

# ENVIRONMENTAL SCIENCE, B.ENV.SC. MAJOR

## Degree Requirements

Course	Title	Hours
<b>Year 1</b>		
ENVR 1000	Environmental Science 1 - Concepts	3
ENVR 2000	Environmental Science 2 - Issues	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics <sup>1</sup>	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties <sup>1</sup>	3
CHEM 1120	Introduction to Chemistry Techniques <sup>1</sup>	3
MATH 1500	Introduction to Calculus <sup>2</sup>	3
STAT 1000	Basic Statistical Analysis 1 <sup>3</sup>	3
ECON 1010	Introduction to Microeconomic Principles	3
<b>Hours</b>		<b>30</b>
<b>Year 2</b>		
ENVR 2810	Environmental Critical Thinking and Scientific Research <sup>4</sup>	3
ENVR 3160	Environmental Responsibilities and the Law <sup>4</sup>	3
BIOL 2300/ AGEC 2370	Principles of Ecology	3
ECON/ABIZ 2390	Introduction to Environmental Economics	3
PHYS 1020	General Physics 1 <sup>5</sup>	3
STAT 2000	Basic Statistical Analysis 2 <sup>3</sup>	3
One of the following:		3
PHYS 1030	General Physics 2 <sup>6</sup>	
MATH 1200	Elements of Discrete Mathematics	
MATH 1300	Vector Geometry and Linear Algebra <sup>7</sup>	
MATH 1700	Calculus 2 <sup>7</sup>	
One of the following:		3
GEOG 1290	Introduction to Physical Geography	
GEOL 1340	The Dynamic Earth	
GEOL 1440	Course no longer offered	
3 credit hours from the Faculty of Arts		3
<b>Hours</b>		<b>27</b>
<b>Years 3-4</b>		
ENVR 4110	Critical Thinking and the Environment	3
33 credit hours in an approved Focus Area <sup>8</sup>		33
27 credit hours of electives		27
<b>Hours</b>		<b>63</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> The former CHEM 1300 and CHEM 1310 may be used in lieu of CHEM 1100, CHEM 1110 and CHEM 1120. CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120.

- <sup>2</sup> MATH 1230 or MATH 1510 or MATH 1520 may be taken in place of MATH 1500 (or equivalent).
- <sup>3</sup> STAT 1150 and STAT 2150 may be used in lieu of STAT 1000 and STAT 2000.
- <sup>4</sup> The former ENVR 2170 or the former ENVR 2270 may be used in lieu of ENVR 2810.
- <sup>5</sup> The former ENVR 2650 may be used in lieu of ENVR 3160.
- <sup>6</sup> PHYS 1050 and PHYS 1070 may be used in lieu of PHYS 1020 and PHYS 1030.
- <sup>7</sup> MATH 1310 and MATH 1710 may be taken in place of MATH 1300 and MATH 1700 (or equivalent).
- <sup>8</sup> Focus Area courses must include a minimum of 21 credit hours at the 3000- and/or 4000-level. Focus Area performance requirements are defined in Minimum Performance Requirements for Continuation and Graduation. (<https://catalog.umanitoba.ca/undergraduate-studies/environment-earth-resources/environment-geography/environmental-science-benvsc-honours/#Minimum-Performance-Requirements>) Information on Focus Areas is available in the Focus Area Brochure ([https://umanitoba.ca/environment-earth-resources/sites/environment-earth-resources/files/2021-03/focus\\_areas.pdf](https://umanitoba.ca/environment-earth-resources/sites/environment-earth-resources/files/2021-03/focus_areas.pdf)). ([https://umanitoba.ca/environment-earth-resources/sites/environment-earth-resources/files/2021-03/focus\\_areas.pdf](https://umanitoba.ca/environment-earth-resources/sites/environment-earth-resources/files/2021-03/focus_areas.pdf))

Advanced Entry into the degree programs is summarized in the Overview (p. 1).

The courses required in this program will satisfy the University Mathematics Requirements (<https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/#Residence-Written-English>).

The W course (<https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/#Residence-Written-English>) must be completed within the first 60 credit hours of coursework.

## Major Cooperative Option

Course	Title	Hours
<b>Year 1</b>		
ENVR 1000	Environmental Science 1 - Concepts	3
ENVR 2000	Environmental Science 2 - Issues	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics <sup>1</sup>	3
CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties <sup>1</sup>	3
CHEM 1120	Introduction to Chemistry Techniques <sup>1</sup>	3
MATH 1500	Introduction to Calculus <sup>2</sup>	3
STAT 1000	Basic Statistical Analysis 1 <sup>3</sup>	3
ECON 1010	Introduction to Microeconomic Principles	3
<b>Hours</b>		<b>30</b>
<b>Year 2</b>		
ENVR 2810	Environmental Critical Thinking and Scientific Research <sup>4</sup>	3
ENVR 3160	Environmental Responsibilities and the Law <sup>5</sup>	3

BIOL 2300/ AGEC 2370	Principles of Ecology	3
ECON/ABIZ 2390	Introduction to Environmental Economics	3
PHYS 1020	General Physics 1 <sup>6</sup>	3
STAT 2000	Basic Statistical Analysis 2 <sup>3</sup>	3
ENVR 2900	Professional Development in the Environmental Sectors 1	1.5
One of the following:		3
PHYS 1030	General Physics 2 <sup>6</sup>	
MATH 1200	Elements of Discrete Mathematics	
MATH 1300	Vector Geometry and Linear Algebra <sup>7</sup>	
MATH 1700	Calculus 2 <sup>7</sup>	
One of the following:		3
GEOG 1290	Introduction to Physical Geography	
GEOL 1340	The Dynamic Earth	
GEOL 1440	Course no longer offered	
3 credit hours from the Faculty of Arts		3
ENVR 3980	Coop Work Term 1	0
ENVR 3910	Coop Work Term Report 1	1.5
	<b>Hours</b>	<b>30</b>
<b>Years 3-4</b>		
ENVR 4110	Critical Thinking and the Environment	3
33 credit hours in an approved Focus Area <sup>8</sup>		33
ENVR 3900	Professional Development in the Environmental Sectors 2	1.5
ENVR 3990	Coop Work Term 2	0
ENVR 3920	Coop Work Term Report 2	1.5
ENVR 4980	Work Term 3 (optional) <sup>9</sup>	
ENVR 4910	Coop Work Term Report 3 (optional) <sup>9</sup>	
21 credit hours of electives		21
	<b>Hours</b>	<b>60</b>
	<b>Total Hours</b>	<b>120</b>

<sup>1</sup> The former CHEM 1300 and CHEM 1310 may be used in lieu of CHEM 1100, CHEM 1110 and CHEM 1120. CHEM 1122 and CHEM 1126 may be used in lieu of CHEM 1120.

<sup>2</sup> MATH 1230 or MATH 1510 or MATH 1520 may be taken in place of MATH 1500 (or equivalent).

<sup>3</sup> STAT 1150 and STAT 2150 may be used in lieu of STAT 1000 and STAT 2000.

<sup>4</sup> The former ENVR 2170 or the former ENVR 2270 may be used in lieu of ENVR 2810.

<sup>5</sup> The former ENVR 2650 may be used in lieu of ENVR 3160.

<sup>6</sup> PHYS 1050 and PHYS 1070 may be used in lieu of PHYS 1020 and PHYS 1030.

<sup>7</sup> MATH 1310 and MATH 1710 may be taken in place of MATH 1300 and MATH 1700 (or equivalent).

<sup>8</sup> Focus Area courses must include a minimum of 21 credit hours at the 3000- and/or 4000-level. Focus Area performance requirements are defined in Minimum Performance Requirements for Continuation and Graduation (<https://catalog.umanitoba.ca/undergraduate-studies/environment-earth-resources/environment-geography/environmental-science-benvsc-honours/#Minimum-Performance-Requirements>). Information on Focus Areas is available in the Focus Area Brochure ([https://umanitoba.ca/environment-earth-resources/sites/environment-earth-resources/files/2021-03/focus\\_areas.pdf](https://umanitoba.ca/environment-earth-resources/sites/environment-earth-resources/files/2021-03/focus_areas.pdf)).

<sup>9</sup> Students in the cooperative education option who complete ENVR 4980 and ENVR 4910 will graduate with an additional 1.5 degree credits for a total of 121.5 credits hours.

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The W course (<https://catalog.umanitoba.ca/undergraduate-studies/general-academic-regulations/#Residence-Written-English>) must be completed within the first 60 credit hours of coursework.

**Important:** The Honours and Major programs need not be completed in the manner prescribed in the chart above. The chart indicates one possible arrangement of the required courses and is meant to be a guide around which students can plan their program.

**Notes:**

- To fulfil prerequisite requirements, a grade of 'C' must be achieved, unless otherwise stated, in any course stipulated as a prerequisite to a further course.
- Students should review the current course topics available through ENVR 2010, ENVR 2020, ENVR 3000, ENVR 3010, ENVR 3020, ENVR 4000, ENVR 4010, and ENVR 4020 as well as those offered through GEOG 3740, GEOG 3750, GEOG 3760, GEOG 3770 and GEOG 4670. Also, all courses are not offered every year or every term. The course schedule for the current academic term is available from the Class Schedule in Aurora ([https://aurora.umanitoba.ca/banprod/bwckschd.p\\_disp\\_dyn\\_sched/](https://aurora.umanitoba.ca/banprod/bwckschd.p_disp_dyn_sched/)).
- Students registering in certain courses may be required to participate in field trips or field components and pay a portion of the associated expenses. For details, contact the Department of Environment and Geography general office ([environment\\_geography@umanitoba.ca](mailto:environment_geography@umanitoba.ca)).
- Equivalent courses offered through Université de Saint-Boniface may be used in lieu of the specified course identified in the program requirements chart.