

Physics 2049, Section 801

General Physics, Physics II (with calculus)

Text: Physics for Scientists and Engineers: Serway and Jewett (7th Edition)

11:50 am – 12:40 pm, MWF, PHY 141

Instructor: Dr. Xiaomei Jiang

Office Hours: Wed 3-5pm & Fri 10am – noon, and by appointment.

Office: SCA 416, Phone 813-974-7765, Email: xjiang@cas.usf.edu

Syllabus

Course Schedule:*

Week 1 through week 5: (*Part II 'Oscillations and mechanical waves'*)

Chapter 16, Wave motion; Chapter 17, Sound waves; Chapter 18, Superposition and standing waves; Chapter 23, Electric field; Chapter 24, Gauss' Law.

Sept. 1: Labor Day, no class

Exam #1 Sept 24 (Wednesday) 11:50- 12:40 PM, Chapters 16-18, 23-24

Week 5 through Week 8: (*Part IV 'Electricity and magnetism', Electricity*)

Chapter 25, Electric potential; Chapter 26, Capacitance and dielectrics, Chapter 27, Current and resistance; Chapter 28, Direct current circuits.

Exam #2 Oct 15 (Wednesday) 11:50- 12:40 PM, Chapters 25-28

Week 8 through Week 12: (*Part IV 'Electricity and magnetism', Magnetism*)

Chapter 29, Magnetic fields; Chapter 30, Sources of the magnetic field; Chapter 31, Faraday's law; Chapter 32, Inductance; Chapter 33, Alternating current circuits.

Exam #3 Nov 12 (Wednesday) 11:50- 12:40 PM, Chapters 29-33

Week 12 through Week 15: (*Part V 'Light and optics'*)

Chapter 34, Electromagnetic waves; Chapter 35, The nature of light and the laws of geometric optics. Chapter 36, Image formation; Chapter 37, Interference of light waves; Chapter 38, Diffraction patterns and polarization.

Nov. 28: Thanksgiving Day, no class

Overall review (Dec 5): Review of all material covered during the semester.

Exam #4 Dec 10 (Wednesday) 11:50- 12:40 PM, Chapters 34-38

Exam #5 (Optional) Dec 12 (Friday) 5:30 – 6:20 PM, Chapters 16-18, 23-38

*: More detailed course schedules will be posted on Blackboard monthly. Please check from time to time. Also refer to the blackboard for updates.

Overall Course Objective: To achieve an initial understanding of the fundamental physical principles and concepts covered and to develop basic problem-solving skills using these principles.

Lectures: Lectures will generally consist of interactive discussions of basic principles and concepts, relevant demonstrations, and related problem solving. Regular attendance at lectures is beneficial and strongly encouraged, though lecture notes will be posted on Blackboard *after* each class.

Homework Assignments: For each chapter, problem sets will be posted on Blackboard. Your homework will not be collected and graded. However, doing homework is an essential part of learning Physics. Solution manual is reserved in the library for your reference and assistance. Try not to use the solution manual until you have made a series effort to solve the problems. You are also recommended to attend general help sessions (schedule will be announced soon!)

Exams: There are going to be five exams in this course, including four sectional exams and one final exam. Each exam consists of 10 multiple-choice problems. **You must show your work on the exam paper or you will get none credit.** You are required to answer problems on Scantron sheet given in each exam. A formula sheet with relevant equations and tables will be given with each exam.

What will you benefit from doing homework, reading textbook and attending lectures?

1. You will be rewarded by fascinating demonstration experiments in each lecture.
2. Over 90% of exam problems are based on homework and/or textbook examples which will be explained in class.

Grading: The optional final exam (Exams #5) serves as adjustment of the final grade; you are given the chance of dropping the lowest T-score among the previous exams, if applicable. The course grade will be based on your performance on the average of **four** highest T-scores. Students who have missed *one* of the previous exams for any reason or wish to drop the lowest T-score of the previous four exams will have to take Exam #5.

VERY IMPORTANT! If a student fails to take four exams during the term due to an unforeseen and documented emergency (must supply proof), the final grade will be based on the exams taken. Otherwise the final grade will be the lower one of the class average and the average of the exams taken.

T – Score grading system: (grade on the curve)

T-score = (Your test score – Class Average) / Standard Deviation

The Standard Deviation is a measure of the variability of the scores in the class, and the average is the class mean. The T-score gives you a measure of your performance compared to the Class Average and takes into account the class deviation or variability around the average. A zero T-score means your test score is exactly the Class Average. Therefore positive T-scores indicate above average performance and negative T-scores indicate below average performance. Your letter grade for the course will be determined approximately by the average of your T-scores as follows:

T-score $\geq + 1.6$	A+	+ 0.1 > T-score $\geq - 0.2$	C+
+ 1.6 > T-score $\geq + 1.3$	A	- 0.2 > T-score $\geq - 0.5$	C
+ 1.3 > T-score $\geq + 1.0$	A-	- 0.5 > T-score $\geq - 0.8$	C-
+ 1.0 > T-score $\geq + 0.7$	B+	- 0.8 > T-score $\geq - 1.1$	D+
+ 0.7 > T-score $\geq + 0.4$	B	- 1.1 > T-score $\geq - 1.4$	D
+ 0.4 > T-score $\geq + 0.1$	B-	- 1.4 > T-score $\geq - 1.7$	D-
T-score < - 1.7	F		

Regulations about the exams:

- * Bring your pictured ID to each test.
- * In general, no make-up tests will be given.
- * Exams are on closed books and closed notes and will consist of multiple-choice and/or problem-solving questions.

- * Bring a calculator with fresh batteries.
- * **Palm pilots and programmable calculators that store text are strictly not allowed. Examples of such calculators: TI-8x series, Casio fx-201P, HP 41C and above, Palm Pilot Z22, Tungsten E2 etc.**
- * An exam cover sheet containing necessary formulae and equations will be provided.
- * **There should be at least **one** empty seat between two students. Students sit *right next to each other* will have different sets of exam problems.**
- * **Academic dishonesty will result in automatic FF grade and further disciplinary actions.**

Specific policies:

- **Make-up exam policy:** In general no make-up exam will be given unless it is due to medical emergency or similar emergency situations (must present proof). Makeup exams will have different questions than regular exams, and are slightly more difficult than regular exams. Normally *you don't want to take the makeup exams.*
- **Schedule of individual exam time:** NO possibility of taking regular exam on the time other than the scheduled one unless it is specific case. Please refer to **Accommodations** for more details.
- **Bad-question policy:** In cases when an exam question is ***unclear***, such that fewer than 10% of students got the answer correct, the question will be discarded. The rest of the questions will be rescaled to make up for the loss.
- **Score dispute policy:** If you think you received an unfair score, don't argue with the TA who graded the exam, talk to Prof. Jiang. Your entire exam will be re-graded, including the ones that you received a perfect mark. *Warning: The corrected score could be lower than the original score you received*, because you might lose points on some questions and gain points on others. Unless you are absolutely certain that a re-grading will improve your score, you don't want to request one. No discussion or settlement will be made via emails or phones. You must come in person to talk with Dr. Jiang about any score dispute.
- **Incomplete Grade Policy:** "I" grade may be given to an undergraduate student only when a small portion of the student's work is incomplete (due to medical reason or family emergency) and only when the student is otherwise earning a passing grade. Passing grade for Incomplete consideration is "C-" and above.
- **Religious Preference Absence Policy:**
Students who anticipate the necessary of being absent from examination due to the observation of a major religious observance must provide notice of the date(s) to the instructor, in writing, by the second class meeting.
- **Attendance Record Bonus Policy:** attendance will be checked **randomly five** times through the semester. Each attendance counts for 0.04 points that can be added to the final T-score. The instructor reserves all the rights to choose when to take these attendances. **Absolutely no** post-class explanations or excuses will be taken into consideration.

General policies and procedures: For official and detailed information on holidays, semester deadlines, academic policies, procedures, fees, financial information, and registration instructions, see the Time Schedule Narrative and the Undergraduate Catalog.

Accommodations:

Any student with a disability is encouraged to meet with the instructor privately during the first week of classes to discuss accommodations. Each student must bring a current **Memorandum of Accommodation** from the Office of Student Disability Services (974-4309, SVC1133), which is prerequisite for receiving accommodation. Accommodated examinations through the Office of Student Disability Services require two weeks notice. All course materials are available in alternate format if requested in the student's Memorandum of Accommodations.

Tentative Class schedule

Ch.16 Wave Motion (Aug 27, 29)
 Ch.17 Sound Waves (Sept 3, 5)
 Ch.18 Superposition and Standing Waves (Sept 8, 10)
 Ch.23 Electric Fields (Sept 12, 15, 17)
 Ch.24 Gauss's Law (Sept 17, 19, 22)
Review on Chapter 16-18, 23-24 (Sept 22)

Exam #1 Sept 24 (Wednesday) 11:50- 12:40 PM, Chapters 16-18, 23-24

Ch.25 Electric Potential (Sept 26, 29)
 Ch.26 Capacitance and Dielectrics (Sept 29, Oct 1)
 Ch.27 Current and Resistance (Oct 3, 6)
 Ch.28 Direct Current Circuits (Oct 8, 10, 13)
Review on Chapter 25-28 (Oct 13)

Exam #2 Oct 15 (Wednesday) 11:50- 12:40 PM, Chapters 25-28

Ch.29 Magnetic Fields (Oct 17, 20)
 Ch.30 Sources of the Magnetic Field (Oct 22, 24, 27)
 Ch.31 Faraday's Law (Oct 27, 29, Nov. 3)
 Ch.32 Inductance (Nov 3, 5)
 Ch.33 Alternating Current Circuits (Nov 5, 7, 10)
Review on Chapter 29-33 (Nov 10)

Exam #3 Nov 12 (Wednesday) 11:50- 12:40 PM, Chapters 29-33

Ch.34 Electromagnetic Waves (Nov14, 17)
 Ch.35 Nature of Light and the Laws of Geometric Optics (Nov 17, 19, 21)
 Ch.36 Image Formation (Nov 21, 24)
 Ch.37 Interference of Light Waves (Nov 26, Dec 1)
 Ch.38 Diffraction Patterns and Polarization (Dec 3, 5)
Review on Chapter 16-38 (Dec 5)

Exam #4 Dec 10 (Wednesday) 11:50- 12:40 PM, Chapters 34-38

Exam #5 (Optional) Dec 12 (Friday) 5:30 – 6:20 PM, Chapters 16-18, 23-38

Homework Assignments (for 7th edition textbook)

Student Solution Manual has full solutions to selected odd-numbered problems. Instructor Solution Manuals with solutions to all problems are in the **Main Library Reserve**.

Text: *Physics for Scientists and Engineers by Serway and Jewett, 7th Edition**

*: Please refer to next page for 6th edition of Serway & Jewett book.

Ch.16 1, 2, 7, 8, 9, 10, 13, 14, 24, 29, 34, 35

Ch.17 1, 2, 11, 12, 13, 17, 19, 22, 23, 26, 29, 35

Ch.18 4, 5, 11, 13, 15, 17, 21, 29, 30, 43, 45

- Ch.23** 5, 7, 8, 9, 12, 13, 14, 20, 23, 24, 33, 34, 37, 41, 64
- Ch.24** 1, 4, 6, 7, 8, 9, 13, 17, 18, 21, 26, 27, 29, 31, 33, 32, 35
- Ch.25** 1, 2, 3, 4, 5, 10, 11, 12, 15, 20, 29, 30, 31, 34, 35, 40
- Ch.26** 1, 5, 7, 15, 17, 19, 21, 23, 25, 27, 28, 36, 37, 39, 40
- Ch.27** 1, 5, 8, 10, 11, 13, 16, 18, 19, 23, 30, 35
- Ch.28** 1, 5, 6, 7, 9, 15, 17, 24, 27, 29, 32
- Ch.29** 1, 3, 4, 5, 7, 9, 14, 19, 21, 25, 26, 34, 35, 36
- Ch.30** 3, 4, 5, 17, 18, 23, 24, 25, 27, 35, 39, 41
- Ch.31** 3, 7, 8, 9, 17, 22, 23, 28, 30, 32, 33
- Ch.32** 1, 3, 4, 5, 6, 11, 13, 15, 17, 19, 23, 28, 31, 33, 38, 41
- Ch.33** 2, 3, 5, 7, 8, 10, 13, 15, 17, 19, 21, 24, 25, 27, 29, 35, 36, 40, 41, 42
- Ch.34** 9, 10, 11, 12, 15, 17, 23, 41, 43
- Ch.35** 9, 11, 17, 18, 19, 20, 21, 25, 31, 32, 33, 36
- Ch.36** 3, 6, 7, 9, 17, 20, 21, 23, 27, 33, 34
- Ch.37** 1, 3, 5, 7, 13, 15, 23, 25, 28, 30
- Ch.38** 1, 2, 3, 7, 34, 35, 36, 37

Homework Assignments (for 6th edition textbook)

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Text: *Physics for Scientists and Engineers by Serway and Jewett, 6th Edition**

- Ch.16** 1, 2, 3, 6, 7, 8, 9, 13, 14, 22, 26, 29, 36, 37
- Ch.17** 1, 2, 11, 12, 13, 19, 21, 25, 28, 31, 33, 37, 39
- Ch.18** 4, 5, 6, 13, 14, 15, 17, 19, 25, 26, 27, 36, 37, 51, 53
- Ch.23** 5, 7, 9, 10, 13, 15, 18, 24, 26, 27, 30, 39, 40, 43, 46, 47
- Ch.24** 1, 3, 4, 6, 9, 10, 11, 12, 17, 21, 24, 28, 29, 31, 35, 37, 39, 41, 43, 48, 50, 51
- Ch.25** 1, 3, 4, 6, 7, 9, 15, 16, 18, 19, 24, 37, 38, 39, 42, 43, 46, 48
- Ch.26** 1, 5, 7, 9, 19, 21, 23, 25, 27, 29, 31, 33, 34, 43, 44, 45, 47, 54
- Ch.27** 1, 6, 8, 11, 15, 17, 21, 25, 26, 29, 31, 36, 43, 49

Ch.28 2, 5, 6, 9, 11, 13, 15, 21, 24, 27, 31, 32, 33, 36

Ch.29 1, 3, 5, 7, 9, 11, 12, 14, 20, 23, 25, 29, 30, 32, 36, 42, 43

Ch.30 3, 5, 6, 7, 16, 17, 21, 22, 23, 25, 31, 35, 36

Ch.31 1, 3, 5, 7, 9, 15, 20, 21, 28, 30, 32, 33

Ch.32 3, 4, 5, 7, 8, 15, 17, 19, 21, 24, 31, 36, 37, 40, 43, 47, 49

Ch.33 2, 3, 5, 6, 9, 10, 12, 15, 17, 19, 21, 23, 26, 27, 31, 33, 37, 40, 44, 45, 46

Ch.34 4, 5, 7, 8, 11, 13, 19, 39, 46

Ch.35 10, 13, 18, 19, 21, 22, 23, 29, 31, 35, 36, 37, 38

Ch.36 3, 7, 9, 11, 17, 21, 22, 23, 29, 31, 34, 36, 37

Ch.37 1, 3, 5, 7, 13, 15, 31, 32, 35, 37

Ch.38 1, 2, 3, 9, 40, 41, 42, 43, 47

Amendment of syllabus: Re-grading policy

Except for the 4th and 5th exams, the following rules apply to re-grading of exams 1~3:

1. Make sure you pick up your exam paper during the class after the exam.
2. Please check with the right answers of each problem during that same class, write down your specific request on a blank piece of paper.
3. Turn in your request together with your exam papers +Scantron sheet to Dr. Jiang before class is over.
4. Come to Dr. Jiang at an appointed time for re-grading. Remember: Your entire exam will be re-graded, including the ones that you received a perfect mark. *Warning: The corrected score could be lower than the original score you received*, because you might lose points on some questions and gain points on others. Unless you are absolutely certain that a re-grading will improve your score, you don't want to request one.
4. Once the exam papers are out of the classroom, there is no possibility of re-grading.
5. NO RE-GRADING CAN TAKE PLACE OVER THE PHONE OR EMAILS.