

## Physics Undergraduate Degree Programs for Engineering Students

The Physics Department has multiple degree programs for undergraduates whose first major is in engineering, but who would like to double major in physics. The degree programs are

- BA in physics
- BS in physics / BS in astronomy-physics

The BA in physics is designed for students interested in physics and planning to enter other professional fields like engineering, business, education, law, and medicine. The BS, and BS in astronomy-physics are designed for graduate study in physics/science/engineering or for those planning to enter a job in a scientific/technical field.

The requirements for the BA degree with substitutions as usual for engineering students are:

**Required course:**

MATH 1320 Calculus II

MATH 2310 Calculus III

MATH 3255 Diff. Eq.

PHYS 1425 General Physics I

PHYS 1429 G. P. I workshop

PHYS 2415 General Physics II

PHYS 2419 G. P. II workshop

**Regular Engineering School substitute course:**

APMA 1110 Single Variable Calculus II

APMA 2120 Multivariable Calculus

APMA 2130 Applied Differential Equations

Electrical and Computer Engineering Students can substitute PHYS 2415 with ECE3209 (Electromagnetic Fields), but still have to take PHYS 2419.

(The courses listed in this table so far are required for most engineering students)

PHYS 2620 Modern Physics

Four electives

Electives can be chosen from PHYS 2660 (Fundamentals of Scientific Computing) and/or any other 3000-level courses. Courses that are offered regularly:

PHYS 3040	Physics of the Human Body	[3]
PHYS 3110	Widely Applied Physics	[3]
PHYS 3120	Applied Physics: Energy	[3]
PHYS 3150	Electronics	[3]
PHYS 3170	Intermediate Lab I	[3]
PHYS 3180	Intermediate Lab II	[3]
PHYS 3250	Applied Nuclear Physics	[3]
PHYS 3620	Introduction to Condensed Matter Physics	[3]
PHYS 3995	Research	[3]

The following regular classes can be chosen, although they are directed towards the more advanced physics majors:

PHYS 3210	Mechanics	[3]
PHYS 3310	Statistical Physics	[3]
PHYS 3420, 3430	Electricity and Magnetism I, II	[3, 3]
PHYS 3650, 3660	Quantum Mechanics I, II	[3, 3]

Interested engineering students should contact any Physics Department major advisor to discuss this option.

Students majoring in Engineering Science may choose physics for their “secondary minor”. Those students would usually take PHYS 1425, 1429, 2415, 2419, 2620 and two 3000-level courses. Making physics a major only requires two more electives in physics.