



Amirkabir University of Technology
(Tehran Polytechnic)

Introduction to Financial Engineering

Ehsan Hajizadeh

Assistant Professor of Industrial Engineering

Dec 2019

What is Financial Engineering?

- Financial engineering is the use of mathematical techniques to solve financial problems.
- Financial engineering uses tools and knowledge from the fields of computer science, statistics, economics, and applied mathematics to address current financial issues as well as to devise new and innovative financial products.



What is Financial Engineering?

- Financial Engineering
- Computational Finance
- Quantitative Finance
- Mathematical Finance



Financial Management vs. Financial Engineering



Main courses in our department

- Portfolio Optimization
- Essentials of Financial Engineering
- Financial Risk Management
- Financial Time Series
- Fixed Income Securities (Bonds)
- Other related courses...



What do you need?

Math

Programming

Finance

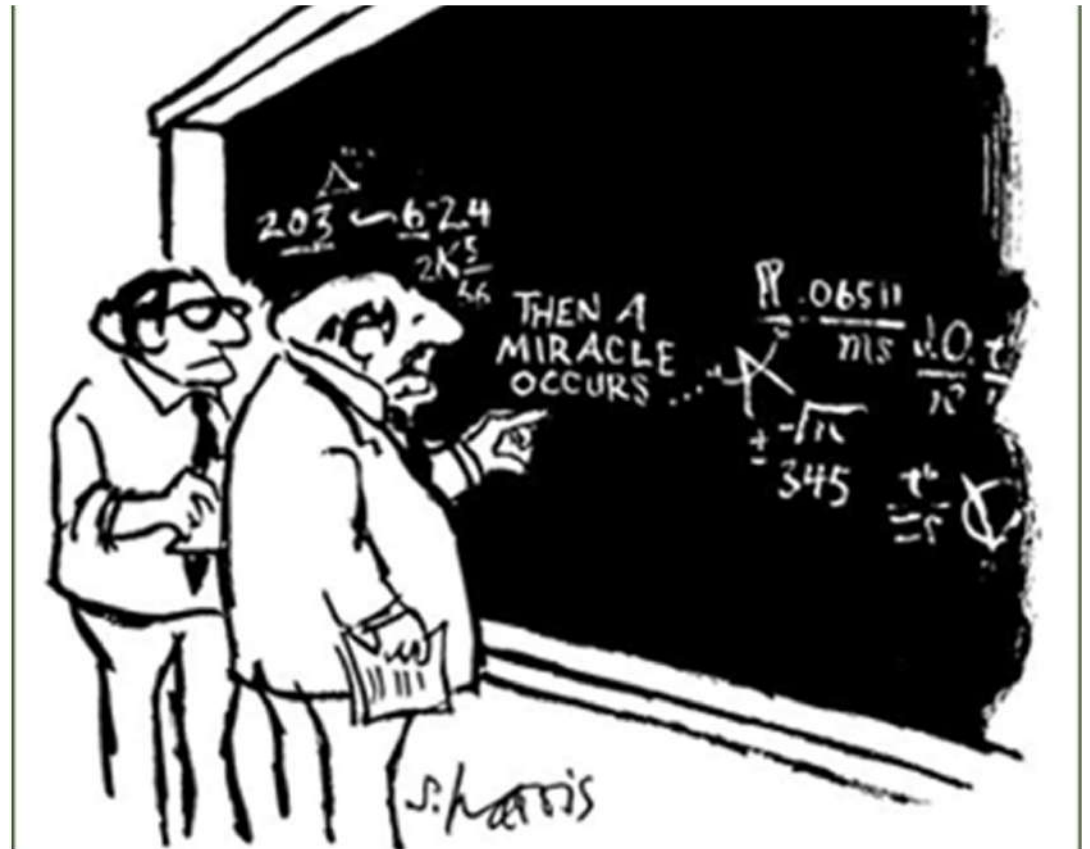
And?

English, Japanese, French, Spanish

Social Skills

Collaborative Personality

Leadership



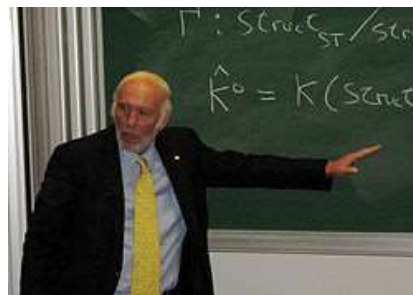
Financial Engineering Career

- Corporate Finance Adviser.
- Portfolio Manager
- Credit Risk Manager
- Financial Regulator
- Derivatives Analyst
- Self-Investor



What's the lifestyle?

- Trader
 - Risk Taker
- Sales & Broker
 - Deal Maker
- Quant
 - Problem Solver



Career Path



- Positions
 - Analyst, Associate, Director, Head, CEO
- Functions
 - Sales & Trading
 - Research
 - Analytics
 - Risk Management
 - Finance
- Locations

and beyond...

Quantitative Finance Career

Quantitative Finance

Buy Side (and others)

- Portfolio Management
- Proprietary Trading
- Risk Management

Sell Side

- Derivatives Pricing
- Hedging
- Underwriting
- Investment Banking
- Risk Management

New Skill Sets

- Programming, Databases, Systems
- Cloud Computing
- Machine Learning/Statistical Modeling
- Big Data/Financial Technology
- Optimization
- Simulation

Job Example 1

- Strong Academic Background in a relevant field. Computer science, Physics or Mathematics
- Strong Programming Skills
- Knowledge of Financial Mathematics (preferred)
- Programming experience in finance

SEARCH JOBS

SECURITIES, EQUITIES, VOLATILITY STRATS, ANALYST/ASSOCIATE/VP

JOB ID 30074

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me risks

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Basic Qualifications

- Strong academic background in a relevant field - Computer Science, Engineering, Physics or Mathematics
- Strong programming skills

Preferred Qualifications

- Knowledge of Financial Mathematics
- Programming experience, preferably in finance

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Financial Data Analyst Job

The screenshot shows a job posting for a Financial Data Analyst at Memorial Sloan Kettering Cancer Center. The page has a blue header with the MSK logo and navigation links. The main content area is white with a blue 'Apply' button and a blue 'Add to cart' button. The job title is 'Financial Data Analyst - Office of Research and Project Administration' with a job posting number of 5765. The location is New York, NY, and the date is September 16, 2015. The company overview states that MSK is a top hospital for cancer by U.S. News & World Report. The job description details the role of a Financial Data Analyst within the Research Financial Planning unit of the Office of Research and Project Administration (ORPA). The qualifications require a Bachelor's degree with 3 years of data analysis experience and familiarity with relational databases, Excel, and SQL.

Memorial Sloan Kettering Cancer Center | Home | Why MSK | Career Areas | Veterans | Locations | Job Search | FAQs

Financial Data Analyst - Office of Research and Project Administration

Job Posting Number: 5765
Professional - Finance
New York, NY
September 16, 2015

Apply
Add to cart

Company Overview:

At Memorial Sloan Kettering (MSK), we're not only changing the way we treat cancer, but also the way the world thinks about it. By working together and pushing forward with innovation and discovery, we're driving excellence and improving outcomes.

For the 26th year, MSK has been named a top hospital for cancer by U.S. News & World Report. We're treating cancer, one patient at a time. Join us and make a difference every day.

Job Description:

The **Financial Data Analyst**, within the Research Financial Planning unit of the Office of Research and Project Administration (ORPA), is an integral member of a team that is responsible for the financial data coordination and analysis of Research Enterprise budgets, expenditures, and related activities.

Under the direction of the Sloan Kettering Institute (SKI) Finance Manager, you will:

- Work to identify, summarize and report on financial trends that impact SKI using data from various tools (SQL, Access, TM1, Cognos, Excel)
- Participate in departmental projects, develop and maintain reports
- Monitor the overall operating and capital expense and revenue budgets and ensure that spending levels are consistent with forecasts
- Review and approve indirect cost expenditures
- Coordinate the use and access to system data in cooperation with Research and Technology Management's Information Systems Support Department
- Work with the other units within ORPA to create reports and analyze data needed for operational decisions.

Qualifications:

Bachelor's with 3 years of data analysis experience. Extensive familiarity with relational databases, Excel, and SQL. Bachelor's degree in Business or Information Systems with grants management and budgeting experience highly preferred.

Closing:

Sloan Kettering is a medical research center!

2019 QuantNet Ranking of Best Financial Engineering Programs

Program	Total score	Peer assessment	Employment rate at graduation	Employment rate three months after graduation	Average starting base salary (excluding bonus)	Average GRE Quant of admitted FT students	Tuition	Class Size
Princeton University Master in Finance Princeton, NJ	100	3.9	100%	100%	\$120,000	169	\$102,500 (2 years)	25FT
Baruch College, City University of New York Financial Engineering New York, NY	99	4.0	97%	97%	\$109,339	169.5	\$42,395 (non-resident), \$28,670 (resident)	35FT, 5PT
University of California, Berkeley Financial Engineering Berkeley, CA	99	4.2	80%	94%	\$118,322	168	\$70,796	79FT
Carnegie Mellon University Computational Finance Pittsburgh, PA	98	4.4	71%	90%	\$106,222	169	\$86,339	97FT
Columbia University Financial Engineering New York, NY	98	3.9	83%	100%	\$104,656	169.3	\$72,648	120FT
New York University Mathematics in Finance New York, NY	98	4.0	86%	100%	\$99,000	169	\$72,000	39FT, 13PT
Cornell University MEng, FE concentration	90	3.7	68%	87%	\$93,000	168	\$78,000	56FT

Hints for apply!



- Canada offers a variety of programs, Masters in Financial Engineering is one of the many courses that are often approached by local as well as international students in this country.
- Scope of Masters in Financial Engineering, ease of employment, the further possibility of settlement and variety of top-class facilities are attractions of education in Canada.
- The University of Toronto and the University of Ottawa are the top-ranking universities in the country, providing this program with a splendid curriculum.

Hints for apply!



- Admission requirements for Masters in Financial Engineering in Canada include entrance exam GMAT and GRE, English proficiency test IELTS or TOEFL scores, Bachelors in Engineering, CV/Resume, and Letter of recommendation.

TOEFL : 95

IELTS : 7

GRE : Accepted

- Overall score equivalent to the GMAT score

GMAT : Accepted

- Minimum recommended score of 630

Hints for apply!



- The United States of America is home to several top-ranked universities in the world like Stevens Institute of Technology, Baruch College and Harvard University.

TOEFL : 98

IELTS : 7

GRE : Accepted

•Overall score equivalent to the GMAT score

GMAT : Accepted

•Minimum recommended score of 630

Hints for apply!

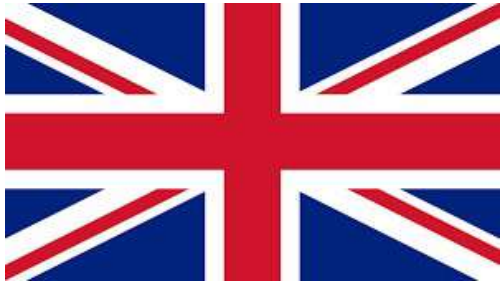


- Providing an insight into international culture and lifestyle, studying in Australia is truly holistic experience. Pursuing masters in financial engineering is a wonderful approach to unfold its excellence. University of New South Wales and Monash University offer an astounding program in the same.

Requirements for applying to this program include English proficiency test IELTS or PTE for student visa purpose, Letter of Recommendation and CV/Resume.

Entrance exam GRE and GMAT are not required for admission in Australian universities.

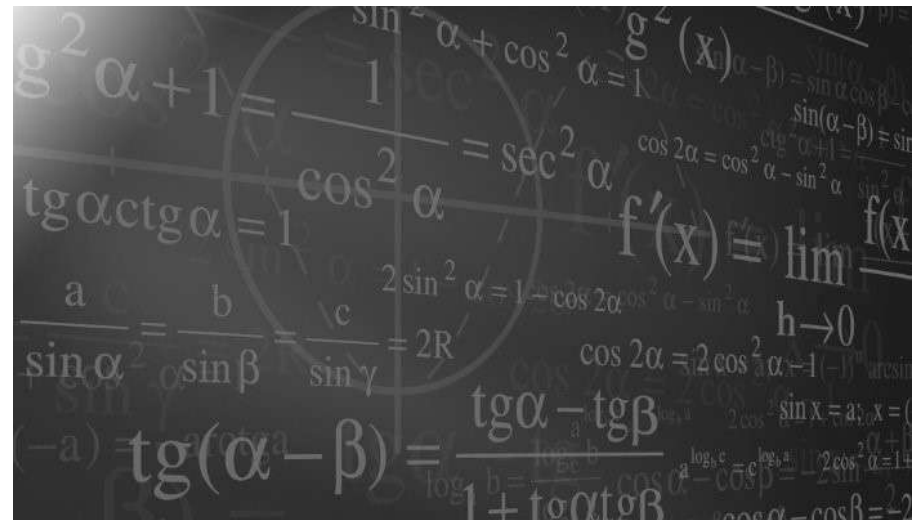
Hints for apply!



- University of Cambridge and University College London secure a position in the top 10 worldwide universities offering this course.
- The basic requirement for admittance in UK universities is a GRE and GMAT score which is mandatory and English proficiency test IELTS or PTE is required for visa purpose.
- In depth and precise detailed information for international student eligibility criterion can be acquired from the chosen university.

Quantitative Finance Research

- Pricing Models
 - Equity Derivatives (Local Volatility Models, Stochastic Volatility Models)
 - Variance Derivatives
 - Commodity and Interest-rate Derivatives
- High-frequency Trading
 - Market Microstructure
 - Data Mining
- Risk Management
 - Systemic Risk
 - Credit Risk
- Quantitative Portfolio Management
 - Hedge Fund Replication
 - Pension Fund Management
- And more...



Global Vision



- Are you ready to compete in fierce global market?
 - Eastern Asia
 - US
 - Europe
 - Middle East
- Are you ready to position yourself in fast-pace FinTech environment?
- Are you ready to take on more responsibilities to lead people and create opportunities?

How do I get into the field?

- Work hard
- Plan Smart
- Just do it!





I think one problem we've had is that
people who are smart and creative
and innovative as engineers went
into financial engineering.

Walter Isaacson