



CREATE Program in Machine Learning in Quantitative Finance & Business Analytics - Training Activities

Last Updated: November 30 2020

Training Structure

There are 2 categories: **Technical Activities & Professional Development.**

Each *category* is assigned a minimum number of UNITS that have to be completed.

Each *activity* within each category counts for a certain number of UNITS. Students can combine different activities of their choice in order to complete the required number of UNITS.

Over the course of the year, various activities will be communicated directly with the students, with the number of units assigned. Some activities will not be assigned any units, but remain beneficial for the students' development, or for networking purposes. Activities will be spread out over the year, and we are working on increasing our presence outside of Montreal.

The training structure was designed in a way to give students the flexibility to pick and choose depending on their backgrounds and schedule. Students are welcome to suggest workshops or conferences that can be credited and of interest to the rest of the Fin-ML community. Proposals will be sent for approval by the Scientific Committee. Reimbursement of travel expenses can also be considered for activities not listed below, but approved thereafter. The list below is indicative and can be updated to ensure the quality of the program. We will be working on finding the best opportunities, to which you can attend, actively participate, or help organize.



Category 1: Technical Activities

Minimum UNITS required: **15 UNITS**

A MAXIMUM of 5 UNITS from Conferences

Activity	Number of UNITS	Note
IVADO Workshop in Finance and Insurance	10	- Offered online or in Montreal, once a year - Travel & accommodation fees covered for out of province students*, when applicable
Data Science for Finance Workshop - ARPM	10	- Offered online, once a year
Formathon Fintech Cadence	5	- Offered online or in Montreal, once a year - Travel & accommodation fees covered for out of province students*, when applicable - Similar workshops can be approved upon request
CRM & IVADO Industrial Problem Solving Workshop	5	- Offered online or in Montreal, once a year - Travel & accommodation fees covered for out of province students*, when applicable - Similar workshops can be approved upon request
CREATE Industrial Research Conference – for students to present their projects	1 – If attending 3 – If presenting	- To be organized online for 2020
Other Conferences	0-1 – If attending 3 – If presenting	Conferences and assigned units will be communicated regularly. Student suggested conferences can be approved upon request.

* Subject to NSERC-CREATE travel & accommodation eligible expenses.

It is **recommended** that students follow certain courses in their home universities, as part of their base program, in order to have a full-rounded profile. Here are some of these courses:

Université de Montréal	IFT 6390 – Fondements de l'apprentissage machine IFT 6135 – Apprentissage de représentations
Concordia University	INSE 6320 – Risk Analysis MACF 491 – Topics in Mathematical & Computational Finance (Reinforcement Learning)
HEC Montreal	80-629-17A – Machine Learning for Large-Scale Data Analysis & Decision Making MATH80629A – Machine Learning I: Large-Scale Data Analysis and Decision Making 80600A – Machine Learning II: Deep Learning MATH80600A – Learning II: Deep Learning MATH80614A – Numerical Methods in Quantitative Finance FINA80631 - Méthodes d'apprentissage appliquées aux données financières FINA80633 - Méthodes statistiques pour données financières



Queen's University	MGMT 962 – Big Data Analytics MGMT 963 – Machine Learning and Artificial Intelligence
University of Waterloo	CS 480 - Introduction to Machine Learning STAT 906 – Computer Intensive Methods for Stochastic Models in Finance STAT 946 – Topics in Probability & Statistics ACTSC/STAT 974 – Financial Econometrics ACTSC 970 – Finance I ACTSC 971 – Finance II

Category 2: Professional Development

Minimum UNITS required: 6 UNITS

Activity	Number of UNITS	Note
Grant Writing and Peer Review	2	- Offered online or in Montreal (for now), at least once a year - Travel & accommodation fees covered for out of province students*, when applicable
Commercialization and Intellectual Property	2	
AI Ethics in Finance	2	
Mock Up Interview Workshop	2	
Scientific Communication Workshop	2	
Job Fair	0	
Mentorship Program	0	