

PHYSICS - BS, PHYSICS AND MATHEMATICS TEACHING TRACK

The Bachelor of Science in Physics, Physics and Mathematics Teaching track, will provide you with a solid foundation in Physics and the courses required for the aggieTEACH – Science (<https://aggieteachscience.tamu.edu/>) minor (must apply). Upon completion of this degree and one semester of clinical teaching, you will hold a Texas Physics/Mathematics (grades 7-12) certification. Although this degree is designed for students who want to teach, the Physics courses also build a strong foundation in critical thinking and quantitative problem-solving skills that are attractive to many areas of industry.

Program Requirements

First Year

		Semester Credit Hours
Fall		
ENGL 103 or ENGL 104	Introduction to Rhetoric and Composition or Composition and Rhetoric	3
MATH 171	Calculus I ¹	4
PHYS 101	Freshman Physics Orientation ¹	1
PHYS 150	Introduction for Programming for Physics ¹	3
SCEN 201	Experiences In Secondary Math and Science Classrooms	1
	American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) ²	3
	Semester Credit Hours	15

Spring		
ASTR 102	Observational Astronomy ¹	1
MATH 172	Calculus II ¹	4
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences ¹	4
	Select one of the following:	3
	INST 222 Foundations of Education in a Multicultural Society ³	
	SOCI 317/ AFST 317 Racial and Ethnic Relations	
	TEFB 273 Introduction to Culture, Community, Society and Schools	
	American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) ²	3
	Semester Credit Hours	15

Second Year

Fall		
MATH 221	Several Variable Calculus ¹	4
MATH 308	Differential Equations ¹	3

PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences ¹	4
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PHYS 221	Optics and Thermal Physics ¹	3
	Semester Credit Hours	14

Spring

PHYS 225	Electronic Circuits and Applications	3
PHYS 309	Modern Physics ¹	3
PHYS 331	Theoretical Methods for Physicists I ¹	3
	Select one of the following:	3
	MATH 304 Linear Algebra	
	MATH 311 Topics in Applied Mathematics I	
	MATH 323 Linear Algebra	
	Communication (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication) ⁴	3
	Semester Credit Hours	15

Third Year

Fall		
INST 210	Understanding Special Populations ⁵	3
PHYS 302	Advanced Mechanics I	3
PHYS 304	Advanced Electricity and Magnetism I	3
PHYS 332	Theoretical Methods for Physicists II	3
POLS 206	American National Government	3
	Semester Credit Hours	15

Spring

PHYS 303 or PHYS 305	Advanced Mechanics II or Advanced Electricity and Magnetism II	3
PHYS 327	Experimental Physics I ⁶	2
PHYS 328	Experimental Physics II ⁶	1
PHYS 412	Quantum Mechanics I	3
RDNG 465 or RDNG 372	Reading in the Middle and Secondary Grades or Reading and Writing across the Middle Grades Curriculum	3
TEFB 322	Teaching and Schooling in Modern Society	3
	Semester Credit Hours	15

Fourth Year

Fall		
MATH 467 or MATH 367	Modern Geometry or Basic Concepts of Geometry	3
PHYS 408	Thermodynamics and Statistical Mechanics	4
TEFB 324	Teaching Skills II ⁷	3
	Creative arts (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts) ²	3
	Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture) ²	3
	Semester Credit Hours	16

Spring

MATH 376 or MATH 415	Intermediate Abstract Algebra or Modern Algebra I	3
POLS 207	State and Local Government	3
STAT 211 or STAT 303	Principles of Statistics I or Statistical Methods	3
TEFB 407 or TEFB 406	Mathematics in the Middle and Senior School or Science in the Middle and Secondary School	3
Science or Technical Elective ⁸		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ A Physics major must complete the foundation courses (ASTR 102, PHYS 101, PHYS 150, PHYS 206/PHYS 226, PHYS 207/PHYS 227, PHYS 221, PHYS 309, PHYS 331, MATH 171, MATH 172, MATH 221, MATH 308) with a grade of C or better and have a 2.0 cumulative GPA before taking non-foundation upper-level physics courses.

² Any course in this category from the approved University Core Curriculum (<https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/>) list of courses.

³ INST 222 is an approved Social and Behavioral Science, International and Cultural Diversity and Cultural Discourse class.

⁴ Any approved Communication (<https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/>) course, except PERF 407.

⁵ INST 210 is an approved Social and Behavioral Science and Cultural Discourse class.

⁶ PHYS 327 is an approved W course. PHYS 328 is an approved C course.

⁷ Students must apply, and be admitted, to aggieTEACH - Science, before beginning this class. Students are required to have 2.75 overall GPA and a 2.5 GPA in content areas.

⁸ Any upper-division course in geo/life/physical sciences, mathematics/statistics, or engineering (except 485/491). Note: students seeking secondary certification through this degree must take MATH 403 for this elective.