



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

Last Updated: December 1<sup>st</sup>, 2023

## 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
<a href="#">IVADO Workshop in Finance and Insurance</a>	10	- Offered online or in Montreal, once a year - Travel & accommodation fees covered for out of province students <sup>1</sup> , when applicable.
<a href="#">Formathon Fintech Cadence</a>	5	- Offered online or in Montreal, once a year - Travel & accommodation fees covered for out of province students <sup>2</sup> , when applicable - Similar workshops can be approved upon request
<a href="#">CRM &amp; IVADO Industrial Problem Solving Workshop</a>	5	- Offered online or in Montreal, once a year - Travel & accommodation fees covered for out of province students* <sup>3</sup> , when applicable - Similar workshops can be approved upon request
<a href="#">CREATE Industrial Research Conference</a> – for the FIN-ML students to present their projects	2 – If presenting	- To be organized online for 2023-2024
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.

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	<a href="#">IFT 6390 – Fondements de l'apprentissage machine</a> <a href="#">IFT 6135 – Apprentissage de représentations</a>
Concordia University	<a href="#">MAST 679-H (ACTU 491/MACF 491 &amp; STAT 380) – Statistical Learning</a> <a href="#">MACF 401 (MAST 729-F, MAST 881) – Mathematical and Computational Finance I</a> <a href="#">MACF 402 (MATH 729-A, MAST 881-A) – Mathematical and Computational Finance II</a>

<sup>1</sup> Subject to NSERC-CREATE travel & accommodation eligible expenses.

<sup>2</sup> Idem

<sup>3</sup> Ibid



HEC Montreal	<a href="#">MATH 60629A – Machine Learning I: Large-Scale Data Analysis and Decision Making</a> <a href="#">MATH 60630A – Machine Learning II: Deep Learning</a> <a href="#">MATH 80614A – Numerical Methods in Quantitative Finance</a> <a href="#">MATH 60610A - Machine Learning applied to Financial Data</a> <a href="#">MATH 60633A - Statistical Methods for financial data</a>
Queen's University	<a href="#">MGMT 962 – Big Data Analytics</a> <a href="#">MGMT 963 – Machine Learning and Artificial Intelligence</a>
University of Waterloo	<a href="#">CS 480 - Introduction to Machine Learning</a> <a href="#">STAT 906 – Computer Intensive Methods for Stochastic Models in Finance</a> <a href="#">STAT 946 – Topics in Probability &amp; Statistics</a> <a href="#">ACTSC/STAT 974 – Financial Econometrics</a> <a href="#">ACTSC 970 – Finance I</a> <a href="#">ACTSC 971 – Finance II</a>

## 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	

It is the responsibility of the student to let us know which activity they have attended, in order to obtain the relevant number of units. Students profile's webpage is available now at : <https://portal.fin-ml.ca/students/2023>.