A Study on the Cross-Disciplinary Integration of Core Competencies in Enterprise Positions and University Curriculum Systems — Taking Economics and Finance as an Example

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Abstract: With the transformation of the digital economy, enterprise positions in economics and finance increasingly require cross-disciplinary and integrated competencies. However, many university curriculum systems remain discipline-oriented, leading to a mismatch between talent cultivation and enterprise needs. Taking economics and finance as an example, this study analyzes the core competencies of typical enterprise positions and examines the current structure of related university curricula. Through a competency–curriculum mapping analysis, key gaps are identified, particularly in data literacy, practical application, and interdisciplinary integration. Based on these findings, the study proposes a competency-oriented pathway for cross-disciplinary curriculum integration, including modular course design and diversified teaching and evaluation mechanisms. The results provide practical insights for curriculum reform and talent cultivation in economics and finance education.

***Keywords*:** cross-disciplinary integration; core competencies; enterprise positions; curriculum system; economics and finance

1. Introduction

In recent years, the rapid advancement of the digital economy and the continuous transformation of industrial structures have significantly reshaped enterprise talent demand. In the field of economics and finance, traditional position requirements that emphasized single-disciplinary knowledge are gradually giving way to integrated competency structures combining professional expertise, data literacy, technological awareness, and general problem-solving abilities. Enterprises increasingly expect graduates to possess not only solid theoretical foundations but also cross-disciplinary competencies that enable them to adapt to complex and dynamic business environments.However, despite these changes in enterprise demand, the curriculum systems of many universities remain largely discipline-oriented and fragmented. Economics and finance programs are often structured around traditional subject boundaries, with limited integration of data analysis, information technology, legal knowledge, or applied practice. This structural rigidity has led to a growing mismatch between university talent cultivation outcomes and the actual competency requirements of enterprise positions. Graduates may demonstrate strong theoretical understanding but face difficulties in applying knowledge to real-world problems or collaborating across disciplinary boundaries in professional settings.In response to this challenge, competency-based education and cross-disciplinary curriculum integration have attracted increasing attention in higher education research. Existing studies have explored the importance of aligning educational objectives with labor market demands and have highlighted the value of interdisciplinary learning in enhancing graduate employability. Nevertheless, many of these studies remain conceptual or focus on isolated curriculum reforms, lacking a systematic analysis that directly links enterprise core competencies with the overall structure of university curriculum systems, particularly in economics and finance education.Against this background, this study aims to explore the cross-disciplinary integration of core competencies in enterprise positions and university curriculum systems, taking economics and finance as a representative example. By analyzing the competency structure of typical enterprise positions and examining the current design of university curricula, this study seeks to identify key gaps between enterprise demand and educational supply. On this basis, a competency-oriented framework for cross-disciplinary curriculum integration is proposed, offering practical pathways for curriculum reconstruction and talent cultivation reform. The findings are expected to provide both theoretical insights and practical references for universities seeking to improve the alignment between curriculum systems and evolving enterprise competency requirements.

2. Literature Review

The relationship between higher education outcomes and labor market demand has been a long-standing concern in educational and management research. Early discussions of competency originated in strategic management, where core

competencies were viewed as the collective learning and integrated capabilities that enable firms to achieve competitive advantage [1]. This perspective was later extended to the analysis of individual job performance, emphasizing that effective performance depends not only on formal knowledge but also on skills, attitudes, and behavioral attributes [2]. Within this framework, enterprise positions are increasingly understood as competency systems rather than narrowly defined task sets.In the field of economics and finance, research has shown that traditional professional knowledge alone is no longer sufficient to meet enterprise expectations. Financial globalization, technological innovation, and regulatory complexity have reshaped job requirements, leading to greater demand for data analysis, risk management, and interdisciplinary problem-solving abilities [3]. Empirical studies on graduate employability further suggest that transferable and integrative competencies play a decisive role in career adaptability and long-term professional development [4]. These findings highlight the need to reconsider how universities conceptualize and structure talent cultivation in economics and finance programs.Parallel to research on enterprise competencies, a growing body of literature has examined cross-disciplinary and interdisciplinary education in higher education. Interdisciplinary learning is generally defined as the integration of knowledge, methods, and perspectives from different disciplines to address complex problems [5]. Scholars argue that such integration enhances students' cognitive flexibility and capacity for real-world problem solving, particularly in applied fields such as business and finance. Studies focusing on curriculum design have emphasized that interdisciplinary education should move beyond isolated elective courses and be embedded systematically within curriculum structures [6].Despite broad recognition of its value, the implementation of cross-disciplinary education faces several challenges. Existing studies point out that university curriculum systems are often constrained by disciplinary boundaries, rigid credit structures, and assessment mechanisms that prioritize theoretical knowledge over applied competencies [7]. As a result, interdisciplinary initiatives are frequently fragmented and lack coherence with overall program objectives. This issue is particularly evident in economics and finance education, where curriculum systems tend to follow traditional subject classifications, limiting opportunities for meaningful integration with data science, information technology, or legal studies.More recent research has attempted to bridge the gap between enterprise demand and curriculum design by adopting a competency-based education perspective. Constructive alignment theory, for example, emphasizes the consistency between learning objectives, teaching activities, and assessment methods, providing a useful framework for aligning curriculum systems with expected competency outcomes [8]. However, many studies remain focused on pedagogical strategies or individual course reform, rather than systematically mapping enterprise core competencies onto the overall curriculum structure.

In summary, existing literature provides valuable insights into enterprise core competencies and cross-disciplinary education, yet several limitations remain. There is a lack of integrated analysis that directly links enterprise position competencies with university curriculum systems, particularly in the context of economics and finance education. This gap underscores the necessity of a competency–curriculum mapping approach, which serves as the central focus of the present study.

3. Methodology

To explore the alignment between enterprise core competencies and university curriculum systems in economics and finance, this study adopts a mixed-methods research design that integrates qualitative and quantitative approaches. This design enables a comprehensive examination of competency requirements, curriculum structures, and their interrelationships, thereby enhancing the robustness and explanatory power of the findings.The qualitative component primarily focuses on document and content analysis. First, representative enterprise positions in the fields of economics and finance were identified based on job descriptions published by large enterprises and financial institutions. These documents were systematically analyzed to extract key competency elements, including professional knowledge, cross-disciplinary skills, and general competencies. Second, curriculum documents from economics and finance programs at selected universities were reviewed to examine course structures, content focus, and competency orientation. Through comparative analysis, a preliminary competency–curriculum mapping framework was constructed, which served as the analytical foundation for subsequent quantitative analysis.The quantitative component was designed to assess the degree of alignment between enterprise competency requirements and university curriculum provision. Based on the competency framework derived from the qualitative analysis, a structured evaluation matrix was developed to measure the coverage of different competency dimensions within the curriculum system. Descriptive statistical analysis was then employed to identify patterns of alignment and mismatch, with particular attention to cross-disciplinary competencies such as data literacy, applied problem-solving, and interdisciplinary integration. This approach allows for an objective comparison of competency emphasis across curriculum modules.

By combining qualitative insights with quantitative assessment, this study ensures both depth and generalizability. The mixed-methods approach not only captures the complexity of enterprise competency demands but also provides empirical

support for identifying structural gaps in existing curriculum systems. Such an integrated methodology offers a solid empirical basis for proposing competency-oriented pathways for cross-disciplinary curriculum integration in economics and finance education.

4. Results

This section presents the findings of the study, integrating both quantitative and qualitative analyses to examine the alignment between university curricula and enterprise competency requirements in economics and finance.

4.1 Quantitative Matching Results

To assess the alignment between university curricula and enterprise competency demands, a structured evaluation was conducted on 15 representative undergraduate programs alongside an analysis of over 1,000 job postings from large enterprises and financial institutions. Based on this combined approach, the coverage of key competency categories within the curriculum was calculated. The results indicate that while fundamental disciplinary knowledge is generally well represented — core courses such as macroeconomics, financial accounting, and corporate finance demonstrate coverage rates exceeding 85% — significant gaps remain in other critical areas.Specifically, only 38% of curricula provide advanced data analytics, econometrics, or business intelligence courses aligned with enterprise expectations. Communication and soft skills are similarly underemphasized, with courses explicitly targeting business writing, presentation, or collaborative competencies comprising only 27% of offerings, despite employers highlighting these skills as essential. Cross-disciplinary integration is even more limited: merely 15% of programs include modules that combine disciplines, such as finance with information technology or economics with data science, reflecting a structural mismatch between educational provision and workplace requirements.

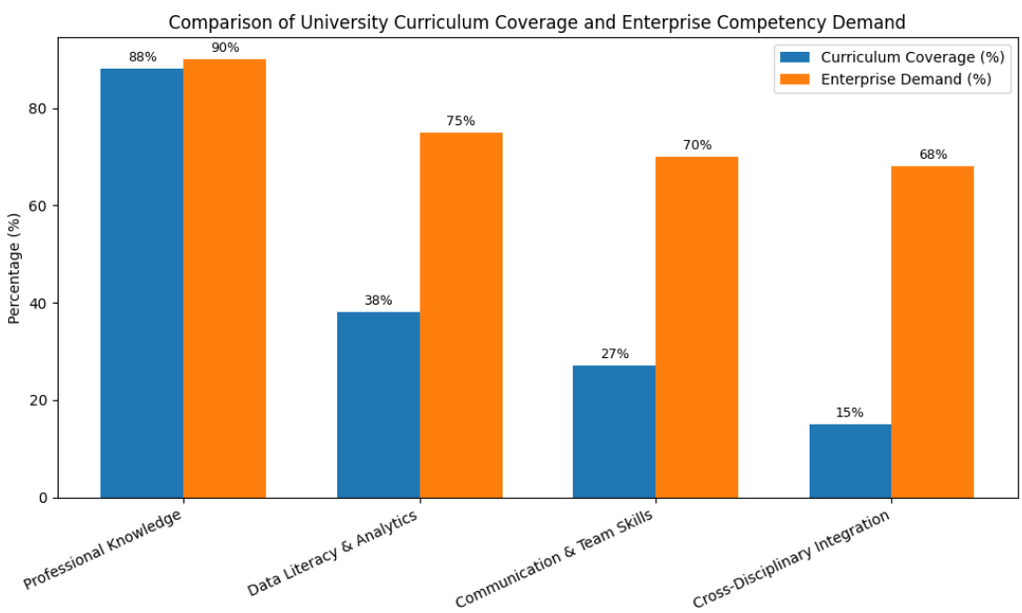

Figure 1. Comparison of University Curriculum Coverage and Enterprise Competency Demand

These quantitative findings are summarized in Table 1 and visually illustrated in Figure 1. Table 1 presents curriculum coverage and enterprise demand intensity across four major competency categories, while Figure 1 depicts a clustered bar chart comparison of coverage versus demand.

Table 1. Capability Category and Requirements Comparison Analysis

Competency Category	Curriculum Coverage (%)	Enterprise Demand Intensity (%)
Professional Knowledge	88	90
Data Literacy & Analytics	38	75
Communication & Team Skills	27	70
Cross-Disciplinary Integration	15	68

4.2 Qualitative Insights

The qualitative analysis of curriculum structures further highlights systemic issues underlying the quantitative gaps. Traditional lecture-based courses dominate most programs, with limited integration of project-based or experiential learning. Elective courses addressing applied data skills, interdisciplinary problem-solving, or professional communication are often offered sporadically rather than systematically embedded within the curriculum. This fragmented approach constrains students' opportunities to develop competencies required for real-world finance and economics positions.Additionally, interviews with faculty members and enterprise recruiters confirm that graduates frequently lack proficiency in advanced analytic tools, data-driven decision-making, and cross-disciplinary collaboration. These qualitative insights corroborate the quantitative results and underscore the necessity of restructuring curriculum systems to systematically integrate data-oriented, applied, and interdisciplinary skills.

4.3 Heatmap Visualization of Curriculum–Competency Mapping

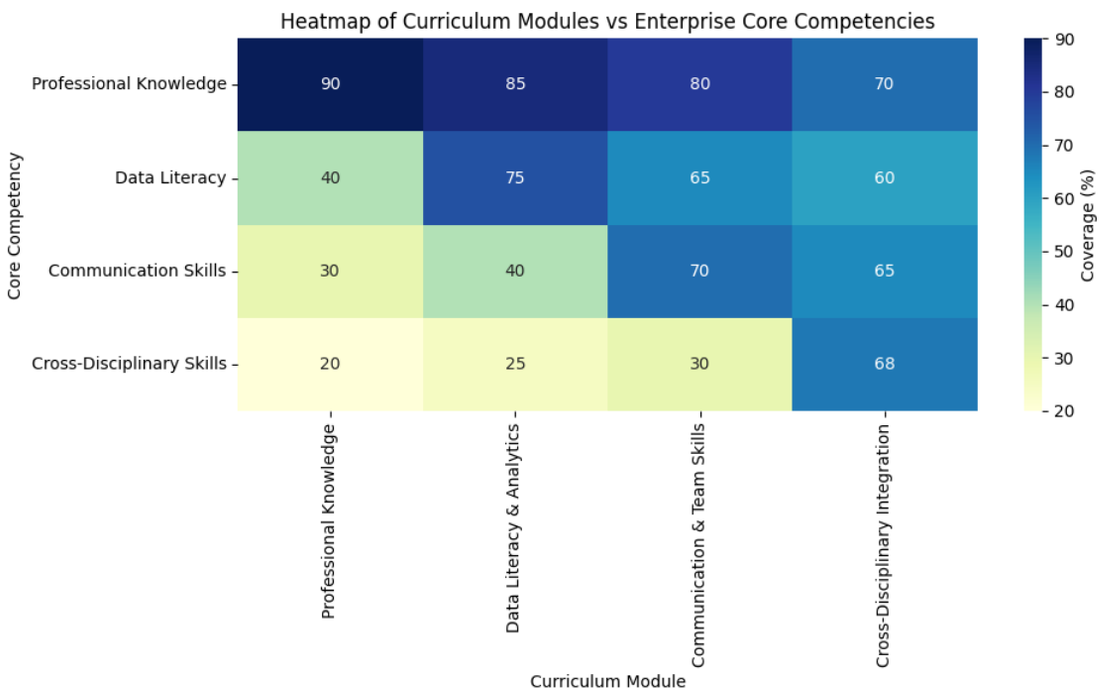

Figure 2. Heatmap of Curriculum Modules vs Enterprise Core Competencies

To provide a more detailed view of curriculum alignment with enterprise competencies, a heatmap was constructed showing the coverage of each curriculum module across key competency dimensions. Figure 2 illustrates this mapping, highlighting areas of high alignment and identifying critical gaps in data literacy, communication, and cross-disciplinary integration. The heatmap serves as a diagnostic tool to guide curriculum reform toward competency-based and interdisciplinary design.

4.4 Summary of Key Findings

The combined quantitative and qualitative analyses reveal that while universities succeed in delivering foundational professional knowledge, significant gaps remain in areas crucial for contemporary enterprise positions, particularly in data literacy, applied skills, communication, and cross-disciplinary integration. The results provide empirical evidence supporting the need for curriculum reconstruction, emphasizing competency-oriented, integrative, and practice-based learning approaches in economics and finance education.

5. Discussion

The results of this study reveal a clear misalignment between university curriculum systems and enterprise competency requirements in the fields of economics and finance. While foundational professional knowledge is adequately addressed through core courses such as macroeconomics, financial accounting, and corporate finance, significant gaps exist in applied, data-oriented, and cross-disciplinary skills. These findings align with prior research emphasizing the growing importance of

transferable and integrative competencies in graduate employability [1][4][7]. The limited representation of data analytics, communication, and interdisciplinary modules underscores that traditional curricula remain largely discipline-bound, constraining students' readiness for contemporary workplace demands.The quantitative analysis demonstrates that only 38% of programs incorporate advanced data analytics or econometrics courses, despite the high demand for data literacy in enterprise positions. Similarly, courses explicitly designed to foster communication, teamwork, or business writing skills account for merely 27% of offerings, while cross-disciplinary integration is observed in only 15% of programs. These deficiencies suggest that students may acquire strong theoretical foundations but often lack the practical and collaborative skills required to address complex, real-world problems. The qualitative insights corroborate this conclusion, indicating that existing curricula rely heavily on lecture-based formats, with limited opportunities for project-based, experiential, or integrative learning. Consequently, graduates may struggle to apply knowledge across domains, communicate effectively, or leverage digital and analytical tools in professional settings.From a curriculum design perspective, these findings highlight the need for a shift toward competency-oriented education that systematically integrates cross-disciplinary and applied learning opportunities. Aligning with constructive alignment theory [8], curriculum objectives, learning activities, and assessment methods should collectively target the development of both disciplinary expertise and transferable skills. Modular course structures, interdisciplinary project-based learning, and collaboration with industry partners can enhance the practical relevance of programs while reinforcing critical competencies. Additionally, embedding data-driven decision-making, communication, and problem-solving exercises within existing courses can mitigate the observed gaps without requiring extensive curriculum overhaul.This study also contributes to ongoing debates on higher education reform in the context of digital transformation and labor market evolution. By empirically mapping enterprise competency demands to university curricula, it provides actionable insights for educators and administrators seeking to enhance graduate employability. The findings suggest that economics and finance programs must evolve from a purely knowledge-centric model toward an integrated competency framework that balances disciplinary rigor with applied and interdisciplinary skill development. Such a transition is crucial for preparing students to meet the increasingly complex, data-intensive, and collaborative nature of modern enterprise roles.

In summary, the discussion underscores that bridging the gap between university education and enterprise needs requires both structural and pedagogical reforms. Emphasizing cross-disciplinary integration, practical application, and transferable skill development is essential for cultivating graduates capable of thriving in dynamic economic and financial environments.

6. Conclusion

This study investigated the alignment between university curricula and enterprise competency requirements in economics and finance, with a particular focus on cross-disciplinary integration and applied skills development. The findings indicate that while foundational professional knowledge is adequately addressed, significant gaps persist in data literacy, communication, and interdisciplinary competencies. Quantitative and qualitative analyses consistently reveal that most programs emphasize traditional lecture-based instruction, providing limited opportunities for project-based, experiential, or integrative learning. These deficiencies highlight a structural misalignment between educational provision and contemporary enterprise demands.To address this gap, the study suggests that curriculum reform should adopt a competency-oriented framework, systematically embedding cross-disciplinary, practical, and transferable skills alongside disciplinary knowledge. Implementing modular and project-based approaches, fostering collaboration with industry, and emphasizing data-driven decision-making and communication can enhance graduates' employability and readiness for complex, real-world roles. By linking enterprise competency requirements to curriculum design, this study provides both theoretical insights and practical guidance for universities aiming to cultivate graduates capable of thriving in dynamic economic and financial environments.

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