

Physics, B.S.

Learn more about the Bachelor of Science in Physics (<https://www.temple.edu/academics/degree-programs/physics-major-st-phys-bs>).

The Bachelor of Science in Physics provides strong preparation for those wishing to attend graduate school in physics or related disciplines and is recommended for those who intend to enter the scientific workforce upon completion of a bachelor's degree.

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Bachelor of Science

Summary of Requirements for the Degree

- University Requirements (123 total s.h.)
 - MATH 0701 (4 s.h.) and/or ENG 0701 (4 s.h.), if required by placement testing.
 - All Temple students must take a minimum of two writing-intensive courses at Temple as part of their major. Following is a list of courses that can be used to satisfy the writing-intensive requirement: PHYS 2796 and PHYS 4796.
 - Students must complete the General Education (GenEd) requirements.
 - See the General Education (<http://bulletin.temple.edu/undergraduate/general-education>) section of the *Undergraduate Bulletin* for the GenEd curriculum.
 - Students who complete CST majors typically receive a waiver for 2 Science & Technology (GS) and 1 Quantitative Literacy (GQ) GenEd courses.
 - Students must satisfy general Temple University residency requirements (<http://bulletin.temple.edu/undergraduate/academic-policies/academic-residency-requirements>).
- College Requirements
 - 90 credits within the College of Science & Technology (CST) or the College of Liberal Arts (CLA).
 - 45 Upper Level (2000+) credits within the College of Science & Technology (CST) or the College of Liberal Arts (CLA).
- Major Requirements for Bachelor of Science (72-74 s.h.)
A least 9 courses required for the major must be completed at Temple. At least 8 Physics courses must be completed at Temple.

| Code | Title | Credit Hours |
|---|-------------------------------------|--------------|
| Mathematics | | |
| MATH 1041 or MATH 1941 | Calculus I Honors Calculus I | 4 |
| MATH 1042 or MATH 1942 | Calculus II Honors Calculus II | 4 |
| MATH 2043 or MATH 2943 | Calculus III Honors Calculus III | 4 |
| Two science or mathematics elective courses | | |
| These two electives can be chosen from Biology, Chemistry, Engineering, Earth & Environmental Science, Mathematics or Physics in consultation with the faculty advisor. | | 6-8 |
| Physics Courses | | |
| PHYS 1008 | Physics Seminar I | 1 |
| Select one of the following: | | 4 |

| | | |
|------------------------------|---|-------|
| PHYS 1061 | Elementary Classical Physics I | |
| PHYS 1961 | Honors Elementary Classical Physics I (F) | |
| PHYS 2021 | General Physics I | |
| PHYS 2921 | Honors General Physics I (F) | |
| Select one of the following: | | 4 |
| PHYS 1062 | Elementary Classical Physics II | |
| PHYS 1962 | Honors Elementary Classical Physics II (S) | |
| PHYS 2022 | General Physics II | |
| PHYS 2922 | Honors General Physics II (S) | |
| PHYS 2063 | Wave Physics | 3 |
| PHYS 2101 | Classical Mechanics (S) | 3 |
| PHYS 2511 | Scientific Computing I | 1.5 |
| PHYS 3511 | Scientific Computing II | 1.5 |
| PHYS 2502 | Mathematical Physics (S) | 4 |
| PHYS 2796 | Introduction to Modern Physics (S) | 4 |
| PHYS 3101 | Analytical Mechanics (F) | 3 |
| PHYS 3301 | Electricity and Magnetism (F) | 4 |
| PHYS 3302 | Classical Electromagnetism (S) | 3 |
| PHYS 3701 | Introduction to Quantum Mechanics (S) | 3 |
| PHYS 4101 | Thermal Physics (F) | 3 |
| PHYS 4302 | Optics (F) | 3 |
| PHYS 4796 | Experimental Physics (S) | 3 |
| Select two of the following: | | 6 |
| PHYS 4301 | Electronics (S (odd years)) | |
| PHYS 4701 | Introduction to Solid State Physics (S (even years)) | |
| PHYS 4702 | Introduction of Atomic, Nuclear, and Particle Physics (F) | |
| Total Credit Hours | | 72-74 |

Note: PHYS 3091 is not available for major credit.

| Code | Title | Credit Hours |
|--------------------------|-------|--------------|
| (F) - Fall only course | | |
| (S) - Spring only course | | |

Calculation of Major GPA

Courses listed under the major requirements for the degree will be included in the calculation of the major GPA. Courses that could not apply toward the major as an elective or required course would not be counted in the calculation of the major GPA. This would include MATH 1022, for example.

Distinction in Major

A student who wishes to graduate with distinction in the major must complete all courses required for the physics major with a GPA of 3.5 or better, and carry out an independent study or undergraduate thesis project. Consult the undergraduate physics advisor for more details.

Suggested Academic Plan

Bachelor of Science in Physics

Requirements for New Students starting in the 2018-2019 Academic Year

| Year 1 | | Credit Hours |
|------------------------------|--------------------------------|--------------|
| Fall | | |
| MATH 1041 or 1941 | Calculus I | 4 |
| PHYS 1008 | Physics Seminar I | 1 |
| Select one of the following: | | 4 |
| PHYS 1061 | Elementary Classical Physics I | |

| | | |
|------------------------------------|--|------|
| PHYS 1961 | Honors Elementary Classical Physics I (F) | |
| PHYS 2021 | General Physics I | |
| PHYS 2921 | Honors General Physics I (F) | |
| General Education/Elective Credits | | 6 |
| Term Credit Hours | | 15 |
| Spring | | |
| MATH 1042 or 1942 | Calculus II | 4 |
| Select one of the following: | | 4 |
| PHYS 1062 | Elementary Classical Physics II | |
| PHYS 1962 | Honors Elementary Classical Physics II (S) | |
| PHYS 2022 | General Physics II | |
| PHYS 2922 | Honors General Physics II (S) | |
| PHYS 2511 | Scientific Computing I | 1.5 |
| General Education/Elective Credits | | 6 |
| Term Credit Hours | | 15.5 |
| Year 2 | | |
| Fall | | |
| MATH 2043 or 2943 | Calculus III | 4 |
| PHYS 2063 | Wave Physics | 3 |
| PHYS 3511 | Scientific Computing II | 1.5 |
| General Education/Elective Credits | | 7 |
| Term Credit Hours | | 15.5 |
| Spring | | |
| PHYS 2101 | Classical Mechanics (S) | 3 |
| PHYS 2502 | Mathematical Physics (S) | 4 |
| PHYS 2796 | Introduction to Modern Physics [WI] (S) | 4 |
| General Education/Elective Credits | | 4 |
| Term Credit Hours | | 15 |
| Year 3 | | |
| Fall | | |
| PHYS 3101 | Analytical Mechanics (F) | 3 |
| PHYS 3301 | Electricity and Magnetism (F) | 4 |
| Science Elective ¹ | | 3-4 |
| General Education/Elective Credits | | 6-5 |
| Term Credit Hours | | 16 |
| Spring | | |
| PHYS 3302 | Classical Electromagnetism (S) | 3 |
| PHYS 3701 | Introduction to Quantum Mechanics (S) | 3 |
| Science Elective ¹ | | 3-4 |
| General Education/Elective Credits | | 6-5 |
| Term Credit Hours | | 15 |
| Year 4 | | |
| Fall | | |
| PHYS 4101 | Thermal Physics (F) | 3 |
| PHYS 4702 | Introduction of Atomic, Nuclear, and Particle Physics (F) ² | 3 |
| PHYS 4302 | Optics (F) | 3 |
| General Education/Elective Credits | | 6 |
| Term Credit Hours | | 15 |
| Spring | | |
| PHYS 4701 or 4301 | Introduction to Solid State Physics (S) ^{2,3} | 3 |
| PHYS 4796 | Experimental Physics [WI] (S) | 3 |

| | |
|------------------------------------|-----|
| General Education/Elective Credits | 10 |
| Term Credit Hours | 16 |
| Total Credit Hours: | 123 |

| Code | Title | Credit Hours |
|------|-------|--------------|
|------|-------|--------------|

(F) - Fall only course

(S) - Spring only course

- 1 The elective can be chosen from Biology, Chemistry, Engineering, Earth & Environmental Science, Mathematics or Physics in consultation with the faculty advisor.
- 2 Complete two of the three courses listed: PHYS 4301, PHYS 4701, PHYS 4702.
- 3 PHYS 4701 is offered in even-numbered years. PHYS 4301 is offered in odd-numbered years.