Bachelor of Art in Physics

About This Program

The Bachelor of Arts degree in Physics is intended for students who seek a broader education while retaining a firm foundation in Physics.

Physics majors are encouraged to participate in research projects for course credit or financial reward under faculty guidance. This allows undergraduate students to gain hands-on experience in a variety of research disciplines, including astrophysics, biophysics, computational physics, high-energy physics, medical physics, optics, space physics, and theoretical and experimental condensed matter physics.

Competencies

1. Program graduates will have a solid understanding of core physics principles, including mechanics, thermodynamics, electromagnetism, and quantum mechanics. Additionally, students will develop a strong foundation in calculus, differential equations, and linear algebra.
2. Program graduates will be able to demonstrate analytical reasoning, mathematical proficiency, and communication skills.
3. Program graduates will be able to apply physics principles to solve complex problems, both open-ended and structured.
4. Program graduates will gain critical thinking skills by analyzing data, interpreting results, and evaluating different approaches.
5. Program graduates will gain effective communication skills that are essential for clearly explaining complex scientific concepts, both orally and in writing.
6. Program graduates will acquire skills to analyze and interpret data from experiments and observations.

Admissions Criteria

Students considering a Physics major should schedule an appointment with the undergraduate advisor in Physics to discuss admissions criteria and degree options.

Curriculum

Foundations		
General Core Requirements (https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/)		42
Students are required to complete specific courses in certain core areas.		
For Communication select:		
ENGL 1301 & ENGL 1302	RHETORIC AND COMPOSITION I and RHETORIC AND COMPOSITION II	
For Life & Physical Sciences select:		
PHYS 1443 & PHYS 1444	GENERAL TECHNICAL PHYSICS I and GENERAL TECHNICAL PHYSICS II	
For Mathematics select:		
MATH 1426 & MATH 2425	CALCULUS I and CALCULUS II	
For US history select:		
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	
Physics Foundations		
Additional hours required in core.		4
Communication competence satisfied by PHYS 4117		
Select one of the following for Computer Science:		3
CSE 1311	INTRODUCTION TO PROGRAMMING FOR ENGINEERS	
PHYS 2321	COMPUTATIONAL PHYSICS	
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	
Another suitable course approved by a Physics undergraduate advisor or the chair of the Department of Physics		
Select two courses for majors offered in the departments of Biology, Chemistry & Biochemistry, and/or Earth & Environmental Sciences.		8
MATH 2326	CALCULUS III	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
or MATH 3318	DIFFERENTIAL EQUATIONS	
Select 4 hours in Modern or Classical Languages.		4
Physics Specialization		

PHYS 2311	MATHEMATICAL METHODS OF PHYSICS	3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS 3183	MODERN PHYSICS LABORATORY	1
PHYS 3321	INTERMEDIATE ELECTRICITY AND MAGNETISM	3
PHYS 4117	INDIVIDUAL LEARNING BY SEMINAR	1
PHYS 4315	THERMODYNAMICS AND STATISTICAL MECHANICS	3
PHYS 4326	INTRODUCTION TO QUANTUM MECHANICS	3
Select 3-4 PHYS courses approved by Physics undergraduate advisor and/or chair of the Department of Physics.		11
Electives and Minor		
Select a minor of 18 hours in consulation with an adivsor.		18
Select electives sufficient to complete 120 hours; 36 hours must be completed at the 3000/4000 level.		7
Total Hours		**120**

SUGGESTED COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Physics undergraduate advisor, particularly since many courses in Physics are not offered every semester. For all entering freshmen, it is important to begin the mathematics sequence, starting with MATH 1426 CALCULUS I, in the first semester.

First Year

First Semester	Hours	Second Semester	Hours
MATH 1426	4	PHYS 1443	4
ENGL 1301	3	MATH 2425	4
BIOL, CHEM, or GEOL course for majors	4	ENGL 1302	3
HIST 1301	3	HIST 1302	3
	14		**14**

Second Year

First Semester	Hours	Second Semester	Hours
PHYS 1444	4	PHYS 2311	3
MATH 2326	3	PHYS 3313	3
MATH 3319 or 3318	3	PHYS 3183	1
Minor course	3	BIOL, CHEM, or GEOL course for majors	4
Creative Arts	3	Minor course	3
	16		**14**

Third Year

First Semester	Hours	Second Semester	Hours
PHYS 3321	3	Approved PHYS elective	4
Minor course	3	Minor course	3
Modern/Classical language course	4	Computer Science course	3
Approved PHYS elective	4	POLS 2312	3
POLS 2311	3	Social & Behavoiral Science	3
	17		**16**

Fourth Year

First Semester	Hours	Second Semester	Hours
PHYS 4315	3	PHYS 4117	1
PHYS 4326	3	Approved PHYS elective	3
Minor course	3	Foundational Component Area	3
Language. Philosophy, and Culture	3	Minor course	3
General Elective	3	General Elective(s)	4
	15		**14**

Total Hours: 120

Advising Resources

Location:

Science Hall 328 C

Email:

kaycee.nikses@uta.edu

Phone:

817-272-9686

Web:

Schedule an Appointment (https://www.uta.edu/academics/schools-colleges/science/departments/physics/advising/)