

MINOR 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 will offer a five-year integrated program in physics (BSc) and electrical engineering (BAsC), jointly with the School of Electrical Engineering and Computer Science (SEECs). This unique program will offer a full education in physics and electrical engineering. Graduates will be sought after by industry and academia, as they will have the capacity to develop technology from a basic physics idea to the final product.

The Department of Physics also has strong graduate programs, leading to an MSc or PhD. They give students the opportunity to work on cutting edge science in a research group led by one or more department professors.

This program is offered in English and in French.

Program Requirements

The table below includes only discipline-specific courses. Please refer to the Academic Regulations (<https://www.uottawa.ca/about-us/policies-regulations/academic-regulations/b-2-program-studies/>) for information on including a minor to your degree.

Requirements for this program have been modified. Please consult the 2024-2025 calendars (<http://catalogue.uottawa.ca/en/archives/>) for the previous requirements.

Compulsory course at the 1000 level

| | | |
|----------|--------------------------------|---------|
| MAT 1341 | Introduction to Linear Algebra | 3 Units |
|----------|--------------------------------|---------|

Compulsory courses at the 2000 level

| | | |
|----------|--|---------|
| PHY 2104 | Introduction to Circuit Theory and Electronics | 3 Units |
|----------|--|---------|

| | | |
|----------|----------------|---------|
| PHY 2361 | Modern Physics | 3 Units |
|----------|----------------|---------|

Optional courses

| | |
|--------------------------------|---------|
| One option from the following: | 6 Units |
|--------------------------------|---------|

Option 1:

| | |
|----------|------------|
| MAT 1320 | Calculus I |
|----------|------------|

| | |
|----------|-------------|
| MAT 1322 | Calculus II |
|----------|-------------|

Option 2:

| | |
|----------|----------------------------------|
| MAT 1330 | Calculus for the Life Sciences I |
|----------|----------------------------------|

| | |
|----------|-----------------------------------|
| MAT 1332 | Calculus for the Life Sciences II |
|----------|-----------------------------------|

| | |
|--------------------------------|---------|
| One option from the following: | 6 Units |
|--------------------------------|---------|

Option 1:

| | |
|----------|---------------------------|
| PHY 1121 | Fundamentals of Physics I |
|----------|---------------------------|

| | |
|----------|----------------------------|
| PHY 1122 | Fundamentals of Physics II |
|----------|----------------------------|

Option 2:

| | |
|----------|--------------------------------------|
| PHY 1321 | Principles of Physics I ¹ |
|----------|--------------------------------------|

| | |
|----------|--------------------------|
| PHY 1322 | Principles of Physics II |
|----------|--------------------------|

| | |
|-------------------------------|---------|
| 6 optional course units from: | 6 Units |
|-------------------------------|---------|

| | |
|----------|------------------|
| PHY 2311 | Waves and Optics |
|----------|------------------|

| | |
|----------|-----------|
| PHY 2333 | Mechanics |
|----------|-----------|

| | |
|----------|--|
| PHY 2100 | Fundamentals of Applied Physics III ² |
|----------|--|

| | |
|----------|--|
| PHY 2323 | Electricity and Magnetism ² |
|----------|--|

| | |
|--|---------|
| 3 optional course units in physics (PHY) at the 3000 or 4000 level, excluding PHY 3902, PHY 3903, PHY 3904, PHY 4006, PHY 4327, PHY 4903, PHY 4906 | 3 Units |
|--|---------|

| | |
|---------------|-----------------|
| Total: | 30 Units |
|---------------|-----------------|

Note(s)

¹ PHY 1321 may be replaced by PHY 1331.

² PHY 2100 and PHY 2323 cannot be combined for units.