

Physics in Switzerland

May 13 to August 5, 2024 (12 weeks)

ATLAS is a particle physics experiment at the Large Hadron Collider at CERN. CERN, the European Organization for Nuclear Research, is one of the world's largest and most respected centres for research in particle physics. Seven U of T professors are among the scientists conducting research there, leading a group of approximately 30 U of T researchers on ATLAS. The experiment is recreating the conditions at the birth of the Universe and will bring us closer to a more complete understanding of the subatomic structure of our world.

In this program, students will work on a project either assisting in instrumentation development or analyzing Large Hadron Collider data under the supervision of one of the senior scientists in the group. Students will earn a **PHY396Y0 credit** that can be used towards their degree requirements. Not eligible for CR/NCR option

PHY396Y0 Research Topic Abroad

Course credit for research or field studies abroad under the supervision of a faculty member.

This is a Science course; BR=5

Prerequisites:

- At least 8.5 FCEs and no more than 17.0 FCEs by the beginning of the program
- Strong interest in physical sciences, comfort working with advanced software (no specific programming language is required, but knowledge of c and/or c++ will be of benefit) and have a **minimum CGPA of 3.0**.
- Applicants may be asked to attend an interview.

The course will begin with up to two weeks in Toronto, followed by up to 12 weeks working in the laboratory at CERN, and finally one to two concluding weeks back in Toronto where students will complete their final report.

Research supervisors:

Professor Nikolina Illic has been working with the ATLAS collaboration since 2008, and DUNE collaboration since 2019. On ATLAS she has contributed to Higgs and Exotic particle searches as well as various hardware systems including the readout upgrades, tracker upgrades, and calorimeter operations. On DUNE she has worked on commissioning the data acquisition system and optimizing it for detection of solar, supernova and tau neutrinos.

Professor Richard Teuscher has been a member of the ATLAS collaboration since 1999, and played leadership roles in the development of the ATLAS detector and the search for new types of particles and forces. Stationed full-time at CERN, he has been head of the ATLAS working group responsible for measuring the properties of jets and missing energy, and focused his research effort on the search for and study of the Higgs boson. He is currently the ATLAS Canada Deputy Spokesperson.

Accommodations, Meals, Flight

Students should budget approximately **CAD\$ 2,800** for meals and various expenses.