A Physicist has a solid understanding of fundamental laws, which in turn can be applied to a wide area of scientific and engineering fields. It is an exciting career that requires discipline and significant amount of work. It also requires development of mathematical, experimental, theoretical, and computational skills. As a result of the Physicist’s solid and broad background, Physicists can apply to a wide range of job opportunities, including National Laboratories and Research Centers, Industry, and Academia.

A – GENERAL EDUCATION CORE – 42 HOURS
Students must fulfill the General Education Core requirements. The courses listed below satisfy both degree requirements and General Education core requirements.

Required

020 - Mathematics – 3 hours
MATH 2413 Calculus I (or MATH 2487 Honors) three-hour lecture

030 - Life and Physical Sciences – 6 hours
PHYS 2425 Physics for Scientists and Engineers I three-hour lecture
PHYS 2426 Physics for Scientists and Engineers II three-hour lecture

090 - Integrative and Experiential Learning – 6 hours
CSCI 1380 Computer Science I
PHYS 2425 Physics for Scientists and Engineers I one-hour lab
PHYS 2426 Physics for Scientists and Engineers II one-hour lab

B – MAJOR REQUIREMENTS – 79 HOURS MINIMUM (58 advanced minimum)

1 – Physics Core Courses – 23 hours (23 advanced)
PHYS 3303 Thermodynamics
PHYS 3402 Modern Physics
PHYS 3305 Classical Mechanics
PHYS 3311 Math Methods in Physics I
PHYS 3404 Optics
PHYS 3301 Electromagnetic Theory I
PHYS 4303 Quantum Mechanics I

2 – Capstone Course(s) – 2 hours (2 advanced)
Choose one:
PHYS 4101 Laboratory Research (Repeated once)
PHYS 4201 Advanced Physics Lab

3 – Mathematics – 12 hours (3 advanced)
MATH 2413 Calculus I (or MATH 2487 Honors) one-hour lecture
MATH 2414 Calculus II (or MATH 2488 Honors)
MATH 2415 Calculus III
MATH 3341 Differential Equations

4 – Concentration – 42 hours minimum (30 advanced minimum)
Choose one concentration:

a – Pure and Applied Physics – 42 hours (30 advanced)

i – Required courses – 9 hours (9 advanced)
PHYS 4305 Statistical Mechanics
PHYS 4304 Quantum Mechanics II
PHYS 3302 Electromagnetic Theory II

ii – Physics Electives – 12 hours (12 advanced)
Choose any advanced Physics.
iii – Minor – 18 hours (9 advanced)
iv – Electives – 3 hours

b – Medical Physics – 42 hours (30 advanced)
i – Required courses – 21 hours (21 advanced)
   PHYS 4305 Statistical Mechanics
   PHYS 4304 Quantum Mechanics II
   PHYS 3302 Electromagnetic Theory II
   PHYS 3306 Introduction to Biophysics
   PHYS 3310 Radiation Biophysics
   PHYS 3309 Introduction to Medical Imaging
   PHYS 4312 Introductory Nuclear Engineering and Health Physics Concepts

ii – Minor – 18 hours (9 advanced)
iv – Electives – 3 hours

c – Educational Physics – 45 hours (40 advanced)
i – Educational Physics – 6 hours (6 advanced)
   PHYS 4392 Research Methods
   PHYS 3330 Functions and Modeling

ii – Additional Math Courses – 15 hours (12 advanced)
   MATH 2318 Linear Algebra
   MATH 3352 Modern Geometry I
   MATH 3343 Introduction to Mathematical Software
   MATH 3361 Applied Discrete Mathematics
   MATH 4337 Probability and Statistics I

iii – UTeach Certification – 24 hours (22 advanced)
   Area of Certification: Physics/Mathematics (7-12)
   UTCHA 1101 Inquiry Approaches to Teaching
   UTCHA 1102 Inquiry-Based Lesson Design
   UTCHA 3301 Knowing and Learning in Mathematics and Science
   UTCHA 3302 Classroom Interactions
   UTCHA 3303 Project-Based Instruction
   UTCHA 4601 Apprentice Teaching
   UTCHA 4101 Apprentice Teaching Seminar
   READ 4305 Content Area Literacy
   MATE 3317 Perspective in Mathematics and Science (or PHIL 3317)

TOTAL CREDIT HOURS FOR GRADUATION (MINIMUM) – 121 HOURS
TOTAL ADVANCED HOURS (MINIMUM) – 58 HOURS

ADMISSION, PROGRESSION, AND GRADUATION REQUIREMENTS, if applicable:

Progression requirements
Admission to the College of Education and P-16 Integration is required for participation in Apprentice Teaching and Seminar (UTCHA 4101, 4601). Students unable to be admitted to UTCHA 4601 and UTCHA 4101 will be required to substitute 4 advanced hours, as recommended by advisor.

Graduation requirements
In addition to the graduation requirements listed in the UTRGV 2015-2017 Undergraduate Catalog, demonstration of proficiency in a language other than English is required at the undergraduate level equivalent to a minimum of six credit hours. Proficiency can be demonstrated by a college credit exam, a placement test approved through the UTRGV Department of Writing and Language Studies, and/or up to six credit hours of college-level language coursework.