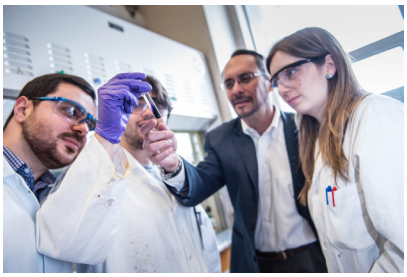
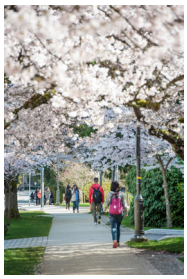
Vancouver Summer Program: Integrated Sciences

At UBC Science, you'll study at a top international research university, learn from faculty members committed to teaching excellence, and enjoy state-of-the-art facilities. Explore game theory, symmetry and Vancouver sustainability with the Vancouver Summer Program.

The 2022 VSP for UBC Integrated Sciences consists of two packages of two courses (equivalent to six credits). Courses are directed and taught by UBC faculty members and overseen by Professor Lee A. Groat, award winning Scientist and Teacher. Classes are interactive and include group discussions, guest lecturers, research projects, laboratory experimentation, daytrips, and visits to research facilities.

The program includes accomodation, a city tour, welcome and farewell lunches, and many social activities in the evenings and during weekends. Activities may include museum visits, skating, outdoor activities such as kayaking and cycling, with plenty of opportunity to explore sites of interest in Vancouver.





2022 Course Packages

Integrated Sciences
VSP website

Package A: Game Theory and Symmetry

Game Theory
Game theory is the study of mathematical models of conflict and cooperation between intelligent rational decision-makers. It's applicable to a wide range of behavioral relations, and is now an umbrella term for the science of logical decision making in computers and organisms. Game theory is an important tool in computer science, biology, economics, political science and psychology. By the end of this course, students learn how to describe real-world interactions in terms of game theory, recognize and solve game types (cooperative/non-cooperative, symmetric/asymmetric, zero-sum/non zero-sum, simultaneous/sequential), and learn to apply game theoretic models to dynamics problems in evolutionary biology.

*These courses are equivalent to the UBC Science credit courses: ISCI 312, ISCI 344.

Symmetry
Symmetry is a transformation that can be applied to an object that leaves it looking unchanged. This relatively simple idea provides a powerful tool for looking at the world. Symmetry is all around us—in the forms of plants and animals, in patterns and shapes of art and architecture, and in the structures of materials from simple molecules to complex proteins and minerals. The principles of symmetry play important roles in biology, chemistry, physics, mineralogy, mathematics, astronomy, and many other sciences. In this course, we will discuss basic principles such as mirror reflections, rotations and repetition, and how different symmetries combine into groups in two and three dimensions. Students will learn to recognize different kinds of symmetry in shapes and patterns, and use their understanding of symmetry to discover how it appears in science and art.

Dates: July 16 to August 16, 2022
Registration Deadline: April 1, 2022

Package B: Exploring Vancouver: Systems and Sustainability

Solutions to complex global challenges such as environmental sustainability require 'systems thinking'--the process of understanding how components influence one another within a whole. In these courses, modeled on successful UBC field courses in Iceland and Hawaii, we approach the Vancouver region as a system and consider the effects of inputs such as climate change on that system. This package features expert lectures and field trips around the Lower Mainland. By the end of this course, students will know more about the Vancouver system than many residents, and will be able to identify systems where they reside and travel. Enrolment is limited so students should apply early.

The Vancouver Environment
This course focuses on Vancouver's environment. We study the geosphere, hydrosphere, atmosphere and biosphere of the Vancouver system.

*These courses are equivalent to the UBC Science credit courses: ISCI 360, ISCI 361.

The Vancouver Anthrosphere
This course focuses on Vancouver's anthrosphere—the part of the environment that is made or modified by humans for use in human activities and human habitats.

Program Fee: $5450 CAD
- Tuition for two courses
- Course materials
- Shared accomodation on campus
- Medical insurance
- Group Airport transfer
- Social activities

Application: Students should contact their home university's international office.

Contacts

For questions about the VSP in Integrated Sciences:
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For general questions about the VSP:
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