

BA in Physics

Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research. The BA degree provides a broad coverage of classical and modern physics while permitting a broader liberal arts education. It is normally selected by students who plan to enter a professional school later in their academic career, e.g. medicine, dentistry or law, or who desire to pursue a teaching certificate. Physics plays a pivotal role in such areas of expanding and societal importance as biomedical optical imaging/biomedicine, materials science, and homeland security, and as such, courses are offered in optical sciences, biological physics, materials sciences and nanotechnology.

Major Program Requirements

Students must complete the University of Missouri's general education requirements and graduation requirements (<http://catalog.missouri.edu/academicdegree/requirements/universityrequirements/>), in addition to the Major Program Requirements below.

| | | |
|-----------------------------------|---|-----------|
| PHYSCS 2010 | Undergraduate Seminar in Physics | 1 |
| PHYSCS 2750 & PHYSCS 2760 | University Physics I and University Physics II | 10 |
| PHYSCS 3150 | Introduction to Modern Physics | 3 |
| MATH 1500 & MATH 1700 & MATH 2300 | Analytic Geometry and Calculus I and Calculus II and Calculus III | 13 |
| MATH 4100 | Differential Equations | 3 |
| CHEM 1320 or CMP_SC 1050 | College Chemistry I Algorithm Design and Programming I | 4 |
| Electives: | | |
| Additional physics/astronomy | | 15 |
| Total Credits | | 49 |

Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

| First Year | | | |
|--|----|--|-----------|
| Fall | CR | Spring | CR |
| PHYSCS 2010 | | 1 MATH 1700 ¹ | 5 |
| MATH 1500 ¹ | | 5 PHYSCS 2750 ¹ | 5 |
| ENGLSH 1000 [*] | | 3 Humanities/Fine Arts Course [*] | 3 |
| HIST 1100, 1200, or POL_SC 1100 [*] | | 3 | |
| | | 12 | 13 |
| Second Year | | | |
| Fall | CR | Spring | CR |
| MATH 2300 ¹ | | 3 PHYSCS 3150W | 3 |
| PHYSCS 2760 ¹ | | 5 MATH 4100 ¹ | 3 |

| | | |
|--|--|-----|
| Second language I [*] | 4-6 Second language II [*] | 4-6 |
| Behavioral Science Course [*] | 3 Behavioral Science Course [*] | 3 |
| | Social Science Course | 3 |

15-17 **16-18**

| Third Year | | | |
|---|----|---|----|
| Fall | CR | Spring | CR |
| PHYSCS electives ¹ | | 6 PHYSCS electives ¹ | 6 |
| Second language III [*] | | 3-4 CHEM 1320 or CMP_SC 1050 ¹ | 4 |
| 2000-level Social Science Course [*] | | 3 2000-level Humanities/Fine Arts Course (Writing Intensive) [*] | 3 |
| 2000-level Behavioral Science Course [*] | | 3 Elective Course | 3 |

15-16 **16**

| Fourth Year | | | |
|--|----|--|-----------|
| Fall | CR | Spring | CR |
| PHYSCS Elective/Research ¹ | | 3 PHYSCS Elective/Research ¹ | 3 |
| Humanities/Fine Arts Course [*] | | 6 Humanities/Fine Arts course [*] | 3 |
| Elective Course | | 3 Elective Course | 3 |
| Elective Course | | 3 Elective Course | 3 |
| | | Elective Course | 4 |
| | | 15 | 16 |

Total Credits: 118-123

¹ Course meets degree program requirements

^{*} Course meets University general education and/or campus graduation requirements