

# Integrated Science

Dalhousie's Integrated Science Program is a unique way for well-prepared science students to begin their BSc. Our students learn to think and work like scientists, while mastering a range of subject matter at the first-year introductory level.

## Integrated Science students

Consider our program if you can answer YES to these questions:

- Do you want to be immersed in science and conduct research in your first year?
- Do the links between disciplines and the idea of thinking across their boundaries intrigue you?
- Are you eager to be challenged to think critically about evidence and solve problems?
- Do you enjoy cooperative study and desire to be a member of a small cohort of students?
- Do you have a strong background in high school science and math?
- Are you well-organized, with solid study skills and work habits?



*Integrated science students take field trips to a variety of nearby coastal sites in central Nova Scotia. Through field, laboratory, and other class activities, and by conducting a research project, integrated science students develop a large suite of transferrable skills, and learn first-hand how to design studies, collect and analyse data, and interpret scientific evidence.*



## A learning community

Class size is small, with only 70-80 students in the integrated science cohort. Small classes provide more opportunity for interactions with instructors and classmates. In the winter term, students conduct a research project, working in a small team with Dalhousie researchers.

## How does the program work?

While learning foundation concepts and techniques of traditional first-year subjects, our students examine the connections between disciplines, and apply quantitative methods to questions across the sciences. They even conduct research projects.

The Integrated Science core course (SCIE 1505.18) is taught by a team of integrated science professors and includes two terms of Biology and Psychology, and one term of Earth Science, Statistics, and Writing in Science. Our students also take a one-term companion course, Ethics in Science (PHIL 1050).

Co-requisite Calculus, Chemistry, and (optionally) Physics courses are taken with other BSc students. Three Options provide flexibility in terms of co-requisites. See the 'Choosing an Integrated Science Option' sheet for suggestions, depending on intended majors or career aspirations.

## Benefits of the program

Integrated Science students are prepared for a wider range of undergraduate science programs. Students study a broader range of science disciplines than is possible by taking regular BSc classes. Students finish their first year with more first-year pre-requisites than regular BSc students, and thus have more options for second year.

Students in Integrated Science receive more hands-on practice and learn more transferrable skills. In addition to lectures and readings, students learn through a variety of laboratory activities, field trips, problem sets, computer exercises, library sessions, research projects, oral presentations, and various types of formal written papers.

While challenging students, the program eases their transition from high school to university. This small cohort has an extensive support network that includes members of work teams and research teams, Integrated Science professors, and Dalhousie research supervisors.

The opportunity to become a part of Dalhousie's scientific community and conduct research in a student's first year of university is a large and unique benefit of the program.



# Integrated Science

## Research projects

Each year, more than a dozen research projects are conducted by Integrated Science students. In winter term, our students conduct research in small teams in a Dalhousie research laboratory. See our website for a list of projects recently conducted by our students.

Students experience the entire research process, from developing a research question, to collecting and analysing their data, and finally to presenting their research findings in individual written reports, team conference presentations, and a team scientific poster session on the last day of class, open to the public.

## Transferrable skills

Learn research methods, field and laboratory techniques, teamwork, critical thinking, problem solving, numeric and statistical techniques, planning, organization, and written and oral communication skills. This focus on 'skills development' is excellent preparation for academic, research, and co-op work.

## Integrated writing class

The program satisfies Dalhousie's first-year writing class requirement. Students concurrently take Ethics in Science, Philosophy 1050, a fully integrated, one-term, complementary humanities class. An introduction to ethical questions that arise in the practice of science, this course relates to science topics studied in science courses at the same time.

Writing instruction and practice are integrated across our curriculum. Students hone their scientific writing skills in formal reports in the fall and their research projects in the winter.

## Subjects included

All Integrated Science Options (the core *plus* the co-requisite courses) include biology, chemistry, Earth science, ethics, math (calculus), physics (in two of the three options), psychology, statistics, and writing.

On transcripts, students receive a single letter grade for the core course, SCIE 1505. A breakdown of subject marks is available upon request. Students receive separate grades in their co-requisite courses.

## Workload

Integrated Science students can expect a higher workload than other first-year BSc students. Considering the larger number of subjects studied, the writing class, and the research project, a higher workload is unavoidable. It is also excellent preparation for higher workloads in the second year of a BSc. Note that workload does vary among Options, depending on the specific suite of science co-requisites in the Option.

## Preparation for later years

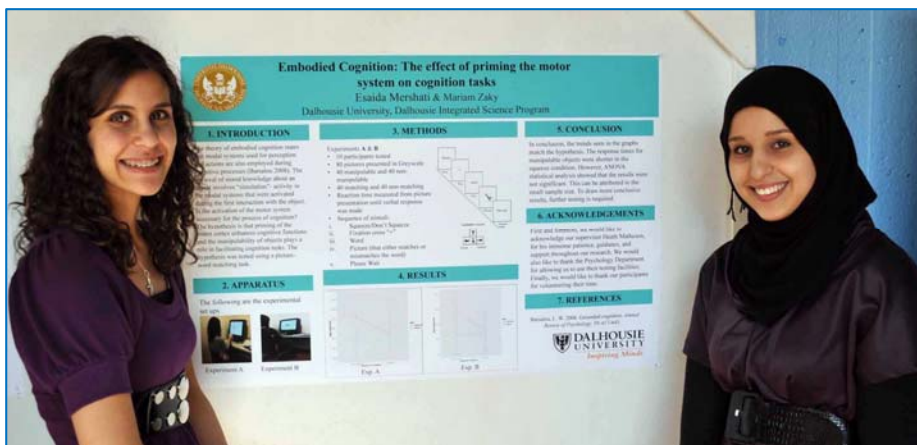
Emphasis on scientific research methods and communication skills, along with a broad introduction to the sciences, makes Integrated Science an excellent foundation for an Honours degree, a combined Honours degree, a Major degree or Double Major degree in science.

Integrated Science is ideal preparation for interdisciplinary fields, like environmental or ocean sciences, and neuroscience.

The program is also a good choice for students interested in many sciences but who are unsure about choosing a major. It also provides a broader background in science that is especially useful in careers such as science journalism, teaching, law and biomedical ethics.

Particular Options are excellent preparation for certain degrees or professional programs, such as Medicine. For more information, see the sheet '*Choosing an Integrated Science Option*' or visit our website:

[disp.science.dal.ca](http://disp.science.dal.ca)



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