



Physics BA

Physicists investigate fundamental nature of the forces and particles, and the resultant state of matter, that make up the physical world. The Department of Physics and Astronomy at UMSL provides undergraduates with a broad-based education in the fundamental concepts of physics and the experimental and theoretical skills essential to practicing scientists. The Bachelor of Arts degree offers students an opportunity to combine the rigorous study of physics with additional studies of languages and the liberal arts. This degree is an ideal preparation for a career that combines science with other fields, such as science journalism, science policy, or patent law.

Career Outlook

Many of our students have been successful in subsequent graduate studies in astrophysics and meteorology, as well as physics. Our alumni have pursued graduate studies and earned doctorate degrees at institutions such as Cornell University, MIT, University of Wisconsin, University of Chicago, and Washington University. Students who have elected for careers in industry are now working in a variety of settings for such firms as Emerson Electric, Hewlett Packard, IBM, Boeing, and MEMC Electronic Materials (now SunEdison). Several former students teach physics in high schools around the St. Louis area.

Future Career Options

- Curator at Science Museum
- Educator at Science Museum
- High School Physics/Science Teacher
- National Geospatial-Intelligence Agency
- Patent Lawyer
- Scientific Editor
- Science Journalist
- Science Policy Analyst
- Scientific Illustrator
- Software Engineer
- University Professor

Skills Developed By Degree Completion

- Understand electricity and magnetism, and modern physics
- Students will demonstrate proficiency in a foreign language
- Understand advanced undergraduate areas of physics/astronomy, such as observational astrophysics, biophysics, quantum mechanics, or experimental design
- Problem-solving, critical thinking, and analytical reasoning as applied to scientific problems
- Written and oral communication of the results of scientific work
- Conduct original scientific research as part of a problem-solving team
- Identify errors in scientific data, and assess the significance of observed results

Successful alumni have gone on to fulfill many of the opportunities above. Additional possibilities are taken from the Bureau of Labor Statistics. Contact an advisor to discuss additional future career options.

IT STARTS RIGHT NOW

This is a sample academic map for the courses to take each academic semester/session. This map is not a substitute for academic advisement. Contact your advisor when making final selections.



UNIVERSITY STUDIES

University studies is required for all first-year students and those with less than 24 credit hours.



MILESTONE COURSES

Milestone courses should be taken in the order shown to ensure you stay on a timely and accurate path toward graduation.



SUMMER AND INTERSESSION COURSES

Don't forget that summers and winter breaks are a way to fast-track your route to degree completion – and lighten your load during fall and spring!

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2024-2025 4-YEAR ACADEMIC MAP

Bachelor of Arts in Physics

Year

1

FALL SEMESTER (15 credit hours)

ENGL 1100: First-Year Writing (3)
FGN LANG 1001: Language and Culture I (5)
INTDSC 1003: University Studies (1)
MATH 1030: College Algebra (3)
MATH 1035: Trigonometry (2)
PHYSICS 1099: Windows on Physics (1)

SPRING SEMESTER (15 credit hours)

CHEM 1111: Introductory Chemistry I (5)
FGN LANG 1002: Language and Culture II (5)
MATH 1800: Analytic Geometry and Calculus I (5)



Check once completed

Year

2

FALL SEMESTER (16 credit hours)

CMP SCI 1250: Introduction to Computing (3)
FGN LANG 2101: Language and Culture III (3)
MATH 1900: Analytic Geometry and Calculus II (5)
PHYSICS 2111: Physics: Mechanics and Heat (4)
PHYSICS 2111L: Physics: Mechanics and Heat Laboratory (1)

SPRING SEMESTER (16 credit hours)

MATH 2000: Analytic Geometry and Calculus III (5)
PHYSICS 2112: Electricity, Magnetism, and Optics (4)
PHYSICS 2112L: Electricity, Magnetism, and Optics Laboratory (1)
GEN ED CORE: US History and Government (3)
GEN ED EXPLORE: Humanities and Fine Arts (3)



Year

3

FALL SEMESTER (15 credit hours)

MATH 2020: Introduction to Differential Equations (3)
PHYSICS 3200: Math Methods of Theoretical Physics (3)
PHYSICS 3231: Introduction to Modern Physics (3)
GEN ED EXPLORE: Communication Proficiency (3)
GEN ED EXPLORE: Humanities and Fine Arts (3)

SPRING SEMESTER (15 credit hours)

ENGL 3160: Writing in the Sciences (3)
PHYSICS 3221: Mechanics (3)
PHYSICS 3223: Electricity and Magnetism (3)
Cultural Diversity Requirement (3)
GEN ED EXPLORE: Social Sciences (3)



Year

4

FALL SEMESTER (13-15 credit hours)

PHYSICS or ASTRON 3000+: Physics or Astronomy Elective (3)
PHYSICS or ASTRON 3000+: Physics or Astronomy Elective (3)
GEN ED EXPLORE: Social Sciences (3)
GEN ED EXPLORE: Social Sciences (3)
Elective (1-3)

SPRING SEMESTER (16 credit hours)

PHYSICS or ASTRON 3000+: Physics or Astronomy Elective (3)
GEN ED EXPLORE: Humanities and Fine Arts (3)
Elective (3)
Elective (3)
Elective (3)

