COURSE CALENDAR DESCRIPTION

Data analytics and visualization is an emerging discipline of immense importance to any data-driven organization. This is a project-focused course that provides students with knowledge on tools for data mining and visualization and practical experience working with data mining and machine learning algorithms for analysis of very large amounts of data. It also focuses on methods and models for efficient communication of data results through data visualization.

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INSTRUCTOR(S)

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<tr>
<th>Name</th>
<th>Section / Format / Term</th>
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<tbody>
<tr>
<td>Papangelis, Emmanouil</td>
<td>Sec. M / LECT / W</td>
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ADDITIONAL INFORMATION

TOPICS & CONCEPTS

- Finding similar items
- Frequent itemsets
- Mining data streams
- Clustering
- Dimensionality reduction
- Link analysis
- Mining graphs
- Recommendation systems
- Value of visualization
- Exploratory data analysis
- Visualization of multidimensional data
- Visualization of networks
- Tools/systems for data analytics and visualization (examples: Openrefine, apache Hadoop Mapreduce, Apache Spark, Twitter Storm/Huron, Tableau, D3, Google Bigtable, Google Bigpicture

GRADING STRUCTURE

Project proposal - 10%
Project midterm report - 20%
Project midterm in-class presentation - 10%
Project final report - 40%
Project final in-class presentation - 20%

TEXTBOOKS
The course will rely mainly on the following textbooks.
• Mining of Massive Datasets, 2nd Edition by Jure Leskovec, Anand Rajaraman, Jeffrey David Ullman (freely available online)
• Networks, Crowds, and Markets by David Easley, Jon Kleinberg (freely available online)
• Introduction to Data Mining by Pang-Ning Tan, Michael Steinbach, Vipin Kumar
• Social Media Mining by Reza Zafarani, Mohammad Ali Abbasi, Huan Liu (freely available online)
• The Visual Display of Quantitative Information, 2nd Edition by Edward Tufte
• Envisioning Information by Edward Tufte
• Interactive Data Visualization for the Web, 2nd Edition by Scott Murray

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://eds.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.
Moodle @ York University