

PHYSICS - BS, MATERIALS PHYSICS TRACK

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 ¹ | 4 |
| PHYS 101 | Freshman Physics Orientation ¹ | 1 |
| PHYS 150 | Introduction for Programming for Physics ¹ | 3 |
| American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) ² | | 3 |
| Semester Credit Hours | | 14 |

Spring

| | | |
|------------------------------|---|-----------|
| ASTR 102 | Observational Astronomy ¹ | 1 |
| CHEM 107 & CHEM 117 | General Chemistry for Engineering Students and General Chemistry for Engineering Students Laboratory | 4 |
| 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 |
| Semester Credit Hours | | 13 |

Second Year

| Fall | | Semester Credit Hours |
|------------------------------|---|-----------------------|
| 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 |
| PHYS 221 | Optics and Thermal Physics ¹ | 3 |
| Semester Credit Hours | | 14 |

Spring

| | | |
|---|---|-----------|
| MSEN 222/ MEEN 222 | Materials Science | 3 |
| PHYS 225 | Electronic Circuits and Applications | 3 |
| PHYS 309 | Modern Physics ¹ | 3 |
| PHYS 331 | Theoretical Methods for Physicists I ¹ | 3 |
| American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) ² | | 3 |
| Semester Credit Hours | | 15 |

Third Year

| Fall | | Semester Credit Hours |
|----------|----------------------|-----------------------|
| PHYS 302 | Advanced Mechanics I | 3 |

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|--|---------------------------------------|---|
| PHYS 304 | Advanced Electricity and Magnetism I | 3 |
| PHYS 332 | Theoretical Methods for Physicists II | 3 |
| POLS 206 | American National Government | 3 |
| Materials physics directed elective ³ | | 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 ⁴ | 2 |
| PHYS 328 | Experimental Physics II ⁴ | 1 |
| PHYS 412 | Quantum Mechanics I | 3 |
| Social and behavioral science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences) ² | | 3 |
| Materials physics directed elective ³ | | 3 |

Semester Credit Hours 15

Fourth Year

Fall

| | | |
|---|--|---|
| PHYS 408 | Thermodynamics and Statistical Mechanics | 4 |
| 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 |
| Materials physics directed elective ³ | | 3 |
| General elective ⁵ | | 3 |

Semester Credit Hours 16

Spring

| | | |
|--|----------------------------|---|
| POLS 207 | State and Local Government | 3 |
| Communication (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication) ⁶ | | 3 |
| Materials physics directed elective ³ | | 3 |
| Science or technical elective ⁷ | | 3 |
| General elective ⁵ | | 6 |

Semester Credit Hours 18

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 list of courses.

³ Select from BAEN 354, CHEM 466, CHEM 468, ECEN 370, ECEN 440, MEEN 360, MEEN 455, MEEN 458, MEEN 471, MSEN 210, MSEN 250, MSEN 260, MSEN 305, MSEN 320, MSEN 325, MSEN 415, MSEN 420, MSEN 430, MSEN 458, MSEN 470, MSEN 472, NUEN 465, PHYS 416. A minimum of 6 hours must be selected from MSEN 210, MSEN 250, MSEN 260, MSEN 305, MSEN 320, MSEN 325, MSEN 415, MSEN 420, MSEN 430, MSEN 458, MSEN 470, MSEN 472.

⁴ PHYS 327 is an approved W course. PHYS 328 is an approved C course.

⁵ Electives should be chosen in consultation with the student's advisor. Three hours must be in the area of International and Cultural Diversity, and three hours must be in the area of Cultural Discourse. 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, 165-166, 365-366 (<http://catalog.tamu.edu/undergraduate/course-descriptions/math/>), PHYS 201, PHYS 202.

⁶ Any approved Communication course, except PERF 407.

⁷ Any upper-division course in geo/life/physical sciences, mathematics/statistics, or engineering (except 485/491).