



The **Bachelor of Science** in

Physics, Emphasis in Astrophysics

Understand the universe.

The study of astrophysics aims to understand the universe and everything within it in terms of the fundamental nature of forces and particles. Studying physics strengthens quantitative reasoning and problem solving skills that are valuable in areas beyond physics because students learn how to analyze complex problems, giving them a strong quantitative background that can be applied in any technical field.

The Bachelor of Science in Physics, Emphasis in Astrophysics

The BS in Physics with an Emphasis in Astrophysics is designed to prepare students for a broad-based education in astrophysics with the experimental, observational and theoretical skills essential to practicing astronomers and astrophysicists. An undergraduate degree in astrophysics prepares students for both graduate study and professional careers in astronomy, atmospheric science, image processing, cosmology and instrumentation. Other emphasis areas offered include: Biophysics; Engineering Physics; and General Physics.

Students seeking to major in physics are designated as 'pre-physics majors' until they have completed both PHYSICS 2111 and PHYSICS 2112 (or equivalent courses) with grades of C- or better.

Upon completion of the BS in Physics, Astrophysics Emphasis graduates will be able to demonstrate an understanding of basic physics concepts including classical mechanics, electricity, magnetism, thermal and statistical physics, modern optics and quantum mechanics; demonstrate an understanding of basic principles and concepts of modern astrophysics and observational astronomy; perform astronomical observations, reduce and critically interpret their data; be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems; proficient in both written and oral communication of the results of scientific work; conduct original scientific research as part of a problem-solving team; identify possible errors in scientific data; and assess the significance of observed results.

BS in Physics with a teacher certification

Physics majors interested in teaching physics in secondary schools may obtain teacher certification in cooperation with the College of Education by fulfilling the BS with certain prescribed courses in physics.

BS in Secondary Education with an Emphasis in Physics

Physics majors interested in teaching physics in secondary schools may obtain teacher certification in cooperation with the College of Education by fulfilling the BS with certain prescribed courses in physics.

Transforming Lives

The Bachelor of Science in Physics, Astrophysics Emphasis at UMSL is earned through our College of Arts and Sciences, the academic core of the University of Missouri–St. Louis. Through academic programs offered on- and off- campus, traditional and nontraditional students gain knowledge, skills and intellectual leadership for a variety of career paths, advanced study and research in many academic disciplines.

Graduates are known for their professionalism on the job and their strong sense of civic responsibility. Students in our programs engage in creative and critical thinking, learn to analyze evidence, to appreciate patterns of complexity and to reflect on important issues that impact our daily lives. Students gain skill sets to prepare for a changing workplace that requires flexible, dynamic, and well-educated employees.

The Physics and Astronomy Department offers undergraduate research opportunities in astrophysics, biophysics, nanoscience and material science. The student run public outreach program includes upgraded digital planetarium projectors with student designed shows and a public observing program with telescope viewings of astronomical objects and events. Enhance your experience by joining the Physics and Astronomy Club which hosts professor lectures, game nights, planetarium and observatory visits and more, allowing students to socialize with others who are interested in these two sciences.

Serious education. Serious value.

The Bachelor of Science in Physics, Astrophysics Emphasis is designed to provide specialized knowledge, skills and training in a flexible format, with classes available in person, online and in a hybrid format. You'll learn from highly qualified educators and researchers who hold terminal degrees from some of the world's most prestigious academic institutions.

The University of Missouri–St. Louis provides the knowledge, resources, tools, skills and support students need to be successful in our programs. Our comprehensive student support services include workshops, tutoring and career services to help you develop skills and strategies to be successful in the classroom and beyond. UMSL welcomes transfer students and our transfer specialists will assist you with getting the most transfer credits possible. We're also committed to increasing access to higher education, and as such, UMSL is consistently ranked number one in affordability in the St. Louis region.

Learn more at physics.umsl.edu

The University of Missouri–St. Louis is the largest public research university located in Missouri's most populous and economically important region. UMSL provides high-quality, affordable education to one of the most diverse student bodies in the state. No university is better connected to the surrounding region than UMSL. Seventy-three percent of our graduates stay in St. Louis. The region needs a well-equipped workforce and UMSL is prepared to help you meet those needs. Choose the University of Missouri–St. Louis for astrophysics.

Career Pathways

Aerospace Engineering
Astronomy
Astrophysics Research
Atmospheric Science
High School Science/Physics Teacher
Meteorology
Museum Education
Planetarium Technical Artist/
Programming
Researcher in National Laboratory
Telescope Operation

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