



Course Syllabus

Course Code	Course Title	ECTS Credits
BLOC-526DL	Emerging Topics in FinTech	10
Prerequisites	Department	Semester
BLOC-511DL	Digital Innovation	Fall/Spring
Type of Course	Field	Language of Instruction
Elective	Fintech	English
Level of Course	Lecturer(s)	Year of Study
2 nd Cycle	Dr. Periklis Thivaivos	2 nd
Mode of Delivery	Work Placement	Corequisites
Distance Learning	N/A	N/A

Course Objectives:

This course aims to provide a critical understanding of fintech and disruption in the context of banking and insurance. It will cover the theoretical and practical underpinnings of fintech developments in the fields of credit, underwriting, digital currencies, and payments utilising case studies of successful and unsuccessful firms. The course will also focus on the practical applications of machine learning techniques to fintech use cases such as credit risk and insurance fraud assessment.

Students should note that this course is intentionally steering clear of blockchain, in order to extend students' perspectives beyond the focus of other courses.

Learning Outcomes:

After completion of the course students are expected to be able to:

- Classify the key characteristics of Blockchains (i.e., decentralization, persistency, anonymity, auditability etc.);
- Dissect the different layers of components that compose the architecture of a blockchain-based system;
- Contrast a blockchain-based system with a replicated state-machine;
- Analyze the challenges of consensus algorithms at the high-level;
- Analyze and dissect the components of blockchain-based technologies which support Turing-complete languages;

- Establish a deep understanding of algorithmic execution in DLTs, their consensus model, code execution, operation of its network, storage options and main actors that participate on each protocol;
- Analyze the inner workings of smart contracts as means for developing decentralized applications;
- Examine the interaction between the enclosed smart contract network and the external world, be aware of further implications these interactions;
- Evaluate a set of technologies that support the backbone decentralized storage network (e.g., IPFS, Swarm);
- Demonstrate the various categories of DLTs
- understand the underlying incentivization and governance models;
- Examine the development and adoption of DLTs in the future through various use-cases;
- Analyze how other emerging technologies (e.g., IoT and AI) can be exploited and combined with blockchains.

Course Content:

Main Topic/Thematic Areas

- Classify the key characteristics of Blockchains (i.e., decentralization, persistency, anonymity, auditability etc.);
- Dissect the different layers of components that compose the architecture of a blockchain-based system;
- Contrast a blockchain-based system with a replicated state-machine;
- Analyze the challenges of consensus algorithms at the high-level;
- Analyze and dissect the components of blockchain-based technologies which support Turing-complete languages;
- Establish a deep understanding of algorithmic execution in DLTs, their consensus model, code execution, operation of its network, storage options and main actors that participate on each protocol;
- Analyze the inner workings of smart contracts as means for developing decentralized applications;
- Examine the interaction between the enclosed smart contract network and the external world, be aware of further implications these interactions;

- Evaluate a set of technologies that support the backbone decentralized storage network (e.g., IPFS, Swarm);
- Demonstrate the various categories of DLTs
- understand the underlying incentivization and governance models;
- Examine the development and adoption of DLTs in the future through various use-cases;
- Analyze how other emerging technologies (e.g., IoT and AI) can be exploited and combined with blockchains.

Learning Activities and Teaching Methods:

Teaching material including PowerPoint presentations with extended descriptions and explanations, asynchronous video presentations, additional readings (journal articles and ebooks), access to additional videos and commercials related to the course, synchronous meetings (Engageli), forums, chats, quizzes, interactive exercises, case studies and other formative and summative assessments.

Assessment Methods:

Formative Interactive Assessments

- Interactive activities, such as multiple choice quizzes and assignments, to reinforce students' learning experience and engagement with the course. These activities are graded and, collectively, count for 40% of the students' final grade.
- Multiple choice quizzes contribute 20% towards the final grade
- Assessment 1 contributes 10% towards the final grade
- Assessment 2 contributes 10% towards the final grade

Summative Assessments

- Final exam, after session 12, corresponding to 60% of the total mark. A minimum score of 60% is required to successfully complete the course.

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
“The evolution of fintech: a new post crisis paradigm?”,	Arner et al		2016	
Georgetown Journal of International Law, 47, 4, pp 1271-1319				

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Banking is not an industry, nor a business model,			2016	
Banks’ maturity transformation: risk, reward and policy	Bologna P	European Systemic Risk Board	2018	
The relegated bank – a positive scenario?	Thivaïos P	Fintech Futures	2018	
The evolution of fintech: a new post crisis paradigm? 47, 4, pp 1271-1319	Arner et al	Georgetown Journal of International Law	2016	
The continuing muddles of monetary theory: a steadfast refusal to face facts pp 821-830	Goodhart C	Economica, 76	2006	

Money creation in the modern economy	Bank of England Quarterly Bulletin, Q1	Bank of England	2014	
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