check the bulletin board near the coaching tables for schedules. You may also get help at the Drop-In Tutoring Center in JES A315A (<http://www.utexas.edu/ugs/slc/support/drop-in>).

**Text:** *College Physics*, 9<sup>th</sup> or 10<sup>th</sup> Edition, Volume 2 by Serway and Vuille (older editions are fine too). See attached syllabus for schedule of lectures.

**Overview:** This is the second part of a non-calculus-based technical physics sequence for students who need to fulfill a general physics requirement. It serves as an introduction to electricity, magnetism, optics, waves, atomic and nuclear physics. You will gain an understanding and appreciation of how the scientific method is used to reveal the fundamental principles by which the universe operates, and will observe how knowledge of these principles is applied to the invention of new technologies and has helped shape the modern world. This course carries the **Quantitative Reasoning flag**. Quantitative Reasoning courses are designed to equip you with skills that are necessary for understanding the types of quantitative arguments you will regularly encounter in your adult and professional life. You should therefore expect a substantial portion of your grade to come from your use of quantitative skills to analyze real-world problems.

**Administrative Issues:** Kelly McCoy, [k.mccoy@austin.utexas.edu](mailto:k.mccoy@austin.utexas.edu), Undergraduate Office, RLM 5.214, 471-8856

**Course Pre- and Co-Requisites:** Credit with a grade of at least C- in Physics 302K and 102M; credit with a grade of at least C- or registration in Physics 102N. Note that PHY 102N is a separate course. If you appear to have not met the requirements, you will receive an email from Kelly McCoy on the 2nd class day and again on the 5th class day. If the problem is not corrected by the 12th class day, you will be dropped from the class.

**Drop Dates:** The last day to drop the course for a possible refund is Friday, Sept 9<sup>th</sup>. Tuesday, Nov 1<sup>st</sup> is the last day to drop the course with approval or change registration to or from a pass/fail basis. For a complete academic calendar, see <https://registrar.utexas.edu/calendars/16-17>

**QUEST system:** This course makes use of the web-based Quest content delivery and homework server system maintained by the College of Natural Sciences. This homework service will require a \$30 charge per student per class for its use, with no student being charged more than \$60 a semester. This goes toward the maintenance and operation of the resource. Please go to <http://quest.cns.utexas.edu> to log in to the Quest system for this class. After the 12th day of class, when you log into Quest you will be asked to pay via credit card on a secure payment site. Quest provides mandatory instructional material for this course, just as is your textbook, etc. For payment questions, email [quest.billing@cns.utexas.edu](mailto:quest.billing@cns.utexas.edu).

**Pre-Class Reading and In-Class Clicker Quizzes:** Before coming to class you are expected to have read the relevant materials from the textbook for that day. During the lectures, interactive quiz questions will be given to highlight the course materials. In order to participate, you will need to purchase an i-Clicker and then register it by entering the serial number on the back of your i-Clicker (include leading zeros) under “My Profile” in Quest. When you return to the Quest menu and select this course, you will find your “Clicker Box #” in the information box. Be sure to make note of your box number which will be displayed in the Clicker grid on the screen in the classroom. If you try using your i-Clicker without registering on the Quest site, your serial number will appear at the bottom of the Clicker grid and your response will not be recorded. See <https://quest.cns.utexas.edu/documentation/student/assignments/iclicker>. If you submit a wrong answer, you still get 80% credit. We will start counting the quiz scores on Thursday Sept. 8<sup>th</sup>. The lowest 4 in-class quiz grades will be dropped. The drops are intended to compensate for non-participation due to legitimate excuses as well as occasional clicker-related problems.

**Homework:** You will work on the homework online at <https://quest.cns.utexas.edu>. The homework assignments will be due at 11pm on the dates listed in the next page. Solutions will be available online the next morning at 9am. There are 12 assignments and the lowest 2 grades will be dropped in calculation of the semester grade. You may work together on the homework. You must, however, submit your own for credit. Read the students’ instructions at <https://quest.cns.utexas.edu/documentation/student/assignments/online-homework>.

**Midterm Exams and Final Exam:** There will be three in-class midterm exams held in PAI 4.42 on Spet. 27<sup>th</sup>, Oct. 25<sup>th</sup>, and Nov. 22<sup>nd</sup>. The lowest midterm grade will be dropped in calculation of the course grade. No makeup exam will be given. If you miss a midterm exam, it will be the one that will be dropped. The final exam is comprehensive and mandatory and will be held from 9am to noon on Thursday Dec 8<sup>th</sup>, as scheduled by the Registrar’s Office. No early or late final exam will be given. The midterm and final exams will be closed book but you are allowed to bring in one letter-sized page of formula sheet. Bring your own calculator for numerical calculations only (no computer, i-Phone etc.). Academic dishonesty will not be tolerated.

**Grading:** Course grades will be calculated based on the weighted sum of the following: Homework 30%, In-Class Clicker Quizzes 10%, Midterm Exams 30%, and Final Exam 30%. A historic cutoff scheme for the semester grade is as follows (scores are rounded to integer numbers before assigning the letter grade, for example, 84.499 is rounded to 84 and 84.500 is rounded to 85). A:  $\geq 90$ , A-:  $\geq 85$ , B+:  $\geq 80$ , B:  $\geq 75$ , B-:  $\geq 70$ , C+:  $\geq 65$ , C:  $\geq 60$ , C-:  $\geq 55$ , D+:  $\geq 50$ , D:  $\geq 45$ , and D-:  $\geq 40$ . Below 40 is failing. *The instructor reserves the right to readjust the thresholds according to the class performance.*

**TA Discussion Sections:** TA discussion sections are an integral part of this course. Attendance is not required but strongly encouraged. During each session, the TA will reiterate the course materials, work out examples similar to homework problems, or provide hints to solving homework problems. The sessions will start as soon as the time and location are determined.

**Special Accommodations:** The University provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Division of Diversity and Community Engagement, Services for Students with Disabilities, 512-471-6259, <http://diversity.utexas.edu/disability/>.

### Tentative Syllabus for Fall 2016

Class	Day	Date	Chapters	Subject	HW due
1	TH	Aug 25	15	Electric Forces and Electric Fields	HW1 (Ch15): Sat, Sept 10
2	T	Aug 30	15	Electric Forces and Electric Fields	
3	TH	Sept 1	16	Electric Energy and Capacitance	HW2 (Ch16): Sat, Sept 10
4	T	Sept 6	16	Electric Energy and Capacitance	
5	TH	Sept 8	17	Current and Resistance	HW3 (Ch17): Sat, Sept 17
6	T	Sept 13	17	Current and Resistance	
7	TH	Sept 15	18	Direct Current Circuits	HW4 (Ch18): Sat, Sept 24
8	T	Sept 20	18	Direct Current Circuits	
9	TH	Sept 22	19	Magnetism	
10	T	Sept 27	Midterm 1: Electricity (Ch. 15 – 18)		
11	TH	Sept 29	19	Magnetism	HW5 (Ch19): Sat, Oct 1
12	T	Oct 4	20	Induced Voltages and Inductance	HW6 (Ch20): Sat, Oct 8
13	TH	Oct 6	20	Induced Voltages and Inductance	
14	T	Oct 11	21	Alternating Current Circuits	HW7 (Ch21): Sat, Oct 15
15	TH	Oct 13	21	Alternating Current Circuits	
16	T	Oct 18	22	Reflection and Refraction	HW8 (Ch22): Sat, Oct 22
17	TH	Oct 20	22	Reflection and Refraction	
18	T	Oct 25	Midterm 2: Magnetism (Ch. 19 – 21)		
19	TH	Oct 27	23	Mirrors and Lenses	HW9 (Ch23): Sat, Nov 5
20	T	Nov 1	23	Mirrors and Lenses	
21	TH	Nov 3	24	Wave Optics	HW10 (Ch24): Sat, Nov 12
22	T	Nov 8	24	Wave Optics	
23	TH	Nov 10	25	Optical Instruments	HW11 (Ch25&27): Sat, Nov 19
24	T	Nov 15	25, 27	Optical Instruments, Quantum Physics	
25	TH	Nov 17	27, 28	Quantum Physics, Atomic Physics	
26	T	Nov 22	Midterm 3: Optics (Ch. 22 – 25)		
27	TH	Nov 24	Thanksgiving holiday		
28	T	Nov 29	28, 29	Atomic Physics, Nuclear Physics	HW12 (Ch28&29): Sat, Dec 3
29	TH	Dec 1	29	Nuclear Physics, Final exam review	
Final Exam Dec 8 <sup>th</sup> , 2-5pm (Ch. 15-25, 27-29)					