



Physics is crucial to understanding the world around us, the world inside us, and the world beyond us. Physicists ask big questions like: How did the universe begin? How will the universe change in the future? How does the Sun keep shining?

Physics challenges our imaginations with concepts like relativity and string theory, but also addresses real-world problems like the development of sustainable forms of energy production or treating cancer, through radiotherapy, development of computer games, design and manufacture of sports equipment and understanding and predicting earthquakes. Many apparently complicated things in nature can be understood in terms of relatively simple mathematical relationships.

Concentrations Available:

- Astrophysics
- Condensed Matter/Materials Science
- Biomedical Physics
- Physics Education

Course Highlights in Physics:

- PHYS 3050: The Philosophy of Space Exploration
- PHYS 3260: Computer Tools for Physicists
- PHYS 4300: General Relativity
- PHYS 3300: Introduction to Biomedical Physics
- PHYS 4200: Introduction to Quantum Mechanics
- PHYS 4210: Quantum Theory
- PHYS 4350: Astrophysics
- PHYS 4400: Geophysics
- PHYS 3504: Experimental Physics
- PHYS 3020: Optics

Knowledge & Skills Gained as a Physics Major:

Knowledge:

- Learn how to solve quantitative problems and find relationships between physical factors.
- Learn how to obtain, organize, analyze, and interpret scientific data.
- Develop knowledge of natural laws in various fields including optics, classical and quantum mechanics, and electricity and magnetism, astronomy and astrophysics, biomedical physics and beyond.
- Effectively research, organize, and arrange information and develop new ideas

Skills:

- Conduct experiments
- Develop theories
- Perform calculations
- Prepare technical reports
- Perform mathematical modeling
- Use computer technology
- Research and gather information
- Analyze and organize data

Physics Major at a glance:

Number of majors: 90

Degrees offered: B.A. or B.S.

Concentrations: Yes

Credit hours needed: 33-51

Minors offered: Yes (18 credits)





Career Opportunities:

By nature, Liberal Arts majors make great employees in any field because of their ability to communicate effectively, think critically and solve complex problems. These timeless skills make them attractive to employers in all walks of society. Specifically though, Physics majors often pursue careers as a:

- Research Scientist
- Astrophysicist
- Astronomer
- Optical Physicist
- Geophysical Surveyor
- Marine Geophysicist
- Chemical Analyst
- Ballistics Expert
- Aviation Inspector
- Computational Scientist
- Teacher/College Professor

When the Physics major is matched with complementary minors and thoughtful internships, new possibilities arise. A few examples are:

- **Physics** + Biology = Medicine
- **Physics** + Law = Patent Law
- **Physics** + Statistics = Finance
- **Physics** + Engineering = Design Engineering
- **Physics** + English = Technical Writing
- **Physics** + Business = Industry jobs of all types, especially those emphasizing qualitative literacy
- **Physics** + Computer Science = High-tech, computer industry

Student Opportunities:

- **Society of Physics Students** - Student group that organizes outreach events, conference trips, internship opportunities and more.
- Paid Teaching Assistantships
- Student scholarships available
- Study Abroad
- **Aim for the Stars**
- **CAPOW!** (Chemistry & Physics On Wheels!)

Did you know?

Blackholes are really dense: if you could shrink the Sun down to a diameter of 4 miles, it would become a black hole and would have a density 18 million billion times greater than water. Black holes aren't black. They're very dark, sure, but they aren't black. They glow, slightly, giving off light across the whole spectrum, including visible light.

For more information:

For program information, contacts and course requirements:

<https://www.unomaha.edu/college-of-arts-and-sciences/physics/>

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