UNIVERSITY OF ALBERTA

# Department of Physics

## Unique Offerings

### Astronomical Observatory

More than 4000 annual visitors use this facility as a springboard into science, including school children, education-oriented groups and the general public. Observatory tours, weekly solar and nighttime viewing as well as special events and guest speakers are offered throughout the year, often led by our students.

### The Shack

We invite interdisciplinary undergraduate students into our open-access facility to pursue projects that would not be possible elsewhere. Access to cutting-edge design and manufacturing technologies means that students can leverage their university education and their creative skills to bring their ideas to life.

### Redefining the Classroom

**Undergraduate research** opportunities are available in multiple areas such as, paleomagnetism, particle physics, quantum nanoscience and plasma physics.

**Fun fact:** Science and engineering students built and launched Alberta's first space satellite, the Ex-Alta 1, to monitor space weather.

## More Information

physugrd@ualberta.ca
ualberta.ca/physics

# Undergraduate Programs

In a physics degree program, students learn fundamental principles of physics and develop the important conceptual, analytical, mathematical, and experimental skills needed to understand and test these principles.

### PHYSICS - BSc Major/Minor | BSc Honors

Gain a strong foundation in core physics topics such as mechanics, quantum physics and electromagnetism while developing mathematical, computational and experimental skills. Explore different topics with options including condensed matter physics, particle physics, biophysics, cosmology, plasma physics and computational physics.

### ASTROPHYSICS - BSc Major/Minor | BSc Honors

Explore a wide range of open questions about the physics and properties of stars, galaxies and the Universe. Astrophysicists probe how stars and stellar systems evolve, the properties of and the physics behind the most extreme astrophysical objects (neutron stars, black holes, and quasars), and the physics and structure of the Universe on cosmological scales.

### GEOPHYSICS - BSc Major/Minor | BSc Honors

Advance the understanding of Earth's structure and evolution, develop the skills of environment monitoring and imaging of subsurface structures and processes through the application of physical principles. Geophysicists apply experimental, theoretical, computational and field study techniques to do fundamental research to further the economic development and environmental protection of our planet.

### MATHEMATICAL PHYSICS - BSc Major | BSc Honors

Mathematics is the fundamental language of physics. Learn the core principles of physics with a strong focus on developing a deep, mathematical understanding of the field in a program that is co-taught with mathematicians. Explore further with advanced option courses from either mathematics or physics and complete your own undergraduate research project.

### BIOPHYSICS

Explore the physical basis of life and learn how the behaviour of biological systems can be explained and predicted by physical principles. Programs in Biophysics will be offered in future years, and courses in Biophysics are already available.

# Possible Careers

- Astronomer
- Data Scientist
- Environmental Auditor
- Exploration Geophysicist
- Laser Spectroscopy Specialist
- Medical Physicist
- Quantum Computer Researcher
- Science Journalist

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**For admission requirements:** ualberta.ca/admissions

**For admission related questions:** science.recruiting@ualberta.ca

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