

PHYSICS (PHYS)

About Physics

Physics is in many ways the parent of the other natural sciences and its discoveries and laws continually affect their development. Its range and scope extend in space and time from subnuclear particles to the universe itself. The subfields of physics—such as mechanics, thermodynamics, electricity, atomic physics, and quantum mechanics, to mention but a few—permeate all other scientific disciplines. People trained in physics are employed in industry, government, and educational systems where they find many challenges as teachers, researchers, administrators, and in the rapidly developing area of scientific business.

The two main undergraduate programs in physics at McGill are the Honours and the Major. The **Honours** program is highly specialized and the courses are very demanding. This program is appropriate for students who wish to make an in-depth study of the subject in preparation for graduate work and an academic or professional career in physics. The three multidisciplinary honours programs—in Mathematics and Physics, in Physics and Chemistry, and in Physics and Computer Science—are even more specialized and demanding. They are intended for students who wish to develop a strong basis in both physics and the other discipline and are intended as preparation for graduate work and a professional or academic career. Although these programs have a bias for theoretical work, they are broad enough and strong enough to prepare students for further study in either experimental physics or respectively mathematics, chemistry, or computer science.

The **Major** program, on the other hand, offers a broad training in classical and modern physics and yet leaves room for the student to take a meaningful sequence of courses in other areas. It is intended primarily for students who wish to pursue careers in fields for which physics provides a basis. However, this program also provides a preparation for graduate studies.

It is possible for students to transfer from the Major program to the Honours program after the first year of studies; see Bachelor of Science (B.Sc.) - Major Physics (63 credits).

There are also a number of other **Major** programs offered jointly with other departments:

- Atmospheric Sciences and Physics;
- Physics and Computer Science;
- Physics and Geophysics;
- Physiology and Physics;

and **Minor** programs:

- Electrical Engineering, available only to students in the Physics Major;
- Minor in Physics.

The **Concentration** program allows students a greater focus in biological physics. There is also a core Physics component of the **Liberal Science** program, for students less interested in a specialized education.

Students from outside of the Province of Quebec will ordinarily register in the **Science Freshman** program. Physics offers two sequences of courses for this program, described below.

The list of pre- and corequisites is not absolute. In many cases, permission of the Department may be sought to have a specific prerequisite waived. The procedure is to ask the professor in charge of the course to review the request for such a waiver. The prerequisites of the 100-level courses are described in the following section entitled Science Freshman program.

Students interested in any of the Physics programs should contact the Department for an advisor.

A Science **Major Concentration** in physics is available to students pursuing the B.A. & Sc. degree.

Internship Year in Science (IYS)

IYS is a pregraduate work experience program available to eligible students and normally taken between their U2 and U3 years. For more information, see Science Internships and Field Studies.

The following programs are also available with an internship component:

- Major in Physics
- Major Program in Atmospheric Science and Physics
- Major Program in Physics and Computer Science
- Major Program in Physics and Geophysics
- Honours in Physics
- Honours Program in Physics and Chemistry
- Honours Program in Physics and Computer Science
- Honours Program in Physics and Mathematics

Science Foundation Program

Students entering McGill who did not complete a relevant program from a Quebec CEGEP will usually start with the Science Foundation Year. See the Science Foundation Program details for more complete information about which courses to take.

Students entering McGill with a Quebec CEGEP profile in Science will normally begin their programs in Physics with courses at the 200 level.

Available Programs

- Electrical Engineering Minor (B.Sc.) (24 credits)
- Mathematics and Physics Honours (B.Sc.) (81 credits)
- Physics and Chemistry Honours (B.Sc.) (80 credits)
- Physics and Computer Science Honours (B.Sc.) (81 credits)
- Physics and Computer Science Major (B.Sc.) (66 credits)
- Physics and Geophysics Major (B.Sc.) (69 credits)
- Physics Honours (B.Sc.) (81 credits)
- Physics Liberal Program - Core Science Component (B.Sc.) (45 credits)
- Physics Major (B.Sc.) (63 credits)
- Physics Minor (B.Sc.) (18 credits)
- Physics: Biological Physics Honours (B.Sc.) (82 credits)
- Physics: Biological Physics Major (B.Sc.) (82 credits)

Physics (PHYS) Related Programs

Major in Atmospheric Science and Physics

See Atmospheric and Oceanic Sciences (ATOC). This program provides a firm basis for graduate work in atmospheric science and related fields as well as a sound preparation for those who wish to embark on a career directly after the B.Sc. Students should consult undergraduate advisors in both departments.

Major in Physiology and Physics

See Physiology (PHGY). This program provides a firm basis for graduate work in bio-physics and other interdisciplinary fields involving the physical and biological sciences.

Location

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