

# Adam Lewis

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## Profile

- MSc Data Science student at Loughborough University (Distinction expected), specialising in time-series forecasting and predictive modelling across financial markets. Strong technical foundation in Python, machine learning, and statistical analysis, with four years of experience teaching secondary Mathematics. Academic background in Economics (University of York), with a data-led, results-focused approach and excellent communication skills.

## Technical Skills

Programming	■ Python (pandas, scikit-learn, Keras, PyTorch, statsmodels), R (tidyverse, ggplot2), SQL, MATLAB.
Tools	■ Jupyter Notebook, Tableau, Excel, LaTeX (Overleaf), GitHub, Google Colab, Orange.
Techniques	■ Time-series forecasting (ARIMA, LSTM, Transformers), classification & regression, clustering (k-means), CNNs, reinforcement learning.
Other	■ Data wrangling, model evaluation (RMSE, MAE, F1, AUC), dashboarding, database connections (sqlite3).

## Projects

- **MSc Dissertation – Forecasting Financial Markets with Statistical, ML and Deep Learning Models (in-progress)**
  - Comparing model performance across stocks (S&P 500), forex (GBP/USD), and crypto (Bitcoin) using ARIMA, Random Forest, MLP, LSTM, and Transformers.
  - Developing full forecasting pipelines with technical indicators (e.g., RSI, MACD, Bollinger Bands) and rolling window validation.
  - Evaluating predictive accuracy (RMSE, MAPE), interpretability (e.g., feature importance), and training effort across models.
- **AI & Machine Learning Module – Image Classification and Reinforcement Learning**
  - Developed and trained an image classifier using convolutional neural networks (CNNs).
  - Built two reinforcement learning agents to navigate dynamic gridworld environments, optimising reward-based behaviour over multiple episodes.
- **COVID-19 Data Visualisation Project**
  - Analysed national COVID-19 hospitalisation and death data alongside vaccination and variant emergence.
  - Built interactive Tableau dashboards to track trends, evaluate vaccine impact, and present insights for academic reporting.
- **Spotify Data Analysis (Python Project)**
  - Wrote Python scripts to organise, clean, analyse, and visualise a large Spotify dataset, exploring trends in track popularity, genre, and artist characteristics.
  - Used pandas, matplotlib, and custom-built functions for statistical analysis and data exploration.
- **Economics Dissertation – Economic Drivers of Profitability in the Aerospace Sector (Rolls-Royce Case Study)**
  - Conducted econometric analysis using Stata to identify factors influencing long-term profitability in the aerospace industry.
  - Integrated industry reports, macroeconomic indicators, and company-level data for multi-factor regression models.

## Experience

- **Teacher of Mathematics** **Sept 2021 - July 2024**  
**Lady Manners School** **Bakewell, Derbyshire**
- Delivered GCSE and A-Level Mathematics across varied abilities, consistently achieving strong academic outcomes.
  - Used Excel to analyse student performance data, identifying trends and informing targeted interventions.
  - Contributed to curriculum design, departmental strategy, and development of lesson resources.
  - Led Maths Club, House Maths Challenges, and Badminton Club — combining leadership, logistics, and student engagement.
  - Presented at departmental meetings, CPD sessions, and parents' evenings, developing clear communication and confidence engaging with diverse stakeholders.
  - Supported foreign residential trips and school events, demonstrating strong planning, adaptability, and professionalism.
- **Trainee Teacher** **Sept 2020 - July 2021**  
**Thomas Alleyne's High School** **Uttoxeter, Staffordshire**
- Built and delivered structured lessons while developing presentation skills.
  - Adapted to increasing workload and a fast-paced environment during the training year.
- **Event Set-up Assistant** **June 2019 - Sept 2019**  
**Bellows Glamping and Events Ltd.** **Ashbourne, Derbyshire**
- Worked part-time erecting and preparing tents for a variety of bookings including weddings, birthdays, etc.
  - Operated as part of a team, working to complete set-ups/take-downs as efficiently as possible.

## Education

- **MSc Data Science**, Loughborough University — Predicted Distinction. **2024 - 2025**  
Relevant modules (all 1st): Programming for Data Science, AI & Applied Machine Learning, Statistical Methods, Big Data Visualisation, Data Mining
- **Qualified Teacher Status**, John Taylor SCITT **2020 - 2021**
- **BSc Economics**, University of York — 2:2 **2017 — 2020**  
Relevant modules: Statistics (1st), Economic Data Analysis (1st), Econometrics (2:1), Mathematics I & II (both 1st)
- **A-Levels**, Queen Elizabeth's Grammar School, Ashbourne **2015 - 2017**  
Mathematics, Economics, Further Maths, Chemistry, and General Studies - A\*, A, B, B, B

## Interests & Achievements

- Three Peaks ■ Organised and completed the Three Peaks Challenge this summer as a team of 3, finishing all climbs within 24 hours.
- Course Rep ■ Elected Course Representative for MSc Data Science, acting as a liaison between students and staff, providing structured feedback to course leads.
- UKMT ■ Twice awarded a Gold Certificate in the UK Maths Challenge and progressed to the next round.
- Target 2.0 ■ Area Finalist in the Target 2.0 economics competition, presenting monetary policy analysis to Bank of England economists.
- Sport ■ Regularly go indoor bouldering and play badminton competitively, including for college and halls teams.
- Travelling ■ Keen traveller – recently completed a self-organised Balkan road trip and regularly plan getaways across Europe.
- Quizzing ■ Avid quizzier; shortlisted for the University Challenge team at the University of York.

**References available on request.**