



CARDANO ACADEMY

Blockchain Fundamentals
Course Overview

Overview

This foundational course covers the fundamentals of blockchain and is ideal for learners who are new to blockchain and interested in what it is, how it works and its evolving use cases and applications. Learners will develop a solid understanding of blockchain basics on which to build.

Course	Blockchain Fundamentals
Modules	<p>Module 1: What is blockchain? 4 units</p> <p>Module 2: Bitcoin and Ethereum 7 units</p> <p>Module 3: Introduction to Cardano 6 units</p> <p>Module 4: Cardano Deep Dive 6 units</p> <p>Module 5: Benefits and Use Cases 10 units</p>

Module 1: What is Blockchain

In this module, you'll learn the basics of blockchain as a decentralized ledger technology. It explains how blockchain works to securely and transparently store data. Additionally, you'll explore Byzantine Fault Tolerance (BFT), which allows blockchain systems to reach consensus even in the presence of faults or malicious participants.

Module 2: Bitcoin and Ethereum

This module covers two key blockchain platforms, Bitcoin and Ethereum. It explains Bitcoin's role as a peer-to-peer digital currency and how the Lightning Network improves scalability. The module then shifts to Ethereum, discussing its smart contracts, the move from proof-of-work to proof-of-stake, and its use in decentralized applications. It also highlights blockchain's evolution, including hard and soft forks, and the three generations of blockchain.

Module 3: Introduction to Cardano

In this module, you'll explore the origins of Cardano, its development milestones, and its proof-of-stake consensus mechanism, Ouroboros. You'll learn how staking works on Cardano and the unique eUTXO model that enhances security and scalability. The module concludes with an introduction to smart contracts on Cardano.

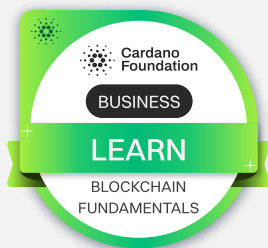
Module 4: Cardano Deep Dive

This module focuses on Cardano's scalability strategies, including Hydra, a Layer 2 solution designed to improve transaction throughput, and Cardano's monetary policy. Other topics include NFTs, interoperability with other blockchain networks, and decentralized governance.

Module 5: Benefits and Use Cases

The final module looks at the business benefits and practical applications of blockchain technology. You'll learn how to evaluate whether blockchain is suitable for various use cases and explore its role in Web3, DeFi, tokenization, and industries like gaming, payments, and supply chains.

Learning Outcomes



- **Gain an understanding of blockchain** and how it works, how security is maintained through consensus algorithms, and explore the evolving use cases of blockchain for business.
- **Lay a solid foundation** for further upskilling with the Cardano Academy.
- **Earn digital badges** to validate your blockchain knowledge. All learners who complete the online course are awarded a Learn badge of completion.

Post-course activity



Become an official **Cardano Blockchain Certified Associate (CBCA)**. Learners wishing to advance their blockchain knowledge can embark on CBCA. Complete the course online and book your exam at an authorized Pearson VUE test center to validate your technical and strategic blockchain knowledge with a recognized professional certification.

<https://www.pearsonvue.com/us/en/cardanofoundation.html>

Who should attend

- General public interested in blockchain, and in working with blockchain in the future.
- Business Professionals, decision-makers, entrepreneurs who want to learn more about blockchain for their businesses
- Students who are interested in learning about or working in the blockchain industry.
- Traditional web2 IT professionals wanting to learn about blockchain and upskill in web3.

Format available

This course is available as a self-paced e-learning experience.

Prerequisites

No prior knowledge or experience of blockchain is needed.

Course Outline

Module 1: What is Blockchain

- 1. Introduction 1 min
- 2. What is blockchain? 3 min
- 3. How does blockchain work? 5 min
- 4. What is Byzantine Fault Tolerance? 3 min

Module 2: Bitcoin and Ethereum

- 1. What is Bitcoin? 7 min
- 2. How does Bitcoin work? 4 ½ min
- 3. Scalability case study: The Lightning Network 2 ½ min
- 4. What is Ethereum? 4 min
- 5. Proof of stake 5 min
- 6. Hard Forks and Soft Forks 3 min
- 7. The 3 Generations of Blockchain 1 ½ min

Module 3: Introduction to Cardano

- 1. Origins of Cardano 6 min
- 2. Cardano Development Milestones 5 min
- 3. What is Ouroboros? 2 min
- 4. Staking on Cardano 4 min
- 5. What is Cardano's eUTXO Model? 3 min
- 6. Smart Contracts on Cardano 6 min

Course Outline

Module 4: Cardano Deep Dive

- 1. How will Cardano Scale? 4 min
- 2. Scalability case study: Hydra 2 min
- 3. Cardano's Monetary Policy 4 min
- 4. NFTs on Cardano 4 min
- 5. Interoperability on Cardano 4 ½ min
- 6. Governance on Cardano 4 min

Module 5: Benefits and Use Cases

- 1. Blockchain Business benefits 2 ½ min
- 2. Is blockchain right for your use case? 4 min
- 3. Different kinds of use case 1 ½ min
- 4. Role in Web3 2 min
- 5. DeFi 2 ½ min
- 6. Tokenization 2 ½ min
- 7. Gaming 1 ½ min
- 8. Payment rails 1 ½ min
- 9. Supply Chains and traceability 2 ½ min
- 10. Blockchain for good 1 min



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