



**FEAA**

FACULTATEA DE ECONOMIE  
ȘI ADMINISTRAREA AFACERILOR  
UNIVERSITATEA "AL. I. CUZA" IAȘI

**TUTORIAL COURSE FORM**

**2024-2025 ACADEMIC YEAR**

<b>Name of the tutorial course (incoming Erasmus/exchange students)</b>	Practical Applications of AI in Business
<b>Name of the professor</b>	Sabina-Cristiana Necula
<b>Email of the professor</b>	sabina.necula@uaic.ro
<b>Office of the professor Consultation hours</b>	B301/ Tuesday (9-11 AM)
<b>Semester(s) in which the tutorial course is available</b>	2
<b>No. of ECTS credits</b>	5
<b>Level of study (bachelor/master/PhD)</b>	bachelor
<b>Short description/Contents</b>	<ol style="list-style-type: none"><li>1. Introduction to AI and Business Basic concepts of artificial intelligence and business Overview of the intersection of AI and finance Python Practice: Introduction to Python for Finance</li><li>2. Predictive Analysis in Finance Introduction to predictive analysis techniques Practical applications of predictive analysis in finance, such as forecasting stock prices and credit risk modelling Python Practice: Building a Simple Stock Price Predictor</li><li>3. Machine Learning for Financial Data Understanding different types of machine learning algorithms (supervised, unsupervised, reinforcement learning) Applications of machine learning in analysing financial data Python Practice: Implementing Machine Learning Algorithms on Financial Data</li><li>4. AI in Trading Understanding how AI is used in algorithmic trading Case studies of AI-driven trading strategies</li><li>5. AI in Personal Finance Overview of how AI is transforming personal finance (e.g., robo-advisors, budgeting apps)</li></ol>

	<p>Discussion of the benefits and challenges of AI in personal finance</p> <p>6. AI in Fraud Detection How AI is used in fraud detection and prevention Case studies of AI in identifying and preventing financial fraud</p> <p>7. Ethical Considerations in AI and Finance Discussion of ethical issues in using AI in finance, such as data privacy and algorithmic bias Strategies for addressing these ethical concerns</p> <p>8. Future of AI in Finance Exploring emerging trends and future applications of AI in finance Discussion of the skills needed to succeed in the AI-driven finance industry</p>
<p><b>Assessment/Evaluation</b></p>	<p>Assignments (70%): 2 Practical assignments where students will apply AI techniques to solve problems related to finance. For instance, students can be asked to use machine learning algorithms on financial datasets. Develop a more comprehensive AI application for a finance-related problem (predictive model for stock prices) or conduct a thorough case study on the use of AI in a specific area of finance. This should be accompanied by a report detailing their methods, results, and insights.</p> <p>Final Exam (30%): A written test (multiple questions)- approximately 20 questions.</p>
<p><b>Bibliography</b></p>	<ol style="list-style-type: none"> <li>1. Aldhyani, T. H., &amp; Alzahrani, A. (2022). Framework for predicting and modeling stock market prices based on deep learning algorithms. <i>Electronics</i>, 11(19), 3149.</li> <li>2. Ali, A., Abd Razak, S., Othman, S. H., Eisa, T. A. E., Al-Dhaqm, A., Nasser, M., ... &amp; Saif, A. (2022). Financial fraud detection based on machine learning: a systematic literature review. <i>Applied Sciences</i>, 12(19), 9637.</li> <li>3. Belhaj, M., &amp; Hachaïchi, Y. Artificial Intelligence, Machine Learning and Big Data in Finance Opportunities, Challenges, and Implications for Policy Makers. <a href="#">Artificial Intelligence, Machine Learning and Big Data in Finance: Opportunities, Challenges, and</a></li> </ol>

[Implications for Policy Makers \(oecd.org\)](https://www.oecd.org/)

4. Boukherouaa, E. B., Shabsigh, M. G., AlAjmi, K., Deodoro, J., Farias, A., Iskender, E. S., ... & Ravikumar, R. (2021). *Powering the Digital Economy: Opportunities and Risks of Artificial Intelligence in Finance*. International Monetary Fund, [Powering the Digital Economy: Opportunities and Risks of Artificial Intelligence in Finance in: Departmental Papers Volume 2021 Issue 024 \(2021\) \(imf.org\)](https://www.imf.org/publications/departmental-papers/volume-2021/issue-024-2021)
5. Fintelics, AI in Financial Services: Streamlining Processes and Enhancing Customer Experiences for Profitability, [AI in Financial Services: Streamlining Processes and Enhancing Customer Experiences for Profitability | by Fintelics | Medium](https://www.fintelics.com/blog/ai-in-financial-services-streamlining-processes-and-enhancing-customer-experiences-for-profitability)
6. Li, A. W., & Bastos, G. S. (2020). Stock market forecasting using deep learning and technical analysis: a systematic review. *IEEE access*, 8, 185232-185242.
7. Li, Y., & Pan, Y. (2022). A novel ensemble deep learning model for stock prediction based on stock prices and news. *International Journal of Data Science and Analytics*, 1-11.
8. Necula, S. C. (2023). Exploring the Impact of Time Spent Reading Product Information on E-Commerce Websites: A Machine Learning Approach to Analyze Consumer Behavior. *Behavioral Sciences*, 13(6), 439.
9. Necula, S. C., & Păvăloaia, V. D. (2023). AI-Driven Recommendations: A Systematic Review of the State of the Art in E-Commerce. *Applied Sciences*, 13(9), 5531.
10. Păvăloaia, V. D., & Necula, S. C. (2023). Artificial intelligence as a disruptive technology—a systematic literature review. *Electronics*, 12(5), 1102.
11. Paweł Stężycki, Using AI in Finance? Consider These Four Ethical Challenges, [Using AI in Finance? Consider These Four Ethical Challenges \(netguru.com\)](https://www.netguru.com/blog/using-ai-in-finance-consider-these-four-ethical-challenges)
12. Rudra Tiwari, The Application of AI And Machine Learning in the Financial Industry and its Effects on Risk Management and Fraud Detection Introduction, [\(11\) \(PDF\) The Application](#)

	<p><a href="#">of AI And Machine Learning in the Financial Industry and its Effects on Risk Management and Fraud Detection Introduction (researchgate.net)</a></p> <p>13. Zhu, Y., Xie, C., Wang, G. J., &amp; Yan, X. G. (2016). Predicting China's SME credit risk in supply chain finance based on machine learning methods. <i>Entropy</i>, 18(5), 195.</p>
<b>Observations</b>	