

Choose
UMSL

And your major

Physics BS

with an emphasis in Astrophysics

The study of astrophysics aims to understand the universe and everything within it in terms of the fundamental nature of forces and particles. The Department of Physics and Astronomy at UMSL is devoted to providing undergraduates with a broad-based education in astrophysics with the experimental, observational, and theoretical skills essential to practicing astronomers and astrophysicists. Undergraduate education in astrophysics prepares students for both graduate study and professional careers in astronomy, atmospheric science, image processing, cosmology, and instrumentation.

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.

Possible Future Careers

- National Geospatial - Intelligence Agency
- Geodetic Orbit Scientist
- Geospatial Scientist
- Geophysicist
- Planetarium Technical Artist / Programmer
- Atmospheric Scientist
- Meteorologist
- Aerospace Engineer
- Researcher in National Laboratory
- University Professor
- High School Physics/Science Teacher
- Telescope Operator
- Educator at Science Museum
- Astronomer
- Telescope Operator
- Astrophysics Researcher

Skills Developed by Degree Completion

- Understand classical mechanics, electricity and magnetism, thermal and statistical physics, quantum mechanics, and modern electronics
- Understand principles of astrophysics and observational astronomy
- Perform astronomical observations and interpret their data
- Problem-solving, critical thinking and analytical reasoning
- Write and orally communicate 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.

4-YEAR ACADEMIC MAP

UMSL | Arts & Sciences
University of Missouri–St. Louis

College of Arts and Sciences
Department of Physics and Astronomy
316 Benton Hall
314-516-5931
umsl.edu/~physics

Academic Advising
303 Lucas Hall
314-516-5501
artsience@umsl.edu
umsl.edu/cas/advising

Bachelor of Science in Physics

Emphasis in Astrophysics

Year
1

FALL SEMESTER (15 credit hours)

PHYSICS 1099: Windows on Physics (1)
CHEM 1111: Introductory Chemistry I (5)
MATH 1035: Trigonometry (2)
MATH 1030: College Algebra (3)
ENGL 1100: First-Year Writing (3)
INTDSC 1003: University Studies (1)

SPRING SEMESTER (14 credit hours)

ASTRON 1051: Introduction to Astronomy II (3)
MATH 1800: Analytic Geometry and Calculus I (5)
GEN ED EXPLORE: Social Sciences (3)
GEN ED CORE: US History & Government (3)

Year
2

FALL SEMESTER (16 credit hours)

PHYSICS 2111: Physics: Mechanics and Heat (4)
PHYSICS 2111L: Physics: Mechanics and Heat Laboratory (1)
ASTRON 1050: Introduction to Astronomy I (3)
MATH 1900: Analytic Geometry and Calculus II (5)
CMP SCI 1250: Introduction to Computing (3)

SPRING SEMESTER (16 credit hours)

PHYSICS 2112: Electricity, Magnetism, and Optics (4)
PHYSICS 2112L: Electricity, Magnetism, and Optics Laboratory (1)
MATH 2000: Analytic Geometry and Calculus III (5)
MATH 2450: Elementary Linear Algebra (3)
GEN ED CORE: Communication Proficiency (3)

Year
3

FALL SEMESTER (15 credit hours)

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

SPRING SEMESTER (15 credit hours)

PHYSICS 3221: Mechanics (3)
PHYSICS 3223: Electricity and Magnetism (3)
PHYSICS 4341: Thermal and Statistical Physics (3)
ASTRON 4301: Astrophysics (3) or ASTRON 4322: Observational Astronomy (4)
GEN ED EXPLORE: Humanities & Fine Arts (3)

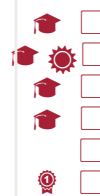
Year
4

FALL SEMESTER (15 credit hours)

PHYSICS 4331: Introduction to Quantum Mechanics (3)
PHYSICS 4323: Modern Optics (3)
PHYSICS 4XXX: Physics Elective (3)
ENGL 3160: Writing in the Sciences (3)
GEN ED EXPLORE: Social Sciences (3)

SPRING SEMESTER (14 credit hours)

ASTRON 4301: Astrophysics (3) or ASTRON 4322: Observational Astronomy (4)
PHYSICS 4350: Computational Physics (3)
GEN ED EXPLORE: Humanities & Fine Arts (3)
GEN ED EXPLORE: Social Sciences (3)
Elective (2)



Degree completed!

2023-2024 4-YEAR ACADEMIC MAP

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

 – **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!



Ready to be
an UMSL Triton?
Apply today.

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admissions.umsl.edu