

Physics 2048, Section 981

Fall, 2007

General Physics, Physics I (with calculus)

6:00 – 7:15 pm, TR, PHY 141

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

Instructor: Xiaomei Jiang

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

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Syllabus

Course Schedule:*

Week 1 through week 5

Chapter 1, Physics and Measurement; Chapter 2, Motion in One Dimension; Chapter 3, Vectors; Chapter 4, Motion in Two Dimensions; Chapter 5, The Laws of Motion;

Exam 1(Chapters 1-5), Tuesday 09/25

Week 5 through Week 9:

Chapter 6, Circular Motion and Other Applications of Newton's Laws. Chapter 7, Energy and Energy Transfer; Chapter 8, Potential Energy; Chapter 9, Linear Momentum and Collisions, Chapter 10, Rotations of a Rigid Object About a Fixed Axis;

Exam 2(Chapters 6-10), Tuesday 10/23

Week 9 through Week 13:

Chapter 11 Angular Momentum; Chapter 12, Static Equilibrium and Elasticity. Chapter 13, Universal Gravitation; Chapter 14, Fluid Mechanics; Chapter 15, Oscillatory Motion;

Exam 3(Chapters 11-15), Tuesday 11/20

Thanksgiving Day – November 22, Thursday

Week 14 through Week 15:

Chapter 19, Temperature; Chapter 20, Heat and the First Law of Thermodynamics; Chapter 21, The Kinetic Theory of Gases; Chapter 22, Heat Engines, Entropy and the Second Law of Thermodynamics.

Exam 4(Chapters 19-22), Thursday 12/13

Exam 5 (Optional, Chapters 1-22), Friday 12/14

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

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: each exam consists of 12 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 which will be 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 will be 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.

If a student misses an exam during the term due to an unforeseen and documented emergency (must supply proof), the final grade will be based on the tests 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 ≥ + 1.6	A+	+ 0.1 > T-score ≥ - 0.2	C+
+ 1.6 > T-score ≥ + 1.3	A	- 0.2 > T-score ≥ - 0.5	C
+ 1.3 > T-score ≥ + 1.0	A-	- 0.5 > T-score ≥ - 0.8	C-
+ 1.0 > T-score ≥ + 0.7	B+	- 0.8 > T-score ≥ - 1.1	D+
+ 0.7 > T-score ≥ + 0.4	B	- 1.1 > T-score ≥ - 1.4	D
+ 0.4 > T-score ≥ + 0.1	B-	- 1.4 > T-score ≥ - 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.

* Arrive on campus early on test dates.

* **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. 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.

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.1 Physics and Measurement (Aug 28, 30)
Ch.2 Motion in One Dimension (Aug 30, Sept 4)
Ch.3 Vectors (Sept 6)
Ch.4 Motion in Two Dimensions (Sept 11, 13)
Ch.5 The Laws of Motion (Sept 17, 20)
Review Chapter 1-5 (Sept 20)

Exam #1 Sept 25 (Tuesday) 6:00-7:15 PM, Chapters 1-5

Ch.6 Circular Motion and Other Applications of Newton's Laws (Sept 27)
Ch.7 Energy and Energy Transfer (Oct 2,4)
Ch.8 Potential Energy (Oct 4, 9)
Ch.9 Linear Momentum and Collisions (Oct 11, 16)
Ch.10 Rotation of a Rigid Object about a Fixed Axis (Oct 16, 18)
Review Chapter 6-10 (Oct 18)

Exam #2 Oct 23 (Tuesday) 6:00-7:15 PM, Chapters 6-10

Ch.11 Angular Momentum (Oct 25)
Ch.12 Static Equilibrium and Elasticity (Oct 30, Nov 1)
Ch.13 Universal Gravitation (Nov 1, 6)
Ch.14 Fluid Mechanics (Nov 6, 8)
Ch.15 Oscillatory Motion (Nov 13, 15)
Review Chapter 11-15 (Nov 15)

Exam #3 Nov 20 (Tuesday) 6:00 – 7:15 PM, Chapters 11-15

Ch.19 Temperature (Nov 27)
Ch.20 Heat and the First Law of Thermodynamics (Nov 29)
Ch.21 The Kinetic Theory of Gases (Dec 4)
Ch.22 Heat Engines, Entropy, and the Second Law of Thermodynamics (Dec 6)
Review Chapter 19-22 (lecture notes will be posted on Black board)

Exam #4 Dec 13 (Thursday) 6:00 – 7:15 PM, Chapters 19-22**Exam #5 (Optional) Dec 14 (Friday) 6:00 -7:15 PM, Chapters 1-22**

Homework Assignments*

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*

*: numbers in blue represent equivalent problems in 6th edition of Serway & Jewett book.

Ch.1 2, 7, 9, 18, 21, 26, 30, 32 (3, 10, 15, 17, 28, 31, 42, 49, 51)

Ch.2 2, 1, 3, 5, 8, 10, 12, 13, 20, 21, 28, 39, 41, 43, 51 (1, 3, 5, 7, 9, 11, 14, 15, 20, 21, 25, 32, 43, 47, 49, 62)

Ch.3 1, 3, 6, 11, 13, 15, 30, 25, 34, 27, 41, 43 (1, 3, 10, 15, 17, 18, 19, 30, 31, 32, 33, 47, 48, 49)

Ch.4 1, 2, 5, 9, 13, 15, 27, 29, 31, 35, 36, 40 (1, 2, 5, 7, 11, 15, 17, 29, 32, 33, 35, 41, 42, 44)

Ch.5 2, 1, 5, 11, 14, 13, 20, 23, 29, 31, 36, 39, 41, 43 (1, 3, 7, 9, 13, 14, 15, 18, 21, 25, 31, 36, 41, 43, 45)

Ch.6 1, 5, 8, 15, 17, 14, 23, 27, 31, 43, 44, 55 (1, 5, 9, 15, 17, 19, 25, 33, 36, 37, 51, 52, 65)

Ch.7* 1, 3, 2, 5, 7, 9, 13, 17, 31, 39, 41, 42, 44, 46, 45 (1, 3, 4, 6, 7, 9, 11, 15, 19, 26, 33, 35, 37, 40)

Ch.8* 3, 10, 19, 21, 22, 15, 17, 29, 32 (5, 17, 21, 22, 24, 31, 33, 38, 41, 42, 43)

Ch.9 1, 4, 5, 7, 9, 10, 15, 16, 23, 25, 28, 27, 35, 37 (2, 4, 5, 7, 9, 10, 15, 17, 18, 23, 25, 32, 33, 38, 41)

Ch.10 3, 4, 5, 6, 10, 13, 16, 22, 21, 23, 33, 36, 38, 49, 53, 55 (3, 4, 5, 8, 12, 13, 16, 20, 21, 22, 31, 32, 36, 38, 46, 47, 51, 52, 53)

Ch.11 1, 3, 7, 8, 11, 13, 14, 17, 22, 25, 29, 32, 37 (1, 3, 7, 8, 11, 13, 14, 17, 22, 25, 28, 30, 35)

Ch.12 2, 1, 3, 6, 11, 13, 21, 23, 25, 27, 37, 45 (2, 3, 5, 6, 13, 16, 17, 25, 27, 31, 33, 43, 53)

Ch.13 3, 5, 9, 15, 21, 23, 24, 27, 31, 35, 34 (3, 5, 9, 11, 15, 23, 25, 26, 27, 31, 33, 37, 41)

Ch.14 3, 6, 7, 12, 14, 16, 17, 27, 28, 31, 35, 37, 46, 49 (3, 6, 9, 12, 16, 18, 19, 20, 24, 25, 33, 34, 38, 39, 41, 48, 53)

Ch.15 2, 3, 5, 6, 11, 13, 17, 19, 24, 25, 28 (2, 3, 5, 7, 11, 12, 19, 21, 23, 28, 31, 32)

Ch.19 3, 4, 25, 9, 15, 18, 21, 23, 27, 28 (3, 4, 5, 9, 15, 16, 20, 26, 33, 35, 39, 42)

Ch.20 7, 9, 11, 13, 14, 15, 19, 21, 22, 24, 25, 27, 26, 35, 37, 39, 40, 45 (7, 9, 13, 15, 16, 17, 21, 23, 24, 25, 27, 28, 29, 30, 39, 41, 42, 43, 46, 49)

Ch.21 7, 9, 11, 13, 17, 19, 25, 27, 28, 31, 36 (5, 7, 9, 12, 13, 21, 25, 31, 33, 35, 37, 40, 42)

Ch.22 1, 3, 10, 9, 13, 14, 19, 21, 23, 30, 31, 35, 39 (1, 3, 10, 11, 13, 16, 23, 25, 27, 35, 37, 41, 45)

Chapters 7&8 are quite different in 6th & 7th editions. Please pay attention to lectures for details.