

PHYSICAL SCIENCE (PSCI)

College of Engineering and Physical Sciences

Major Requirements (Honours)

This is a major within the degree: Bachelor of Science
(calendar.uoguelph.ca/undergraduate-calendar/degree-programs/bachelor-science-bsc/).

Students may enter this major in Semester 1 or any semester thereafter. A student wishing to declare the major may wish to consult the Faculty Advisor. This major will require the completion of 20.00 credits as indicated below:

Students lacking Grade 12 or 4U Biology, Chemistry or Physics should follow the revised schedule of study for this major found at: https://www.uoguelph.ca/bsc/revised_SS/.

| Code | Title | Credits |
|---|---|---------|
| 1. Basic Science Core - 4.00 credits | | |
| <i>Biology</i> | | |
| Select 1.00 credits from the following: | | |
| BIOL*1070 | Discovering Biodiversity | 0.50 |
| BIOL*1080 | Biological Concepts of Health | 0.50 |
| BIOL*1090 | Introduction to Molecular and Cellular Biology | 0.50 |
| <i>Chemistry</i> | | |
| CHEM*1040 | General Chemistry I | 0.50 |
| CHEM*1050 | General Chemistry II | 0.50 |
| <i>Physics</i> | | |
| PHYS*1080 | Physics for Life Sciences ¹ | 0.50 |
| Select 0.50 credits from the following: | | |
| PHYS*1010 | Introductory Electricity and Magnetism ¹ | 0.50 |
| PHYS*1070 | Physics for Life Sciences II | 0.50 |
| PHYS*1130 | Physics with Applications | 0.50 |
| <i>Mathematical Science</i> | | |
| Select 1.00 credits from the following: | | |
| MATH*1080 & MATH*1090 | Elements of Calculus I and Elements of Calculus II | 1.00 |
| MATH*1200 & MATH*1210 | Calculus I and Calculus II ¹ | 1.00 |
| 2. Subject Area Core - 8.00 credits | | |
| STAT*2040 | Statistics I | 0.50 |
| Select 0.50 credits from the following: | | |
| CIS*1200 | Introduction to Computing | 0.50 |
| CIS*1300 | Programming | 0.50 |
| CIS*1500 | Introduction to Programming | 0.50 |
| 7.00 physical science credits, including at least 4.00 credits at the 3000 or 4000 level of which 2.00 credits must be at the 4000 level. | | 7.00 |
| 3. Science Electives - 4.00 credits | | |
| 4.00 science credits from the List of Approved Science Electives for B.Sc. Students ² | | 4.00 |
| 4. Liberal Education - 2.00 credits | | |
| 2.00 acceptable Liberal Education credits selected from the List of Approved B.Sc. Electives ² | | 2.00 |

5. Free Electives - 2.00 credits

2.00 credits of free electives 2.00

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IPS*1500 Integrated Mathematics and Physics I can be taken instead of PHYS*1080 Physics for Life Sciences and MATH*1200 Calculus I, and IPS*1510 Integrated Mathematics and Physics II can be taken instead of PHYS*1010 Introductory Electricity and Magnetism and MATH*1210 Calculus II.

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Approved course lists are available in the B.Sc. Academic Counselling Office or at: https://bsc.uoguelph.ca/Approved_electives/.

Note: the program must include a total of 6.00 science credits at the 3000 or 4000 level. Of these, at least 2.00 credits must be physical science at the 4000 level.

Recommended Program Sequence

| Code | Title | Credits |
|--|---|---------|
| Semester 1 | | |
| CHEM*1040 | General Chemistry I | 0.50 |
| PHYS*1080 | Physics for Life Sciences ³ | 0.50 |
| or PHYS*1130 | Physics with Applications | |
| MATH*1080 | Elements of Calculus I ³ | 0.50 |
| or MATH*1200 | Calculus I | |
| 0.50 Liberal Education electives | | 0.50 |
| Select 0.50 credits from the following: | | |
| BIOL*1070 | Discovering Biodiversity | 0.50 |
| BIOL*1080 | Biological Concepts of Health | 0.50 |
| BIOL*1090 | Introduction to Molecular and Cellular Biology | 0.50 |
| Semester 2 | | |
| CHEM*1050 | General Chemistry II | 0.50 |
| PHYS*1010 | Introductory Electricity and Magnetism ⁴ | 0.50 |
| or PHYS*1080 | Physics for Life Sciences | |
| MATH*1210 | Calculus II ⁴ | 0.50 |
| or MATH*1090 | Elements of Calculus II | |
| 0.50 Liberal Education electives | | 0.50 |
| Select 0.50 credits from the following: | | |
| BIOL*1070 | Discovering Biodiversity | 0.50 |
| BIOL*1080 | Biological Concepts of Health | 0.50 |
| BIOL*1090 | Introduction to Molecular and Cellular Biology | 0.50 |
| Semester 3 | | |
| 1.50 science electives from the approved list of acceptable B.Sc. science electives ⁵ | | 1.50 |
| 0.50 electives | | 0.50 |
| Select 0.50 credits from the following: ⁶ | | |
| CIS*1200 | Introduction to Computing | 0.50 |
| CIS*1300 | Programming | 0.50 |
| CIS*1500 | Introduction to Programming | 0.50 |
| STAT*2040 | Statistics I | 0.50 |
| Semester 4 | | |
| 1.50 science electives from the approved list of B.Sc. science electives ⁵ | | 1.50 |

0.50 electives 0.50

Select 0.50 credits from the following ⁶

| | | |
|-----------|-----------------------------|------|
| CIS*1200 | Introduction to Computing | 0.50 |
| CIS*1300 | Programming | 0.50 |
| CIS*1500 | Introduction to Programming | 0.50 |
| STAT*2040 | Statistics I | 0.50 |

Semester 5 to 8⁷

2.50 credits per semester including at least 2.00 science electives 10.00

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IPS*1500 Integrated Mathematics and Physics I can be taken instead of PHYS*1080 Physics for Life Sciences and MATH*1200 Calculus I.

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IPS*1510 Integrated Mathematics and Physics II can be taken instead of PHYS*1010 Introductory Electricity and Magnetism and MATH*1210 Calculus II.

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Approved course lists are available in the B.Sc. Academic Counselling Office or at: https://www.uoguelph.ca/bsc/Approved_electives/ (https://bsc.uoguelph.ca/Approved_electives/).

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If a CIS course is chosen in semester 3, the STAT course must be taken in semester 4. If the STAT course is chosen in semester 3, one of the CIS courses must be taken in semester 4.

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Sufficient courses at the 3000 or 4000 level must be selected in Semesters 5 through 8 to total 6.00 credits in science at the 3000 or 4000 level with at least 2.00 physical science at the 4000 level.

Credit Summary

(20.00 Total Credits)

| Code | Title | Credits |
|----------------------|--|-----------|
| | First year science credits | 4.00 |
| | Subject area core semesters 3 – 8 ⁸ | 8.00 |
| | Approved Science Electives | 4.00 |
| | Liberal Education Electives (# 1 in restricted elective list) | 2.00 |
| | Free Electives - any approved elective for B.Sc. students ⁹ | 2.00 |
| Total Credits | | 20 |

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Including STAT*2040 Statistics I and CIS*1200 Introduction to Computing or CIS*1500 Introduction to Programming

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Could be less if restricted electives do not count as science

Of the total credits required, students are required to complete 16.00 credits in science of which 2.00 credits must be at the 4000 level and an additional 4.00 credits must be at the 3000 or 4000 level.

Honours Physical Science (With a Minor)

The requirements and schedules are the same as for Honours Physical Science. Available Minor subjects are listed at the beginning of the B.Sc. Program section under the heading Honours Program Minors.