FINANCIAL ENGINEERING

Sponsoring Departments
Finance
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(217) 244-2239

Industrial and Enterprise Systems Engineering
Head of Department: Rakesh Nagi
117 Transportation Building
104 South Mathews Avenue
Urbana, IL 61801
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Major: Financial Engineering
Degree offered: M.S.

Graduate Degree Programs
This Master of Science in Financial Engineering (MSFE) degree program is jointly sponsored by the Department of Industrial and Enterprise Systems Engineering (ISE) in the College of Engineering and the Department of Finance in the College of Business. Graduates from this program receive the MSFE degree awarded by the Graduate College. The MSFE program complements other Finance (http://www.business.illinois.edu/finance) and ISE (http://www.iese.illinois.edu) graduate programs offered by the sponsoring departments.

Financial Engineering (FE) is a relatively young, multidisciplinary field that pertains to the application of engineering approaches and methods to the analysis and management of financial problems, particularly in the financial asset arena. Common problems involve identifying and managing financial risk in asset portfolios and asset positions and pricing of financial derivatives. Other applications exist in proprietary security trading operations, as well as in practically all practical domains where risk is an important concern. The field has emerged as the result of the ever growing complexity required in describing and solving these business problems whose resolution requires fundamental economic principles and finance theory coupled with state-of-the-art mathematical methods, computational tools, and computer programming expertise.

Admission
Successful applicants to the MSFE Program will have a Bachelor’s degree with one year of calculus, one semester of linear algebra and differential equations, one semester of programming (preferably in C/C++), and one semester of probability and statistics. Knowledge of basic finance and economics is helpful but not necessary. Given its technical emphasis, applicants to this program typically will have completed a Bachelor’s degree in an engineering field, mathematics, physics, computer science, or economics that provides sufficient preparation to facilitate a fast-paced, in-depth learning environment.

All applicants are expected to have a minimum grade point average of at least 3.25 (A=4.00) for the last two years of undergraduate study and a 3.50 for any previous graduate work completed. Scores on the Graduate Record Examination (GRE) general test are required of all applicants. All applicants whose native language is not English must submit a minimum Test of English as a Foreign Language (TOEFL) score of at least 103 (iBT), 257 (CBT), or 613 (PBT); or minimum International English Language Testing System (IELTS) academic exam scores of 7.0 overall and 6.0 in all subsections.

Master of Science in Financial Engineering
Covering topics in finance, economics, numerical methods, stochastic calculus, and computer programming, the MSFE is a rigorous, three-semester, 48-credit, resident degree program with a summer internship opportunity. Twelve courses each of 4 graduate credits are required for graduation; they are expected to be taken in sequence in the respective semesters. Details on the program may be found at msfe.illinois.edu (http://msfe.illinois.edu).

Core Courses 40
Project 4
Elective Graduate Coursework, may be 400 or 500 level 4
Total Hours 48

Other Requirements ¹
Minimum 500-level Hours Required Overall: 44
Minimum GPA: 2.75

¹ For additional details and requirements refer to the program’s Web site (http://msfe.illinois.edu/academics/curriculum.aspx) and the Graduate (http://www.grad.illinois.edu/gradhandbook) College (http://www.grad.illinois.edu/gradhandbook) Handbook (http://www.grad.illinois.edu/gradhandbook).