

PHYSICS 172 Fall 2019

INSTRUCTORS---

Lecture, M W, 9:00am, SLH 100 – Stephan Haas

Office	SSC 211A
Office Hours	10:00 am on Mondays & Wednesdays (after class)
Phone Number	213-740-4528
email	shaas@usc.edu

Discussion Section 1, T Th, 3:00pm, VKC 111– Aluizio Prata

Discussion Section 2, T Th, 4:00pm, VKC 150– Aluizio Prata

Office	PHE 618
Office Hours	9:30 – 11:30 on Tuesdays and Thursdays
Phone Number	213-740-4704
email	prata@usc.edu

Course Materials

Required for the Lecture (free, online)

<https://openstax.org/details/books/university-physics-volume-2>

https://optics.byu.edu/BYUOpticsBook_2015.pdf

Other Books

There is no shortage of alternatives to the assigned textbook:

Halliday, Resnick, Walker, *Fundamental of Physics*, Eighth Ed. (Wiley, 2008).

Knight, *University Physics*, Second Ed. (Pearson/Addison-Wesley, 2008).

Ohanian and Markert, *Physics for Engineers and Scientists*, Third Ed. (Norton, 2007).

E. M. Purcell, *Electricity and Magnetism*, Second Edition

Resnick, Halliday, Krane, *Physics*, v.1, Fifth Ed. (Wiley, 2001).

Serway and Jewitt, *Physics for Scientists and Engineers*, Seventh Ed. (Brooks/Cole, 2007).

Tipler and Mosca, *Physics for Scientists and Engineers*, Sixth Ed. (Freeman, 2008).

Richard Wolfson, *Essential University Physics*, Volume 2, Pearson/Addison Wesley.

Required for the Laboratory

- (a) **Science Notebook** (National Notebook 43-645). Any equivalent notebook with quadrille ruled pre-numbered pages bound into the notebook, with identically numbered pages for copies (either carbon copies and carbonless forms) is acceptable.
- (b) **Laboratory Manual** (Dept. of Physics & Astronomy, Fall 2019). The *Laboratory Manual* is provided on the lab's Blackboard site. You do not need to print it, though, of course, you can if you want to. While you will need to read the Manual in advance of your lab meeting, online reading is sufficient because a copy will be provided for your reference in the lab meeting room.
- (c) **Calculator** with linear and statistical functions

NOTES on LABORATORY – The laboratory is run by Dr. Gokhan Esirgen. His email is esirgen@usc.edu. Office is KAP-B19 and his office phone is 213-740-1138. The laboratory grade is worth 20% of your total course grade. The labs meet in the first week of classes. It is important that you report to lab in the first week because this is when you will learn everything you need to know like getting your lab manual, lab notebook, and how to do your lab reports, where and how to hand them in etc.

HOMEWORK – The homework will consist of written problems designed by the instructors. The homework will be posted on Blackboard in the assignments section and collected during the first lecture of every week unless otherwise specified in class. Late homework is not accepted. Homework can only be handed in during lecture. If you cannot come to lecture to hand in your homework, you can have a friend hand it in for you.

MIDTERMS – There will be two midterms. The first midterm will be Friday, Sept. 27 during lab, covering the first module of the course. The second midterm will be Friday, Oct. 25 during lab, covering the second module of the course. Each midterm will be worth 20% of your total course grade.

EXAM Final – The final exam is on Dec. 16 from 11:00am until 1:00 pm. The location will be announced. The final will cover the entire class, with an emphasis on the last module of the course, and it will be worth 20% of your total course grade.

GRADING SUMMARIZED:

Item	Percent towards total course grade
Homework	20
Midterm One	20
Midterm Two	20
Final Exam	20
Laboratory Grade	20
Total	100

LECTURE NOTES – One of the best ways of learning physics is to copy your lecture notes over neatly and clearly and see if you can understand them without the instructor filling in the narrative. This

combined with reading your book is a tremendous exercise for learning the material. If you do this you will find that the homework is a lot easier.

DISABILITIES – Students who need to request accommodations based on a disability are required to register each semester with the Disability Services and Programs. In addition, a letter of verification to the instructor from the Disability Services and Programs is needed for the semester you are enrolled in this course. If you have any questions concerning this procedure, please contact the course instructor and Disability Services and Programs at (213) 740-0776, STU 301.

ASSISTANCE – In addition to lecture, the instructor and Lab TAs have office hours that can be used to answer questions you may have about concepts or particular homework problems. Also, the solutions to written homework problems are posted on Blackboard after the homework is turned in.

ADDITIONAL ASSISTANCE:

(a) Study Groups

One of the most effective ways to learn new material is to teach it to others. To this end, we encourage you to work together in learning the material, and in doing homework assignments. If you have friends also enrolled in the course, in any section, feel free to discuss homework problems, *approaches* to solutions, and even solutions, though again you are cautioned not to simply copy each other's solutions.

(b) Viterbi Academic Resource Center <http://viterbi.usc.edu/tutoring>

The Viterbi Academic Resource Center office is located in the Ronald Tutor Hall of Engineering, Room 222, and provides two kinds of services. It provides free individual and group tutoring with tutors screened by the School of Engineering. Its hours are posted at viterbi.tutoring@usc.edu. For more information contact the Engineering Student Affairs Office, RTH 110. Other contacts: 740-3381, viterbi.tutoring@usc.edu.

OUTLINE OF TOPICS COVERED, APPROXIMATE WEEKLY SCHEDULE:

Week	Dates	Chapters	Topics
1	Aug. 26	UP Ch. 5	Electric charges and fields Lab: organizational meeting
2	Sept. 2	UP Ch. 6	Gauss's law Lab: Coulomb force
3	Sept. 9	UP Ch. 7	Electric potential Lab: Thomson q/m
4	Sept. 16	UP Ch. 8	Capacitance Lab: dipole measurements
5	Sept. 23	UP Ch. 9	Current and resistance Lab: midterm 1
Midterm One	Friday, Sept. 27		Topics of Weeks 1-5

6	Sept. 30	UP Ch. 11	Magnetic forces and fields Lab: magnetic force
7	Oct. 7	UP Ch. 12	Sources of magnetic fields Lab: magnetic energy
8	Oct. 14	UP Ch. 13	Electromagnetic induction Lab: no lab, fall recess
9	Oct. 21	UP Ch. 14	Inductance Lab: midterm 2
Midterm Two	Friday, Oct. 25		Topics of Weeks 6-9
10	Oct. 28	UP Ch. 16, PLO Ch. 1	Maxwell's equations Lab: E & B relaxation
11	Nov. 4	PLO Ch. 2	Plane waves and refractive index Lab: Kirchhoff's voltage law and time-varying magnetic fields
12	Nov. 11	PLO Ch. 3	Reflection and refraction, dissipative media Lab: EM standing waves
13	Nov. 18	PLO Ch. 6	Polarization of light, optical applications Lab: optical interference
14	Nov. 25	Lecture notes	Radiation from accelerated charged particles Lab: no lab, Thanksgiving recess
15	Dec. 2	Lecture notes	Antennas Lab: Antenna experiment
Final Exam	Monday, Dec. 16	11:00am – 1:00pm Location TBA	Cumulative covering entire material

Important Dates Fall Semester 2019

Aug. 26	Fall semester classes begin in Session 001
Aug. 26 - 30	Late registration and change of schedule
Sept. 2	Labor Day, university holiday
Sept. 13	Last day to register and add classes for Session 001
Sept. 13	Last day to drop a class without a mark of "W," except for Monday-only classes, and receive a 100% refund for Session 001
Sept. 13	Last day to change enrollment option to Pass/No Pass or Audit for Session 001
Sept. 13	Last day to purchase or waive tuition refund insurance for Session 001
Sept. 17	Last day to drop a Monday-only class without a mark of "W" and receive a 100% refund or change to Pass/No Pass or Audit for Session 001
Nov. 15	Last day to drop a class with a mark of W for Session 001
Oct. 17-18	Fall Recess
Nov. 27-Dec.1	Thanksgiving recess
Dec. 6	Fall semester classes end
Dec. 7- 10	Study days
Dec. 11-18	Final examinations
Dec. 19- Jan. 12	Winter recess