THE UNIVERSITY OF TEXAS AT EL PASO
COLLEGE OF SCIENCE
DEPARTMENT OF PHYSICS

CRN:	12403
Course Title:	PHYS 2325, Survey of Modern Physics
Credit Hrs:	3
Term:	Fall 2020
Course Meetings:	TR 3:00 – 4:20 pm,
Location:	College of Business Admin 326
Prerequisite Courses:	PHYS 2421
Instructor:	Dr. Huiyan Yang
Office Location:	PSCI 215B
Contact Info:	Phone # 915-747-7510 E-mail hyang4@utep.edu Fax # 915-747-5447 Emergency Contact # 915-747-5536
Office Hrs:	Contact by email
Textbook(s), Materials:	Required: Physics for Scientists and Engineers: A Strategic Approach, Extended Edition (4^{th}), by Randall D. Knight Online study tool: MasteringPhysics (yang60412) (Homework is assigned and graded in MasteringPhysics. All students are required to have access of MasteringPhysics.) Suggested: Modern Physics, 3^{rd} Edition, by Kenneth S. Krane
Course Objectives (Learning Outcomes):	The main objective of this course is to introduce students the theories of modern physics and its many and varied applications. Making emphasis in the special theory of relativity and quantum theory, it will be provided a framework for understanding the physics of atoms and nuclei. The theory of atom will be examined with emphasis on quantum-mechanical notions. The expected outcome of this course is to give the students a conceptual framework to prepare them to connect the underlying theories to applications in different areas of science and technology.
Course Activities/Assignments:	Course activities include reading assignments, lectures, homework, quizzes, three regular exams, and a final exam.
Assessment of Course Objectives:	Outcomes will be measured by homework and exams.
Grading Policy:	Grades will be calculated using the following weights: Homework 20%; Quizzes 10%; Exams 40%; Final Exam 30%
Make-up Policy:	No makeup will be given to missed homework, quizzes, or midterm exams. The worst score will be dropped for them. Attendance at final exam is mandatory. The student loses 40% credit if the final exam is missed. Bring a calculator to the exam; cell phones are not allowed.

Attendance Policy:	Attendance in class is the responsibility of the students. If class is missed, you are responsible for obtaining the notes from another student or from the instructor.
Academic Integrity Policy:	Acts of academic dishonesty will not be tolerated in this class. Lapses in academic integrity will be referred to the Dean of Students, as required at http://academics.utep.edu/Default.aspx?tabid=23785.
Civility Statement:	This course requires positive behaviors: Be on time and be focused on your work. Please do not distract yourself or others with telephones or music.
Disability Statement:	If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located at UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.
Military Statement:	If you are a military student with the potential of being called to military service and /or training during the course of the semester, you are encouraged to contact me as soon as it appears that your service will interfere with this course. The instructor will work with you to ensure that your service will not adversely affect your academic progress.
Course Schedule:	Tentative timeline: May change with class activity Chapter 36: Relativity Chapter 37: The Foundations of Modern Physics Chapter 38: Quantization Chapter 39: Wave Functions and Uncertainty Chapter 40: One-Dimensional Quantum Mechanics Chapter 41: Atomic Physics Chapter 42: Nuclear Physics **Exam I: Sep. 17th Thursday** **Exam II: Oct. 15th Thursday** **Exam III: Nov. 17th Thursday** **Final Exam: Dec. 10th Thursday**
Important Date:	**Sep. 9th: Fall Census Day** **Oct 30th: Fall Drop/Withdrawal Deadline**

PHYS 2325 Survey of Modern Physics Fall 2020 Tentative Timeline

Week	Date	Topic	Homework and quiz due day	Pre-lecture assignment (PA)
1	Aug 25	Chapter 36 – the relativity of simultaneity		
	Aug 27	Chapter 36 – time dilation		
2	Sep 1	Chapter 36 – length contraction		
	Sep 3	Chapter 36 – relativistic momentum and energy		PA 1 (Sep 4)
3	Sep 8	Chapter 37 – the emission and absorption of light	HW 1 and quiz 1	
	Sep 10	Chapter 37 – The discovery of electron		
4	Sep 15	Chapter 37 – The discovery of nucleus		PA 2
	Sep 17	**Exam I**	HW 2 and quiz 2	
5	Sep 22	Chapter 38 – The photoelectric effect		
	Sep 24	Chapter 38 – Matter waves		
6	Sep 29	Chapter 38 – The Bohr hydrogen atom		
	Oct 1	Chapter 38 – The hydrogen spectrum		PA 3
7	Oct 6	Chapter 39 – The wave function and probability density	HW 3 and quiz 3	
	Oct 8	Chapter 39 – Wave packets and uncertainty principle		
8	Oct 13	Chapter 40 – The Schrodinger equation		PA 4
	Oct 15	**Exam II**	HW 4 and quiz 4	
9	Oct 20	Chapter 40 – Particle in a rigid Box		
	Oct 22	Chapter 40 – Finite potential wells		
10	Oct 27	Chapter 40 – The quantum harmonic oscillation and quantum-mechanical tunneling		
	Oct 29	Chapter 41 – The hydrogen atom		
11	Nov 3	Chapter 41 – Multi-electron atoms	HW 5 and quiz 5	PA 5
	Nov 5	Chapter 41 – The periodic table		
12	Nov 10	Chapter 41 – Excited states and spectra		
	Nov 12	Review for exam 3		
13	Nov 17	**Exam III**	HW 6 and quiz 6	PA 6
	Nov 19	Chapter 42 – Nuclear structure		
14	Nov 24	Thanksgiving Holiday No Class		
	Nov 26	Thanksgiving Holiday No Class		
15	Dec 1	Chapter 42 – Nuclear radioactivity		PA 7
	Dec 3	Final Review	HW 7 and quiz 7	
16	Dec 10	**Final Exam**		

* Homework is assigned and graded in the online study tool MasteringPhysics. All students are required to have access of MasteringPhysics (yang60412).