Physics 53, Section 02, Code 28257, 2 Units
Department of Physics and Astronomy
San José State University
Spring, 2010

Instructor:	Dr. Nayer Eradat
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Office Hours:	MW 15:00-16:00
Class Days/Time:	MW 13:30-14:20
Classroom:	SC 164 (Science)
Prerequisites:	PHYS 70 & PHYS 71; or PHYS 50 & PHYS 51 & PHYS 52; CHEM 1A, (with grades of "C-" or better).

Faculty Web Page and MYSJSU Messaging (Optional)

1. Copies of the course materials such as the syllabus, major assignment handouts, etc. may be found on my faculty home page from http://www.physics.sjsu.edu/ click on faculty and staff and then on adjunct faculty or directly on the course website http://www.erbion.com/Phys53_2010.htm .
2. I will regularly update the website and send announcements to the email address you have provided at registration. You are responsible for regularly (twice a week) checking with the messaging system through MySJSU.

Course Description

This course is the fourth semester in the calculus-based University Physics for science and engineering majors. Physics 53 covers introduction to quantum physics emphasizing electronic structure of atoms and solids, radiation and relativity and special topics on modern physics.

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.
Relativity; Photons, Electrons & Atoms; The wave nature of Particles; Quantum Mechanics; Atomic Structure; Molecules & Condensed Matter; Nuclear Physics; Particle Physics & Cosmology.

Required Textbook

University Physics 12th Edition Volume III by Young and Freedman published by Pearson Higher Education. Chapters 37-44.

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. Also there is a math review at the end of the book (appendix B).

Other equipment / material requirements

Online homework (see the assignments & grading section)

Classroom Protocol

Lecture:

The lectures meet on Mondays and Wednesdays 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. Information about late drop is available at 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 two midterm tests and final exam cover **all material encountered in the lectures**. 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. 10 multiple choice questions (40 points) and 3 problems (20 points each). 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 **MPERADAT201053** . 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 50 hours.

Remember to review the problems after submission and have a hard copy (print or PDF) of the summary for your test preparations.

Final Paper:

Choose your favorite topic from the topics discussed in modern physics and write a 5-10 page review article about it with abstract, main body, conclusion, references and sections on the history of the field, fundamental concepts, current status and challenges, future outlook and applications.

Grading:

Category	Contribution	Number Dropped
Midterm 1	30%	Best of average of the two midterms or final Skipping the final is not an option
Midterm 2	30%	
Final Exam	60%	
Quizzes	10%	1
Home Work	20%	1
Final Paper	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.

Tutoring:

There will be a tutoring service for your homework questions staffed by Physics graduate students. Watch the course website and the Email announcements for the schedule and location.

University Policies

Academic integrity

Students should know that the University's Academic Integrity Policy is availabe at 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.

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/.

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//.

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/ .

Date	Day	Quiz	Reading	HW Assigned	Due
Week 1					
Jan 25	M				
Jan 27	W		L1: Introduction Movie	HW1: Intro mastering Physics No Grade	
Week 2					
Feb 1	M		L2: 37.1-3	HW2	1
Feb 3	W		L3: 37.4		
Week 3					
Feb 8	M		L4: 37.5	HW3	
Feb 10	W		L5: 37.7 problem solving		2
Week 4					
Feb 15	M		No Class Furlough		
Feb 17	W	Q1	L6: 38.1-2	HW4	3
Week 5					
Feb 22	M		L7: 38.3-5		
Feb 24	W		L8: 38.6-8	HW5	4
Week 6					
Mar 1	M	Q2	L9: 38.9 problem solving		
Mar 3	W		L10: 39.1-3	HW6	5
Week 7					
Mar 8	M		L11: 39.4-5		
Mar 10	W	Q3	L12: 40.1	HW7	6
Week 8					
Mar 15	M		L13: 40.2-3		
Mar 17	W		L14: 40.4-5		7
Week 9					
Mar 22	M		No Class		
Mar 24	W	Q4	Midterm	Topic and abstract of the final paper due	
Week 10					
Mar 28	M		Spring break		
Mar 31	W		Spring Break		
Week 11					
Apr 5	M		L15: 41.1		
Apr 7	W		L16:41.2-3	HW8 due on 4/16	
Week 12					
Apr 12	M		L17: 41.4-5		
Apr 14	W	Q5	L18: Problem solving	Write up of the Midterm 1 is due	
Week 13					
Apr 19	M		L19: 42.1-3	HW9 due on 4/26	
Apr 21	W		L20: 42.4-6		
Week 14					
Apr 26	M		L21: 42.7-8		
Apr 28	W	Q6	L22: 43.1-2	HW10 due on 5/7	
Week 15					
May 3	M		L23: 43.3-4		
May 5	W	Q7	L24: 43.5-8	Final Paper due	
Week 16					
May10	M		L25 : Elementry particles & GUT		
May12	W		L26: Midterm2 chapters **41-43**		
Week 17					
May17	M		L26: Review and prep for the final		
May24	**M**		**Final: chapters 37-43**	**SCIENCE 164, 12:15-14:30**	