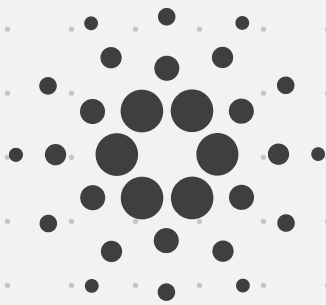




CARDANO ACADEMY

Cardano Blockchain Certified
Associate (CBCA)
Course Overview

Overview

Changes In This Course Update

This update of the **Cardano Blockchain Certified Associate (CBCA)** course modernizes the flagship certification to reflect the current state of the Cardano ecosystem while addressing student feedback regarding course length and technical depth.

Key Adjustments & Enhancements:

- **Streamlined Course Duration:** Reduced total seat time from ~10 hours across 29 units down to a concise **3 hours and 59 minutes across 26 units** grouped into 5 distinct modules.
- **Unbundled Hands-on Content:** Module 4 of the original 2023 course (hands-on wallet/UI walkthroughs, dApps, and DEXs) has been removed from the certification path and created as a separate, standalone "Getting Started with Cardano" practical course. This removes fast-dating UI content from the formal proctored exam syllabus.
- **Updated Ecosystem Developments:** Content now incorporates current ecosystem milestones, including CIP-1694, the Conway era, Chang/Plomin upgrades, updated parameter constants (e.g., minPoolCost at 170 ada), and status updates on scaling protocols (Hydra, Mithril, Peras, and Leios) and 2024 NIST post-quantum cryptographic standards.

Overview

Master the core principles of blockchain technology and explore the architectural foundation of the Cardano ecosystem. Designed to bridge the gap between basic awareness and technical fluency, this revamped, streamlined program provides a foundational, certifiable understanding of distributed ledgers, cryptographic fundamentals, consensus mechanisms, and Cardano's unique architecture.

By removing unnecessary technical complexity and focusing on core concepts, the program delivers an efficient, high-impact learning experience tailored for modern IT professionals, developers, researchers, and business leaders.

Course	Cardano Blockchain Certified Associate (CBCA) — Updated Edition
Track	Technical / Business / Foundational
Format	Self-paced On-demand E-learning
Audience	CTOs/CIOs, implementation partners, web2 IT professionals upskilling to web3, students, academics/researchers, and developers
Outcome	3 hours 59 minutes total seat time (Hard cap < 4 hours)
Duration	Digital Badge / Certificate of Completion / Pearson VUE Certification Exam Pathway

Why This Course Matters

As the blockchain industry matures, having an up-to-date, credible certification is essential for professionals seeking to build or deploy enterprise-grade solutions. Understanding the unique architecture, cryptographic security, and formal design principles of Cardano is crucial for evaluating decentralized systems, smart contract platforms, and scaling paradigms.

This updated course brings currency and clarity to the foundational level. By streamlining complex mathematical formalisms and focusing on real-world concepts—such as the transition to on-chain governance, liquid staking, and modern transaction models—the program prepares learners to confidently engage with the Cardano ecosystem and serves as the official gateway to advanced certifications (CBCP and CBCE).

Key Takeaways

In this program, you will:

- **Gain a comprehensive understanding** of decentralized ledger technology, consensus protocols, and their advantages over traditional centralized systems.
- **Explain the typical architecture of public blockchains**, including cryptographic hash functions, public-key encryption, and digital signatures.
- **Describe the evolution of consensus mechanisms in the field**, from Proof-of-Work (PoW) and Classical BFT to Proof-of-Stake (PoS) and Ouroboros.
- **Learn the fundamentals of Cardano's Extended UTXO (eUTXO) transaction model** and its advantages for security, predictability, and smart contract execution.
- **Outline the next steps** for your professional journey, including pathways toward advanced certifications, ecosystem documentation, and practical developer tracks.

Who Is This Program For?

This course is designed for individuals who wish to move beyond a surface-level understanding of blockchain and delve into the technical mechanics of Cardano. Representative roles include:

- **CTOs, CIOs, and IT Decision-Makers** who are looking to evaluate Cardano for enterprise integration and infrastructure.
- **Web2 IT Professionals and Software Engineers** who are unfamiliar with decentralized architectures and want to upskill to Web3.
- **Lecturers, Researchers, and Students** who want to build a rigorous academic and practical baseline in blockchain fundamentals.
- **Developers** interested in the foundations of Cardano's protocol, transaction models, and modern tooling.
- **Candidates preparing for the CBCA Certification Exam** at Pearson VUE test centers.

Your Learning Journey

During this online journey, you will explore the practical mechanics of blockchain technology and Cardano's architecture through learning methods designed with you in mind. The course is delivered via self-paced e-learning with high-quality animated modules, screen content, and expert instruction, allowing you to learn on the go.

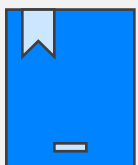
Each module offers the opportunity to apply and test the concepts taught through targeted knowledge checks and quizzes. You'll gain a solid, exam-ready understanding of how decentralized protocols function, preparing you for real-world professional engagement and formal certification.

Program Modules



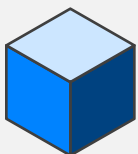
Module 1: Course Orientation & Overview

Welcome to the Cardano Academy. Introduces the course structure, learning objectives, navigation tips, resource glossary, and certification pathway expectations.



Module 2: General Introduction and Background (8 Videos | 14:26)

Sets the stage for the technical content. Introduces historical context, centralized vs. decentralized ledgers, and early peer-to-peer digital cash models.



Module 3: What is Blockchain (3 Videos | 07:12)

Defines the structure of blocks, distributed nodes, immutability, and how transactions are validated across networks.



Module 4: Blockchain Generations (5 Videos | 09:58)

Explores the evolution of blockchain tech from Bitcoin (Gen 1) to Ethereum smart contracts (Gen 2) and Cardano's multi-layered approach (Gen 3).



Module 5: Public Key Encryption (3 Videos | 08:05)

Covers asymmetric cryptography, key pair generation, and fundamental security properties ensuring confidentiality and identity.

Program Modules



Module 6: Hash Functions (4 Videos | 09:29)

Examines cryptographic hash properties (pre-image resistance, collision resistance) and NIST standards, including modern post-quantum developments.



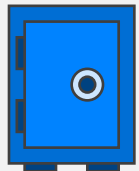
Module 7: Digital Signatures (2 Videos | 05:24)

Explains how key pairs are used to sign and verify transactions to guarantee non-repudiation and transaction integrity.



Module 8: Practical Byzantine Fault Tolerance (4 Videos | 10:36)

Explores classical consensus models, the Byzantine Generals Problem, state machine replication, and safety vs. liveness trade-offs.



Module 9: Proof of Work & Proof of Stake (6 Videos | 13:34)

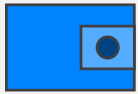
Compares energy-intensive PoW mechanics against PoS models, detail-driven Verifiable Random Functions (VRFs), and leader selection.



Module 10: Other Approaches to Consensus (2 Videos | 04:16)

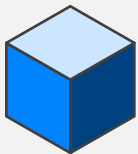
Brief overview of alternative consensus paradigms, including Proof of Authority, Proof of Space, and Directed Acyclic Graphs (DAGs).

Program Modules



Module 11: Transactions Models (6 Videos | 13:00)

In-depth comparison between the Account/Balance model used by Ethereum and the Unspent Transaction Output (UTXO) model.



Module 12: Chain Features (5 Videos | 13:20)

Covers block time, finality, throughput, state management, and the trade-offs involved in blockchain parameter tuning.



Module 13: Double-spending Attack (6 Videos | 11:01)

Examines double-spend attack vectors, 51% attacks, reorganization risks, and network mitigations across consensus types.



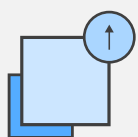
Module 14: Block Reward and Transaction Fee (3 Videos | 07:40)

Analyzes economic incentives, fee structures, block issuance schedules, and long-term network sustainability.



Module 15: Web3 Architecture (4 Videos | 10:00)

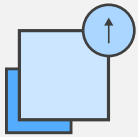
Deconstructs full Web3 technology stacks, comparing decentralized backends, indexing layers, client interfaces, and node infrastructure.



Module 16: Scalability: Layer 1 Solutions (5 Videos | 10:18)

Explores L1 protocol optimizations, block size adjustments, pipelining, and parallel transaction execution mechanisms.

Program Modules



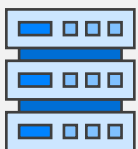
Module 17: Scalability: Layer 2 Solutions (7 Videos | 16:35)

Examines off-chain execution, state channels, sidechains, rollups, and Cardano's L2 ecosystem (including Hydra and Mithril status updates).



Module 18: Cardano Genesis (4 Videos | 08:32)

Covers the research-first philosophy, peer-reviewed development methodology, and historical development eras leading to the modern protocol.



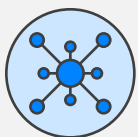
Module 19: Cardano Architecture (6 Videos | 10:05)

Explores the separation between the Cardano Settlement Layer (CSL) and Cardano Computation Layer (CCL), node roles, and system topology.



Module 20: Ouroboros Consensus Algorithms (4 Videos | 08:19)

Provides a unified overview of the Ouroboros PoS consensus family (Classic, Praos, Genesis status, and research frontiers like Peras and Leios).



Module 21: Rewards Mechanisms (5 Videos | 09:35)

Detailing stake pools, delegation mechanics, non-custodial liquid staking, parameter constants (e.g., minPoolCost), and automated reward distribution.

Program Modules



Module 22: Addresses (6 Videos | 18:42)

A deep dive into Cardano address construction, payment keys, stake keys, enterprise addresses, script addresses, and pointer address structures.



Module 23: Programming The Cardano Blockchain (4 Videos | 07:34)

Overview of the Extended UTXO (eUTXO) model, local state determinism, smart contract validation paradigms, and native asset execution without overhead.



Module 24: Cardano Community (3 Videos | 03:45)

Brief overview of the decentralized ecosystem structure, supporting entities, developer hubs, and open-source collaboration platforms.



Module 25: Cardano Improvement Proposals (5 Videos | 07:40)

Covers the CIP process, standardizing protocol improvements, and an introductory overview of the on-chain governance era (CIP-1694 and DReps).



Module 26: Conclusion & Next Steps

Summarizes core takeaways, details claiming the Credly CBCA Learn digital badge, outlines Pearson VUE certification exam registration, and recommends follow-on courses like "Getting Started with Cardano" and the CBCP professional track.

The Cardano Academy Platform Learning Experience

Our programs are designed to meet the needs of individual learning styles while also leveraging the power of expert-verified information. This is achieved through a user-friendly learning platform that enables participants to easily navigate the program content.



On-demand E-learning:

Learn at your own pace, on your own schedule.



Gamified Reinforcement:

Engage with the material through quizzes, achievements, and interactive elements that aid retention.



Mobile Access:

Access your courses anytime, anywhere, on any device.



Open-Source Materials:

Benefit from our commitment to open-source education.

Technical and Business Learning Tracks

Cardano Blockchain Certified Associate (CBCA)

08:30 hrs

4 Modules

Intermediate

Technical

Certified



Available in English and Portuguese



Technical

Staking Rewards and Calculations



Technical

Aiken: Smart Contracts on Cardano



Business

Generative AI and Blockchain

Released Fall 2026

Validate your skills and expertise with digital badges

What Our Learners Say About Our CBCA Certification Course

“

Wow...awesome and interactive lessons.

”

“

The concept was well delivered.

”

“

The course provides me with a deep understanding of hash functions and their critical role in information security.

”

“

I really enjoyed studying the Hard Fork Combinator application.

”

“

I was captivated by the analysis of the story about the Nakamoto coefficient when measuring the decentralization of a blockchain network.

”

“

Very valuable information about Cardano's architecture and operation.

”

“

I fully understand the course and am very excited about these highly technical and in-depth topics...

”

Your Path to Certification

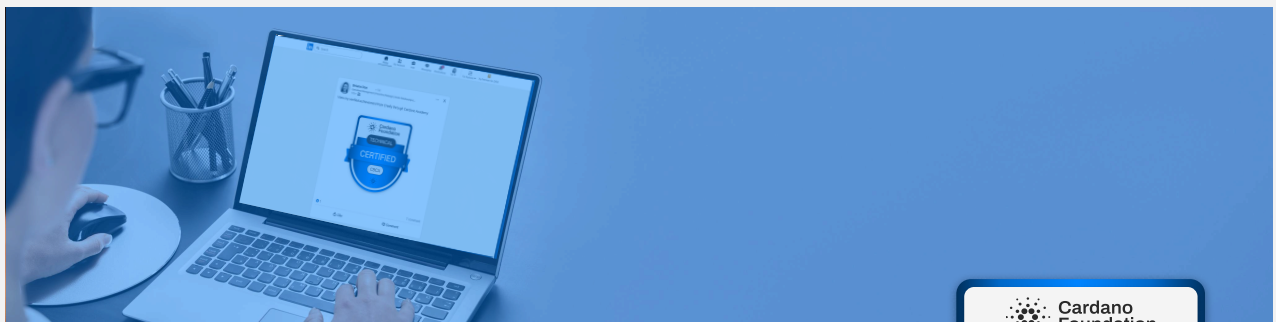
1. Complete the Course & Earn Your Badge



Upon successful completion, the Cardano Foundation grants a **verified digital badge**. This LinkedIn-compliant credential validates your new skills and expertise.

2. Advance to a Certified Associate (CBCA)

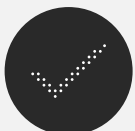
For learners wishing to advance their knowledge, the next step is the Cardano Blockchain Certified Associate (CBCA) exam. This recognized professional certification validates your technical and strategic blockchain knowledge.



Practice Exam and Completion Badge



Certification: \$99,
Online, 90 min., 50 Questions



LinkedIn-Compliant
Credential via Credly



In Partnership with Pearson VUE and Credly

Meet Your Academic Team and Subject Matter Experts

The Academy team is made of Education, Enterprise, and Technical Talent, with 15-20+ years of experience each. We work closely with our subject matter experts to ensure quality, accuracy and relevance.

The Academic Team



Nadia Mannell
Director



Andrea Derman
Business
Development
Manager



Vanessa Hurhangee
Education Manager



John Greene
Technical Blockchain
Writer



Heidi Staples
Editor & Instructional
Designer



Niklas Göke
Business Blockchain
Writer

The Subject Matter Experts



Thomas Mayfield
Team Lead -
Decentralized Trust
and Identity Solutions



Michiel Bellen
Core Integrations
Team Lead



Denicio Bute
Community Manager



Matthias Benkort
Technical Director of
Open Source
Development



John Wright
Senior Legal Counsel

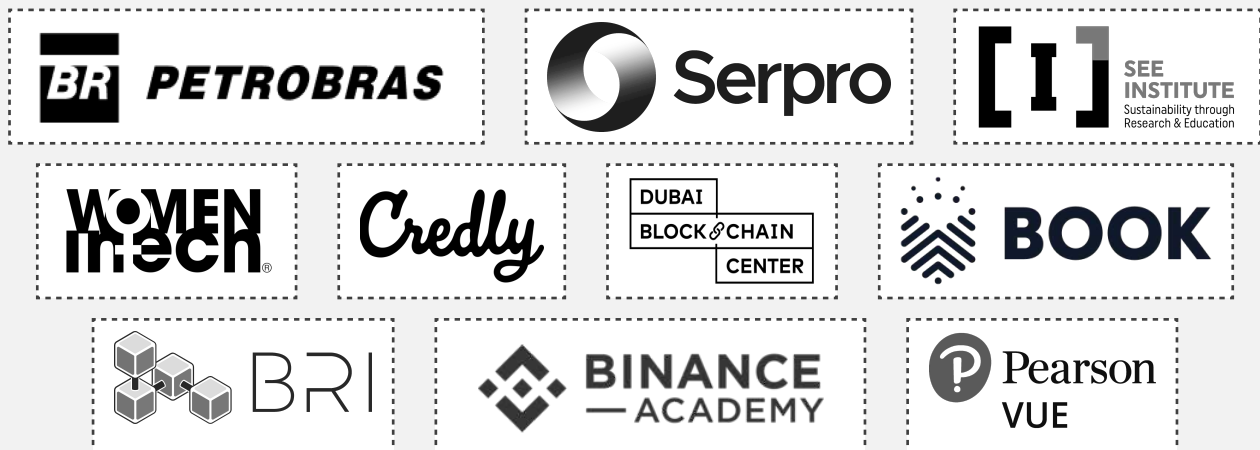


Nicolas Cerny
Governance Lead



Fabian Bormann
Team Lead -
Ecosystem
Engineering

Trusted by Global Partners



10,000+ registered learners

About the Cardano Academy

The Cardano Academy provides **quality-verified, up-to-date blockchain education and enablement**. Our offerings are designed to empower individuals and enterprises with the knowledge and skills needed to succeed in the evolving world of blockchain.

We provide a range of learning opportunities, from self-paced online courses and corporate masterclasses to diploma programs and professional certifications. Our mission is to foster a global community of educated, capable, and innovative contributors to the Cardano ecosystem.

Ready to Begin?

Unlock the power of Cardano and take the next step in your blockchain education.



Register for Free at:

<https://cardanofoundation.org/academy>



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