EXPANDED COURSE DESCRIPTION
EARTH, SPACE SCIENCE AND ENGINEERING
Lassonde School of Engineering
Earth and Space Science and Engineering
LE / ESSE 1010 3.0 SECTION A
THE DYNAMIC EARTH AND SPACE GEODESY
FALL 2018 / WINTER 2019

Last Modified Date: 11/05/2018

COURSE CALENDAR DESCRIPTION
An overview of modern geophysics: origin of the Earth, impact cratering, internal structure and rheology, earthquakes, plate tectonics, geomagnetism. Space geodetic positioning techniques such as VLBI, SLR and GPS are introduced as means of detecting and monitoring tectonic movements. Prerequisites: 12U calculus and vectors or 12U advanced functions or equivalent, or SC/MATH 1515 3.00; 12U physics or SC PHYS 1510 4.00. Course credit exclusions: SC/NATS 1750 6.00. Previously offered as: LE/EATS 1010 6.00, SC/EATS 1010 6.00.

INSTRUCTOR(S)

<table>
<thead>
<tr>
<th>Name</th>
<th>Section / Format / Term</th>
<th>Contact Email</th>
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<tbody>
<tr>
<td>Baker, Ross</td>
<td>Sec. A / LECT / F</td>
<td><a href="mailto:rosseb@yorku.ca">rosseb@yorku.ca</a></td>
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ADDITIONAL INFORMATION

COURSE LEARNING OUTCOMES

1. Summarize the key stages of the origin and the structure of the Solar System and Earth.
2. Discuss the properties of rock forming minerals.
3. Describe the internal structure of Earth and its deformation processes.
4. Apply the principles of relative age dating and mathematics of geochronology.
5. Appreciate the contributions of Canadian Geologists and the development of modern geology.
6. Explain the cause of geomagnetism and its role in our understanding of plate tectonics.
7. Apply different metrics of earthquakes to determine earthquake characteristics.
8. Differentiate space geodetic positioning techniques such as VLBI, interferometry, SLR and GPS by key characteristics and performance, and acquire knowledge of GIS systems.
9. Apply relevant Earth and Geodetic formulae to mathematically analyse earth dynamics.

GRADING BREAKDOWN

Laboratory Assignments (5) - 20%
Test - 30%
Final Exam - 50%

REQUIRED TEXT
"Dynamic Earth - Space Geodesy", Custom Publication for Prof. Ross Baker, LE/ESSE 1010, FALL 2018. ISBN: 9781260071573 -- There is one copy on reserve in the library - QE 28.2 D963 2018

SUGGESTED TEXT

ACADEMIC INTEGRITY LINKS
• Senate Policy on Academic Honesty - http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/
• Academic Integrity - http://lassonde.yorku.ca/academic-integrity

STUDENT LINKS
• Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
• Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
• Academic Accommodation for Students with Disabilities - http://secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-with-disabilities-policy/
• Counselling and Disability Services - http://cds.info.yorku.ca/
• York University’s Policies on Sexual Violence - http://secretariat-policies.info.yorku.ca/policies/sexual-violence-policy-on/
• York University’s Policies on Gender/LGBTQ*/Positive Space - http://rights.info.yorku.ca/lgbtq/

LAND ACKNOWLEDGEMENT
• We acknowledge our presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, the Huron-Wendat, and the Métis. It is now home to many Indigenous Peoples. We acknowledge the current treaty holders, the Mississaugas of the New Credit First Nation. This territory is subject of the Dish With One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.
• The Indigenous Framework for York University: A Guide to Action can be found here: http://indigenous.info.yorku.ca/
• Meaning of a land acknowledgement: http://healthydebate.ca/opinions/indigenous-land-acknowledgements

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.

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