

A large astronomical telescope is mounted inside an observatory dome. Two students are working on the telescope. One student, a man with a beard wearing a green hoodie, is holding a notebook and looking at the telescope. The other student, a woman with red hair wearing a black hoodie with 'ORU UNIVERSITY' on it, is adjusting a component of the telescope. The background shows the interior of the dome with various pipes and equipment.

EARTH & ATMOSPHERIC SCIENCE

CURRICULUM UPDATES

EARTH AND ATMOSPHERIC SCIENCE – ORDINARY 90 CR BSC

NEW

Re-added: ESSE 2010 3.00 will be offered again effective Fall/Winter 2022-2023

Effective Fall 2022 for any Academic Calendar requiring ESSE 2011 3.00 and ESSE 2012 3.00:

Scenario	ESSE 2011	ESSE 2012	Remediation
1	Passed	Passed	No remediation required
2	Passed	Failed or didn't take	Take ESSE 2010
3	Failed or didn't take	Passed	Take ESSE 2020 or any ESSE 3XXX or ESSE 4XXX 3.00 credit course or MATH 3241 3.00 or PHYS 2060 3.00
4	Failed or didn't take	Failed or didn't take	Take ESSE 2010 and ESSE 2020

EARTH AND ATMOSPHERIC SCIENCE – ORDINARY 90 CR BSC

NEW

Course substitution: MATH 2930 3.00 may be completed instead of MATH 2565 3.00

Foundational Science (6.00 credits): PHYS 1010 6.00 or both of PHYS 1011 3.00 and PHYS 1012 3.00

Up to Summer 2022 for any Academic Calendar requiring ESSE 2010 3.00:

Scenario	ESSE 2010	CHEM 1000	CHEM 1001	Remediation
1	Passed	Failed or didn't take	Failed or didn't take	Take CHEM 1000 and CHEM 1001
2	Failed or didn't take	Failed or didn't take	Failed or didn't take	Take ESSE 2011 and ESSE 2012 <i>and</i> Take CHEM 1000 or CHEM 1001
3	Failed or didn't take	Passed	Failed or didn't take	Take ESSE 2011 and ESSE 2012
4	Failed or didn't take	Failed or didn't take	Passed	Take ESSE 2011 and ESSE 2012
5	Failed or didn't take	Passed	Passed	Consult Undergraduate Program Director and Academic Advisor to determine which of ESSE 2011 or ESSE 2012 should be completed.

For students still requiring ESSE 2011: Instead of ESSE 2011 3.00, you can take any ESSE 3XXX or ESSE 4XXX 3.00 credit course or MATH 3241 3.00 or PHYS 2060 3.00.

EARTH AND ATMOSPHERIC SCIENCE – SPACE SCIENCE

RECAP

Foundational Science (6.00 credits): PHYS 1010 6.00 or both of PHYS 1011 3.00 and PHYS 1012 3.00

Subject code change: PHYS 4360 3.00 is now ESSE 4360 3.00

Subject code change: PHYS 4361 3.00 is now ESSE 4361 3.00

Replacement: ESSE 4610 3.00 was replaced with ESSE 3670 3.00 in the 15.00 credit technical electives list.

After completing a two-year foundational curriculum, Space Science students must choose one of two options:

1. Focus on the observation of the earth and atmosphere from space (Lassonde School of Engineering)

or

2. Focus on space astronomy and space exploration (Faculty of Science)

Students in good standing may [transfer faculties](#) to follow the option of their choice.

EARTH AND ATMOSPHERIC SCIENCE – ATMOSPHERIC SCIENCE

NEW

Re-added: ESSE 2010 3.00 will be offered again effective Fall/Winter 2022-2023

Effective Fall 2022 for any Academic Calendar requiring ESSE 2011 3.00 and ESSE 2012 3.00:

Scenario	ESSE 2011	ESSE 2012	Remediation
1	Passed	Passed	No remediation required
2	Passed	Failed or didn't take	Take ESSE 2010
3	Failed or didn't take	Passed	Take ESSE 2020 or any ESSE 3XXX / 4XXX 3.00 or PHYS 2060 3.00
4	Failed or didn't take	Failed or didn't take	Take ESSE 2010 and ESSE 2020

Where a student completes any ESSE 3XXX / 4XXX 3.00 or PHYS 2060 3.00 in lieu of ESSE 2011, they must still complete 15.00 additional credits from the “15.00 credits from...” list in the Academic Calendar.

EARTH AND ATMOSPHERIC SCIENCE – ATMOSPHERIC SCIENCE

NEW

Course substitution: MATH 2930 3.00 may be completed instead of MATH 2565 3.00

Foundational Science (6.00 credits): PHYS 1010 6.00 or both of PHYS 1011 3.00 and PHYS 1012 3.00

Up to Summer 2022 for Academic Calendars requiring ESSE 2010 3.00:

Scenario	ESSE 2010	at least three science credits chosen from LE/ENG 2003 3.00; SC/CHEM 2011 3.00; SC/CHEM 2030 3.00; SC/MATH 2222 3.00; SC/MATH 2222 3.00; SC/PHYS 2211 1.00;	Remediation
1	Passed	Failed or didn't take	Continue to take at least 3.00 credits from: LE/ENG 2003 3.00; SC/CHEM 2011 3.00; SC/CHEM 2030 3.00; SC/MATH 2222 3.00; SC/MATH 2222 3.00; SC/PHYS 2211 1.00;
2	Failed or didn't take	Failed or didn't take	Take ESSE 2011 and ESSE 2012
3	Failed or didn't take	Passed	Consult Undergraduate Program Director and Academic Advisor to determine which of ESSE 2011 or ESSE 2012 should be completed.

For students still requiring ESSE 2011: You can take any ESSE 3XXX or ESSE 4XXX 3.00 credit course or PHYS 2060 3.00.

For students intending to complete “at least three science credits chosen from”: You can take any ESSE 3XXX or ESSE 4XXX 3.00 credit course.

You cannot use the same course to satisfy both requirements above. Where a student completes any ESSE 3XXX / 4XXX 3.00 or PHYS 2060 3.00 in lieu of ESSE 2011 or in lieu of “at least three science credits chosen from”, they must still complete 15.00 additional credits from the “15.00 credits from...” list in the Academic Calendar.

EARTH AND ATMOSPHERIC SCIENCE – GEOMATICS SCIENCE

RECAP

Foundational Science (6.00 credits): PHYS 1010 6.00 or both of PHYS 1011 3.00 and PHYS 1012 3.00

Replacement: ESSE 3620 3.00 was replaced with ESSE 2640 3.00.

Replacement: ESSE 4610 3.00 was replaced with ESSE 3670 3.00.



GEOMATICS AT A GLANCE

- **Geomatics:**
 - The discipline concerned with the collection, distribution, storage, analysis, processing, and presentation of geographic data or geographic information [ISO/TC 211].

- **Geomatics Engineering:**
 - An engineering discipline that deals with the acquisition, analysis and management of spatially referenced data that identifies locations.
 - Involved in a wide array of information gathering activities that begin with the design and implementation of the data generation (hardware and software) systems themselves, and facilitates both application, research and management activities.

- **Career prospects:**
 - Software/hardware/system development in high tech
 - Licensed Land Surveyors
 - Specialist in spatial (information) analysis

- **Professional bodies:**
 - [Professional Engineers Ontario \(PEO\)](#)
 - [Association of Ontario Land Surveyors \(AOLS\)](#)
 - [Canadian Board of Examiners for Professional Surveyors \(CBEPS\)](#)

- **Explore local companies:**
 - [Applanix](#), [PCI Geomatics](#), [Teledyne Optech](#), [J.D. Barnes Limited](#), [Cansel](#)