# DEGREE CHECKLIST

**BACHELOR OF SCIENCE (BSc Spec Hons)**  
**EARTH & ATMOSPHERIC SCIENCE**  
Specialized Honours - Space Science Stream

<table>
<thead>
<tr>
<th>COURSES</th>
<th>CREDITS EARNED</th>
<th>GRADE</th>
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<tbody>
<tr>
<td><strong>First Year Courses</strong></td>
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<tr>
<td>LE/EECS 1541 3.00 or LE/EECS 1011 3.00</td>
<td>Introduction to Computing for the Physical Sciences or Computational Thinking through Mechatronics</td>
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<tr>
<td>SC/CHEM 1000 3.00 or SC/CHEM 1001 3.00</td>
<td>Chemical Structure or Chemical Dynamics</td>
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<tr>
<td>LE/ESSE 1010 3.00</td>
<td>The Dynamic Earth and Space Geodesy</td>
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<tr>
<td>LE/ESSE 1011 3.00</td>
<td>Introduction to Atmospheric Science</td>
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<tr>
<td>SC/MATH 1013 3.00</td>
<td>Applied Calculus I</td>
<td></td>
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<tr>
<td>SC/MATH 1014 3.00</td>
<td>Applied Calculus II</td>
<td></td>
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<tr>
<td>SC/MATH 1025 3.00</td>
<td>Applied Linear Algebra</td>
<td></td>
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<tr>
<td>SC/PHYS 1070 3.00</td>
<td>Astronomy</td>
<td></td>
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<tr>
<td>SC/PHYS 1011 3.00</td>
<td>Physics I</td>
<td></td>
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<tr>
<td>SC/PHYS 1012 3.00</td>
<td>Physics II</td>
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In lieu of LE/ESSE 1010 3.00, may complete LE/ESSE 1012 3.00  
E-mail ask@lassonde.yorku.ca for enrolment permission.

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<th>COURSES</th>
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<th>GRADE</th>
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<tbody>
<tr>
<td><strong>Second Year Courses</strong></td>
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<tr>
<td>LE/EECS 2501 1.00</td>
<td>Fortran and Scientific Computing</td>
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<tr>
<td>LE/ESSE 2030 3.00</td>
<td>Geophysics and Space Science</td>
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<tr>
<td>LE/ESSE 2470 3.00 or LE/CIVL 2210 3.00</td>
<td>Introduction to Continuum Mechanics or Fluid Mechanics</td>
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<tr>
<td>SC/MATH 2015 3.00</td>
<td>Applied Multivariate &amp; Vector Calculus</td>
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<tr>
<td>SC/MATH 2271 3.00</td>
<td>Differential Equations for Scientists and Engineers</td>
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<tr>
<td>SC/PHYS 2010 3.00</td>
<td>Classical Mechanics</td>
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<tr>
<td>SC/PHYS 2020 3.00</td>
<td>Electricity and Magnetism</td>
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<tr>
<td>SC/PHYS 2030 3.00</td>
<td>Computational Methods for Physicists and Engineers</td>
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<tr>
<td>SC/PHYS 2040 3.00</td>
<td>Relativity and Modern Physics</td>
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<tr>
<td>SC/PHYS 2060 3.00</td>
<td>Optics and Spectra</td>
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<tr>
<td>SC/PHYS 2213 3.00</td>
<td>Experimental Physics with Data Analysis</td>
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Students interested in space astronomy and space exploration should contact the Department of Physics and Astronomy in the Faculty of Science.

Note: For students transferring into the EATS program, the following are acceptable substitutes for the 6 credit foundational science (physics) requirement: SC/PHYS 1800 3.00 and SC/PHYS 1801 3.00; or SC/ISCI 1310 6.00; or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00; or any of the following with a minimum grade of C in each course: SC/PHYS 1410 6.00; SC/PHYS 1420 6.00; SC/PHYS 1411 3.00 and SC/PHYS 1412 3.00; SC/PHYS 1421 3.00 and SC/PHYS 1422 3.00.
### Third Year Courses

<table>
<thead>
<tr>
<th>COURSES</th>
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<tbody>
<tr>
<td>LE/ESSE 3030 3.00 Atmospheric Radiation and Thermodynamics</td>
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<tr>
<td>LE/ESSE 3040 3.00 Atmospheric Dynamics I</td>
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<tr>
<td>LE/ESSE 3280 3.00 Physics of the Space Environment</td>
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<tr>
<td>LE/ESSE 3600 3.00 Geographical Information Systems (GIS) and Spatial Analysis</td>
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<tr>
<td>LE/ESSE 3610 3.00 Geodetic Concepts</td>
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<tr>
<td>SC/MATH 3241 3.00 Numerical Methods I</td>
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<tr>
<td>SC/MATH 3271 3.00 Partial Differential Equations</td>
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3.00 Credits - Non-Science Requirement

### Fourth Year Courses

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<thead>
<tr>
<th>COURSES</th>
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<tbody>
<tr>
<td>LE/ESSE 4020 3.00 Time Series and Spectral Analysis</td>
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<tr>
<td>LE/ESSE 4220 3.00 Remote Sensing of the Earth's Surface</td>
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<tr>
<td>LE/ESSE 4230 3.00 Remote Sensing of the Atmosphere</td>
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<tr>
<td>LE/ESSE 4361 3.00 Space Mission Design</td>
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At least 15.00 credits from:
LE/ESSE 3670 3.00, LE/ESSE 4000 3.00, LE/ESSE 4110 3.00, LE/ESSE 4130 3.00,
LE/ESSE 4140 3.00, LE/ESSE 4160 3.00, LE/ESSE 4630 3.00,
SC/PHYS 4330 3.00

3.00 Credits - Non-Science Requirement

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**A. General Education Requirement:**

- non-science requirement: 12 credits from the approved list of courses and subject areas in your Academic Calendar;
- mathematics: SC/MATH 1013 3.00; SC/MATH 1014 3.00;
- computer science: LE/EECS 1011 3.00 or LE/EECS 1541 3.00;
- foundational science: SC/PHYS 1011 3.00 and SC/PHYS 1012 3.00 (see approved course substitutes for transfer students);

**B. Major Requirements**

the EATS program core, as specified above (19 credits);

**C. Science breadth:**

Science breadth: satisfied by above requirements.

**D. Upper level requirement:**

A minimum of 42 credits at the 3000 level or higher.

**E. Additional elective credits, as required,** for an overall total of 120 credits.

**F. Standing requirements:** a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.

All Honours BSc degree candidates are encouraged to complete a non-credit industrial internship (normally salaried). This provides experience in a four-month to 12-month placement, normally after the third year of study.

Note: Alternatively the first year engineering core would be an acceptable substitute for the first year courses.