The Berkeley MFE

Master’s in Financial Engineering

Leading Through Innovation

Printed on 100% recycled paper
The Berkeley Masters of Financial Engineering Program provides you with the knowledge and skills to prepare you for a career in the finance industry. In one year, you will be ready to take a leading role in a fast-growing field that demands individuals who can apply their education and skills at the cutting edge of finance in investment banks, commercial banks, and other firms around the world.

Benefits:
A proven track record of successfully launching careers of its students in the world’s top financial centers.
- Benefit from highly personalized career services provided by a program team with the connections, reputation, and knowledge necessary to help secure top jobs at the most selective firms.
- See immediate return on investment: 100 percent of graduates received job offers in each of the previous four years at the highest average starting salary of any similar program.

A rigorous one-year curriculum developed by a world-class business school, and taught by some of the most distinguished names in finance.
- Gain an in-depth understanding of the underlying frameworks of financial markets, and benefit from a rigorous application-oriented curriculum that prepares you to work as a financial engineer after graduation, starting on day one.
- Experience firsthand the ideas and practices shaping the financial engineering industry during an intense 12-week internship at a major firm.

A collaborative, team-oriented, and powerful professional and personal network for life.
- Immerse yourself in an intellectually stimulating environment where you not only learn from faculty comprised of some of the best minds in finance, but also from your fellow classmates who represent a wide range of interesting backgrounds and experiences.
- Develop lifelong friends and powerful, global connections as a member of the Haas School’s vast alumni network.

The Berkeley MFE Program has been ranked #1 by Global Derivatives and named one of the top 10 quant schools by Advanced Trading magazine. In 2008, eight Berkeley MFE students were named to Advanced Trading’s annual Quant Gold Book, which lists the nation’s top 18 rising stars in quantitative finance.
Kingsley Oteng-Amoako  
**MFE 09**

**Previous degrees:**  
BSc, Electrical Engineering  
University of Canterbury, New Zealand  
Ph.D., Electrical Engineering  
University of New South Wales, Australia

**Previous job:**  
Quantitative Analyst,  
Goldman Sachs Research Team  
Macquarie Capital Group, Sydney, Australia

**Internship:**  
Barclays Global Investors, San Francisco, California

Kingsley left a brief but promising career as a quantitative analyst with a leading investment bank in Australia to immerse himself in financial theory and how these theories are applied in the real world. After researching just about "every quant program around the world," he found the blend of theory and practice he wanted at Haas.

**Short, Intense, Rewarding**

"Having spent eight to nine years at a university, the short duration of the Berkeley MFE was a definite plus. That said, its shortness means you work very hard while you are here, and nothing is spoon-fed to the students. Just about every lecture I’ve attended provided insights into aspects of the financial industry that would have been difficult to gain purely by on-the-job experience.

**Competitive and Collaborative**

"The Berkeley MFE Program presents an excellent curriculum, world-renowned professors, and a competitive—but collaborative—study environment. It makes you aware of the possibilities and gives you the skills and confidence to take an idea and run with it in the real world as a financial professional.

**The Berkeley Way**

"I had heard about the Berkeley MFE and was pleased to see that it was indeed everything I heard about. In part, that the professors are confident in their views but don’t go overboard in trying to convince you that theirs is necessarily the only way. They give us enough respect to allow us to challenge their ideas, to engage in healthy discussions of other points of view, even outside regular class hours."

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Aya Bellicha  
**MFE 09**

**Previous degrees:**  
BSc, Electrical Engineering/  
Computer Science  
Tel Aviv University, Tel Aviv, Israel

**Previous job:**  
Electrical Engineer  
Marvell DSPC, Israel

**Internship (and full-time placement):**  
Duff & Phelps, San Francisco, California

"I took a few courses in the MBA program at Tel Aviv University and soon realized that I was most interested in the finance-related courses. I started looking for a program with a more quantitative approach to finance. The Berkeley MFE gave me that. The program is very practical, and it’s obvious how applicable my Haas courses will be in the workplace.

"The faculty designs its courses with the real world in mind. Most instructors are, or have been, practitioners. They teach the fundamentals and give us on-the-ground insights into today’s turbulent marketplace. For example, Professor Tavella’s course, Derivatives: Quantitative Methods, is relevant to the valuations I am doing in the financial engineering department at Duff & Phelps."
Opening Doors to Your Future

Krishnan Rattan MFE 03 (left)
Director
Deutsche Bank
London, U.K.
Internship:
Morgan Stanley, New York City, New York
"The fact that Haas was one of the first MFE programs attests to the innovation at Berkeley. There was a tremendous intellectual energy that breeds new ideas. "Since I didn't know just where my career would take me, I chose electives that were intellectually interesting. The balance of theoretical and market-facing coursework offered at Haas has served me well."

Delphine Bouyssarie MFE 08 (center left)
Associate, Equity Derivatives Sales Strategies
Goldman Sachs, London, U.K.
Internship:
Goldman Sachs, New York City, New York
"Because the Haas program is housed in the business school, it was better situated to give me the real-world, financial industry perspective I wanted. "I came to Haas looking for a more practical, hands-on education to complement my background in theoretical, financial math. The MFE program helped me understand how financial math works in the real world."

Luca Barone MFE 05 (center right)
Credit Correlation Trader
Goldman Sachs, London, U.K.
Internship:
Goldman Sachs, London, U.K.
"The brightest people at Berkeley teach in the Haas MFE program. It means so much to listen to the people who wrote the textbooks, to hear the authors explain their work to you. "When I started my internship, I felt my Haas courses had prepared me to start contrib- uting from day one."

Thomas LaRowe MFE 04 (right)
Product Specialist, Fund-Linked Derivatives
Barclays Capital,
London, U.K.
Internship:
Elektrabel, Brussels, Belgium
"The Haas program exposes you to every aspect of the financial industry. It's an unrivaled opportunity to explore and decide what interests you most. "The return on investment on my degree was everything I could have hoped for, intellectually and practically."

When you join the Berkeley MFE Program, you are one year away from turning your specialized training in trading, risk management, derivatives, and commodities investments into a successful career in finance, strategy, or risk assessment. Haas has an unrivaled history of helping students secure top jobs—Berkeley MFE alumni are well established members of premier firms in the world's top financial markets, such as New York, London, and Tokyo.

The Haas School's resources, its deep ties to global firms, and its highly personalized services will provide you with the tools and connections you need to launch the next stage of your career. Employers seek out Berkeley MFE students because they demonstrate not only a mastery of powerful financial engineering tools, but also a solid understanding of the best practices for the changing technological, global, and human dimensions of finance.
A highlight of the Berkeley MFE experience is your 12-week internship. This gives you hands-on experience and ongoing connections with practitioners at firms such as Citibank, Barclays Global Investors, Goldman Sachs, and Morgan Stanley. These connections have often led to careers at these firms. Your internship gives you immediate opportunities to refine your skills and marketability and helps you build your professional network.

### The Internship Advantage

Beginning during orientation, the program office helps to focus you on the internship phase of the program. Staff members work directly with you to uncover and secure your placement at a top finance firm.

In the fall of 2008, every student who sought an internship secured one, at an average monthly salary of $7,562.

To prepare you for your internship search, an on-site consultant provides large and small group sessions covering topics such as interview and résumé writing skills. Both the consultant and program staff are available for one-on-one appointments to help you address the career challenges specific to your needs. The program director also frequently addresses the class to give updates on the internship and job search processes.

Early in the program, you will have the opportunity to take advantage of “Super Saturday,” a full day of mock interviews with alumni and field professionals aimed at preparing you for your internship interviews. Actual interviews with corporate representatives are held by appointment at Haas, as well as via telephone or video conferencing.

“Professional network.

### A Premier Internship Program

- **2008 Internship Statistics**
  - 100% of students sought MFE internships [65/65]
  - 100% of students seeking internships held internships [65/65]
  - 100% of internships were paid [65/65]
  - Average Internship Salary: $7,562/mo
  - Median Internship Salary: $7,177/mo

- **Real-World Experience at Top Global Firms**
  - AXA Rosenberg
  - Babcock & Brown
  - Bank of America
  - Barclays Capital
  - Barclays Global Investors
  - BNP Paribas
  - BNP Paribas Securities (Japan) Limited
  - Citigroup
  - DRW Trading Group
  - Duff & Phelps, LLC
  - Fitch Ratings
  - Global Energy Decisions
  - Goldman Sachs
  - Intel Corp.
  - KPMG
  - LRG Capital Group
  - MBIA Insurance Corporation
  - Mellon Capital Management
  - Microsoft Corporation
  - Moody’s KMV
  - Morgan Stanley
  - MSCi Barra
  - Pacific Investment Management Co. (PIMCO)
  - Prisma Capital Partners
  - Shinsei Bank
  - State Street Global Advisers
  - Wachovia Securities
  - WR Hambrecht & Co.
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A Clear Path to Your Ideal Job

The Berkeley MFE Program’s highly regarded reputation in the finance community and its well-established relationships with managers and executives at the most prestigious firms provide you with an ideal gateway to the job you want after graduation.

A Proven Track Record

Throughout the year, the MFE program staff is working hard behind the scenes to uncover job opportunities at dozens of leading firms, and to work with those companies and with you to determine the best possible career fit. The Berkeley MFE Program is distinguished by its ability to help students garner job offers from the most desirable companies. Despite the ever-changing economic environment, the Haas School’s record is impeccable—100 percent of MFE graduates seeking full-time employment received job offers in each of the previous four years.

Continuous Personalized Career Services

From your first day as a Berkeley MFE student, the program office works to prepare you to achieve your career goals. Orientation week gives you an initial overview of job opportunities, market trends, and skill sets. Real-world interaction with industry-leading companies starts immediately with a trading-game simulation conducted with representatives from Wells Fargo. Other introductory sessions cover various topics in depth, such as résumés, ethics, and internship preparation.

The program offers a wide range of continuous personalized services, including help with individual career planning, résumé writing, and interview preparation. Group workshops, panels, networking events, and receptions offer valuable information specific to all phases of the career search. The Haas School also hosts two career fairs specifically for MFE students. The October career fair in New York, co-hosted by the International Association of Financial Engineers and New York University, typically draws more than two dozen top financial firms. A second fair, held in San Francisco, draws more than 40 organizations.

Your Worldwide Network

Careers support does not end after graduation. From your first day as a Berkeley MFE student, you have access to one of the best professional networks on the planet. More than 30,000 business school graduates are connected by the robust Haas Alumni-Network; with alumni chapters in major cities around the globe. The Haas online alumni community, Haas@Cal, the focal point for alumni connections and services, facilitates keeping up with friends from school and developing professional networks. The online community offers Haas students and alumni a searchable alumni directory, online job postings, lifelong e-mail forwarding options, and various career resources.

A Record of Success

2008 Full-time Employment Statistics

<table>
<thead>
<tr>
<th>Industry-leading Results</th>
<th>2008 Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Offers: 96</td>
<td>Alan Biller &amp; Associates</td>
</tr>
<tr>
<td>Total Students with Offers: 63</td>
<td>Bank of America</td>
</tr>
<tr>
<td>% of Students with Offers: 100%</td>
<td>Barclays Capital</td>
</tr>
<tr>
<td>% of Students Placed: 61</td>
<td>Barclays Global Investors</td>
</tr>
<tr>
<td>% of Students Placed: 97%</td>
<td>BNP Paribas</td>
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<tr>
<td>Average First-year Compensation: $153,073</td>
<td>Charles Schwab &amp; Co.</td>
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<tr>
<td>Median First-year Compensation: $147,500</td>
<td>Cit</td>
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<tr>
<td>Average First-year Bonus: $52,288</td>
<td>Cm Capital Management</td>
</tr>
<tr>
<td>Median First-year Bonus: $44,000</td>
<td>Duff &amp; Phelps</td>
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<tr>
<td>Average First-year Base Salary: $105,061</td>
<td>Gifford Fong Associates Inc</td>
</tr>
<tr>
<td>Median First-year Base Salary: $80,000</td>
<td>Goldman Sachs</td>
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The Berkeley MFE Program helps students find careers all over the world, including Tokyo. Three of the program’s recent alumni in Tokyo include (left to right) Nick Sonnenberg, MFE 07, with BNP Paribas; Kunai Kanodia, MFE 06, with Shinsei Bank; and Mu Li, MFE 07, with Goldman Sachs.
The Berkeley MFE Program is a professional degree program with a curriculum intended to prepare you to work as a financial engineer immediately after graduating. Anchored in the latest theories and best practices in quantitative finance, MFE courses are designed exclusively for MFE students, and are seamlessly integrated with one another. This cooperation between course material allows the mathematical, statistical, and computer science methods to be integrated with the theoretical framework and institutional settings in which they are applied. For example, macroeconomics is taught in relevant context in the fixed income markets course, during the discussion of term structure, and during the equity and currency markets course, in the context of exchange rate determination. Similarly, insurance concepts are introduced in the advanced derivatives courses where students can easily understand their relation to similar products.

**Structured for Success**
The MFE requires only one year of study, which makes it attractive to students with strong quantitative skills and focused career interests. The program kicks off with an informative and social week-long orientation. During the week-long introduction to the program, you’ll get to know other new students and gain a sense of what the classroom experience will hold. The orientation features team-building exercises and lectures, and workshops on special topics, including a thorough overview of the job market and career resources.

MFE students must successfully complete 28 units of coursework plus an internship or on-site project. Because of the school’s reputation and close ties to the best firms, Haas has an exceptional record of helping students secure internships, consistently placing nearly 100 percent of students each year.

**Applied Finance Project**
In addition to the internship, MFE students are required to complete an applied finance project that develops or uses quantitative finance tools and techniques learned in the program or internship. Students have the option of completing a one-credit project or three-credit project. Each year, the $5,000 Gifford Fong Award is given to the best three-credit project. In 2008, the prize was shared.

**Benefit from Industry Expertise**
The curriculum also includes weekly Financial Practice Seminars featuring a diverse slate of finance practitioners. In the first term, speakers discuss jobs available to graduates of the MFE Program and the skills needed to contribute to a firm’s mission. In the second term, speakers provide insights into the way the financial world is changing: new products and needs; and similar topics.

**Preparing You to Make an Immediate Impact**
Margit Zwemer
MFE 09
Previous degree: BS, Mathematics
Stanford University, Stanford, California
Internship: Goldman Sachs, London, U.K.

Two years of travel between completing her undergraduate studies with honors and embarking on her MFE studies gave Margit the chance to explore the world and gain new skills. It also gave her the time to reassess a future in academia as a mathematician or professor. She decided to move away from the theoretical track she pursued earlier in favor of applying her strong math skills in a business setting.

**Innovation is the Expectation**
“From the beginning, our professors emphasized their expectation that we would innovate in the classroom, in our projects and in the way we think. We are expected to apply the tools and skills we’re learning in new ways, to develop new products and approaches, not just to re-invent what has already been done.”

**Constantly Evolving Curriculum**
“This curriculum is constantly evolving. The professors do a great job of keeping their teaching relevant, which in today’s uncertain economy means constantly updating lectures and projects to stay ahead of current events.”

**The Complete Package**
The Berkeley MFE Program puts a lot of emphasis on making you the ‘complete package.’ The program realizes that even the most brilliant student can’t succeed if he can only talk to another quant. There’s a lot of emphasis on communication and interpersonal skills through small group work, mock interviews, and résumé review. These intangibles are what help set Haas grads apart.”
The Berkley MFE Curriculum

Curriculum Overview

Spring (8 weeks)

Fundamentals of Financial Economics
MFE 230A (2 units)
Covers the basic theories of asset pricing, from standard discounted cash-flow analysis to No Arbitrage Pricing technique for security valuation. Applications include fixed-income securities, derivatives, and contingent claims.

Empirical Methods in Finance
MFE 230C (3 units)
Covers the probability and statistical techniques commonly used in quantitative finance. Students use estimation software in exercises to estimate volatility, correlations, and stability.

Introduction to Stochastic Calculus
MFE 230Q (2 units)
Presents the concepts and tools of stochastic calculus as required for effective pricing of complex financial derivatives in continuous time, and introduces the fundamentals of elementary numerical analysis. The course stresses the practical applications of stochastic differential equations, its integrals, and measure transformations as required for advanced financial engineering practice and understanding of asset pricing theory.

Financial Institutions Seminar I
Practice Seminar’s I and II. Feature guest speakers from financial services firms discussing the work of financial engineers in their firms and the kinds of skills and personal attributes they are seeking for this work. Trends in the provision of financial services, the information and computing systems being adopted, new product development, regulatory issues, and similar topics.

Derivatives: Economic Concepts
MFE 230C (2 units)
Introduces the use and pricing of derivatives. Topics include basic features of futures and options, binomial and trinomial option pricing, the Black-Scholes formula, volatility, measurement, dynamic trading strategies, and exotic options. Course emphasis is economic intuition rather than detailed quantitative analysis, with techniques and arguments developed using the simplest possible mathematics.

Derivatives: Quantitative Methods
MFE 230Q (2 units)
Emphasizes the pricing of derivatives in continuous time, from the formulation of the pricing problem to the implementation of computational and numerical solution techniques.

Fixed Income Markets
MFE 230I (2 units)
Provides a quantitative approach to fixed- income security analysis and bond portfolio manage- ment with a focus on fixed-income security markets, the pricing and uses for portfolio management, and hedging interest rate risk.

Accounting and Taxation of Derivatives
MFE 230N (1 unit)
Helps financial engineers understand the implications of the innovative financial instruments that they construct on firms financial statements and tax liability.

Financial Institutions Seminar II
Practice Seminar’s I and II. Feature guest speakers from financial services firms discussing the work of financial engineers in their firms and the kinds of skills and personal attributes they are seeking for this work. Trends in the provision of financial services, the information and computing systems being adopted, new product development, regulatory issues, and similar topics.

Summer (8 weeks)

Required Course:
Financial Risk Measurement and Management
MFE 230H (2 units)
Examines financial risk measurement and management, including market risk, credit risk, liquidity risk, settlement risk, model risk, volatility risk, and kurtosis risk.

Choose 5 units of electives:
Advanced Computational Finance
MFE 230R (2 units)
Deals with numerical and computational issues in pricing and calibration, and builds on the techniques learned in Derivatives: Quantitative Methods. Emphasis is on hands-on case projects with heavy use of computational techniques.

Success and Failure in Financial Innovation
MFE 230J (1 unit)
Students participate in a series of case studies including portfolio insurance, long- term capital management, mortgage-backed securitization, exchange-traded funds, capital structure arbitrage, and corporate enterprise- wide risk control.

The Design of Securities for Corporate Financing
MFE 230P (1 unit)
Students are asked to solve real securities markets play in solving financial objectives of issuers of securities and investors. Case analysis and strategic decision-making are emphasized.

Credit Risk Modeling
MFE 230V (2 units)
Provides exposure to the practical challenges associated with building and testing credit risk models for use by banks and asset managers. Emphasis is placed on model building, model valuation, and interpreting model output.

Equity & Currency Markets
MFE 230G (2 units)
Reviews equity and currency markets with an emphasis on modeling with historical evidence. Volatility, volume, high-frequency dynamics, and dealer behavior in currency markets are considered. Practical considerations used in the implementation of various strategies are considered.

Fall (8 weeks)

The Internship/Special Topics in Finance project begins in mid October and ends in early January. Students must enroll in MFE230N, the Internship/Special Topics in Finance course for the fall term.

Choose 7 units of coursework:
Asset-backed Security Markets
MFE 230M (2 units)
Explores advanced topics in mortgage and other asset-backed securities. Students apply the latest tools in fixed-income analysis and classic economic and financial models to evaluate securitized bond markets.

Dynamic Asset Management
MFE 230K (2 units)
Covers the strategies for achieving various investment objectives for portfolios/instruments (equity, fixed income, currency, mortgages, non-traded assets) and applications (investment funds, pension funds, insurance companies, bank investment and advising).

Behavioral Finance
MFE 230S (2 units)
This course covers elements of behavioral decision theory and its implication in financial markets. Focus is on the psychological processes by which people make judgments and decisions, and the heuristics and biases associated with these decisions.

Applied Finance Project (Required)
MFE 230N (1 - 3 units)
This is an applied project exploring an unresolved finance problem that is met in practice and involves the development or use of a quantitative financial technique.

Independent Study
(1 - 3 units)

Winter (8 weeks)

Real-World Technology Environment
The Haas School’s MFE labs provide students with the opportunity to learn in similar state-of-the-art environments to those they will use in the business world, complete with the latest software and databases.

MFE research computing laboratories are equipped with dual flat-panel display Dell Precision workstations. Each workstation has the latest software and tools available for research and practice. Programs such as MATLAB, SPSS, Eviews, and Mathematica are available in the labs and remotely through the Haas Unix research server and the Haas Wireless terminal servers. Visual C++, Visual Basic, Fortran, and other software development tools are also available. The Berkeley MFE Program provides you with exclusive access to Datalink and Bloomberg terminals located inside the main teaching laboratory. Throughout the year, the MFE Program offers additional classroom sessions on the use of applications and data sources. These sessions provide training and support for course projects and keep faculty and students updated on advances in financial tools and technology.

Comprehensive Research Libraries
The Long Business and Economics Library supports student course assignments and faculty research. The library provides access to business databases and journal archives such as the library’s CD-ROM networks, Datalink, CompuStat, CRSP, Research on Demand (RdD), Factiva, Global Financial Database, JSTOR, Business Source Premier, and Lexis-Nexis Academic.

Center for Innovative Financial Technology
The Center for Innovative Financial Technology (CIFT) at the Haas School of Business conducts and facilitates innovative research and teaching on how new technologies impact global electronic, markets, and the stability of the financial system. The Center uses state-of-the-art facilities, tools, data, and modern web approaches to accumulate and share expertise among faculty, students, industry, and academic collaborators.

* Not all electives are offered each term.

Insights from Industry Experts
The Financial Institution Seminars I and II series bring industry leaders to the MFE classroom to share their insights on building successful careers in the financial industry. Jean-Marc Orlando (lab), head of e-commerce trading at BNP Paribas, addressed the MFE class last year. Over the past two years, more than 50 industry leaders have shared their knowledge and insights on the practical aspects of the Financial Practice Seminars series. Recent speakers have also included Arnold Myamoto, managing director of Citigroup, and Joseph Langsam, managing director of Morgan Stanley.
Thought Leaders, Innovators, and Practitioners

Berkeley MFE faculty members are renowned groundbreakers and thought leaders in the field of quantitative finance. In addition to undertaking preeminent research that feeds directly into the curriculum, many of these scholars also have practical experience in the creation of financial instruments and software, as well as the implementation of innovative financial strategies.

**Pioneers of Financial Engineering**

Many Haas School faculty members have long stood at the forefront of the quantitative finance industry. For example, Professor Mark Rubinstein is renowned for his work on the binomial options pricing model (also known as the Cox-Ross-Rubinstein model), as well as his early work on asset pricing. He is currently an associate editor of eight journals in these areas. In 1993, he served as President of the American Finance Association. Many of Rubinstein’s papers are frequently reprinted in survey publications, and he has won numerous prizes and awards for his research and writing on derivatives including International Financial Engineer of the Year for 1995.

Like Rubinstein, Faculty Director John O’Brien was an early innovator in the investment consulting space. Before joining Haas, O’Brien served as Chairman of the Capital Market Fund, and the S&P 500 SuperTrust, the first exchange-traded fund. He later co-developed the O’Brien 5000 common stock index, later renamed the Wilshire 5000 index, currently the nation’s broadest-indexed fund, considered by many to be the most accurate reflection of the overall market. In 1987, O’Brien was named one of Fortune Magazine’s Men of the Year.

**Professional Faculty Drawn From Business**

In addition to having early innovators and scholars, the Berkeley MFE faculty also draws from some of the most successful minds in today’s business community. For example, Lecturer Jeffrey Bohn leads the Financial Strategies group at Shinsei Bank in Tokyo, following his role as head of Moody’s KMV’s Global Research group. The faculty also includes Barst’s Global Investors executives Ronald Kahn, managing director and global head of equity research; Michael Melvin, managing director and head of currency research; and John Martinez, former director of the firm’s iShares, Inc.

Berkeley MFE faculty have also played important roles in the national and international business communities, serving as consultants, board members, and speakers at major business conferences and seminars. Professor Dwight M. Jaffee has been an advisor to the World Bank, the Federal Reserve System, the Office of Federal Housing Enterprise Oversight, and the US Department of Housing and Urban Development.

**Berkeley MFE Faculty**

Finance Professor Hayne Leland won the first-ever Stephen A. Ross Prize in 2008 from the Foundation for the Advancement of Research in Financial Economics (FARFE) for his research in corporate debt pricing and capital structure. A consortium of finance academics and practitioners from around the world, the foundation created the $100,000 prize last year to recognize and encourage research in financial economics—a field that explains the underpinnings of corporate finance and capital markets. Leland won the award for his 1994 Journal of Finance paper, “Corporate Debt Value, Bond Covenants, and Optimal Capital Structure.” The paper analyzed how firms determine the optimal mix of debt and equity to acquire funding at the lowest cost.

**Nancy Wallace**

Ph.D., University of Michigan

Long before the meltdown of the subprime mortgage market and subsequent collapse of staple investment banks, Professor Nancy Wallace’s research determined that Wall Street banks and bond-rating agencies were underestimating the risk of many new mortgage- and asset-backed securities.

MFE students benefit from Wallace’s experience and insight as they examine and evaluate the structure and operation of the securitized bond markets in her Asset-backed Security Markets course. A central project has them work together to invent structures for new securities. In the past, these projects have tackled a wide range of interests areas, from traffic flow issues to energy efficiency and environmental challenges.

“We have had wonderful success with these projects because the students are amazingly creative and innovative,” says Wallace. “It’s exciting to see what they come up with.”

Wallace believes the Berkeley MFE curriculum is successful because it is the most balanced quantitative finance program of any university. “Haas offers the best mix of technology taught in the context of its business and economic applications,” she says. “We’re not just training people to sit in a back room and crunch numbers—Haas develops highly sophisticated problem-solvers who become managers of firms and leaders of industries.”

Despite today’s volatility, Wallace remains confident for highly skilled finance experts remains strong. “There will always be a need to transform unseizable investment classes into more securable entities,” she says, “and the demand for risk managers is going to grow substantially for organizations such as the Federal Reserve, the Securities and Exchange Commission, and the Treasury Department.”

“Highly trained people are going to have plenty of opportunities. The importance of innovation is not going to go away.”
The cornerstone of the entire Berkeley MFE program is its distinguished faculty and the high quality of their courses. At Haas, effective teaching is the top priority. MFE faculty members have regularly earned a median score of “Club 6” in their student evaluations—that is, their median ratings are 6 or higher on a 7-point scale.

In the Berkeley MFE classroom, faculty members emphasize both theory and practice by using a variety of teaching methods. Case studies, seminars, simulations, guest speakers, and group projects all facilitate the learning process. Classroom learning is enhanced by numerous opportunities to apply the lessons to real-world situations.

Professors regularly integrate their research findings into new course offerings and reassess the MFE curriculum to ensure its relevance in presenting current issues. In their courses, students benefit by being among the first to learn of faculty discoveries and by studying directly with the inventors of yesterday’s and tomorrow’s innovative theories and principles.


Gregory LaBlanc, Lecturer in Finance, Strategy, and Law. B.A. (history, politics, philosophy, and economics), University of Pennsylvania. BS (economics), Wharton School. JD (corporate and securities law), George Mason University, LLM program, UC Berkeley.


Richard K. Lyons, Bank of America Dean and Professor. Ph.D. (economics), Massachusetts Institute of Technology. Foreign exchange markets: volatility, valuation, high frequency dynamics, dealer behavior; micro-institutional approach to foreign exchange; transparency in dealership markets. Trustee for Matthews International Funds.

Jeffrey Bohn, Managing Director, Financial Strategies Division, Shinsei Bank. Ph.D. (finance), University of California, Berkeley. Risky debt valuation, credit derivatives, banking, risk management, and global portfolio management.

Gregory Duffee, Assistant Professor. Ph.D. (economics), Harvard University. Pricing and trading credit risk. (theoretical and empirical), term-structure modeling, risk management of financial institutions. Formerly a member of the Trading Risk Analysis group at the Federal Reserve Board.


Dwight M. Jaffee, Willis H. Booth Professor of Banking & Finance, Ph.D. (economics), University of California, Berkeley. Catastrophe insurance financing. Board of Directors Barr Rosenberg Mutual Funds. Visiting Scholar, Federal Reserve Bank of San Francisco.

Mukesh Bajaj, Managing Director of Finance and Damages Practice and Board of Directors, LECG, LLC. Ph.D. (finance), University of California, Berkeley. Corporate finance and financial strategy, dividend policy, capital structures, and private equity. Associate at Goldman Sachs from 1985 to 1987.


Eric S. Reiner, Managing Director, Group Risk Control, UBS AG, New York and Zurich. Ph.D. (chemical engineering), University of California, Berkeley.


Jeff (Yuqing) Shen, Managing Director, Head of Asia Equity, Barclays Global Investors (BGI). Ph.D. (finance), Stern School of Business, NYU.


John O’Brien, Adjunct Professor. MS (operations research), University of California, Los Angeles. Faculty Director, Master’s in Financial Engineering Program. Managing Director at Credit Suisse Asset Management (CSAM). Co-founder, chairman, and CEO of the investment firm Leland O’Brien Rubenstein. Co-founder and original chairman & CEO of WildSwife Associates (originally named O’Brien Associates).


Alireza Tchistyi, Assistant Professor of Finance and Real Estate, Ph.D. (business), Stanford, M.S. (applied mathematics and physics), Moscow Institute of Physics and Technology. Financial innovations, mortgage-backed securities, moral hazard, contract theory.

Suneel Udpa, Lecturer. Ph.D. (accounting), Washington University, St. Louis. Evaluating ASPs and reducing costs through outsourcing.

Rosen Valkanov, Assistant Professor. Ph.D. (mathematics), University of Michigan, M.S. (applied mathematics), Massachusetts Institute of Technology. Empirical asset pricing, econometrics, macroeconomics, term structure modeling, properties of long-horizon returns.

Nancy E. Wallace, Professor and Real Estate Group Chair: Ph.D. (urban and regional planning), University of Michigan, M.S. (urban and regional planning). Debt instrument design, mortgage prepayment and valuation models, asset-backed securitization and pricing, real estate price dynamics, real estate returns.

Richard Stanton, Associate Professor. Ph.D. (finance), Stanford University. Mortgage markets—prepayment modeling, valuation and hedging, term structure modeling and valuation of derivative securities, application of nonparametric estimation techniques to the hedging and pricing of derivatives.
Peter Chromiak
MFE 09

Previous degree: BA, Economics
Columbia University, New York City, New York

Previous job: Trading Assistant
MBF Clearing Corporation, New York City, New York

Internship: Spot Trading, Chicago, Illinois

Peter describes himself as a “planner” so it’s no surprise that he organized his search for an MFE program around what he needed to move his career forward: a well-structured program with a strong reputation and a focus on job placement. He also liked the sense of community at Haas, among both students and alumni. Serving as President of the Financial Engineering Student Association gave him the opportunity to strengthen that community.

An Active Student Community

“It’s been fun to help organize events for the entire class—a trip to Tahoe and tickets and a tailgate party for the Cal-Colorado football game. Diversity with a Shared Direction

“My classmates are incredibly diverse in their backgrounds, but we are homogeneous in our goals for the future. When we work together on projects, a classmate with a Ph.D. in physics might help me with the math, and I can help him with the market intuitions and lessons I learned working as a trader.”

Gaining Confidence and Knowledge

“I can’t tell you how much I have learned in my courses, from my professors and my classmates—and I came to the program with practical, trading floor experience. I’ve gained confidence in myself and my understanding of the industry. I feel like I can hold my own in a conversation with seasoned professionals.”

As a student in the MFE program, you join a small, tight-knit community of peers. Teamwork and collaboration are staples of the program, and with only about 60 students in each entering class, you will form close bonds with your fellow classmates as you work together on class projects and activities.

You will also benefit from the larger Haas School community, which is distinguished by a unique and engaged student population that is actively involved in planning world-class events, conferences, and networking functions. While Haas students represent a broad spectrum of programs, backgrounds, and experiences, they all possess the confidence without attitude that Berkeley graduates are known for.

A Wealth of Diversity

Resourceful, intelligent, energetic, and, above all, highly motivated—all of these are hallmarks of Berkeley MFE students. Many students have already achieved significant success in their careers, as well as in their prior academic lives—over half have already earned post-graduate and doctoral degrees in other, related areas of expertise. Most MFE students have backgrounds in quantitative disciplines upon entering the program.

Because they are diverse and unique as individuals, Berkeley MFE students contribute to the wealth of their classmates’ experience while in school, and add great value to one another as fellow alumni in future endeavors around the world. The relatively small size of the MFE program permits students to get to know most members of their class—strong connections develop between faculty and students, and among students.

A Close-knit Peer Network

As a complement to their coursework, students also have the opportunity to get involved in clubs and extracurricular activities. The student-run Financial Engineering Student Association (FESA) represents student interests to the MFE and Haas administrations and coordinates events specifically tailored to MFE program students. In the past, FESA has sponsored activities as diverse as barbecues, bowling, karaoke, dinners, bar nights, and trips to local attractions such as Napa Valley and Lake Tahoe. Many of the events allow students to bring their families.

Coming to Haas means joining the vibrant, thriving community of a top business school at a premier university. From networking mixers to annual conferences, guest speakers to school-wide events, there’s always something happening at Haas. And, as a member of our highly active student community, you will have the opportunity not only to attend these stimulating and exciting activities, but also to participate in creating and planning them.

Confidence Without Attitude

MFE Class of 2009

Admissions

Enrolled Students: 45

Enrollment Profile

Countries Represented: 20
Average Age: 28
Average Years of Post-University Experience: 4.01
Undergraduate Institutions Represented: 44
Average Undergraduate GPA: 3.68
Graduate Institutions Represented: 36

Prior Majors

Engineering: 27%
Mathematics: 20%
Economics: 14%
Finance: 8%
Natural Sciences: 17%
Computer Science: 5%
Business: 2%
MBA: 3%
Humanities: 3%
Other: 5%

Selected Prior Employment

Engineering: 8%
Marketing/Sales: 2%
Information Systems: 8%
Finance: 43%
Research & Development: 20%
Project Management: 2%
Consulting/Management Services: 3%
Other: 16%

Selected Prior Education

Ph.D.: 16%
Master’s: 32%
Graduate Institutions: 38

Graduate Degrees

Average Undergraduate GPA: 3.68
Average Years of Post-University Experience: 4.01
School of Business: 65
Other: 35%

Comparative Table

Professional:

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Comparative Table

Professional:
Consistently ranked one of the top business schools in the country, the Haas School of Business has a solid reputation for quality and leadership. The business school at the University of California, Berkeley, was founded in 1898, making it the second oldest collegiate business school in the United States, and the first at a public university. Rank, reputation, and experience combine to offer Haas students a rich spectrum of quality resources, noteworthy events, and high-profile speakers.

A University Second to None
In addition to attending a premier business school, Haas students join the larger community at one of the most esteemed universities in the world. The mission of the University of California is to excel in research, teaching, and public service. Over the decades, this mission has developed a culture at UC Berkeley that stimulates greatness.

With the Berkeley MFE program, you earn a degree from a university whose name and reputation open doors around the globe. The proof is in the university’s distinguished record of Nobel-level scholarship, constant innovation, concern for the betterment of our world, and consistently high rankings of its schools and departments. Since its founding in 1868, UC Berkeley has grown with the rapidly expanding population of California and responded to the educational needs of the developing state. By the 1930’s, research at UC Berkeley burgeoned in nuclear physics, chemistry, and biology, leading to the development of the first cyclotron, the isolation of the human poliovirus, and the discovery of all the artificial elements heavier than uranium, including Berkelium and Californium. Twenty members of the UC Berkeley faculty have been awarded Nobel prizes for these and subsequent achievements in science, literature, and economics. Today, according to the National Research Council, UC Berkeley ranks first nationally in the number of graduate programs in the top ten in their fields. In fact, 97% of the university’s programs made the top-ten list.

The Perfect Location
Additionally, few geographical areas in the world can meet, let alone beat, the university’s location. The San Francisco Bay Area boasts stunning natural beauty, seductively benign weather, an atmosphere charged with a worldly sophistication, and a distinctive openness to new ways of thinking. It is home to an innovation ecosystem unequaled anywhere in the world, with venture capital firms, established technology powerhouses, and thriving biotech and digital media industries. Many of the most dynamic names in business, from Charles Schwab to Google, call the region home. Innovation is a part of the ethos in the area, and you feel it every day at Haas.
Every year, the Berkeley MFE Program enrolls approximately 60 bright and diverse students from a variety of backgrounds. We encourage you to explore the Berkeley MFE program further, and we invite you to apply for admission.

The MFE degree at the Haas School can be completed in 12 months of full-time coursework. Applications are accepted year-round. The program begins and ends only in the spring, and is not available part-time. The MFE Program does not accept any credits or transfers from other universities.

GMAT or GRE

We require that all applicants take either the GMAT or GRE. All GMAT and GRE scores are valid for five years and should not be older than April 1, 2005. When ordering GRE reports, use institution code 4803 and department code 4399. For the GMAT, use institution code 4769 and program code N2V-PF-87.

Letters of Recommendation

We require two letters of recommendation. Letters should come from individuals who are familiar with your training in quantitative methods, and their remarks should address your ability to apply your quantitative skills. Letters should be written by individuals in a position to evaluate you professionally or academically. Recommendations from co-workers, friends, or family members are inadmissible and can be detrimental to your application.

Interviews

Admissions interviews are conducted on an invitation-only basis. Please do not call the office to request an interview. You will be contacted by the MFE program office if an interview is necessary to make a decision on your application.

International Applicants

If you are not a United States citizen or US permanent resident at the time you apply to the MFE Program, you are considered an international applicant. Applicants from outside the United States should complete their application materials and requisite tests early. As an international applicant, you should also be aware that you are not eligible for financial aid and should be prepared to provide your own financial support and healthcare coverage. For more information on applying as an international student, visit the Services for International Students and Scholars website at ias.berkeley.edu/siss/.

MFE Admissions

Requirements

• Graduate Management Admission Test (GMAT) or the Graduate Record Examinations (GRE) General Test.
• A strong quantitative background including linear algebra, multivariate calculus, differential equations, numerical analysis, and advanced statistics and probability.
• Prior experience in computer programming (examples: Visual Basic, Matlab, C++) and familiarity with computers as a computational and management tool.
• Excellent writing, speaking, and presentation ability in English.
• Valid degree from an accredited institution, comparable to the four-year bachelor’s degree from Berkeley.

Financial Aid

The MFE Program does not offer scholarships or grants. All assistance is in the form of loans which must be repaid beginning six months after graduation. The different types of assistance available include Federal Direct Student Loans, private loans, and private scholarships. US citizens and permanent residents are eligible to apply for Federal Direct Student Loans, and both US residents and international students are eligible for supplemental loans. Graduate students. Due to the nontraditional academic calendar of the MFE Program, students must file two loan applications for the full MFE program.

For complete information on financial aid options and applications, please visit haas.berkeley.edu/MBA/finaid/index.html.

Computer Costs

MFE students are required to have their own powerful laptop computer. Various manufacturers offer students discounts at the Scholar's Workstation, the campus computer store. Visit tsw.berkeley.edu.

Housing

Berkeley graduate students live in both university and off-campus housing. Housing in the Berkeley area is expensive and often in short supply, so you should plan ahead to ensure that you will have a place to live before classes begin. There are several different housing options available, including single-occupant apartments, family housing, and off-campus residences. If you are interested in applying for university housing, do not wait for notice of admission to seek information. For more information, visit housing.berkeley.edu/housing.

Esin Tureci

MFE 09

Previous degree: BSc, Molecular Biology
Bilkent University, Turkey
Ph.D. Biochemistry and Structural Biology
Weill Cornell Medical School, New York

Previous job: Postdoctoral Fellow, Biochemistry Department
University of Zurich, Switzerland

Internship: Roche Diagnostics, New York City, New York

“Program is well-designed for a career in the financial industry. Its intensity is intentional. We learn a lot in a short time and have the opportunity to immediately apply what we learn. From the start, you can see how everything fits together and applies in the world. “Haas definitely succeeds in finding the best person to teach each class. We are learning directly from the people who wrote the books and developed the theories, tools, and models. Bob Goldstein and Domingo Turella.”

Being part of a larger university gives us such a broader base. We have so many resources: the libraries at the math and engineering departments, the Haas facilities and faculty, the alumni network. All this completes the experience.”

MFE Program

Apply to the Berkeley MFE Program

Alexander Kudlay

MFE 09

Previous degree: BSc, Physics
Moscow State University, Moscow, Russia
Ph.D., Physics
Moscow State University, Moscow, Russia

Previous job: Research Associate, University of Maryland, College Park Internship: BNP Paribas, London, UK

“I researched MFE programs extensively before choosing Haas for its outstanding faculty and well-planned curriculum. Both deliver a perfect balance of academic knowledge and practical applications in all aspects of finance.

Ultimately, this is not an academic program; it is a professional degree that prepares you to start working on day one. The Haas program has a stellar record for placing people in internships and full-time employment. The program office doesn’t stop until everyone is placed.

“I came to the program with a solid quantitative foundation. Haas is helping me bridge the experience gap by teaching me how to apply those skills in a financial setting.”

For the MFE application and detailed admissions instructions, visit mfe.haas.berkeley.edu.
Visit to Learn More

The best way to know what it’s really like to be a Berkeley MFE student is to come visit and meet some students and faculty. Visiting gives you a chance to learn more about the Haas culture and community, and to check out the facilities.

Information Sessions
We invite you to come to one of our group information sessions. On-campus sessions are held from 12:00 to 1:00 p.m. on the first business Monday of every month. You will be able to tour the MFE lab and ask questions of the program director and admissions officers. In addition, we hold information sessions in major cities around the world throughout the year. Please check our information session calendar at mfe.haas.berkeley.edu. To participate, register online at ssl.haas.berkeley.edu/MFEAdmissions/events/.

Pre-program Courses
The MFE program also offers pre-program courses to help prospective students review the concepts necessary to be successful in the MFE program. Current courses run from January to March each year and include Math Foundations for Financial Engineers, C++ Programming for Financial Engineers, and Statistics for Financial Engineers. Enrollment is open to the public, and we strongly encourage individuals who are thinking of applying to the program to enroll.

As executive director, my role—among other things—is to develop and maintain contacts with firms to find opportunities for the students and place them in internships and full-time positions.

Establishing strong relationships with the industry has given me a thorough understanding of the needs and requirements of the marketplace, including potential employers. This is an active and ongoing process that started long before the MFE program was actually launched, and these relationships have been very valuable to the program in many respects. They have helped us to quickly establish a reputation, and we’re able to identify the skills that are most likely to be in demand.

Linda Kreitzman
Executive Director of the Berkeley MFE Program

From the Dean
I welcome your interest in the Berkeley MFE Program at the Haas School of Business. The first program of its kind at a business school, the top-ranked MFE program here at Haas continues to offer a rigorous and innovative curriculum, as well as the most successful career services record of any similar program.

The Berkeley MFE Program’s emphasis on excellence and innovation defines the Haas and UC Berkeley environment and culture. Like all Haas students, Berkeley MFE students are intelligent, independent minded, forward thinkers who want to do great things in their lives. Haas faculty members are characterized by their pioneering work that brings new knowledge, insights, and best practices to the world of business, while their outstanding teaching transmits this knowledge to our MFE students. Our professional staff supports the MFE program through their fresh ideas and hard work. And the strong, deep Haas alumni network enables MFE alumni to take full advantage of this powerful coalition of talented, successful individuals. This is a program and a school that sets minds alight, and sets lives on a brighter course.

I encourage you to learn more about our innovative program and invite you to come to the Haas School in person and meet with our faculty, staff, and students.

Sincerely Yours,

Richard Lyons
Bank of America Dean and Professor
Walter A. Haas School of Business