### DEGREE CHECKLIST

**BACHELOR OF SCIENCE (BSc Spec Hons)**

**EARTH & ATMOSPHERIC SCIENCE**

Specialized Honours - Space Science Stream

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<th>COURSES</th>
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<th>GRADE</th>
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#### First Year Courses

- **LE/EECS 1541** 3.00 Introduction to Computing for the Physical Sciences
- **LE/EECS 1011** 3.00 Computational Thinking through Mechatronics
- **SC/CHEM 1000** 3.00 Chemical Structure
- **SC/CHEM 1001** 3.00 Chemical Dynamics
- **LE/ESSE 1010** 3.00 The Dynamic Earth and Space Geodesy
- **LE/ESSE 1011** 3.00 Introduction to Atmospheric Science
- **SC/MATH 1013** 3.00 Applied Calculus I
- **SC/MATH 1014** 3.00 Applied Calculus II
- **SC/MATH 1025** 3.00 Applied Linear Algebra
- **SC/PHYS 1070** 3.00 Astronomy
- **SC/PHYS 1011** 3.00 Physics I
- **SC/PHYS 1012** 3.00 Physics II

In lieu of **LE/ESSE 1010** 3.00, may complete **LE/ESSE 1012** 3.00
E-mail ask@lassonde.yorku.ca for enrollment permission.

#### Second Year Courses

- **LE/EECS 2501** 1.00 Fortran and Scientific Computing
- **LE/EECS 2030** 3.00 Geophysics and Space Science
- **LE/ESSE 2470** 3.00 Introduction to Continuum Mechanics
- **LE/CIVL 2210** 3.00 Fluid Mechanics
- **SC/MATH 2015** 3.00 Applied Multivariate & Vector Calculus
- **SC/MATH 2271** 3.00 Differential Equations for Scientists and Engineers
- **SC/PHYS 2010** 3.00 Classical Mechanics
- **SC/PHYS 2020** 3.00 Electricity and Magnetism
- **SC/PHYS 2030** 3.00 Computational Methods for Physicists and Engineers
- **SC/PHYS 2040** 3.00 Relativity and Modern Physics
- **SC/PHYS 2060** 3.00 Optics and Spectra
- **SC/PHYS 2213** 3.00 Experimental Physics with Data Analysis

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.

Students interested in space astronomy and space exploration should contact the Department of Physics and Astronomy in the Faculty of Science.

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**Students are strongly advised to refer to online Academic Calendars before enrolling into courses: [http://calendars.registrar.yorku.ca/](http://calendars.registrar.yorku.ca/)**
### COURSES

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#### Third Year Courses

- LE/ESSE 3030 3.00  Atmospheric Radiation and Thermodynamics
- LE/ESSE 3040 3.00  Atmospheric Dynamics I
- LE/ESSE 3280 3.00  Physics of the Space Environment
- LE/ESSE 3600 3.00  Geographical Information Systems (GIS) and Spatial Analysis
- LE/ESSE 3610 3.00  Geodetic Concepts
- SC/MATH 3241 3.00  Numerical Methods I
- SC/MATH 3271 3.00  Partial Differential Equations

3.00 Credits - Non-Science Requirement

#### Fourth Year Courses

- LE/ESSE 4020 3.00  Time Series and Spectral Analysis
- LE/ESSE 4220 3.00  Remote Sensing of the Earth’s Surface
- LE/ESSE 4230 3.00  Remote Sensing of the Atmosphere
- LE/ESSE 4361 3.00  Space Mission Design

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 4360 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 3.0 and SC/PHYS 1012 3.0 (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.

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