

# PHYSICAL SCIENCE (PSCI)

College of Engineering and Physical Sciences

## Major Requirements (Honours)

This is a major within the degree: Bachelor of Science.

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/](https://www.uoguelph.ca/bsc/revised_SS/).

Code	Title	Credits
<b>1. Basic Science Core - 4.00 credits</b>		
<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 <sup>1</sup>	0.50
Select 0.50 credits from the following:		
PHYS*1010	Introductory Electricity and Magnetism <sup>1</sup>	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 <sup>1</sup>	1.00
<b>2. Subject Area Core - 8.00 credits</b>		
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
<b>3. Science Electives - 4.00 credits</b>		
4.00 science credits from the List of Approved Science Electives for B.Sc. Students <sup>2</sup>		4.00
<b>4. Liberal Education - 2.00 credits</b>		
2.00 acceptable Liberal Education credits selected from the List of Approved B.Sc. Electives <sup>2</sup>		2.00

### 5. Free Electives - 2.00 credits

2.00 credits of free electives	2.00
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<sup>1</sup> 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.

<sup>2</sup> Approved course lists are available in the B.Sc. Academic Counselling Office or at: [https://bsc.uoguelph.ca/Approved\\_electives/](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
<b>Semester 1</b>		
CHEM*1040	General Chemistry I	0.50
PHYS*1080	Physics for Life Sciences <sup>3</sup>	0.50
or PHYS*1130	Physics with Applications	
MATH*1080	Elements of Calculus I <sup>3</sup>	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
<b>Semester 2</b>		
CHEM*1050	General Chemistry II	0.50
PHYS*1010	Introductory Electricity and Magnetism <sup>4</sup>	0.50
or PHYS*1080	Physics for Life Sciences	
MATH*1210	Calculus II <sup>4</sup>	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
<b>Semester 3</b>		
1.50 science electives from the approved list of acceptable B.Sc. science electives <sup>5</sup>		1.50
0.50 electives		0.50
Select 0.50 credits from the following: <sup>6</sup>		
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
<b>Semester 4</b>		
1.50 science electives from the approved list of B.Sc. science electives <sup>5</sup>		1.50
0.50 electives		0.50
Select 0.50 credits from the following <sup>6</sup>		

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 8<sup>7</sup>**

2.50 credits per semester including at least 2.00 science electives	10.00
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<sup>3</sup> IPS\*1500 Integrated Mathematics and Physics I can be taken instead of PHYS\*1080 Physics for Life Sciences and MATH\*1200 Calculus I.

<sup>4</sup> IPS\*1510 Integrated Mathematics and Physics II can be taken instead of PHYS\*1010 Introductory Electricity and Magnetism and MATH\*1210 Calculus II.

<sup>5</sup> Approved course lists are available in the B.Sc. Academic Counselling Office or at: [https://www.uoguelph.ca/bsc/Approved\\_electives/](https://www.uoguelph.ca/bsc/Approved_electives/) ([https://bsc.uoguelph.ca/Approved\\_electives/](https://bsc.uoguelph.ca/Approved_electives/)).

<sup>6</sup> 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.

<sup>7</sup> 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 <sup>8</sup>	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 <sup>9</sup>	2.00
<b>Total Credits</b>		<b>20</b>

<sup>8</sup> Including STAT\*2040 Statistics I and CIS\*1200 Introduction to Computing or CIS\*1500 Introduction to Programming

<sup>9</sup> 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.