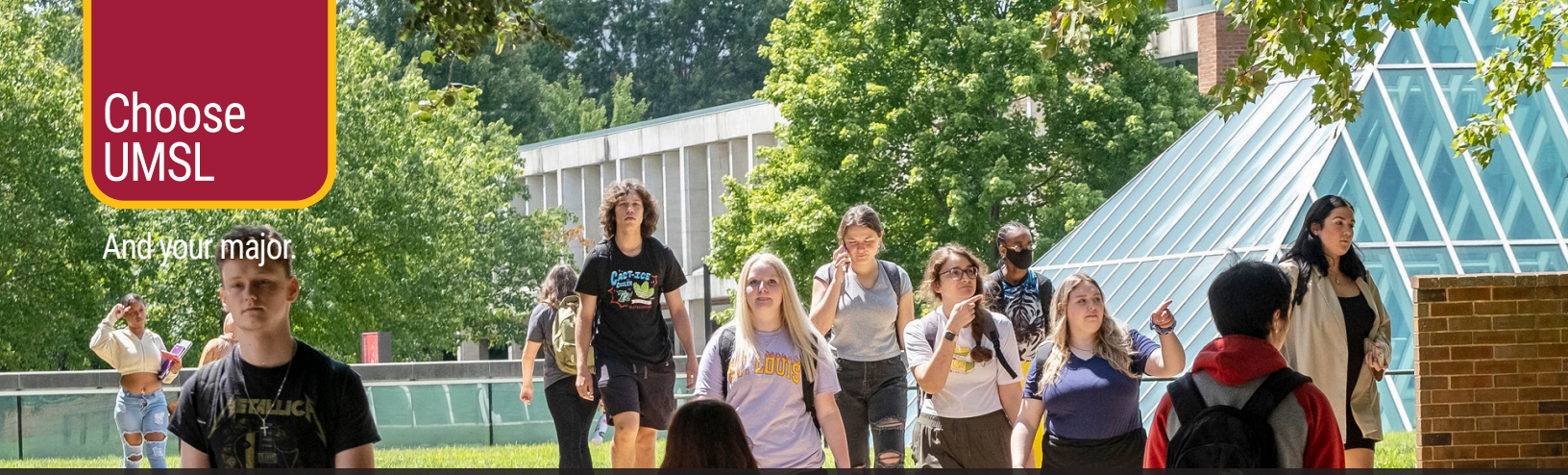

Choose UMSL

And your major.

Physics BS

with an emphasis in Biophysics

Biophysicists investigate how biological systems function using various physics techniques, as well as the fundamental nature of forces, particles and states of matter that make up the physical world. The Department of Physics and Astronomy at UMSL is devoted to providing undergraduates with a broad-based education in the fundamental concepts of biophysics with the experimental and theoretical skills essential to practicing scientists. Undergraduate education in biophysics prepares students for both graduate study and professional careers in fields such as medical physics, environmental science, biomedical engineering, and neuroscience.

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
- Biophysics Researcher
- Medical Physicist
- Physician
- Nuclear Medicine Specialist
- University Professor
- High School Physics/Science Teacher
- Biomedical Engineer
- Environmental Scientist
- Materials Scientist at National Laboratory
- Nanotechnology Researcher

Skills Developed by Degree Completion

- Understand classical mechanics, electricity and magnetism, thermal and statistical physics, modern electronics, and quantum mechanics
- Understanding of basic biological concepts, from organ systems to biochemistry
- Understand basic concepts of biophysics, and the various areas of interdisciplinary science where biophysics concepts and techniques are applicable
- Problem-solving, critical thinking and analytical reasoning as applied to scientific problems
- Proficiency in written and oral communication of the results of scientific work
- Conduct original scientific research as part of an interdisciplinary problem-solving team
- Identify errors in scientific data and assess the significance of observed results

4-YEAR ACADEMIC MAP

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.

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
artscience@umsl.edu
umsl.edu/cas/advising

Bachelor of Science in Physics
Emphasis in Biophysics

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 *(15 credit hours)*
- CHEM 1121: Introductory Chemistry (5)
- MATH 1800: Analytic Geometry and Calculus I (5)
- BIOL 1831: Introductory Biology: From Molecules to Organisms (5)

Year 2

FALL SEMESTER *(18 credit hours)*
- PHYSICS 2111: Physics: Mechanics and Heat (4)
- PHYSICS 2111L: Physics: Mechanics and Heat Laboratory (1)
- MATH 1900: Analytic Geometry and Calculus II (5)
- CMP SCI 1250: Introduction to Computing (3)
- BIOL 1821: Introductory Biology: Organisms and the Environment (5)

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)
- CHEM 2612: Organic Chemsitry I (3)
- GEN ED CORE: US History & Government (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)
- BIOL 4712: Biochemistry or CHEM 4712: Biochemistry (3)
- GEN ED CORE: Communication Proficiency (3)

SPRING SEMESTER *(14 credit hours)*
- PHYSICS 3221: Mechanics (3)
- PHYSICS 3223: Electricity and Magnetism (3)
- PHYSICS 4341: Thermal and Statistical Physics (3)
- BIOL 4713: Techniques in Biochemistry (2)
- GEN ED EXPLORE: Social Sciences (3)

Year 4

FALL SEMESTER *(15 credit hours)*
- PHYSICS 4310: Modern Electronics (3)
- PHYSICS 4331: Introduction to Quantum Mechanics (3)
- ENGL 3160: Writing in the Sciences (3)
- GEN ED EXPLORE: Humanities & Fine Arts (3)
- Cultural Diversity (3)

SPRING SEMESTER *(16 credit hours)*
- PHYSICS 4347: Introduction to Biophysics (3)
- GEN ED EXPLORE: Humanities & Fine Arts (3))
- GEN ED EXPLORE: Humanities & Fine Arts (3)
- GEN ED EXPLORE: Social Sciences (3)
- GEN ED EXPLORE: Social Sciences (3)

Degree completed!

Last Updated May 2023

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!