Bachelor of Science in Physics

2014 - 2015 Catalog

The University of Texas-Pan American

This document provides a list of the UTPA courses required for the major and their equivalent UTRGV courses.
A significant number of courses have changed their course prefix, number, and title.
For any additional information, please visit the Academic Advising Center.

UTPA Courses	*Course Equivalents at UTRGV*
A – GENERAL EDUCATION CORE – 43 HOURS	
Natural Sciences – 8 hours	
PHYS 2401 Physics Science and Engineering I	PHYS 2425 Physics for Scientists and Engineers I
PHYS 2402 Physics Science and Engineering II	PHYS 2426 Physics for Scientists and Engineers II
Mathematics – 3 hours	
MATH 1460 Calculus I (or MATH 1487 Honors) three-hour lecture	MATH 2413 Calculus I (or MATH 2487 Honors) three-hour lecture
B – MAJOR REQUIREMENTS – 48 HOURS (48 advanced minimum)	
a – Physics Core – 36 hours (36 advanced)	
PHYS 3101 Junior Physics Laboratory Research I	PHYS 3101 Junior Laboratory Research I
PHYS 3102 Junior Physics Laboratory Research II	PHYS 3102 Junior Laboratory Research II
PHYS 3301 Electromagnetic Theory I	PHYS 3301 Electromagnetic Theory I
PHYS 3302 Electromagnetic Theory II	PHYS 3302 Electromagnetic Theory II
PHYS 3303 Thermodynamics	PHYS 3303 Thermodynamics
PHYS 3305 Classical Mechanics	PHYS 3305 Classical Mechanics
PHYS 3311 Math Methods for Physicists	PHYS 3311 Math Methods in Physics I
PHYS 3402 Modern Physics	PHYS 3402 Modern Physics
PHYS 3404 Optics	PHYS 3404 Optics
PHYS 4101 Senior Laboratory Research I	PHYS 4101 Laboratory Research
PHYS 4102 Senior Laboratory Research II	Recommended alternative: PHYS 4101 Laboratory Research
PHYS 4303 Quantum Mechanics I	PHYS 4303 Quantum Mechanics I
PHYS 4304 Quantum Mechanics II	PHYS 4304 Quantum Mechanics II
PHYS 4305 Statistical Mechanics	PHYS 4305 Statistical Mechanics
b – Advanced Physics Electives – 12 hours (12 advanced)	
Medical Physics Concentration must choose PHYS 3306, PHYS 3309, PHYS 3310, and PHYS 4312.	
PHYS 3306 Intro to Biophysics	PHYS 3306 Introduction to Biophysics
PHYS 3309 Intro to Medical Imaging	PHYS 3309 Introduction to Medical Imaging
PHYS 3310 Radiation Biophysics	PHYS 3310 Radiation Biophysics
PHYS 4312 Intro Nuclear Eng & Health Phys	PHYS 4312 Introductory Nuclear Engineering and Health Physics Concepts
Pure and Applied Physics may choose any Physics course, but are remmended to choose from:	
GEOL 4301 or GEOP 4301	Select alternative option
PHYS 3101 Junior Physics Laboratory Research I	PHYS 3101 Junior Laboratory Research I
PHYS 3102 Junior Physics Laboratory Research II	PHYS 3102 Junior Laboratory Research II
PHYS 3302 Electromagnetic Theory II	PHYS 3302 Electromagnetic Theory II
PHYS 3303 Thermodynamics	PHYS 3303 Thermodynamics
PHYS 3305 Classical Mechanics	PHYS 3305 Classical Mechanics
PHYS 3306 Intro to Biophysics	PHYS 3306 Introduction to Biophysics
PHYS 3307 Intro Solid State Physics	PHYS 3307 Introduction Solid State Physic
PHYS 3308 Intro to Nanotechnology	PHYS 3308 Introduction to Nanoscience
PHYS 3309 Intro to Medical Imaging	PHYS 3309 Introduction to Medical Imaging
PHYS 3310 Radiation Biophysics	PHYS 3310 Radiation Biophysics
PHYS 3311 Math Methods for Physicists	PHYS 3311 Math Methods in Physics I
PHYS 3402 Modern Physics	PHYS 3402 Modern Physics
PHYS 3404 Optics	PHYS 3404 Optics

PHYS 4101 Senior Laboratory Research I	PHYS 4101 Laboratory Research
PHYS 4102 Senior Laboratory Research II	Recommended alternative: PHYS 4101 Laboratory Research
PHYS 4103 Senior Laboratory Research	Recommended alternative: PHYS 4101 Laboratory Research
PHYS 4104 Research Lab Physics Ed	PHYS 4104 Research Lab Physics Education
PHYS 4303 Quantum Mechanics I	PHYS 4303 Quantum Mechanics I
PHYS 4304 Quantum Mechanics II	PHYS 4304 Quantum Mechanics II
PHYS 4305 Statistical Mechanics	PHYS 4305 Statistical Mechanics
PHYS 4308 Seminar in Physics	PHYS 4108 Seminar in Physics
PHYS 4309 Nuclear & Particle Physic	PHYS 4309 Nuclear and Particle Physics
PHYS 4310 Intro to Atomic Physics	PHYS 4310 Intro to Atomic Physics
C – SUPPORT COURSES – 12 HOURS (3 advanced)	
MATH 1460 Calculus I (or MATH 1487 Honors) one-hour lecture	MATH 2413 Calculus I (or MATH 2487 Honors) one-hour lecture
MATH 1470 Calculus II (or MATH 2488 Honors)	MATH 2414 Calculus II (or MATH 2488 Honors)
MATH 2401 Calculus III	MATH 2415 Calculus III
MATH 3349 Differential Equations	MATH 3341 Differential Equations
D – MINOR – 18 HOURS (6 advanced minimum)	

TOTAL CREDIT HOURS FOR GRADUATION – 121 HOURS
TOTAL ADVANCED HOURS – 57 HOURS