APPROVED
UNIVERSITY REGISTRAR

College of Science
Department of Physics
Bachelor of Science Major: PHYSICS
For students graduating in calendar year 2020

I. Curriculum for Liberal Education (40 credit hours)

All courses used for the Curriculum for Liberal Education must be on the University's approved list.

Area 1 - Writing and Discourse (6 credit hours)

_____ 3☐ _____ 3☐

Area 2 - Ideas, Cultural Traditions and Values (6 credit hours)

_____ 3☐ _____ 3☐

Area 3 - Society and Human Behavior (6 credit hours)

_____ 3☐ _____ 3☐

Area 4 - Scientific Reasoning and Discovery (8 credit hours)

CHEM 1035 General Chemistry	3☐	CHEM 1036 General Chemistry	3☐
or CHEM 1035H Honors General Chemistry	3☐	or CHEM 1036H Honors General Chemistry	3☐
CHEM 1045 General Chemistry Lab	1☐	CHEM 1046 General Chemistry Lab	1☐

Area 5 - Quantitative and Symbolic Reasoning (8 credit hours)

MATH 1225 Calculus of a Single Variable	4☐	MATH 1226 Calculus of a Single Variable	4☐

Area 6 - Creativity and Aesthetic Experience (3 credit hours: College of Science requirement)

_____ 3☐

Area 7 - Critical Issues in a Global Context (3 credit hours)

_____ 3☐

Note: The ViEWS requirement will be met with in-major classes.

II. Physics (51 credit hours)

PHYS 2305 Foundations of Physics I	4☐	PHYS 3704 Thermal Physics	3☐
PHYS 2306 Foundations of Physics I	4☐	PHYS 4315 Modern Experimental Physics	2☐
PHYS 2325 Seminar for Physics Majors	1☐	PHYS 4316 Modern Experimental Physics	2☐
PHYS 2326 Seminar for Physics Majors	1☐	PHYS 4455 Introduction to Quantum Mechanics	3☐
PHYS 3314 Intermediate Laboratory	3☐	PHYS 4456 Introduction to Quantum Mechanics	3☐
PHYS 3355 Intermediate Mechanics	3☐		
PHYS 3356 Intermediate Mechanics	3☐	**Two courses from the list below:**	
PHYS 3405 Intermediate Electricity and Magnetism	3☐	PHYS 4504 Introduction to Nuclear and Particle Physics	3☐
PHYS 3406 Intermediate Electricity and Magnetism	3☐	PHYS 4554 Introduction to Solid State Physics	3☐
		PHYS 4564 Polymer Physics	3☐
PHYS 3455 Found of Quantum and Solid State Physics	4☐	PHYS 4574 Nanotechnology	3☐
& PHYS 3504 Foundations of Nuclear and Particle Physics	3☐	PHYS 4614 Optics	3☐
or		PHYS 4654 Modern Cosmology	3☐
PHYS 2504 Mathematical Methods in Physics	3☐	PHYS 4674 Introduction to General Relativity	3☐
& PHYS 3324 Modern Physics	4☐	PHYS 4714 Introduction to Biophysics	3☐
		PHYS 4755 Intro to Computational Physics	3☐
		PHYS 4774 Intro to Physics of Galaxies	3☐

III. Mathematics (16-18 credit hours)

MATH 2114 Introduction to Linear Algebra	3 ☐	MATH 2214 Introduction to Differential Equations	3 ☐
or MATH 2114H Introduction to Linear Algebra	3 ☐	or MATH 2214H Introduction to Differential Equations	3 ☐
MATH 2204 Intro to Multivariable Calculus	3 ☐	MATH 3214 Calculus of Several Variables	3 ☐
or MATH 2204H Intro to Multivariable Calculus	3 ☐		
		MATH 3574 Applied Complex Variables	1 ☐
MATH 4425 Fourier Series and Partial Differential Eqns	3 ☐	or MATH 4234 Elementary Complex Analysis	3 ☐
or MATH 4564 Operational Methods for Engineers	3 ☐	or MATH 4574 Vector and Complex Analysis f. Engineers	3 ☐

IV. Programming Course (3 credit hours)

One course from the list below:

CS 1044 Introduction to Programming in C	3 ☐	CS 1114 Introduction to Software Design	3 ☐
CS 1064 Introduction to Programming in Python	3 ☐	CS 1124 Introduction to Media Computation	3 ☐

V. Free Electives (8-10 credit hours)

_____	__ ☐	_____	__ ☐
_____	__ ☐	_____	__ ☐
_____	__ ☐	_____	__ ☐
_____	__ ☐	_____	__ ☐

VI. Progress Toward Degree

A student will be certified as making satisfactory progress toward the B.S. degree in Physics by satisfying the university's academic eligibility requirements, as well as the following requirements:

- Upon having attempted 60 credit hours, the student will have completed the CLE Area 1 and Area 4 requirements (in section I) the 1000- and 2000-level Mathematics requirements (in section IV) as well as PHYS 2305-2306, PHYS 2504, and PHYS 3324.
- Upon having attempted 45 credit hours, the student must have 2.0 overall and in-major GPAs.
- Upon having attempted 96 credit hours, the student will have completed PHYS 3314, PHYS 3355-3356, and PHYS 3405-3406.
- Upon having attempted 72 credit hours, the student will have completed the foreign language requirement by the close of the academic year (spring semester). [College of Science requirement]
- Upon having attempted 96 credit hours, the student will have completed all credits for the Curriculum of Liberal Education. [College of Science requirement]

VII. Outcomes Assessment

Each student is required to participate in the department's Outcomes Assessment procedures as determined by each year's Undergraduate Program Committee and approved by the Department Chair.

VIII. Minimum hours and GPA required for graduation

A minimum of 120 credit hours must be completed for graduation. A minimum overall and in-major GPA of 2.0 is required for graduation. All physics courses attempted are used in the calculation of the in-major GPA.

IX. Prerequisites and/or Corequisites

MATH 4425 has prerequisites not listed here; see your advisor.

X. Accepted Substitutions

PHYS 3355: AOE 4134 (Astromechanics), or ESM 3124 (Dynamics II Analytical and 3-D Motion).
PHYS 3356: ESM 3134 (Dynamics III Vibration and Control) or ESM 4114 (Nonlinear Dynamics and Chaos).
PHYS 3405: ECE 3105 (Electromagnetic Fields).
PHYS 3406: ECE 3106 (Electromagnetic Fields).
PHYS 3314: AOE 3054 (AOE Experimental Methods), or ECE 2204 (Electronics) & ECE 2274 (Electronic Networks Laboratory I), or ESM 3444 (Mechanics Laboratory).

XI. Foreign Language Requirement: Students who did not successfully complete at least two years of a single foreign, classical, or sign language during high school must successfully complete six semester hours of a single foreign, classical, or sign language at the college level. Courses taken to meet this requirement do not count toward the hours required for graduation. Please consult the Undergraduate Catalog for details.