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RESEARCH BRIEFING

The Rise of Fintech and How Universities Can Prepare Students for Fintech Careers

Executive Summary

Financial technology, or fintech, is disrupting and democratizing the financial industry. Both traditional financial institutions and start-ups are hungry for talent. Fintech job postings have grown 3.5 times faster than the broader US job market has grown (7% growth vs. 2% growth across 2021). Employers want more technical experts for coding and analytical roles. They also need financial specialists and talent that sit uniquely at the intersection of technical and financial expertise. **And higher education institutions must play a role in preparing students for these high-paying fintech positions.**

7%

Average monthly job growth for US-based fintech jobs (vs. 2% for all jobs)

\$87,488

Median salary of US-based fintech jobs

Read on to learn:

- › The state of the fintech industry and sub-industries
- › US and global demand for fintech roles
- › The types of roles different employers need to fill
- › Opportunities for higher education institutions to align programs to fintech market demand (including master's, shorter form, and bachelor's programs)

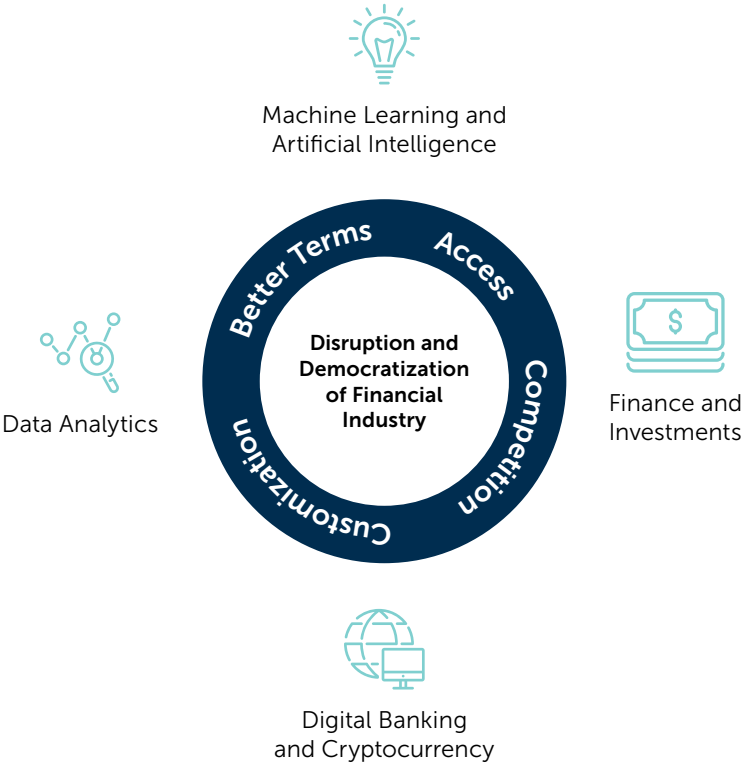
Want to know if fintech programs are a good fit for your institution?

Flip to page 18 for a diagnostic.

Fintech is disrupting and transforming financial services across the globe.

Financial technology, or fintech, is disrupting and democratizing the financial industry. Established financial institutions as well as start-ups are using machine learning, data analytics, and digital banking tools to make faster and more accurate predictions of financial risks. These tools provide investors with better data and give individuals access to personalized guidance that was once available only to those with greater resources. This expansion of financial services has created more competition for customers, resulting in better terms and ultimately more access.

A Broad Range of Elements and Implications for Many Industries



While the term “fintech” may conjure thoughts of mobile payment platforms like Venmo or cryptocurrencies such as Bitcoin, the field is more extensive than many realize. Fintech includes:



Retail or digital banking

Banks with few or no physical locations, focusing instead on an intuitive online and mobile banking experience.

Examples: Revolut (UK), Ally



Wealth and asset management via robo-advising or investment and trading platforms

Digital platforms to provide financial planning services. These technologies use automated advising, reducing the need for a human financial advisor, and often offer lower opening balances, making them accessible to a wider audience.

Examples: SoFi, Betterment, E*Trade, Robinhood

(Note that most large investment companies offer robo-advising as well, such as Morgan Stanley Access Investing, Schwab Intelligent Portfolios, and Wells Fargo Intuitive Investor)



Insurtech

Companies that use technology and data to personalize policies and undercut traditional insurers by offering greater savings.

Examples: Oscar (health insurance), Next Insurance (business insurance, liability insurance), Lemonade (homeowner and renters’ insurance), Zego (UK—vehicle/auto insurance)

List continues on following page.



Peer-to-peer lending

Connecting borrowers (both businesses and individuals) directly with investors instead of going through a financial institution.

Examples: LendingClub, Prosper, Upstart, Funding Circle (UK)



Cryptocurrencies (and corresponding marketplaces)

Digital currencies (tokens) that are cryptographically secured and verified against a network of distributed ledgers (blockchain), eliminating a centralized actor such as a bank.

Sample currencies: Bitcoin, Dogecoin, Ethereum

Sample marketplaces: Coinbase, Kraken, Ripple



Digital payments and transfer platforms

Platform to transfer money between accounts in a streamlined fashion, without the intermediary of a traditional banking institution.

Examples: Paypal, Square, Klarna, Venmo, ApplePay, Stripe, Affirm

Importantly, traditional financial institutions are engaged in the fintech space as much as their start-up competitors are. For example, the mobile payment system Zelle belongs to a consortium of traditional financial institutions (including Bank of America and Wells Fargo) and operates in over a thousand banking apps.¹

Banks view fintech companies as a threat: with less regulation and easier consumer access, fintech companies can serve banks' customer base at a lower cost. As a result, some of the largest banks are investing in fintech. Between 2018 and 2020, Goldman Sachs and its investment arm, GS Growth, invested in 69 fintech deals and made multiple acquisitions. All told, the fintech market—a \$7 trillion dollar industry in 2020—will continue to grow, with one projection estimating a 26.9% CAGR by 2026.

¹Figure based on information available on Zelle's website as of January 2022.

“ We are clearly a technology company.... New products and services are driven by technology.... We're high-touch and high-tech.”

October 25, 2021

Brian Moynihan, CEO

BANK OF AMERICA 

Fintech job growth is strong but regionalized.

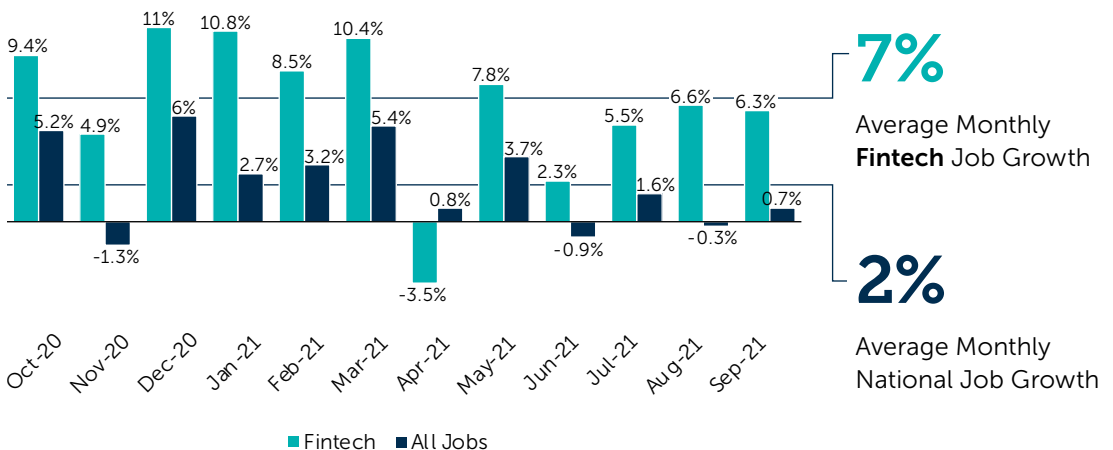
As a growing industry, fintech holds significant job potential. This chart shows job growth in fintech between October 2020 and September 2021 in the United States. Monthly job growth in fintech averaged 7%, compared to only 2% for all jobs. While the April/May dip affected the US economy writ large, fintech job growth continued to outpace the broader recovery.

This job growth translates across the globe:

- › In Canada, job postings specifically asking for skills in fintech grew 214% from January 2021 to January 2022. And in Ontario, 1,299 job postings asked for fintech skills in the first month of 2022, a 217% increase from January 2021. (Emsi Burning Glass)
- › In January 2021, S&P Global estimated the British fintech industry employs around 60,000 people and contributes roughly £7 billion to its GDP. In an earlier government report, Britain estimated the fintech industry would employ 105,500 people by 2030.
- › An annual EY survey of Australian fintech companies found companies had a median of 21 full-time employees in 2021, up from 10 employees in 2020. Despite the pandemic and strict border closures, Australian companies managed 110 percent growth between 2020 and 2021.

Fintech Job Growth vs. US National Job Growth

Month-to-Month Job Change, October 2020–September 2021



Top Ten Cities by Number of Job Postings Requiring Fintech Skills ¹



Much of the domestic job opportunity in fintech lives on the coasts: New York City's traditional financial hub and the start-up hubs in San Francisco and San Jose. However, as fintech becomes more ubiquitous, fintech jobs show up in other regions as well. Dallas, Denver, Chicago, and Atlanta were among the top ten cities for fintech job listings in 2021.

Additional opportunity exists in even more specialized areas. For example, as the application of fintech to the insurance field grows, insurance hubs such as Omaha increasingly become fintech job hubs too. And Salt Lake City's banking hub has seen explosive growth in fintech jobs as Silicon Valley companies such as Sofi and Affirm open additional offices in the city.

Fastest Growth US Cities for Fintech Jobs:

- > Atlanta, GA
- > Austin, TX
- > Chicago, IL
- > Dallas, TX
- > Phoenix, AZ
- > Salt Lake City, UT

¹ Data pulled from Emsi Burning Glass in the second half of 2021.

Fintech jobs meld traditional business and finance functions with technology.

Fintech jobs fall into two main categories: jobs in the traditional financial and banking sector (e.g., big banks such as Merrill Lynch and JP Morgan) and those at start-up companies. In absolute terms, the traditional financial sector is larger. But fintech start-up jobs are growing at a faster pace. This amounts to strong job opportunities across the board.

Because fintech is the intersection of finance and technology, jobs in the field land somewhere on the spectrum between the two. Notably, fintech roles do not explicitly list “fintech” in the name or responsibilities. Instead, job postings combine the industries in the description and requirements. This list unpacks common job titles in fintech.



Traditional **business and finance roles** include:

- › Financial services associates/managers/analysts
- › Management analysts
- › Operations associates
- › Business analysts

These jobs tend to be in greater demand by start-ups, which typically have access to technical skill sets and are seeking candidates with business and financial skills.



More **technical and computer science-centric roles** include:

- › Data scientists
- › Software engineers
- › Machine learning engineers
- › Artificial intelligence architects
- › Blockchain engineers

These jobs tend to be in greater demand by traditional financial firms. They often have sufficient access to financial and business skill sets and are looking to grow out technical expertise in fintech hires.



Roles that straddle the middle **between finance and technology** include titles such as:

- › Product managers
- › Business development officers
- › Analytics managers
- › Relationship managers

These jobs tend to look like traditional financial roles with a greater emphasis on technical and analytical skill sets.

What are in-demand fintech skills?

Given the varied nature of roles in fintech, employers need a wide variety of skills. However, based on Emsi Burning Glass analyses that EAB conducted across 2021, the following hard skills are in high demand:

- Financial services
- Scalability
- Product management and development
- Programming languages (Python, SQL, Java, R)
- Machine learning
- Data science
- Internet of things
- Agile methodology
- Natural language processing
- Predictive analytics

\$87,488

Median salary of US-based fintech jobs



While fintech presents significant opportunity for higher education, program design is still in flux.

Because the field is relatively nascent, fintech programs in higher education vary in curricular composition. Most programs combine finance, business, and technology courses. But the balance of these elements varies significantly. Even fundamental decisions such as the college or school in which to house the program don't always clearly indicate what the program content will look like.

The three Master's of Financial Engineering programs outlined below highlight this reality. While they share the same label, each one sits in a distinct home: Baruch University's in the Math Department, Duke University's in the School of Engineering, and Berkeley's in the School of Business. Notably, the programs offer similar coursework regardless of where they are housed, highlighting the interdisciplinary nature of fintech degrees. For instance, Baruch's program includes software engineering despite its mathematical focus.

	BaruchCOLLEGE	Duke UNIVERSITY	Berkeley UNIVERSITY OF CALIFORNIA
Program Owner	School of Arts and Sciences (Math)	School of Engineering	School of Business
Entry Requirements	Courses in calculus, probability, linear algebra, C++, and finance	Bachelor's in engineering or science	Background in finance, economics, or other quant fields
Required Courses	<ul style="list-style-type: none"> Financial Markets and Securities Software Engineering Numerical Methods Probability and Stochastic Processes 	<ul style="list-style-type: none"> Business Fundamentals for Engineers Financial Institution Products and Services Software Engineering Management of High-Tech Industries 	<ul style="list-style-type: none"> Investments and Derivatives Empirical Methods in Finance Stochastic Calculus Financial Data Science Fixed-Income Market

Pinpointing Comparable Programs and Considerations for Naming New Programs

Fintech programs at every degree level demonstrate this complexity across the board: varied academic homes, interdisciplinary content, and different takes on where fintech education lies on the spectrum between finance/business and technical learning. **As a result, institutions creating or adapting programs to align to fintech jobs can focus on strengths rather than modeling on existing programs.** And institutions should take a broad view of programs to serve as comparisons or to benchmark against. This could include programs in financial engineering, quantitative finance, or financial technology.

Similarly, there is no consensus on how to label fintech programs. Schools have the option to offer programs in existing fields such as financial engineering or use the term “fintech” (or update existing programs to include this term). There are pros and cons for each option. On one hand, as fintech continues to grow, prospective students may attach to programs with a clear alignment to the industry. However, the term may become outdated and require a rebrand. Furthermore, students may struggle to secure financial aid, military or employer reimbursement, or other support for a new degree field that aid agencies aren’t sure how to define (though this will wane over time as the field gains prominence).

Several institutions reported struggling with CIP code² decisions for their programs given the interdisciplinary nature and complex naming. One important consideration in CIP code selection should be international student appeal. There is great potential to recruit international students to fintech programs given the worldwide expansion of the industry. And fintech programs can be developed to include enough technical content to achieve a STEM designation, sought after by many international students who desire longer visas. Choosing a CIP code without STEM designation will limit appeal to this audience.

Regardless of name, the program will necessarily include significant tech content (e.g., coding, advanced data analytics) and a solid interdisciplinary mix, including business, finance, and tech and potentially areas such as cybersecurity, ethics, law, or policy.

Degree-Level Spotlight: Launching a Master’s-Level Fintech Program

For most institutions, the most fruitful fintech program offering is likely at the master’s degree level.

- Fintech job postings disproportionately require a master’s degree (25%, compared to 12% of finance jobs and only 6% of tech jobs).
- Master’s programs are often more interdisciplinary, paving the way for a fintech program that cuts across disciplines.

However, institutions considering a master’s degree should ensure their region has sufficient demand for fintech roles before launching. EAB can help partner institutions assess regional labor market demand for fintech through its Market Insights service.

²A CIP, or **Classification of Instructional Program**, code is used by the U.S. Department of Education’s National Center for Educational Statistics to track fields of study and program completions activity.

Shorter form credentials hold revenue potential but put institutions in direct competition with alternative providers.

While master's programs hold the greatest potential for higher education, continuing education is a dynamic opportunity for institutions to enter fintech. The opportunities take two main forms.



Boot camps likely to appeal to early-career professionals; ongoing opportunity as field continues to evolve









Executive education programs can bring senior leaders up to speed; short-lived opportunity as workforce catches up on fintech, execs retire

Boot camps will appeal to recent graduates or early-career professionals seeking quick upskilling in fintech skills such as coding. While bootcamp-style programs can be built in-house, some institutions such as Southern Methodist University have partnered with 2U's Trilogy to offer part-time 24-week boot camps for working professionals. Given the staccato nature of the student journey—learners can use credentials to enter and advance in fintech—and the fact that even current fintech professionals will need continual upskilling as technologies evolve, fintech will continue to offer fruitful continuing education programming opportunities for higher education.

By comparison, institutions have a smaller window of time to meet the demand for **executive education programs**. Because they are designed to expose a more tenured leader to a nascent industry, executive education programs are a good short-term revenue generation opportunity. Once the current industry leaders gain the necessary fintech knowledge, switch industries, or retire, demand for these programs will decline.

Low-Cost Competitors Abound in Fintech Space

   Fintech Foundations Four months (1 hr/wk), \$59/month or \$236 total.	  Fintech: The Future of Finance Four months (4–6 hrs/wk), \$2,592 to earn certificate.	   Fintech Programme Six weeks (7–10 hours/wk), \$3,671.
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Institutions' shorter form credentials (and master's programs) will compete directly with alternative providers. The examples above—with tuition figures current as of late 2021—are just three of the offerings students may encounter. Notably, while each one is offered by nontraditional providers such as Coursera, they also have big-name institutions attached. It is likely that these names—and the relatively low price tags—will be a draw for students. If offering a program that might be in direct competition with low-cost alternatives like these, focus marketing on the unique value of taking the credential in a higher educational context (e.g., additional student support services or employer partnerships).



Undergraduate fintech degrees are growing in number—though job demand is low.

Undergraduate fintech degree programs are even fewer in number than master's degrees, though the programs largely map to the same spectrum. Programs such as Seton Hall University's [BS in Finance and Technology](#) or Creighton University's [BS in Business Administration](#) have more of a business and financial focus. By comparison, University of Sussex's [BS in Finance and Technology](#) and Virginia Commonwealth University's [BS in Finance and Technology](#) offer more technical degrees.

Existing fintech bachelor's programs share the following characteristics:

- › They tend to be **housed in the business school** but offer an interdisciplinary curriculum that incorporates technical courses as well. As with master's programs, it helps to have strengths in both areas before launching a degree.
- › The programs emphasize **experiential learning** in many forms. For instance, the University of Sussex's program offers a full-year internship experience.
- › Marketing materials **highlight the strength of the fintech job market**. This is a given for any fintech program but potentially more acute for bachelor's programs. Early movers in the fintech space reported that undergraduates are less aware of fintech careers.

Ultimately, regional fintech job demand influences bachelor's degree planning less, given undergraduates who have not yet entered the workforce may be willing to relocate to do so. For the bachelor's degree itself, entry-level fintech jobs tend to require more technical skills (e.g., programming, coding). Bachelor's programs designed to prepare students for fintech roles should weigh technical preparation more heavily. These roles do not require a particular bachelor's degree, however, and institutions can incorporate content into existing degrees or launch dedicated fintech offerings.

Fintech Across the Curriculum

While fintech bachelor's degrees are not in high demand, fintech skills are. Here are four recommendations for better incorporating fintech into undergraduate curriculum:

1.

The study of business and finance should include **exposure to coding and fintech concepts**. If a business school does not yet have data analytics courses, start there. Then, incorporate coding classes into the business curriculum. A basic understanding of how to code and what it enables will be critical for future fintech employees so they can work with or manage developers.

3.

Ask faculty to **build fintech-related projects and case studies into existing courses**. Students in these courses will gain knowledge of the field without the college needing to invest in developing a full fintech course.

2.

Offer fintech-focused electives. These could live in a range of disciplines from accounting to IT. These courses will prepare students for jobs, and enrollment trends can help leaders assess whether there's enough demand for a full credential.

4.

Don't ignore cocurricular experiences. A student fintech club, a fintech-focused case competition, or even guest speakers from fintech companies can go a long way to help foster and nurture student interest and exposure to fintech.



Regardless of program format, be thoughtful about program design and marketing.

As this brief has outlined, institutions have many paths forward to launch a fintech program. Here are three principles to keep in mind when designing those programs.

1. **Experiential learning opportunities are critical to keep up with a rapidly evolving field—but also require thoughtful structuring to ensure equitable access and exposure to diverse perspectives.**

This is most acute for **master's programs**, where structures are less constrained, but applies to all credential types. With an emerging field, experiential learning opportunities such as internships, employer-sponsored projects, and case competitions will have a greater learning impact than in more traditional fields. Even informal opportunities like industry speakers expose students to the latest developments. However, experiential learning necessitates careful thought to create equitable opportunities.

Recommendations:

- Waive or discount fees for student clubs and experiences.
- Provide a “career closet” so students have access to business attire.
- Provide grants for students seeking low-paid/unpaid opportunities.
- Incorporate career prep material into mandatory courses so students automatically get training on interview skills, networking, resume design, etc.
- Ensure speakers represent diverse backgrounds and perspectives.
- Assign students to diverse teams rather than asking them to self-select into groups.

Bachelor's fintech programs will experience less pressure to innovate and can largely rely on common bachelor's program design practices, as the traditional undergraduate audience will seek programs similar to familiar business and technical bachelor's degree programs. Program leadership should still invest in cocurricular enrichment—and make that enrichment accessible to all students. For example, develop a fintech case competition with either free or sponsored participation. Alternatively, in-class fintech exposure (e.g., case studies, guest speakers) allows students unable to participate in cocurricular activities to experience the field.

2. Market your institution's academic and career services and local employer partnerships to compete with alternative providers (while still being as fast and low-cost as possible).

As previously discussed, many alternative providers offer fintech programming (and they are often faster to launch in newer fields like this). Shorter form institutional offerings will compete with alternative providers' low-cost, accessible content. Higher education can justify higher costs with advantages such as academic and career services or local employer partnerships that improve student career outcomes. Institutional aid can also improve access for under-resourced students.

Programs will still need to deliver in-demand skills relatively quickly (i.e., under six months for a nondegree credential). Master's programs capture students for more time, but working professional learners still seek a faster time to completion so they can apply their new education in their careers. Early mover programs require 30–36 credits for completion and rely on capstone projects rather than research theses.

3. More technical (e.g., mathematical or finance-centric) programs often have more prerequisites for admission—but those prereqs may limit access and constrain program size.

More technical fintech programs will use prerequisites to admit students with experience in mathematical methods, financial concepts, and core technical abilities. This background enables a curricular focus on the most advanced fintech-related tools and approaches, and graduates of these programs will likely land higher-paying jobs.

However, more prerequisites mean your program will likely enroll fewer students. Limiting prerequisites broadens student access and can potentially yield higher enrollment. It will also necessitate a curriculum with more business and general finance content and introductory-level technical work. Programs with lower barriers to entry likely cannot equip students with the most advanced technical skills but will confer still-valuable foundational knowledge.

Fintech Opportunity Diagnostic

Delivering high-quality, in-demand academic programming in fintech is a balancing act between university capabilities and labor market demand. To help partners navigate the program development-refinement question, EAB created a comprehensive diagnostic. The diagnostic is offered in part below—after answering these questions, reach out to your EAB Strategic Leader to complete the assessment.

What are your institution's opportunities in fintech?

Institutional Capacity

Does your institution currently offer any fintech programming?

This can be in sub-fields of fintech (e.g., blockchain, cryptocurrency) or in broader tech-enabled business programs (e.g., business analytics).



IF YES

Consider updating curriculum to include more of the technological skills in demand among fintech employers today.



IF NO

Review business-related data, technology, and analytics offerings to determine if there is capacity to stretch into fintech:

- Are there courses that can be cross-applied?
- Are there faculty interested in cross-teaching?
- Are there cocurricular opportunities that can also include fintech?

Labor Market Demand

Are there regional fintech companies looking to hire?

Fintech hiring needs are divided between incumbent companies (often large banks and investment companies) and start-ups developing new services.



IF YES

Determine which level of talent and types of skills regional employers need, then map to degree levels and course offerings.



IF NO

Assess out-of-region (or state) opportunities not being served by other institutions:

- Are there fintech companies with unmet talent needs in nearby regions?
- Is there state interest in growing fintech?
- What city is closest to the institution that has a large financial employer base?

Ready to complete the rest of the diagnostic?

Contact your **EAB Strategic Leader** to discuss the remaining questions in the diagnostic.

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