EMERGENCY TA Job Posting: SUMMER 2019 APS1070H - Foundations of Data Analytics and Machine Learning

This job is posted in accordance with the CUPE 3902 Unit 1 Collective Agreement.

Job Posting Date: July 15, 2019
Application Deadline: July 19, 2019

Course Description:
The learning activities in APS1070 Foundations of Data Analytics and Machine Learning will rely heavily on graduate-level programming projects relevant to practical engineering applications, therefore, undergraduate-level courses cannot be substituted and this pre-requisite must be completed before taking any of the two core courses for the Emphasis in Analytics. The topics covered in APS1070 include: (1) Python programming (basic structures -- tuples, lists, sets, dictionaries, Pythonic programming style, e.g., list comprehensions, common packages -- numpy, scipy, matplotlib, pandas, Jupyter/IPython notebooks, OOP design & polymorphism and how to make effective use of it) (2) Probability and statistics (basic distributions, expectations and Monte Carlo approximations, importance sampling, change of variables / Jacobian, ANOVA / confidence intervals). (3) Matrix representations and fundamental linear algebra operations (e.g., quadratic form and multivariate Gaussians, trace, inverse, SVD, matrix derivatives): (4) Basic algorithms and data structures (sorting and array search, graphs and trees) (5) Discrete math (basic combinatorics, basic discrete optimization, e.g., weighted set cover) (6) Continuous optimization (gradient descent and variants, convexity) (7) [Optional if time] Constrained optimization (linear programming, mixed integer linear programming) with a focus on problem formulation

1 position - 56 hours

Duties:
1. Creating Labs, Project 1: Basic Data Science in Python = 28hrs
2. Creating Labs, Project 2: Anomaly Detection = 28 hours

Qualifications: Proficiency in Python and manipulating large datasets. Understanding of, and interest in, data science. Must be capable of working independently. Strong communication skills.

Rate of Pay: Current TA rates: U/G: $45.33 /hour; SGS I: $45.33 /hour; SGS II: $45.33 /hour

Date of Appointment: July 24, 2019

For more information about this courses, see [http://gradstudies.engineering.utoronto.ca/professional-degrees/elite-certificate](http://gradstudies.engineering.utoronto.ca/professional-degrees/elite-certificate).

Notes:
1. TA position and hours posted are tentative, pending final course determination and enrollment.
2. The Vice-Dean of Graduate Studies in the Faculty of Applied Science & Engineering has the sole authority to offer the above TA positions.
3. CUPE 3902 Unit 1 Collective Agreement is available at [http://agreements.hrandequity.utoronto.ca](http://agreements.hrandequity.utoronto.ca).

To apply for a TA position, please submit a cover letter and a CV to David Duong gradstudies@ecf.utoronto.ca by July 15, 2019.
Please note that should rates stipulated in the collective agreement vary from rates stated in this posting, the rates stated in the collective agreement shall prevail. Please note that the above course/position is tentative, pending final course determination and enrolments. The Faculty’s hiring policy is available in the Faculty office and at the CUPE, Local 3902 office. In accordance with the Employment Equity Policy, the University of Toronto encourages applications from qualified women and men, members of visible minorities, aboriginal peoples, and persons with disabilities.