

Introduction to FinTech

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Pre-requisites: No Prerequisites

Course Description:

This course introduces students to the rapidly evolving world of financial technology (Fintech), focusing on both theoretical and practical applications. It covers a wide range of emerging topics, such as digital currencies like Bitcoin, blockchain technology, and automated wealth management through robo-advisors. Students will explore recent innovations in digital lending, crowdfunding, open banking, APIs, and the role of robotic process automation (RPA) in financial services. The course also examines modern payment systems, machine learning applications in finance, and key regulatory challenges affecting the Fintech industry. The students will apply these concepts to real-world scenarios, gaining insight into how Fintech is reshaping industries.

Course Objective:

By the end of this course, students will be able to:

1. Understand the unique characteristics of technological innovations in finance.
2. Learn key fintech methods and tools, including AI, machine learning, big data, APIs, and blockchain.
3. Identify major industry challenges that fintech firms are addressing.
4. Explore how fintech is reshaping business models in banking, lending, payments, insurance, and asset management.
5. Recognize the unique risk and return factors for fintech firms.
6. Understand the basics of valuing fintech firms.
7. Identify fintech applications across industries and how they can change competitive dynamics.

Grading:

Case Study (2*5)	10%
Class Presentation	20%
Midterm Presentation	25%
Final Project Report and Presentation	40%
Attendance	<u>5%</u>
	100%

Case Study - Students will be provided with two case studies focusing on companies that pioneered key Fintech services, creating pivotal moments in the industry. Each case study will include several thought-provoking questions, and students are expected to analyze and answer them, applying their understanding of how these innovations transformed financial services. Students will be evaluated based on the originality of their insights and analyses in response to the case study questions. They are expected to demonstrate a deep understanding of how these companies shaped the Fintech landscape, offering unique perspectives in their answers.

Class Presentation - There will be group presentations throughout the semester, with groups assigned by the instructor. Each group will be given a topic covered in class and will be tasked with creating a presentation on the companies that pioneered innovations in that area. Students are expected to explore the initial breakthroughs as well as the latest advances in these technologies. This will help students understand the problems faced by the company which will help the students while they are working on the final presentation, it will also help students in figuring out the area and sector for their final projects. Presentation would be graded on the following points.

Depth of Research	30
Explaining the Technology	30
Presentation Skills & Formatting	20
Q&A	<u>20</u>
	100

Final Project - Throughout the semester, students will develop and refine a unique Fintech idea that addresses a specific pain point an individual faces. This idea can be entirely new or a modification of an existing service. Students are expected to pitch their idea in class as if presenting to potential investors, focusing on its market potential and innovation. Progress on the idea will be reported in both the midterm and final presentations, with each group demonstrating how their concept evolves over time

Here are some key questions to guide students as they develop and pitch their Fintech idea:

1. What is the service or product?
Clearly describe what your Fintech idea offers and the key features that make it unique.
2. What problem does it solve?
Is your idea solving a major issue in a disruptive way, or is it a small improvement on an existing solution? Consider whether your product has the potential to shake up the industry or simply enhance current practices. Also, think about how easily your idea can scale across different regions or countries without needing substantial infrastructure or heavy funding, like many modern Fintech companies that operate purely through mobile platforms.
3. Does it reduce costs?
Explain if and how your solution reduces costs for either the business or its customers. For example, does your idea require fewer resources, infrastructure, or staff compared to

traditional financial services? Lower costs can often mean better pricing for customers and a more efficient business model.

4. What is your revenue model?

How does your Fintech idea make money? Will you generate revenue directly from customers or indirectly, perhaps through data or network effects? Understanding and explaining your revenue model is key to making your pitch compelling to investors.

5. What is your potential customer base?

Consider the number of clients you might initially reach and how your idea can grow. Does it have the potential to expand to other countries or regions where lifestyles and customer needs might differ from your original target market?

Presentation & Report Grading Rubrics (Midterm & Final)

Depth of Research	30
Potential outlook	10
Innovation in Technology	20
Financial Implication	20
Presentation Skills & Formatting	10
Q&A	<u>10</u>
	100

Use these questions to frame your pitch and ensure that you present a clear, scalable, and cost-effective solution with a strong revenue potential.

Reference Books

1. Mastering Ethereum: Building Smart Contracts and DApps (2018) by Andreas M. Antonopoulos and Gavin Wood. ISBN: 1491971940.
2. Blockchain Bubble or Revolution: The Future of Bitcoin, Blockchains, and Cryptocurrencies (2019) by Neel Mehta, Aditya Agashe and Parth Detroja. ISBN: 0578528150.
3. DeFi and the Future of Finance (2021) by Campbell R Harvey, Ashwin Ramachandran and Joey Santoro. ISBN: 1119836018.
4. Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython (2017) by William McKinney. ISBN: 1491957662.
5. Hill, J. (2018). Fintech and the remaking of financial institutions. Academic Press.

Class Schedule:

	Weekly Topics	Readings	Case Study
Week 1	What is Fintech ? History of Fintech		

	What all consist of Fintech		
Week 2	Recent Trends and Innovation in finance	<p>F-Prime Capital. (2024, October 11). <i>The 2024 state of FinTech report</i>. F-Prime Capital. https://fprimecapital.com/blog/the-2024-state-of-fintech-report</p> <p>McKinsey & Company. (2023, October 4). <i>Fintechs: A new paradigm of growth</i>. McKinsey & Company. https://www.mckinsey.com/industries/financial-services/our-insights/fintechs-a-new-paradigm-of-growth</p> <p>The World Bank. (2022, November 30). <i>Fintech and the future of finance</i>. The World Bank. https://www.worldbank.org/en/publication/fintech-and-the-future-of-finance</p>	
Week 3	<p>API's</p> <p>Open API's</p>	<p>Moazed, A. (2021, April 30). <i>APIs aren't just for tech companies</i>. Harvard Business Review. https://hbr.org/2021/04/apis-arent-just-for-tech-companies</p> <p>Document360. (2022, June 10). <i>What is an open API? Everything you need to know</i>. Document360. https://document360.com/blog/open-api</p> <p>Envestnet Yodlee. (n.d.). <i>Financial API: Fintech APIs</i>. Yodlee. https://www.yodlee.com/financial-api?bt=707899448305&bk=fintech%20apis&bm=p&bn=g&bg=167141421284&gad_source=1&gbraid=0AAAAADp0Nz-t7-yT8ghLD53mmHVY4moC&gclid=CjwKCAjw9p24BhBEiwA8ID5BsThzCrh2yasmSlGc8khDmLIKEkKQLrI5diDVWsDrsgefH4xjopALmxoCYpcQAvD_BwE</p>	Group 1 & 2
Week 4	Open Banking RPA	<p>F5 Networks. (n.d.). <i>What is open banking ?</i> F5. https://www.f5.com/glossary/open-banking</p>	Case study Week
Week 5	Payment systems Wallets		Group 3 & 4
Week 6	Robo Advising	Rahmanto, F., Utama, A. A., Purwanegara, M. S., & Chulsum, R.	Group 5 & 6

		<p>(2020). <i>Artificial intelligence (AI) in financial services: A literature review and future research agenda</i>. <i>Heliyon</i>, 6(10), e05037. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7508018/</p> <p>Liberto, D. (2023, September 22). <i>Best robo-advisors of October 2024</i>. <i>Forbes</i>. https://www.forbes.com/advisor/investing/best-robo-advisors/</p>	
Week 7	Crowd Funding P2P Lending	<p>Advances in Crowdfunding (2020). Springer International Publishing. https://doi.org/10.1007/978-3-030-46309-0</p>	
Week 8	Midterm Presentation		
Week 9	Blockchain DEFI	<p>Qin, K., Zhou, L., Afonin, Y., Lazzaretti, L., & Gervais, A. (2021). CeFi vs. DeFi--Comparing Centralized to Decentralized Finance. arXiv preprint arXiv:2106.08157</p>	
Week 10	Crypto Currency NFT's Center Backed Digital Currency	<p>Bitcoin Whitepaper Reference Book 1 - Chapter 2</p>	Group 1 & 2
Week 11	Machine Learning		Case Study Week
Week 12	Fintech - International	<p>Reference Book - 5 - Chapter 14</p>	Group 3 & 4

Week 13	Disruptive Innovation & VC in Fintech Fintech Regulation	Reference Book - 5 - Chapter 15	Group 5 & 6
Week 14	Final Project Presentation		