COURSE DESCRIPTION

1. Information about the programme

1.1 Institution of higher education	**Alexandru Ioan Cuza University of Iași**
1.2 Faculty	**Faculty of Economics and Business Administration**
1.3 Department	**Department of Finance, Money and Public Administration**
1.4 Field of study	**Finance**
1.5 Level	**Master**
1.6 Study programme/ Qualification	**Finance and Risk Management**

2. Information about the course

2.1 Course name			**Digital Finance**				
2.2 Course coordinator			**Assoc. Prof. Constantin-Marius Apostoaie, PhD**				
2.3 Seminar coordinator			**Assoc. Prof. Constantin-Marius Apostoaie, PhD**				
2.4 Year of study	2	**2.5** Semester	1	**2.6** Type of assessment	EVP	**2.7** Course status	E

* C – Compulsory / E - Elective

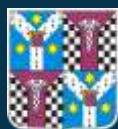## 3. Total estimated time (hours allotted to teaching activities per semester)

3.1 Number of hours per week	3	of which: **3.2** lecture	2	**3.3** seminar/lab	1
3.4 Number of hours in the curriculum	42	of which: **3.5** lecture	28	**3.6** seminar/lab	14
Time distribution					hrs
Study of the textbook, coursebook, bibliography and lecture notes					30
Additional research in the library, online and on the field					20
Preparation of seminars/labs, homework, projects, portfolios and essays					27
Tutorials					4
Assessment					2
Other activities..................................					-

3.7 Total number of self-study hours	83
3.8 Total number of hours per semester	125
3.9 Number of credits	5

4. Prerequisites (if applicable)

4.1 Curriculum-based	-
4.2 Competence-based	-

5. Conditions (if applicable)

5.1 For lectures	▪ Attendance is strongly encouraged.
5.2 For seminars / labs	▪ Attendance is strongly encouraged.

6. Specific competencies

Professional competencies	**C1.** Analysis of the theoretical and practical aspects of financial markets, models, instruments that are used in the management of risks. **C2.** Adequate use of mathematical and statistical concepts, methods and techniques in assessing risks and performing independent research in finance. **C3.** Evaluation of the main risk factors for organizations and financial systems. **C4.** Implementing effective financial management and reporting within the business environment to ensure value creation. **C5.** Ensuring effective and appropriate governance and management of risk within an organization, in the context of an overall ethical framework.
Transversal competencies	**CT1.** Application of the professional ethical norms and values in decision-making and undertaking of complex professional tasks, independently or within a team. **CT2.** Human resources planning within a group or organization, in the context of awareness of own responsibility for professional outcomes. **CT3.** Assuming the need for continuous development to create prerequisites for career progression and adapt own professional and managerial competencies to the economic dynamics.

7. Course objectives (provided by the specific competencies grid)

7.1. Main objective	The main objective of this course is to acquire a comprehensive understanding of how technology is shaping and revolutionizing the financial industry. This course aims to provide students with the knowledge and skills required to navigate the rapidly evolving landscape of digital finance, where traditional financial practices are being transformed through the integration of advanced technologies, including online banking, mobile payments, cryptocurrencies, algorithmic trading, robo-advisors, and more.
7.2. Specific objectives	On completion of the course, students will be able to: ▪ Describe the implications of digital transformation in finance ▪ Describe "fintech" and fintech applications to investment management ▪ Explain in considerable detail key digital technologies and products, such as Big Data, Artificial Intelligence (AI), Machine Learning (ML), Robotic Process Automation (RPA), digital currencies and digital payments ▪ Explain the regulatory and organisational implications of digital finance technologies (including financial applications of distributed ledger technology) and how they can be applied in a range of settings including compliance in organisational contexts ▪ Work in teams and present orally specific case studies

8. Content

8.1	Lectures	Teaching methods	Observations (hours & readings)
1.	**Introduction to Digital Finance and the Digital Finance Ecosystem**	Interactive lecture, Brainstorming, Ungraded quiz	4h: [1], [2], [3], [4], [5], [6]
2.	**Big Data and FinTech**	Interactive lecture, Invention activities, Random calling	4h: [1], [2], [3], [4], [5], [9], [11]
3.	**Distributed Ledger Technology (DLT)**	Interactive lecture, Invention activities, Random calling	4h: [1], [2], [3], [4], [10]
4.	**Virtual currencies: digital currencies vs. cryptocurrencies**	Interactive lecture, Invention activities, Random calling	4h: [1], [2], [3], [4], [8]

| 5.	**Advanced Analytical Tools and FinTech Applications**	Interactive lecture, Invention activities, Random calling	4h: [1], [2], [4], [5], [7], [9], [11]
6.	**FinTech Regulation and RegTech**	Interactive lecture, Invention activities, Random calling	4h: [1], [2], [9], [10]
7.	**Cybersecurity, Risk Management and Future Trends in Digital Finance**	Interactive lecture, Invention activities, Random calling	4h: [1], [2], [4], [5], [6], [8]

Bibliography

Main readings:

[1] CFA® Institute, 2018. *CFA® Program Reading on Fintech in Investment Management* (https://www.cfainstitute.org/-/media/documents/support/programs/cfa/cfa-program-level-iii-fintech-in-investment-management.ashx?la=en&hash=7E8E4B151F5FA24E1B21D3A17A3F1BE9E8F3960E)

[2] Hines, B., 2021. *Digital Finance. Security Tokens and Unlocking the Real Potential of Blockchain*. Wiley.

[3] Turi, A.N. (Ed.), 2023. *Financial Technologies and DeFi. A Revisit to the Digital Finance Revolution*. Springer.

Additional readings:

[4] Harvey, C.R., Ramachandran, A., Santoro, J., 2021. *DeFi and the Future of Finance*. Wiley.

[5] Prasad, E.S., 2021. *The Future of Money. How the Digital Revolution Is Transforming Currencies and Finance*. Belknap Press of Harvard University Press.

[6] Vukovic, D.B., Maiti, M., Grigorieva, E.M. (Eds), 2022. *Digitalization and the Future of Financial Services. Innovation and Impact of Digital Finance*. Springer.

[7] Grabowski, M., 2019. *Cryptocurrencies: A Primer on Digital Money*. Routledge.

[8] Liaw, K.T. (Ed.), 2021. *The Routledge Handbook of FinTech*. Routledge.

[9] Cao, L. (Ed.), 2023. *Handbook of Artificial Intelligence and Big Data Applications in Investments*. The CFA Institute Research Foundation (https://www.cfainstitute.org/-/media/documents/article/rf-brief/ai-and-big-data-in-investments.pdf)

[10] Pompella, M., Matousek, R. (Eds.), 2021. *The Palgrave Handbook of FinTech and Blockchain*. Palgrave Macmillan.

[11] Financial Stability Board. 2017. "Artificial Intelligence and Machine Learning in Financial Services: Market Developments and Financial Stability Implications". (www.fsb.org/wp-content/uploads/P011117.pdf).

Further readings: May be provided throughout the course via FEAA eLearning or handed-in in class.

8.2	Seminars / Labs	Teaching methods	Observations (hours & readings)
1.	**Introduction to Digital Finance and the Digital Finance Ecosystem**	Small group discussion, Mini-Lecture, Case Study, Random calling, Simulation	2h: [1], [2], [3], [4], [5], [6]
2.	**Big Data and FinTech**	Small group discussion, Mini-Lecture, Case Study, Random calling, Simulation	2h: [1], [2], [3], [4], [5], [9], [11]
3.	**Distributed Ledger Technology (DLT)**	Small group discussion, Mini-Lecture, Case Study, Random calling, Simulation	2h: [1], [2], [3], [4], [10]
4.	**Virtual currencies: digital currencies vs. cryptocurrencies**	Small group discussion, Mini-Lecture, Case Study, Random calling, Simulation	2h: [1], [2], [3], [4], [8]
5.	**Advanced Analytical Tools and FinTech Applications**	Small group discussion, Mini-Lecture, Case Study, Random calling, Simulation	2h: [1], [2], [4], [5], [7], [9], [11]
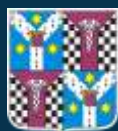
6.	**FinTech Regulation and RegTech**	Small group discussion, Mini-Lecture, Case Study, Random calling, Simulation	2h: [1], [2], [9], [10]
7.	**Cybersecurity, Risk Management and Future Trends in Digital Finance**	Small group discussion, Group Case Study	2h: [1], [2], [4], [5], [6], [8]

Bibliography
Main readings:

[1] CFA® Institute, 2018. *CFA® Program Reading on Fintech in Investment Management* (https://www.cfainstitute.org/-/media/documents/support/programs/cfa/cfa-program-level-iii-fintech-in-investment-management.ashx?la=en&hash=7E8E4B151F5FA24E1B21D3A17A3F1BE9E8F3960E)

[2] Hines, B., 2021. *Digital Finance. Security Tokens and Unlocking the Real Potential of Blockchain*. Wiley.

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[6] Vukovic, D.B., Maiti, M., Grigorieva, E.M. (Eds), 2022. *Digitalization and the Future of Financial Services. Innovation and Impact of Digital Finance*. Springer.

[7] Grabowski, M., 2019. *Cryptocurrencies: A Primer on Digital Money*. Routledge.

[8] Liaw, K.T. (Ed.), 2021. *The Routledge Handbook of FinTech*. Routledge.

[9] Cao, L. (Ed.), 2023. *Handbook of Artificial Intelligence and Big Data Applications in Investments*. The CFA Institute Research Foundation.

[10] Pompella, M., Matousek, R. (Eds.), 2021. *The Palgrave Handbook of FinTech and Blockchain*. Palgrave Macmillan.

[11] Financial Stability Board. 2017. "Artificial Intelligence and Machine Learning in Financial Services: Market Developments and Financial Stability Implications". (www.fsb.org/wp-content/uploads/P011117.pdf).

Further readings: May be provided throughout the course via FEAA eLearning or handed-in in class.

9. Corroboration of the course content with the expectations of community representatives, professional associations and representative employers from the programme's related field

This course provides students with the core knowledge, skills, and abilities that are generally accepted and applied by finance and investments professionals throughout the world. Topics are selected in accordance to the requirements of Chartered Financial Analyst (CFA) and Professional Risk Manager (PRM) world-leading certifications for finance and risk management, to offer the adequate preparation for CFA and PRM exams. The course content is correlated to that of similar courses taught at renowned universities and is continuously updated based on the feedback of students and alumni.
Moreover, this is a student-centered course that follows the best practices of learning and teaching in graduate education through the adoption of a variety of active-learning instructional methods.

10. Assessment

Type of activity	10.1 Assessment criteria (based on the course learning objectives)	10.2 Assessment methods	10.3 Weight in final grade (%)
10.4 Lectures	- Accuracy of application of the theory presented during the semester - Originality of the case study - Quality of work in a team of students - Clarity of speech and ideas and quality of argument, introduction and conclusion in the presentation of the group case study	**Group case study** and its **oral presentation**	**50%**
10.5 Seminar/ Labs	- Accuracy of answers to short questions and unannounced quizzes - Active attitude during class, giving comments to fellow students etc. - Depth of description of the concepts. - Clarity of explanation of various theories around the critical topics - Quality of presentation and accuracy of solutions to the raised issues	**Active Participation**	**10%**
		Mini-lecture	**15%**
		Individual Case Study	**25%**

10.6 Minimum performance standard
- Demonstration of the capability to identify, analyze and interpret in considerable depth relevant theories and practical information on digital finance, use properly the theoretical models, taking the responsibility for tasks specific to the role in a team.   - A minimum passing grade of 5, computed as $F = 0.5 \times G + 0.10 \times AP + 0.15 \times ML + 0.25 \times ICS$, where F – final grade, G – group case study, AP – Active Participation, ML – Mini-lecture, ICS – Individual Case Study.

Date   Course Coordinators   Seminar Coordinators
01.09.2023   Conf. dr. Constantin-Marius Apostoaie   Conf. dr. Constantin-Marius Apostoaie

Date of approval   Head of Department
                                                        Prof. dr. Ovidiu STOICA