

**Carnegie Mellon University**

Master of Science in Computational Finance



Computational Finance Alumni

# CAREER REPORT

To address a common question of many prospective quant finance masters students, we conducted a survey of MSCF alumni to identify key insights on industry segments, job functions, compensation and other career-growth metrics of these finance professionals.

# SURVEY DEMOGRAPHICS

**181**  
SURVEYS  
COMPLETED

## FULL TIME FINANCIAL EXPERIENCE PRE-MSCF

**0 YEARS** → **51%**  
**<1-2 YEARS** → **27%**  
**3+ YEARS** → **22%**

**76%**  
MALE

**21%**  
FEMALE

**3%**  
DID NOT  
SPECIFY

## HIGHEST DEGREE EARNED PRE-MSCF

**BACHELOR'S** → **76%**  
**MASTER'S** → **19%**  
**PHD** → **5%**

## MSCF GRADUATION YEAR

**2015-2019** → **49%**  
**2010-2014** → **26%**  
**2005-2009** → **14%**  
**1994-2001** → **11%**

# EXECUTIVE SUMMARY



## INDUSTRY SEGMENTS

The vast majority of MSCF alumni are continuing to follow their passion for finance; nearly 9 in 10 are still working in the industry. Investment banking was the dominant segment for first jobs (42%), but lost ground to hedge funds/prop trading, asset management, other finance and non-finance segments for current jobs.



## JOB FUNCTIONS

Quant Research was the most popular first job function (30%) followed by Sales & Trading, Risk Management and Strats & Modeling, with nearly 8 in 10 MSCF graduates starting their careers in these roles. Shifting to current employment, Quant Research maintained the top position with Sales & Trading dropping by nearly 50% and Portfolio Management increasing over three-fold, with 1 in 5 alumni employed in this role.



## JOB LOCATIONS

85% of respondents started their quant finance careers in the U.S. with 64% working in New York City. For current employment, nearly 10% of those starting in New York City moved to Illinois, California or Texas with China as the top non-U.S. country for relocations.



## JOB SATISFACTION

Most MSCF alumni are satisfied in their current roles. Top mentions for the most fulfilling aspects of their jobs and careers include results-oriented projects, working with great people, the breadth of roles/responsibilities and the problem-solving nature of the work.



## TOP SKILLS

We asked MSCF alumni about the most important skills for future quant finance success. Programming was #1 with over 50% of MSCF alumni citing it as a key requirement for success. Other top-mentioned skills included data analytics/data science, statistics, math and communication and people skills.



## PROGRAMMING

Computer programming is a key capability for our alumni: 63% of MSCF alumni spend at least 20% of their typical work week on programming/coding and 1 in 4 allocate at least 60% of their time to this important job function.



## COMPENSATION

Quant finance is a well-compensated profession with high earnings potential. 62% of respondents currently earn at least \$250,000 and nearly 1 in 5 are making \$500,000 or more. MSCF alumni working in hedge funds/prop trading firms are the highest earners, with 1 in 3 making \$500,000 or more.



## PROMOTIONS

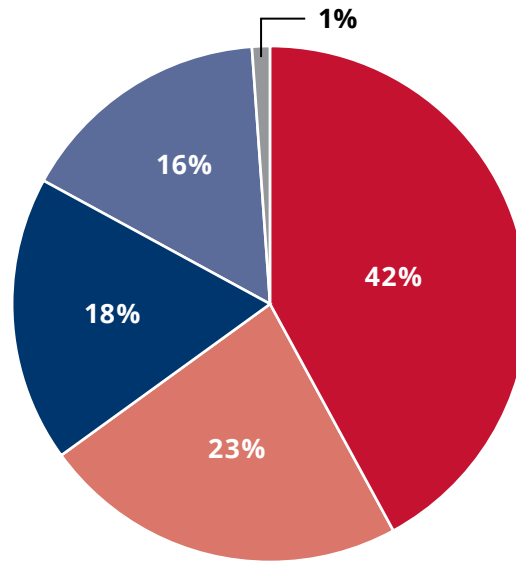
Most alumni have enjoyed upward job mobility; 83% of respondents earned at least one promotion and nearly 1 in 3 received three or more promotions. Additionally, 43% of MSCF alumni manage people in their current roles.



# INDUSTRY SEGMENTS

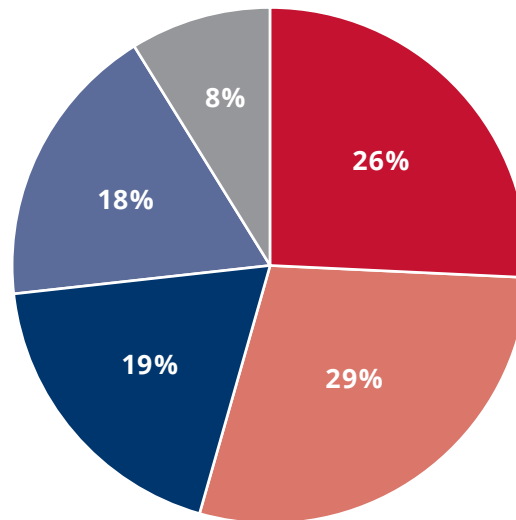
## 42% of graduates

started their career in investment banks, followed by hedge funds/prop trading firms and asset management companies. Investment banking experienced a decline from first job to current job, with many respondents moving into the hedge fund / prop trading, asset management and other finance segments including fintech (the highest gain), insurance and consulting.



## FIRST JOB

- 42%** INVESTMENT BANK
- 23%** HEDGE FUND / PROPRIETARY TRADING
- 18%** ASSET MANAGEMENT
- 16%** OTHER: FINANCE
- 1%** OTHER: NON-FINANCE



## CURRENT JOB

- 26%** INVESTMENT BANK
- 29%** HEDGE FUND / PROPRIETARY TRADING
- 19%** ASSET MANAGEMENT
- 18%** OTHER: FINANCE
- 8%** OTHER: NON-FINANCE

## INDUSTRY SEGMENTS

*“Keep an open mind because there are many career options and not all will be obvious or known to you today.”*

Most MSCF alumni are currently employed in the finance industry. However, the percentage of alumni working in non-finance industry segments has grown substantially, increasing from 1% of MSCF graduates' first jobs to 8% of their current jobs.

Non-finance roles are diverse and include technology, higher education, sports analytics, software engineering and real estate, reinforcing the value of and demand for quant finance skills within other industries.



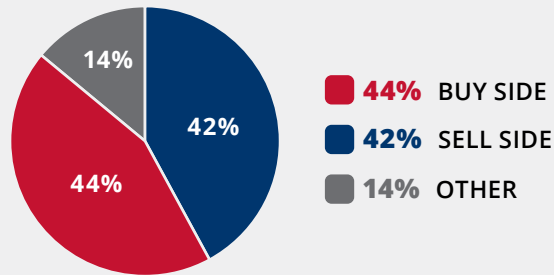
**92%**

Work in  
**FINANCE**

# INDUSTRY SEGMENTS

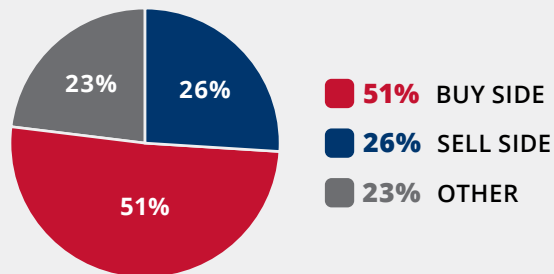
## BUY SIDE VS. SELL SIDE: FIRST JOB

Sell side firms (investment banks) edged out buy side firms (hedge fund/prop trading, asset management and insurance) for MSCF graduates' first jobs, with both sectors representing 86% of post-graduate employers. 1 out of 7 first jobs were in the "other" sector, which includes fintech and consulting.



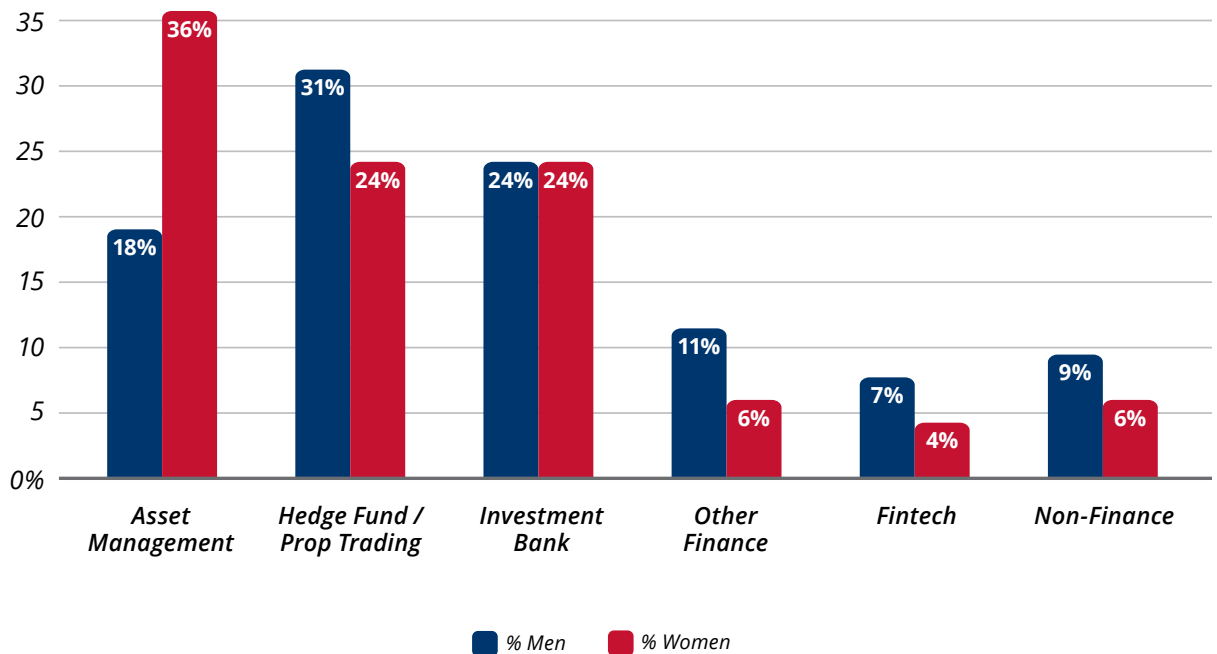
## BUY SIDE VS. SELL SIDE: CURRENT JOB

Over half of MSCF alumni work in buy side roles, representing the largest segment for current roles. Almost as many alumni work in "other" sectors (fintech, consulting, insurance, other finance & non-finance) as those in sell side roles.



## Current Industry Segment by Gender

More than 1 in 3 women are working in asset management, almost double the number of men employed in this segment. A higher percentage of men are working in hedge funds/prop trading firms and "other" finance and non-finance segments.



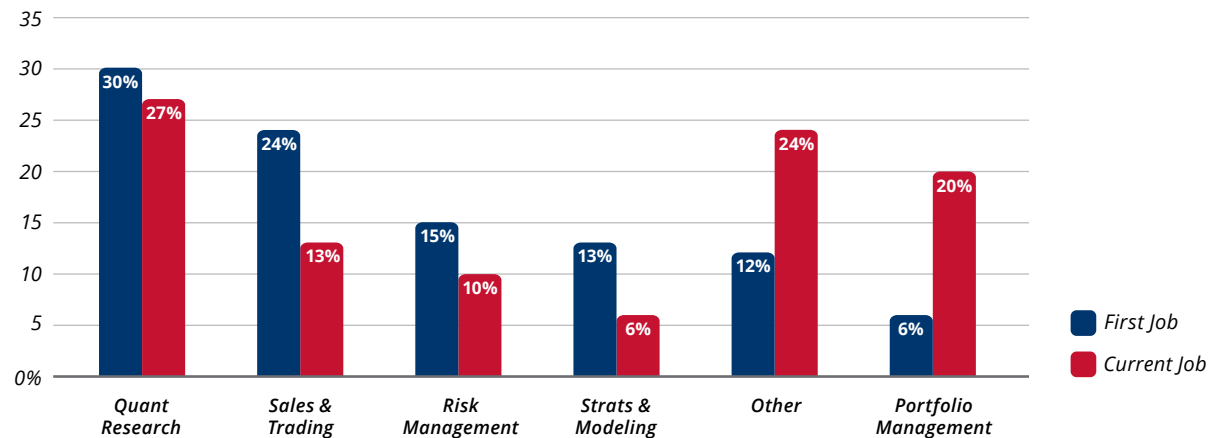
# JOB FUNCTIONS

**Quant Research** was the #1 function for first jobs, cited by 30% of respondents. Sales & Trading and Risk Management round out the top 3 with 7 in 10 graduates starting their careers in these roles. For current jobs, Portfolio Management and Other functions (quant developer, data science, financial consulting, other) increased by 14% and 12% respectively while Sales & Trading saw the largest decline of 11%.

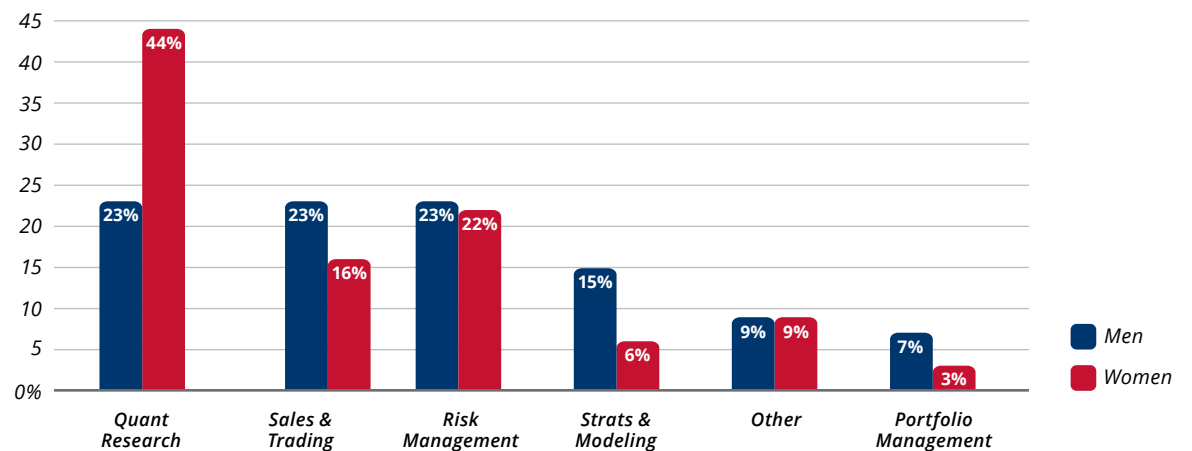
The percentage of women working in Quant Research is nearly double the percentage of men, while more men are working in Portfolio Management, Sales & Trading and Strats & Modeling.



## Job Function: First Job vs. Current Job



## Current Job Function by Gender





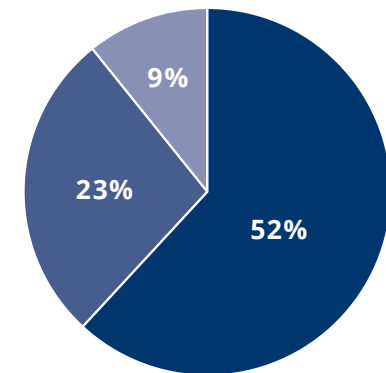
## JOB LOCATIONS & PROMOTIONS

*“You are getting paid and will be promoted by making recommendations. At the end of day, your job will be crafting a logical story with numbers.”*

### The vast majority of MSCF alumni have earned promotions in their careers.

83% of respondents were promoted at least once. As expected, over 80% of those that received 0-1 promotions are the most recent graduates (2015-2019).

- 52%** RECEIVED 1-2 PROMOTIONS
- 23%** RECEIVED 3-4 PROMOTIONS
- 9%** RECEIVED 5 OR MORE PROMOTIONS



**85%**

of graduates started their careers in the U.S.

**15%**

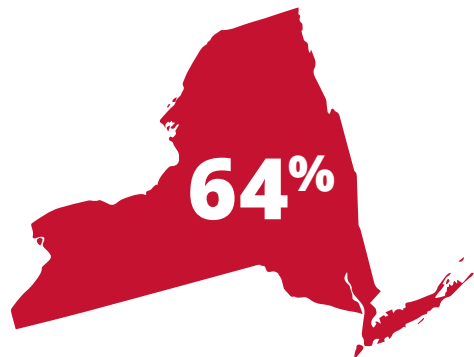
of graduates started their careers internationally, with China, Singapore, Japan and the UK as the top locations.



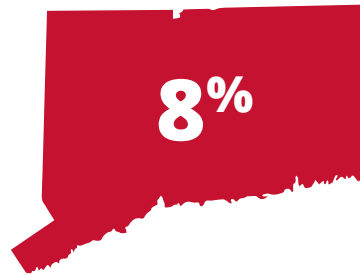
# JOB LOCATIONS & PROMOTIONS

## Top U.S. Locations: **First Job**

**NY was the #1 U.S. state for first jobs**, with 64% working in New York City. Other top states include Connecticut, Illinois and Pennsylvania.



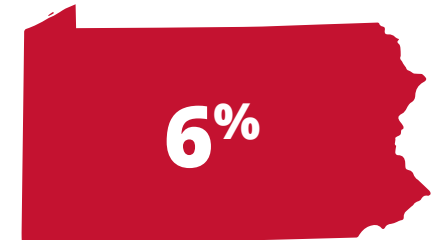
**NEW YORK**



**CONNECTICUT**



**ILLINOIS**



**PENNSYLVANIA**



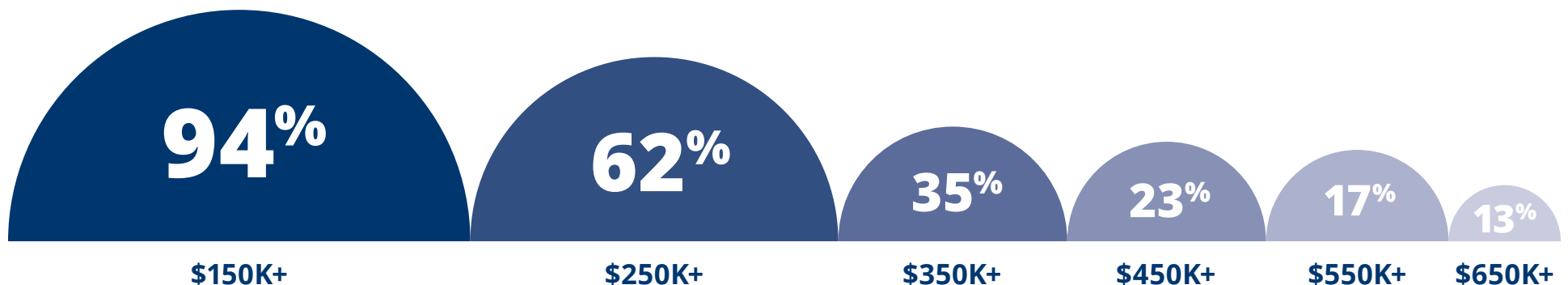
## Top Locations: **Current Job**

**78%** of MSCF alumni are currently employed in the U.S., a decrease of 7% from the first job location. U.S. states making the largest gains include Illinois, Texas and California. Internationally, China saw the largest increase among all countries with nearly 1 in 10 responders working there.

# COMPENSATION

**Quant finance professionals are well-compensated** (salary, bonuses, stock options and other monetary compensation). Nearly all MSCF alumni are earning at least \$150,000 annually and over 1 in 3 are making at least \$350,000. Of the 13% of alumni with earnings over \$650,000, almost half of them reported earning over \$1 million in total compensation. 38% of men earn \$350,000 or more (vs. 28% of women) and 32% of men earn \$550,000 or more (vs. 21% of women). However, this may be partly attributed to the high percentage of women in Asset Management, which is among the relatively lower-earning segments.

*“Don’t chase just the highest starting pay. Look at the **team culture, team’s growth trajectory, promotion potential, and make sure that the work is interesting to you.**”*



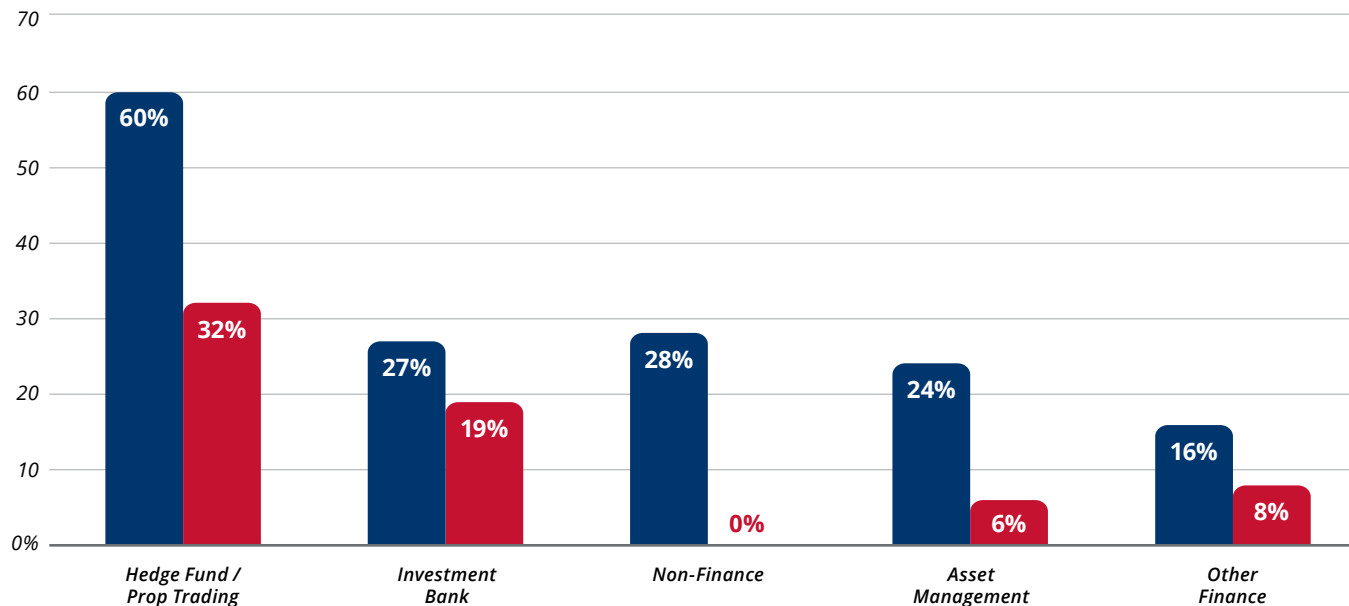
# COMPENSATION

*“Be sure you know what you want to do and that a new degree will unlock that. Don’t underestimate the value of networking and don’t ignore the culture of the employers you are considering.”*

## **Hedge Fund / Prop Trading is the highest earning segment**

with 6 in 10 alumni reporting annual compensation of \$350,000 or more and nearly 1 in 3 making at least \$550,000 per year. Although Other Finance is the lowest earning segment with 16% making \$350,000 or more, 8% are earning at least \$550,000 in total compensation compared to 0% at this earnings level in the Non-Finance segment.

Note that alumni with little to no financial industry experience before enrolling in the MSCF program can be as successful as those with more experience. Half of the respondents with zero or less than one year of financial industry experience pre-MSCF are earning \$350,000 or more and 28% are making at least \$550,000 annually.



## **Compensation by Industry Segment**

■ Percent Earning \$350K+  
■ Percent Earning \$550K+



# JOB SATISFACTION

*“The most fulfilling part is that I get to work on **challenging and interesting projects, build a strategy from a simple idea and finally put that strategy into production.**”*

## We asked MSCF alumni about the most fulfilling and least fulfilling aspects of their jobs/careers.

Although a large percentage of the qualitative responses were aspects specific to their roles, many of the responses were closely related and could be categorized in unique groups as outlined in the tables below.

Top mentions for the most fulfilling aspects of their jobs or careers include being able to see the impact and results of their efforts, working with great/smart people, the wide variety of roles and responsibilities, the challenging/problem-solving nature of the work and ability to innovate in their jobs via trying new ideas, being creative and continually learning.

MSCF alumni also cited the least fulfilling aspects of job stress, long hours, dealing with corporate bureaucracy and office politics.



### Most Fulfilling Aspects

Impactful Work

People / Team

Breadth of Roles / Responsibilities

Challenges/Problem Solving

Job Innovation



### Least Fulfilling Aspects

Stress Level

Long Hours / Work

Life Balance

Bureaucracy

Office Politics

# TOP SKILLS

## We asked MSCF alumni about the most important skills for future quant finance success.

Programming was the top-mentioned skill with over 50% of MSCF alumni citing it as a key requirement for success.

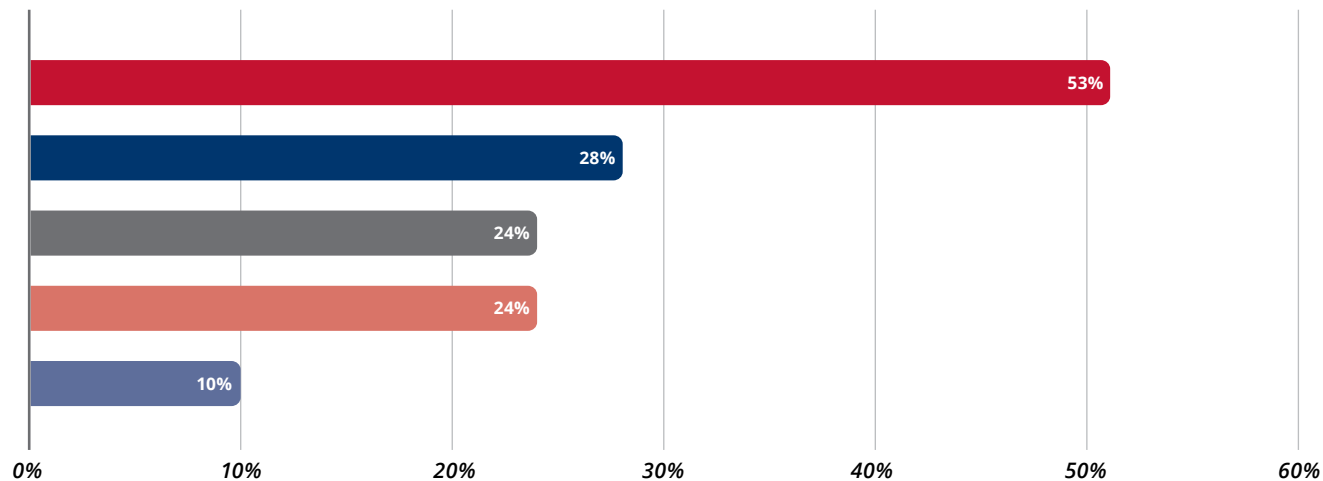
Data analytics/data science was #2 on the list with nearly 30% of alumni identifying it as a critical skill set. Soft skills rounded out the top three and alumni cited communication, presentation and teamwork as some of the most important non-technical skills.

Other top-mentioned skills included modeling, critical thinking, problem solving and financial markets knowledge/insight.

*“Statistics and data visualization are critical skills. The size of financial data will continue to grow; the value of knowing how to summarize it and project its message onto a 2D graph will only ever increase.”*

## MOST IMPORTANT SKILLS

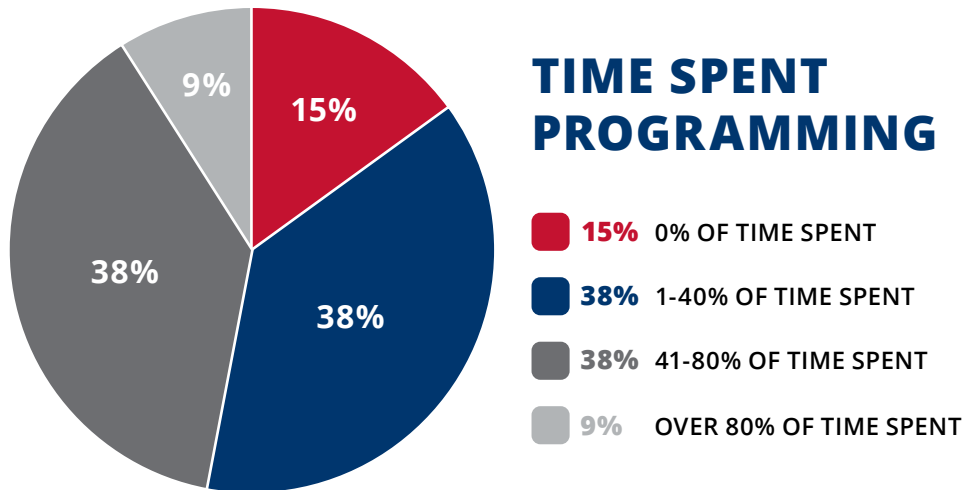
- Programming
- Data Science
- Soft Skills
- Statistics
- Mathematics



# PROGRAMMING

## Computer programming is an increasingly important skill set in the quantitative finance industry.

85% of respondents program/code in their roles, with nearly 1 in 10 spending over 80% of their time on programming tasks.



Quant Developers, Quant Researchers and Data Scientists are job functions with the highest amount of programming, while Risk Managers and Traders have the least amount of programming. Additionally, alumni citing a lower amount of programming are more likely to be managers vs. individual contributors.

Job Function	0% of Time	1%-40% of Time	41%-80% of Time	Over 80% of Time
Quant Dev	11%	0%	67%	22%
Strats & Mod	0%	67%	17%	17%
Quant Research	2%	20%	63%	14%
Data Science	8%	23%	62%	8%
Sales & Trading	25%	46%	25%	4%
Risk Mngmt	11%	79%	11%	0%
Portfolio Mngmt	16%	51%	32%	0%



# CONCLUSION



**Quantitative finance is a dynamic and diverse career that is both professionally and financially rewarding.**

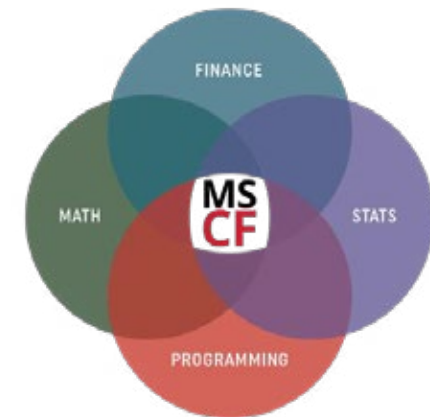
Quants are employed across a wide range of finance segments and job functions and most are satisfied in their roles. They have also achieved success leveraging their skill sets in other industries, largely due to their quantitative, computational and interpersonal strengths.

Job advancement and promotions are the norm, with long-term compensation delivering a high return-on-investment for those with well-regarded quantitative finance master's degrees.

# MSCF PROGRAM

**The MSCF program has an unrivaled reputation in the quantitative finance field for training professionals with the interdisciplinary skills required for success in the finance industry.** The brand has been built over the past 28 years by 1,850+ alumni, many of whom are top performers on Wall Street and beyond.

If you have a keen interest in the financial markets and a desire to leverage your technical skills to make an impact in the global economy, MSCF could be your path to a highly rewarding career in quantitative finance.



*The top-ranked MSCF program is an industry leader in preparing students for highly successful careers in quantitative finance through a unique combination of customized curriculum, pioneering faculty and a full-service career center.*