

Teaching Practice and Reform of the Blockchain Finance Course

Zhenguo Xu¹, Zhonghuan Yang^{2,*}

¹School of Finance, Guangdong University of Foreign Studies, Guangzhou 510006, China

²School of Accounting, Guangdong University of Finance, Guangzhou 510521, China

*Corresponding email: 61086282@qq.com

Abstract

Against the backdrop of the rapid development of digital finance and the transformation of demand for financial technology (FinTech) talents, the blockchain finance course has become one of the core courses in finance programs to address industry challenges and cultivate interdisciplinary talents. This paper aims to analyze the current problems faced by blockchain finance teaching, and to define and refine the course in terms of teaching objective orientation, content optimization pathways, and innovative teaching practices. At the same time, strengthening the faculty team and building a dynamically updated content system, along with other supporting systems and safeguards, constitute the core pathways for deepening the reform of the blockchain finance course and improving the quality of talent cultivation.

Keywords

Blockchain finance, Talent cultivation, Digital finance, Interdisciplinary, Teaching content, Teaching model

Introduction

Necessity of offering the blockchain finance course in the context of digital finance

With the deep integration of the digital economy and the real economy, digital finance has become the core engine driving the transformation of the financial system. It is profoundly reshaping the industry ecosystem and the structure of talent demand. The financial industry is undergoing a profound transformation from traditional centralized models to decentralized models. As the core carrier of distributed ledgers, blockchain technology has deeply penetrated key areas such as payment and settlement, supply chain finance, and asset digitization, becoming a critical force in reshaping financial infrastructure. The traditional financial education system, when confronted with emerging technologies such as decentralization, smart contracts, and distributed ledgers, has gradually revealed structural lags in knowledge and mismatches in skill supply. Therefore, effectively integrating cutting-edge blockchain technology into financial teaching practice, and systematically sorting out the content reconstruction and methodological innovation of the blockchain finance course, is of urgent practical significance. This is essential for adapting to the changing demands for financial talent in the context of digital finance [1].

Challenges and opportunities facing the current blockchain finance course

As a key underlying technology supporting the development of digital finance, the offering of blockchain courses has become a necessary measure for the transformation and interdisciplinary integration of finance programs in universities. However, current teaching practices in blockchain finance exhibit significant tension between the rapidly evolving technology and the relatively lagging education system. On the one hand, practical constraints such as slow textbook updates, insufficient faculty and supporting systems for teaching implementation restrict teaching effectiveness; on the other hand, the deepening integration of industry and education provides new opportunities for restructuring the curriculum system and improving the quality of talent cultivation. Based on this, this paper aims to define and refine the blockchain finance course in terms of teaching objective orientation, content optimization pathways, innovative teaching practices, and supporting systems and safeguards. This is intended to provide a theoretical basis and practical reference for constructing a high-quality talent cultivation model that meets the demands of the digital finance era.

Teaching objectives and orientation of the blockchain finance course

Teaching objectives of the blockchain finance course

Against the backdrop of the deep integration of finance and blockchain technology, society has set new standards and comprehensive requirements for financial practitioners in terms of knowledge reserves, competency structures, and professional qualities. As a new and practice-oriented interdisciplinary course, blockchain finance emphasizes cultivating students' ability to solve industry application problems by combining technical features in real industrial project scenarios, while enhancing their innovative awareness and business innovation planning capabilities. Specifically, in terms of knowledge structure, students should master solid traditional financial theories and gain an in-depth understanding of the core technical principles of blockchain.

They should also be familiar with the regulatory attitudes and legal definitions of major global economies such as the United States, China, and the European Union regarding crypto-assets, stablecoins, decentralized finance (DeFi), and non-fungible tokens (NFTs) [2]. In terms of competency structure: students should be able to transform financial business requirements into feasible blockchain solutions, and combine financial scenarios with blockchain features to design financial products with practical commercial value. In terms of professional qualities, students should adhere to financial regulatory boundaries, maintain a high degree of compliance awareness and legal ethics, and possess continuous learning and rapid adaptation abilities. They should also have systematic thinking and a holistic perspective.

Orientation of the blockchain finance course

(1) Characteristics of the interdisciplinary intersection of blockchain and finance

The blockchain finance course is essentially a typical interdisciplinary field that integrates multiple previously relatively independent disciplinary knowledge systems, including finance, computer science, cryptography, economics, and law. Relying on the technical characteristics of “decentralization” and “disintermediation”, blockchain has had a disruptive impact on the traditional monetary and financial system and economic and social operations, reflecting the technical

foundation of this interdisciplinary course. For vocational education, as an interdisciplinary course combining blockchain and finance, students are required not only to master the basic principles of blockchain but also to have a solid grasp of financial theory, featuring a balance between theoretical abstraction and practical operation. In general, blockchain finance takes “trust mechanism reconstruction” as its core theme. Financial scenarios serve as the application target, code and protocols as the implementation tools, economic game theory as the design logic, legal compliance as the boundary constraint, and data as the analytical foundation. This interdisciplinary integration requires the course to move beyond a single disciplinary paradigm and cultivate systematic thinking and cross-boundary transfer capabilities [3].

(2) Application competency development orientation

Blockchain finance should focus on cultivating practical problem-solving abilities, and restructure the teaching content and implementation methods of the blockchain finance course. The development of digital finance has triggered structural changes in talent demand, emphasizing that the blockchain finance course needs to integrate the latest developments to support modern talent cultivation. In the context of the “Internet+”, a teaching model integrating industry and education based on blockchain technology should be established, with teaching content optimized according to employment orientation to cultivate technology-skilled applied talents. The blockchain finance course should progressively deepen the integration of industry and education in specific course practices, enhance students' practical capabilities, and ensure seamless alignment between teaching and industrial talent demands [4].

Optimization pathways for blockchain finance course teaching

Improving textbooks and teaching software

In the current construction of the blockchain finance course, there are core bottlenecks such as insufficient depth in textbook content, lagging software support, and slow updates of teaching resources. Specific deficiencies in textbooks and teaching software include: The existing textbooks are broad in coverage but some emphasize experimental operations while others focus on principle

explanations. This leads to a knowledge system that is not “refined” and insufficiently detailed in analyzing financial industry applications, making it difficult for students to achieve a deep yet accessible understanding. At the same time, the textbooks lack systematic explanations of the underlying logical architecture of blockchain, resulting in students knowing “the what but not the why”. The supporting blockchain experimental teaching systems are still in need of improvement. The lack of depth and systematicity in existing textbooks, along with the lag in teaching software in terms of practical operation, seriously constrains students’ mastery of the underlying logic of blockchain finance and the cultivation of their innovative abilities. There is an urgent need to build a more systematic and practice-integrated textbook and software resource system [5].

Multi-level and progressive course content design

The blockchain finance course should accommodate the significant differences in students’ computer science foundations, financial knowledge backgrounds, and learning abilities. It should also construct a course content system that progresses from shallow to deep and layer by layer, thus teaching students according to their aptitude.

In the course system for blockchain technology applications, the structural design of interdisciplinary courses needs to consider students’ actual situations and provide diversified teaching content. A “multi-level progressive” general education course design for blockchain can be adopted, specifically targeting non-computer-science students with varying levels of computer foundation, and using layered content to meet the training needs of students from different majors.

The blockchain finance course should build a multi-level and progressive content structure based on students’ foundational differences. Through theoretical stratification, practical grading, and model innovation, it should effectively address the pain point of uneven student foundations. This will provide solid support for cultivating blockchain finance talents adapted to the needs of different industries. Such a tailored framework not only enhances learning outcomes but also prepares students for diverse career pathways in the FinTech sector [6].

Innovative practices in teaching models for the blockchain finance course

Interactive strategies to reduce learning difficulty and enhance interest

In the teaching of the blockchain finance course, it is necessary to adopt innovative teaching models and interactive strategies to reduce the abstraction and difficulty of the course content, thereby effectively stimulating students’ learning enthusiasm and reducing cognitive load. The introduction of the bridge-in, objective, pre-assessment, participatory learning, post-assessment, and summary (BOPPPS) teaching model has application value. The BOPPPS model provides a clear teaching framework, helping teachers organize teaching content, ensuring the logic and coherence of the course, promoting interactive and participatory learning, and aiding students in better understanding and mastering the course content, thus effectively enhancing their learning interest. By strengthening interactive teaching strategies, the learning difficulty of the blockchain finance course can be effectively alleviated, and students’ learning initiative and training quality can be significantly improved [7].

Innovative industry-education integration teaching model

By integrating the actual needs of the industry with university teaching resources, a collaborative education mechanism centered on real financial scenarios and blockchain technology applications is constructed, thereby enhancing students’ practical innovation capabilities and job adaptability. Under the “Internet+” background, exploring the reform path of the Blockchain Principles and Financial Applications course, a teaching model integrating industry and education based on blockchain technology should be established. Through close cooperation between universities, blockchain-related financial enterprises, and technology companies, practical teaching can be jointly carried out, laboratories or training bases can be co-built, and students can be exposed to real cases. At the same time, enterprises can leverage the universities’ research strengths and talent resources to promote technological innovation and business development, while universities adjust teaching content accordingly, achieving a win-win outcome for both parties.

In the construction of experimental courses, it is necessary to base the curriculum on actual industry job requirements, with schools and enterprises jointly developing the blockchain finance experimental course system, cultivating students' ability to solve industry application problems in real industrial project scenarios, thereby enhancing their innovative awareness and business planning capabilities.

The integration of industry and education is a key pathway to solving the problems of lagging teaching and insufficient practice in the blockchain finance course. Through deep school-enterprise collaboration, co-construction of practice platforms, and optimization of course structures, it can effectively promote the cultivation of technology-skilled applied talents and achieve the organic connection of the education chain, talent chain, and industrial chain [8].

Supporting systems and safeguards for teaching implementation

Enhancing teachers' professional competence

In the current construction of the blockchain finance course, there exists a core problem of limited teaching quality caused by insufficient faculty reserves, narrow knowledge structures, and lack of industry practical experience. When offering the blockchain finance course, universities generally face the problem of low teacher quality, specifically manifested in teachers' lack of experience in actual project development and technical application. This directly constrains the teaching level of the course. It is necessary to introduce industry experts and formulate and implement systematic teacher training plans to enhance teachers' professional practical abilities. In research on constructing the blockchain finance experimental course, the joint development of the course system by schools and enterprises also implies the need for "dual-qualified" teachers or enterprise mentors. These mentors should have industry practical experience to participate in teaching. This is to address the issue of cultivating students' abilities in real industrial scenarios.

Improvement and optimization of teaching resources

The improvement and optimization of teaching resources for the blockchain finance course need to be systematically advanced from four dimensions: content updates, learning tools, practice platforms, and

collaborative mechanisms, given its interdisciplinary nature, rapid iteration, and strong practicality. In terms of content updates: It is necessary to establish a knowledge graph and dynamic update mechanism, sorting out the "invariant foundations" and "frequently updated areas" of blockchain finance for regular iteration [9].

In terms of tools and platform resources: A combination of virtual and real approaches should be adopted to strengthen hands-on practice. A "sandbox laboratory" and simulation environment should be built, providing mainstream public chain testnet tokens, browsers, and contract deployment tools such as Ethereum testnets, where students can deploy smart contracts, design tokens, and experience lending or trading processes without risk. In terms of collaborative mechanisms: An interdisciplinary teaching team should be formed, consisting of teachers from finance, computer science, law, economics, and other disciplines, along with industry experts, to create a "curriculum consortium". Regular seminars should be held to jointly design interdisciplinary modules and avoid isolated knowledge. A student feedback and co-creation mechanism should be established through anonymous questionnaires to collect students' evaluations of course content, tools, and cases in terms of difficulty, timeliness, and practicality. Students should be encouraged to contribute excellent resources discovered during learning, their own code, analysis reports, and case studies to the course resource pool, and receive credit or rewards. This can form a virtuous cycle of "learning - applying - creating" [10].

Conclusion

Driven by the dual forces of the accelerating evolution of digital finance and the urgent transformation of industrial demand, the reform of the blockchain finance course has gradually shifted from single knowledge transmission to a comprehensive competency-based training system. The reform has reconstructed the progressive teaching content of "theory - technology - application", innovated blended and industry-education integrated teaching models, and strengthened the support of "dual-qualified" faculty and experimental platforms. Consequently, the gap between talent cultivation and the actual needs of the FinTech industry has been effectively bridged.

In the face of the rapid iteration of blockchain technology and the complexity and variability of

financial scenarios, future research should further focus on constructing an artificial intelligence (AI)-driven adaptive content generation mechanism for teaching. It should also deepen the seamless integration of “on-chain teaching” with real industrial scenarios and explore the establishment of an inter-university and cross-regional blockchain financial education resource-sharing ecosystem. These efforts will promote a qualitative shift in talent cultivation from “skill adaptation” to “innovation leadership”.

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Conflicts of Interest

The authors declare no conflict of interest.

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