EXPANDED COURSE DESCRIPTION
EARTH, SPACE SCIENCE AND ENGINEERING
Lassonde School of Engineering
Earth and Space Science and Engineering
LE / ESSE 4640 3.0 SECTION A
DIGITAL TERRAIN MODELING
FALL 2020 / WINTER 2021

Last Modified Date: 09/04/2020

COURSE CALENDAR DESCRIPTION

Digital Terrain Modeling (DTM) concepts. Mathematical techniques in data acquisition, processing, storage, manipulation and applications. DTM. Surface representation using moving averages, linear projection and Kriging techniques. Grid resampling methods and search algorithms. DTM derivatives and applications. LIDAR systems and applications. Prerequisites: LE/ESSE 2620 3.00; LE/ESSE 3620 3.00. PRIOR TO FALL 2014: Prerequisites: LE/EATS 2620 4.00 or LE/ENG 2110 2.00; LE/EATS 3620 4.00 or LE/ENG 3110 4.00. PRIOR TO SUMMER 2013: Prerequisites: SC/EATS 2620 4.00 or SC/ENG 2110 2.00; SC/EATS 3620 4.00 or SC/ENG 3110 4.00.

INSTRUCTOR(S)

<table>
<thead>
<tr>
<th>Name</th>
<th>Section / Format / Term</th>
<th>Contact Email</th>
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<tr>
<td>Armenakis, Costas</td>
<td>Sec. A / LECT / F</td>
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ADDITIONAL INFORMATION

Course Website
eClass / Moodle

Required Course Materials

Course Description

Course Learning Outcomes (CLOs)
Upon the completion of this course, students are expected to learn and retain the following concepts and skills:
1. Define and explain DTM concepts and principles and the terrain surface representation.
2. Identify and explain mathematical approaches and techniques for terrain surface interpolations and reconstruction.
3. Describe and apply data acquisition methods for DEM including Lidar systems and applications.
4. Define and explain terrain/surface parameters, visualization, generalization, accuracy and quality control
5. Design and carry out DTM applications and terrain analysis
Grading

The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, B = 6, etc.). Assignments and tests will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.)

(For a full description of York grading system see the York University Undergraduate Calendar - https://calendars.students.yorku.ca/2018-2019/academic-and-financial-information/academic-information/grades-and-grading-schemes)

Assignment Submission

Proper academic performance depends on students doing their work not only well, but on time. Accordingly, assignments for this course must be received on the due date specified for the assignment. Assignments are to be handed in during lectures, tutorials, or through the course Moodle site as specified by the respective instructions.

Lateness Penalty

Assignments received later than the due date will be penalized (i.e., 20% deduction per day that assignment is late). Exceptions to the lateness penalty for valid reasons such as illness, compassionate grounds, etc., may be entertained by the Course Instructor but will require supporting documentation (e.g., a doctor’s letter).

Missed Tests

Students with a documented reason for missing a course test, such as illness, compassionate grounds, etc., which is confirmed by supporting documentation (e.g., doctor’s letter) may request accommodation from the Course Instructor on a case-by-case arrangement. Further extensions or accommodation will require students to submit a formal petition to the Faculty.

For missed exams or final assignments, students are expected to fill out the deferred exam form (https://secure.students.yorku.ca/pdf/final-exam-assignment-deferred-standing-agreement.pdf). Please note that Senate policy states that “normally, requests for deferred standing must be communicated within one week following a missed examination or the last day to submit course work”. The period during which the University is officially closed for December holidays and statutory holidays is not counted in the determination of deadline days.

Classroom Etiquette

The use of electronic devices (smart-phones, tablets, etc.) during lectures and tutorials is only permitted for education purposes.

NETiquette

In all online communications (e.g., email, online discussion, or other forms of online communications), please consider the guidelines from the Core Rules of Netiquette by Virginia Shea (http://www.albion.com/netiquette/corerules.html). Sometimes, online behaviour can appear to be inappropriate or disrespectful that it requires attention and follow up. In this case, please make sure you let your instructor know immediately so that the right resources can be identified to help.

Reminders

- If you are using a personal e-mail address, please identify yourself as a student registered in this course by providing your student number in your signature block. You are responsible for ensuring you are receiving official course information in an efficient and timely manner.
- All students are expected to familiarize themselves with the following information:
- **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
  - Counselling and Disability Services - http://cds.info.yorku.ca/
  - York University’s Policies on Gender/LGBTQ*/Positive Space - http://rights.info.yorku.ca/lgbtq/ 

- **Land Acknowledgement**
  - As this meeting is virtual and we are not all gathered in the same space, I recognize that this land acknowledgment might not be for the territory that you are currently on. We ask that if this is the case, you take the responsibility to acknowledge the traditional territory you are on and the current treaty holders. As a member of the York University community, I recognize that many Indigenous Nations have longstanding relationships with the territories upon which York University campuses are located that predate the establishment of York University. York University acknowledges its 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, and the Huron-Wendat. It is now home to many First Nation, Inuit and Métis communities. We acknowledge the current treaty holders, the Mississaugas of the 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.

**Moodle @ York University**