

# PHYSICS - BA

The Bachelor of Arts curriculum provides the student with a firm foundation in physics and with the flexibility to choose from a large number of elective courses, thus permitting the student to explore other interests. Some of these elective courses are chosen to satisfy the requirements of a minor field of study. The student can, therefore, customize his or her program of study in preparation for a career in any science-related or science-required field, from intellectual property law and science reporting to physics teaching. Although not required for the BA program, students have the opportunity to become directly involved in any of the active research programs in the Department of Physics and Astronomy.

## Program Requirements

### First Year

Fall		Semester Credit Hours
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I <sup>1</sup>	4
PHYS 101	Freshman Physics Orientation <sup>1</sup>	1
PHYS 150	Introduction for Programming for Physics <sup>1</sup>	3
American history ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history</a> ) <sup>2</sup>		3
<b>Semester Credit Hours</b>		<b>14</b>
Spring		Semester Credit Hours
ASTR 102	Observational Astronomy	1
MATH 172	Calculus II <sup>1</sup>	4
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences <sup>1</sup>	4
American history ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history</a> ) <sup>2</sup>		3
Language, philosophy and culture ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture</a> ) <sup>2</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>

### Second Year

Fall		Semester Credit Hours
MATH 221	Several Variable Calculus <sup>1</sup>	4
MATH 308	Differential Equations <sup>1</sup>	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences <sup>1</sup>	4
PHYS 221	Optics and Thermal Physics <sup>1</sup>	3
<b>Semester Credit Hours</b>		<b>14</b>
Spring		Semester Credit Hours
PHYS 225	Electronic Circuits and Applications	3
PHYS 309	Modern Physics <sup>1</sup>	3

PHYS 331	Theoretical Methods for Physicists I <sup>1</sup>	3
General elective <sup>3</sup>		7
<b>Semester Credit Hours</b>		<b>16</b>
Third Year		
Fall		
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
Social and behavioral science ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences</a> ) <sup>2</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>
Spring		
PHYS 327	Experimental Physics I <sup>4</sup>	2
PHYS 328	Experimental Physics II <sup>4</sup>	1
PHYS 412	Quantum Mechanics I	3
POLS 207	State and Local Government	3
Communication ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication</a> ) <sup>5</sup>		3
General elective <sup>3</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>
Fourth Year		
Fall		
Science or technical elective <sup>6</sup>		3
General electives <sup>3</sup>		13
<b>Semester Credit Hours</b>		<b>16</b>
Spring		
Creative arts ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts</a> ) <sup>2</sup>		3
Physics elective <sup>7</sup>		3
General electives <sup>3</sup>		9
<b>Semester Credit Hours</b>		<b>15</b>
<b>Total Semester Credit Hours</b>		<b>120</b>

<sup>1</sup> A physics major must complete the foundation courses (PHYS 101, PHYS 150, ASTR 102, 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.

<sup>2</sup> Any course in this category from the approved University Core Curriculum list of courses.

<sup>3</sup> A minor is required and, along with other free electives, should be chosen in consultation with the student's advisor. Three hours must be in the area of International and Cultural Diversity (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>), and three hours must be in the area of Cultural Discourse (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/>). These may be in addition to other University Core Curriculum courses, or if a course in this category satisfies another area of the Core, it can be used to meet both requirements. Electives may be selected from any 100-499 course not used elsewhere, except ENGL 103; MATH 100-148, MATH 165-166,

MATH 365, MATH 366 (<http://catalog.tamu.edu/undergraduate/course-descriptions/math/>); PHYS 201, PHYS 202.

<sup>4</sup> PHYS 327 is an approved W course. PHYS 328 is an approved C course.

<sup>5</sup> Any approved Communication course, except PERF 407.

<sup>6</sup> Any upper-division course in geo/life/physical sciences, mathematics/statistics, or engineering (except 485/491).

<sup>7</sup> Select from ASTR 314, PHYS 401, PHYS 414, PHYS 416, PHYS 489, MATH 460, or any graduate offering in PHYS or ASTR.