What is financial engineering?

Financial engineering refers to the mathematical modeling, quantitative research and analysis involved in pricing, selling, trading and investing in a wide range of financial instruments. These can include stocks, bonds, foreign currencies, commodities and a virtually unlimited array of so-called derivatives (options, futures and swaps) whose payoffs are linked to prices of underlying assets.

“I really enjoyed the UCLA Anderson MFE’s geographical and professional diversity. We were all different in terms of age, work experience and wisdom; but at the same time we were all the same in terms of our thirst for knowledge and our desire to make an impact.”

VITALII IHNATIUK (‘14)
FROM:
Kiev, Ukraine
PRE-MFE DEGREE:
B.A., Economics, National University of Kiev
CURRENT POSITION:
Analyst, Electronic Trading Strats Team, Morgan Stanley, New York, NY
Where do financial engineers work?

Financial engineers pursue rewarding careers in a variety of areas: some work within banks that create, sell and trade financial instruments, also known as the “sell side”; and many work on the “buy side” within investment firms, mutual funds, hedge funds or corporations and governments that need to earn a return on their investors’ money, raise capital and manage various risks.

“As a UCLA Anderson MFE student, I was able to network with hedge fund managers and secure an internship offer from an industry advisor on the MFE Board. The experience helped me become more qualified to pursue a career as a quantitative researcher in the hedge fund world in New York.”

ANDREA OVELAR ('14)
FROM:
Caracas, Venezuela
PRE-MFE DEGREES:
B.S., Electrical Eng., University of Simón Bolívar; M.S., Computer and Communication Networks Engineering, Polytechnic University of Turin
CURRENT POSITION:
Quant Research Associate, TPG, New York, NY
Sample of Internship and Full-Time Employers


Examples of Financial Engineering Jobs

COMPLEX ASSET ANALYST
Values financial derivatives and other complex securities, and analyzes equity/debt/commodities market data and history using time series analysis, Monte Carlo simulation, multivariate statistics and other quantitative techniques.

RISK ANALYST
Responsible for producing daily and weekly market risk reports that monitor factor sensitivity, Value At Risk (VAR) and issuer exposure against independent market risk limits. The analyst performs audits and stress tests and maintains data metrics to measure the market risk infrastructure.

“The MFE program taught me how best to apply my technical and analytical skills toward the financial services industry while giving me the support of UCLA Anderson and access to world-class faculty.”

TODD GROTH (’10)
FROM: San Diego, CA
PRE-MFE DEGREES: B.S., Mechanical Engineering, UC San Diego; M.S., Mechanical Engineering, UCLA
CURRENT POSITION: Vice President, Investcorp, New York, NY

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ENTRY-LEVEL QUANT STRATEGIST
Performs statistical and economic research to develop new investment strategies and improve current investment strategies; applies risk control methodologies related to classic hedge fund strategies and researches portfolio management; analyzes performance attribution.

DESK STRATEGIST
Responsible for creating valuation models, trading strategy analytics and risk and valuation tools used by traders and fellow desk strats to better understand risk and to better identify market opportunities.

HEDGE FUND STRATEGY RESEARCHER
Performs statistical and economic research to improve and develop new investment strategies; implements risk control methodologies related to different strategies; analyzes portfolio performance attribution; and performs daily account rebalancing.

ALGORITHMIC TRADER OR DEVELOPER
Works closely with other traders in identifying new markets and strategies most suitable for algorithmic trading; designs and implements new algorithms and optimizes their performance.

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