

San José State University
Department of Physics and Astronomy
Physics 52, Section 03, Code 41217, Fall, 2009

Instructor:	Dr. Nayer Eradat
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Office Hours:	MW 14:00-15:00
Class Days/Time:	MW 12:00-13:15
Classroom:	DH 351 (Duncan Hall)
Prerequisites:	PHYS 50 or PHYS 70 with grades of "C-" or better.

Faculty Web Page and MYSJSU Messaging (Optional)

Copies of the course materials such as the syllabus, major assignment handouts, etc. may be found on my faculty web page accessible through the Quick Links>Faculty Web Page links on the SJSU home page or on the [course website](#). You are responsible for regularly checking with the messaging system through MySJSU.

Course Description

This course is the third semester in the calculus-based University Physics for science and engineering majors. Physics 52 covers geometric and physical optics, temperature, heat, thermodynamics, and kinetic theory.

Course Goals and Student Learning Objectives

Upon successful completion of this course, students will have basic understanding of the following concepts and will have some familiarity with real-life applications of them.

Optics

Wave Nature of Light: Electromagnetic Waves, Nature and Propagation of Light Waves

Geometric Optics: Reflection and Refraction, Total Internal Reflection, Polarization, Huygens' Principle, Mirrors, Thin Lenses, Camera, Eye, and Magnifier, Microscopes and Telescopes

Physical Optics: Superposition of EM Waves, Interference, Double-slit, Intensity, Thin Films, Michelson, Interferometer, Diffraction, Single Slit, Intensity, Grating, X-ray Diffraction, Resolving Power, Holography

Thermodynamics

Temperature and Heat: Temperature, Thermal Expansion, Calorimetry and Phase Changes, Heat Transfer

Thermal Properties of Matter: Equations of State, Kinetic Theory of an Ideal Gas, Heat Capacities, Molecular Speeds, Phases of Matter

First Law of Thermodynamics: Thermodynamic Systems, Work and Heat, Internal Energy, Adiabatic Processes

Second Law of Thermodynamics: Direction of Thermodynamic Processes, Calculation of Entropy for Reversible Processes, pV and TS Diagrams, Carnot Cycle, Heat Engines and Refrigerators

Required Textbook

University Physics 11th Edition by Young and Freedman published by [Pearson Higher Education](#). Chapters 33-36 for Optics and chapters 17-20 for Thermodynamics.

Other Readings

Any calculus-based general physics book such as Halliday-Resnik-Walker, Cutnell-Johnson, etc. in case you have difficulty understanding the assigned textbook. If you have difficulty with mathematical aspects of the course have a **standard calculus book** handy.

Other equipment / material requirements

Online homework (see the assignments & grading section)

Classroom Protocol

Lecture:

The lectures meet on Tuesdays and Thursdays during the semester. The lectures are designed to discuss the course material, to work examples, and to answer the questions you may have. There will be small demonstrations during some lectures that are designed to help you with better understanding of the physical concepts. The lectures are interactive. Students are expected to get involved in the discussions during the class. So it is crucial to read the suggested material before each lecture for active participation in the class and doing well in the quizzes.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. [Information on add/drops are available at http://info.sjsu.edu/web-dbgen/narr/soc-fall/rec-298.html](http://info.sjsu.edu/web-dbgen/narr/soc-fall/rec-298.html). [Information about late drop is available at http://www.sjsu.edu/sac/advising/latedrops/policy/](http://www.sjsu.edu/sac/advising/latedrops/policy/). Students should be aware of the current deadlines and penalties for adding and dropping classes.

Assignments and Grading Policy

Quizzes:

There are quizzes during the announced lecture periods as noted on the syllabus (end of each chapter). These quizzes are composed of conceptual questions and problems based on the suggested reading material for that lecture period. Each quiz will be graded out of 10 points.

Exams:

The 2 tests and final exam cover **all material encountered in both the lectures and the lab**. No test grades will be dropped. Exams will be closed book from the material listed in the syllabus. You will be provided with an equation sheet and necessary constants. 15 multiple choice conceptual questions (45 points) and 3 problems (60 points). A sample test will be available on the course website.

Homework:

Homework questions and problems are available on the <http://www.masteringphysics.com/>. Course ID is **MPERADAT0001** If you have purchased a new book, you should have a package that guides you to use the mastering physics website to do homework online (there is a access code and password in the package). If you have a used copy of the book, you need to go to <http://www.masteringphysics.com/> click on Young/Freedman University Physics 12e and purchase access to the website. The price is \$41.60. Use the first assignment (Introduction to mastering physics) to become familiar with the system. **Do not leave submission of your home works to the last minute. Servers can be down in the last minute. Late Homework:** Homework assignments will be available throughout the semester for study. However once the **deadline** passed the associated grade will drop to zero over the course of 48 hours. Remember to review and have a hard copy of the summary for your test preparations.

Grading:

Category	Contribution	Number Dropped
Midterm Tests (2)	40% (20% each)	0
Final Exam	20%	0
Quizzes	10%	2
Home Work	20%	1
Lab	10%	0

Your grade will be determined by your performance on the quizzes, homework and exams. Plus and minus grading will be used. The letter grades will be roughly assigned based on the following list A: 90s, B: 80s, C: 70s, D: 60s, F: 50s and below. **You must pass the lab associated with this course in order to pass this course. Without completion of the lab you will fail PHYS 52**

University Policies

Academic integrity

Students should know that the University's [Academic Integrity Policy is available at http://www.sa.sjsu.edu/download/judicial_affairs/Academic_Integrity_Policy_S07-2.pdf](http://www.sa.sjsu.edu/download/judicial_affairs/Academic_Integrity_Policy_S07-2.pdf). Your own commitment to learning, as evidenced by your enrollment at San Jose State University and the University's integrity policy, require you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The website for [Student Conduct and Ethical Development is available at http://www.sa.sjsu.edu/judicial_affairs/index.html](http://www.sa.sjsu.edu/judicial_affairs/index.html).

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include in your assignment any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy F06-1 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the DRC (Disability Resource Center) to establish a record of their disability.

Student Technology Resources (Optional)

Computer labs for student use are available in the Academic Success Center located on the 1st floor of Clark Hall and on the 2nd floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library.

A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include digital and VHS camcorders, VHS and Beta video players, 16 mm, slide, overhead, DVD, CD, and audiotape players, sound systems, wireless microphones, projection screens and monitors.

Learning Assistance Resource Center (Optional)

The Learning Assistance Resource Center (LARC) is located in Room 600 in the Student Services Center. It is designed to assist students in the development of their full academic potential and to motivate them to become self-directed learners. The center provides support services, such as skills assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development. [The LARC website is located at http://www.sjsu.edu/larc/](http://www.sjsu.edu/larc/).

SJSU Writing Center (Optional)

The SJSU Writing Center is located in Room 126 in Clark Hall. It is staffed by professional instructors and upper-division or graduate-level writing specialists from each of the seven SJSU colleges. Our writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers. [The Writing Center website is located at http://www.sjsu.edu/writingcenter/about/staff/](http://www.sjsu.edu/writingcenter/about/staff/).

Peer Mentor Center (Optional)

The Peer Mentor Center is located on the 1st floor of Clark Hall in the Academic Success Center. The Peer Mentor Center is staffed with Peer Mentors who excel in helping students manage university life, tackling problems that range from academic challenges to interpersonal struggles. On the road to graduation, Peer Mentors are navigators, offering "roadside assistance" to peers who feel a bit lost or simply need help mapping out the locations of campus resources. Peer Mentor services are free and available on a drop-in basis, no reservation required. [Website of Peer Mentor Center is located at http://www.sjsu.edu/muse/peermentor/](http://www.sjsu.edu/muse/peermentor/).

Date	Day	Quiz	Reading	HW Assigned	Due
Week 1					
Aug 24	M		L0: Introduction,	HW0: Intro mastering Physics	
Aug 26	W	Q1	L1: 33.1-2 Rv. Electromagnetic waves	HW1 Assignment 1 online HW in MP	0
Week 2					
Aug31	M	Q2	L2: 33.3		
Sept 2	W		L3: 33.4	HW2	1
Week 3					
Sept 7	M		Labor day No class		
Sept 9	W		L4: 33.5-6	HW3	2
Week 4					
Sept 14	M		L5: 34.1-2		
Sept 16	W		L6: 34.3-4	HW4	3
Week 5					
Sept 21	M		L7: 34.4-5		
Sept 23	W		L8: 34.6-8	HW5	4
Week 6					
Sept 28	M	Q3	L9: 35.1-2		
Sept 30	W		L10: 35 3-4	HW6	5
Week 7					
Oct 5	M		L11: 35.5, 36.1		
Oct 7	W	Q4	L12: 36.2-3	HW7	6
Week 8					
Oct 12	M		L13: 36.4-5		
Oct 14	W		L14: 36.6-7	HW8	7
Week 9					
Oct 19	M		No class Furlough		
Oct 21	W		Review		8
Week 10					
Oct 26	M		Midterm 1 Chapters 33-36		
Oct 28	W		L15: 17.1-4	HW9	
Week 11					
Nov 2	M		L16: 17.5-7		
Nov 4	W	Q5	L17:18.1-3	HW10	9
Week 12					
Nov 9	M		L18: 18.4-6		
Nov 11	W		No class Veteran's Day	HW11	10
Week 13					
Nov 16	M	Q6	L19: 19.1-.3		
Nov 18	W		L20: 19.4-5	HW12	11
Week 14					
Nov 23	M		L21: 19.6-8		
Nov 25	W	Q7	L22 : 20.1-3	HW13	12
Week 15					
Nov 30	M		L23: 20.4-6		
Dec 2	W	Q8	L24 : 20.7-8	HW14	13
Week 16					
Dec 7	M		Mid term 2 Chapters 17-20		14
Dec 9	W		No class Study day		
Week 17					
Dec 15	Tues		Final: chapters 33-36, 17-20	SCI 258, 9:45-1200	

