HONOURS BSC IN PHYSICS

Why is our world the way it is? How can we understand and explain what we observe around us, from the smallest sub-atomic particles to the largest galaxies? How can we apply this understanding to manipulate our world? Studying physics gives insight into the fundamental laws of nature.

But an education in physics gives so much more. The rigorous training our students receive in analyzing and understanding complex problems is valuable in many future careers. While many of our graduates have established careers in universities and in the high tech sector as research and development scientists, others have used their physics degrees as a springboard to careers in finance, administration, medicine, management or education. The range of career opportunities is perhaps wider than for any other students with a science education.

Physicists have revolutionized the way we live our lives, with groundbreaking discoveries and new technologies, transferable to other fields such as biology or finance. Our professors and graduates are an important part of this chain. Many of our professors have also been recognized for their teaching and are seen as world-class researchers in their fields of expertise.

The research conducted by the professors in the Department of Physics is concentrated in several sub-specialties, including the physics of biological and complex systems, condensed matter physics, photonics and the physics of geomaterials. Depending upon your choice of program, you have the opportunity to take courses and participate in research projects in these specialized areas.

In addition to the Honours BSc in Physics, we offer three other Honours BSc programs. The first is in physics-mathematics, which provides enriched mathematics training within a physics program. The second is the option in photonics, which gives students a solid training in physics and a more applied and industry-related training in photonics. The third is the option in biological physics, which teaches students to apply a rigorous education in physics to various areas of life sciences. We also offer a Major in Physics that can form the core of an Honours BSc when combined with a major or a minor in another discipline in the Faculty of Science, or in another faculty. Finally, starting in fall 2016, we offer a five-year integrated program in physics (BSc) and Computer Science (SEECS). This unique program will offer a full engineering (BASc), jointly with the School of Electrical Engineering and Computer Science.

Program Requirements

Co-operative education is available with this program.

The French immersion stream is available with this program.

3 course units from:

- GNG 1106 Fundamentals of Engineering Computation

Program Requirements

Co-operative education is available with this program.

The French immersion stream is available with this program.

3 course units from:

- MAT 1320 Calculus I
- MAT 1322 Calculus II
- MAT 1325 Calculus II and an Introduction to Analysis
- MAT 1341 Introduction to Linear Algebra
- PHY 1121 Fundamentals of Physics I
- PHY 1122 Fundamentals of Physics II
- PHY 1123 Mechanics
- PHY 2311 Waves and Optics
- PHY 2323 Electricity and Magnetism
- PHY 2326 Modern Physics
- PHY 2333 Mechanics
- PHY 2335 Statistical Thermodynamics
- PHY 2336 Statistical Thermodynamics
- PHY 2370 Fundamentals of Physics I
- PHY 2371 Fundamentals of Physics II
- PHY 3320 Electromagnetic Theory
- PHY 3341 Theoretical Physics
- PHY 3350 Thermodynamics
- PHY 3355 Statistical Thermodynamics
- PHY 3356 Statistical Thermodynamics
- PHY 3370 Introductory Quantum Mechanics
- PHY 3901 Physics Laboratory I
- PHY 3902 Physics Laboratory II
- PHY 4370 Quantum Mechanics
- PHY 4382 Introduction to Solid State Physics

One option from the following:

Option 1:
- PHY 4006 Physics Research Project
- PHY 4007 Physics Research Project

Option 2:
- PHY 4903 Physics Laboratory
- PHY 4906 Physics Project
- PHY 4907 Physics Project

3 optional course units in mathematics (MAT) at the 2000, 3000 or 4000 level, excluding MAT 2379
9 optional course units in physics (PHY) at the 4000 or 5000 level
12 elective course units from the Faculty of Arts, the Faculty of Education, the Faculty of Law, the Faculty of Social Sciences or the Telfer School of Management.
24 elective course units

Total:

120 Units

Note(s)

1. ITI 1120 is a prerequisite for most computer science courses (CSI).
2. GNG 1106 is recommended for students not taking further computer science courses (CSI).
3. MAT 1322 is recommended.
4. (MAT 2141 or MAT 2342) or (MAT 2371 or MAT 2377) is recommended.

4 Of the 24 elective course units, some breadth in other sciences is recommended, particularly CHM 1311.

Please note that all programs in the Faculty of Science require a minimum of 12 elective course units from the Faculty of Arts, the Faculty of Education, the Faculty of Law, the Faculty of Social Sciences or the Telfer School of Management. Once you have decided on the replacement courses, please inform the Office of Undergraduate Programs of the Faculty of Science by email at infosci@uOttawa.ca so that we may amend your Academic Advisement accordingly.