

# Thomas Cole

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## EDUCATION

<b>Columbia University, Graduate School of Arts and Science</b> <i>Master of Arts, Mathematics of Finance</i>	Dec. 2025 CGPA: -/4.0
<b>McGill University, Desautels Faculty of Management</b> <i>Bachelor of Commerce, Major in Mathematics, Minor in Finance</i>	May 2024 CGPA: 3.8/4.0
<ul style="list-style-type: none"><li>• <b>Relevant Coursework:</b> Probability, Statistics, Linear Algebra, ODE's, PDE's, Calculus 1-4, Applied Quantitative Finance, Stochastic Processes, Investment Management</li></ul>	

## WORK EXPERIENCE

<b>TD Bank</b>   <i>Toronto, Ontario</i> <i>Analyst Intern, TBSM Hedge Strategy</i> <ul style="list-style-type: none"><li>• Developed a Python package to streamline analytics of mortgage commitment hedging performance</li><li>• Created a dashboard in Python using Plotly and Dash to automate daily, weekly and monthly reporting requirements, reducing time spent by 6 hours per week</li></ul>	May 2024 – Aug. 2024
<i>Analyst Intern, TBSM FO Investment Strategy and Analytics</i> <ul style="list-style-type: none"><li>• Developed a Python package to support analytics for the front office investments team, significantly reducing turn around time on ad-hoc requests</li><li>• Automated daily and weekly reporting procedures for portfolios of size US\$130B+ using Python and SQL, reducing time spent by 8 hours per week</li><li>• Led and prepared weekly team learning sessions, instructing the team on various aspects of Python development</li><li>• Prepared and presented monthly and quarter end results to a variety of stakeholders including senior team members, risk and other front office staff</li></ul>	Jan. 2024 – May 2024
<b>TD Securities</b>   <i>Toronto, Ontario</i> <i>Market Risk and Model Development Summer Associate</i> <ul style="list-style-type: none"><li>• Identified, analyzed and monitored various market risk measures such as FX Vega, Gamma, FX Notional and IR Delta for TDS's trading activity within Global FX, ensuring to escalate any issues in a timely manner</li><li>• Escalated technical issues causing incorrect reporting in risk metrics by understanding trade positions and providing recommendations for fixes by completing analysis with the use of tools such as Python, Tableau and Excel</li><li>• Prepared and presented daily and weekly summaries of GFX relevant risk metrics to senior leaders</li></ul>	May 2023 – Aug. 2023

## PROJECTS

<b>McGill University</b>   <i>Montreal, Quebec</i> <i>Student Research Analyst, PCA Applications on Implied Volatility Surfaces</i>   <a href="#">Github</a> <ul style="list-style-type: none"><li>• Performed PCA on the Implied Volatility Surface of options on US equities listed in the S&amp;P500 using Python</li><li>• Performed a simulation study to test the performance of various principal component selection methods including traditional methods and those of random matrix theory in Python using scikit-learn, NumPy, Pandas and Dask</li><li>• Efficiently processed 75GB+ of both price and implied volatility data for all equities in S&amp;P500 over a multi-year period</li><li>• Prepared a research report containing my results, necessary mathematics and visualizations</li></ul>	Sept. 2023 – Dec. 2023
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## LEADERSHIP AND EXTRACURRICULAR

<b>PennyDrops</b>   <i>Montreal, Quebec</i> <i>Director of Insights</i> <ul style="list-style-type: none"><li>• PennyDrops is Canada's largest student-run non-profit organization dedicated to the advancement of youth financial literacy</li><li>• Manage and analyze a variety of quantitative and qualitative data collected by PennyDrops in order to improve lesson efficiency, student engagement and retention</li><li>• Develop reports and ad-hoc analytics using Tableau, Python and R to allow members of the executive team to easily understand key performance metrics at various levels across the organization</li></ul>	Oct. 2022 – Present
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## SKILLS

**Computer Skills:** Python (Pandas, NumPy, Polars, Plotly, Dash, scikit-learn), R, Java, MATLAB, SQL, Tableau  
**Language Skills:** English (Native), French (Intermediate)  
**Interests:** Guitar, Computers, Personal Finance