

Scientific Preparation Programme (M.Sc.)

IAM 527 Advanced Calculus and Integration
IAM 591 Programming Techniques in Applied
Mathematics I
IAM 592 Programming Techniques in Applied
Mathematics II

M.S. Thesis Program

IAM 520 Financial Derivatives
IAM 522 Stochastic Calculus for Finance
IAM 524 Financial Economics
IAM 541 Probability Theory
IAM 500 M.S. Thesis (non-credit)
IAM 590 Graduate Seminar (non-credit)
IAM 698 Ethics and Research (non-credit)
4 elective courses

M.S. Non-Thesis Program

IAM 520 Financial Derivatives
IAM 521 Financial Management
IAM 522 Stochastic Calculus for Finance
IAM 524 Financial Economics
IAM 541 Probability Theory
IAM 589 Term project (non-credit)
IAM 590 Graduate Seminar (non-credit)
IAM 698 Ethics and Research (non-credit)
5 elective courses

Ph.D. Program

BA5814 Investment Management
IAM 614 Methods of Computational Finance
IAM 615 Advanced Stochastic Calculus for Finance
IAM 600 Ph.D. Thesis (non-credit)
IAM 690 Graduate Seminar (non-credit)
IAM 698 Ethics and Research (non-credit)
4 elective courses

Ph.D. on B.Sc. Degree

IAM 520 Financial Derivatives
IAM 521 Financial Management
IAM 522 Stochastic Calculus for Finance
IAM 524 Financial Economics
IAM 541 Probability Theory
BA5814 Investment Management
IAM 614 Methods of Computational Finance
IAM 615 Advanced Stochastic Calculus for Finance

IAM 590 Graduate Seminar (non-credit)
IAM 600 Ph.D. Thesis (non-credit)
IAM 690 Graduate Seminar (non-credit)
IAM 698 Ethics and Research (non-credit)
6 elective courses

Elective Courses

IAM 525 Game Theory
IAM 526 Time Series Applied to Finance
IAM 529 Applied Nonlinear Dynamics
IAM 530 Elements of Probability and Statistics
IAM 550 Portfolio Optimization
IAM 554 Interest Rate Models
IAM 557 Statistical Learning and Simulation
IAM 566 Numerical Optimization
IAM 572 Finite Elements: Theory and Practice
IAM 612 Financial Modelling with Jump Processes
IAM 664 Inverse Problems
IAM 665 Advanced Continuous Optimization
IAM 672 Control and Optimization of Differential Equations

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Financial Mathematics

M.Sc. & Ph.D.
Programs



ORTA DOĞU TEKNİK ÜNİVERSİTESİ
MIDDLE EAST TECHNICAL UNIVERSITY

Why Study Financial Mathematics?

Financial Mathematician as a profession has consistently been rated one of the top jobs in many countries. Financial Mathematicians are always in demand as long as financial decision making is crucial. They participate in high-level business decision-making in every industry and are the back bones for companies in financial sector.

Importance of Financial Mathematics

Financial Mathematics develops an understanding of the fundamental probability tools for quantitatively modeling the financial tools and demonstrates an ability to apply these tools to problems encountered in finance.

Turkey has encountered a risky financial environment due to its growing economy with abridging west and east economies which makes the country a financial hub in the Middle East. Economic growth forces Turkey to improve its financial markets to develop present financial instruments. This requires the need of broad analysis of financial markets and instruments, and to have well-educated analysts to deal with modelling and development of strategies.

Objectives of the Program

Better understanding of financial dynamics to derive and extend the mathematical or numerical models. Assessment and modelling of financial risk, credit risk, operational risk and actuarial risk to analyze and evaluate financial assets are some of the unique abilities financial mathematics bestow. The students are educated to gain ability to identify, quantify, assess and manage the risk uncertainty for real life problems using financial tools.

Suitable for Students from all Disciplines

Empirical research with strong mathematical background, practical applications of advance mathematics, finance, risk management and risk analysis to contribute to the advancement of financial mathematics.

The program is suitable for all students having degree from Faculty of Sciences, Faculty of Economics and Administrative Sciences and Faculty of Engineering. Financial Mathematics is a multidisciplinary program providing a balanced training in the financial and

advanced mathematical analysis. It focuses on mathematical model-building in the various specialized fields of finance: exchange, energy market, future and forward market, derivatives market, financial risks, hedging strategies.

A Financial Mathematics degree makes you compatible in Mathematics, Statistics, Economics, Finance and as well as in other subjects.

Job Opportunities

Financial Mathematics is highly desirable in management positions because of their multidisciplinary background and strong quantitative emphasis. The program has given 18 Ph.D., 133 M.Sc. degrees. Our graduates mostly are employed by **Central Bank of the Republic of Turkey (TCMB), Banking Regulation and Supervision Agency (BDDK), Private Banks, Republic of Turkey Energy Market Regulatory Authority (EPDK), The Scientific and Technological Research Council of Turkey (TÜBİTAK), Turkish Statistical Institution (TÜİK), Minister of Health of the Republic of Turkey, Borsa İstanbul, ASELSAN.**

Admission Requirements and Application

- METU-EPE (English Proficiency Exam) ≥ 64.5 or TOEFL-IBT ≥ 79
M.Sc.: ALES ≥ 70 or GRE-quant. ≥ 155 (≥ 696)
Ph.D.: ALES ≥ 75 or GRE-quant. ≥ 156 (≥ 713)
- At least 2 reference letters
- Letter of intention

Application Deadlines to the Program and EPE are usually in June. We strongly recommend you to follow the deadlines from the link given below.

Applicants will be interviewed when necessary.

For application deadline and more information:
<http://iam.metu.edu.tr/universitys-application-page>

FACULTY

KESTEL, A. Sevtap

SEZER, A. Devin

UĞUR, Ömür

YOLCU-OKUR, Yeliz

AFFILIATED FACULTY

AYAYDIN, Hande: Business Administration, METU

BATMAZ, İnci: Statistics, METU

DANIŞOĞLU, Seza: Business Administration, METU

GAYGISIZ, Esma: Economics, METU

GÜNER, Nuray: Business Administration, METU

HAYFAVİ, Azize: Mathematics, METU

İLK-DAĞ, Özlem: Statistics, METU

KALAYCI, Erkan: EWE Energy

KORN, Ralf: Technical University Kaiserslautern

KÜÇÜKÖZMEN, Coşkun: International Trade and Finance, İzmir University of Economics

OMAY, Tolga: Economics, Atılım University

TALASLI, İrem: T.R. Central Bank

TALU-YOZGATLIGİL, Ceylan: Statistics, METU

UZUNKAYA, Mehmet: T.R. Ministry of Development

VARDAR-ACAR, Ceren: Statistics, METU

WEBER, Gerhard-Wilhelm: Marketing and Economic Engineering, Poznan University

YILDIRAK, Kasırga: Actuarial Sciences, Hacettepe University