



UNIVERSITA' DEGLI STUDI DI MILANO
PROGRAMME DESCRIPTION - ACADEMIC YEAR 2019/20
IN
FINANCE AND ECONOMICS (MEF) - Classe LM-16
Enrolled from 2017/2018 academic year

HEADING

Degree classification - Denomination and code:	LM-16
Degree title:	Dottore Magistrale
Curricula currently available:	FINANCIAL ECONOMICS / QUANTITATIVE FINANCE
Length of course:	2 years
Credits required for admission:	180
Total number of credits required to complete programme:	120
Course years currently available:	1st , 2nd
Access procedures:	open, subject to entry requirements
Course code:	B73

PERSONS/ROLES

Head of Study Programme

Prof. Alberto Bucci

Tutors - Faculty

Prof. Emanuele Bacchiocchi

Prof. Alessandro Barbiero

Degree Course website

<https://mef.cdl.unimi.it>

Degree Course E-mail

Email: mef@unimi.it

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CHARACTERISTICS OF DEGREE PROGRAMME

Introduction

With the Master degree in Finance and Economics (MEF), the University of Milan aims at offering an exclusive and high-quality study program. This internationally oriented master degree is thought to provide students with an excellent academic background and practical sense, as well as with a promising outlook for a future career in today's challenging and dynamic financial markets and international economy.

Due to the growing complexity of today's economics and finance, expertise only in economics or, conversely, in quantitative methods are not enough to succeed everyday's challenges. The Master degree in MEF is organized to provide knowledge on both the economic mechanism and the behaviour and history of financial markets, to build solid bases of quantitative and numerical methods and to give insights of decision making under uncertainty and the basics of risk analysis. Indeed, recent and repeated financial crises have proven that mathematical thinking and economical theories cannot be considered separately from historical analyses and regulatory mechanism.

Throughout the program, a well-balanced study track builds strong quantitative skills coupled with a solid knowledge base of the underlying theory of finance and economics. Students acquire the necessary knowledge and skills to use mathematical models to comprehend complex financial problems and learn how to apply these models in the fields of economic sciences

and financial market analysis.

During the second year students of the master degree in MEF might choose to specialize further in one of the two fields of Financial Economics or Quantitative Finance. Working closely together with our outstanding faculty, students will benefit from their knowledge and international scientific networks as well as their links with the industry but they might also attend seminars, laboratories and other activities organized yearly by the Department of Economics, Management and Quantitative Methods.

General and specific learning objectives

Graduates of this master course will receive advanced training on quantitative methodologies and tools suitable to interpret and analyze the economic and financial phenomena and to operate directly on financial markets or in international economic institutions. The study program is designed to provide the students with solid background through the development of topics of economic theory, analysis of international financial markets and the theory of decision making under uncertainty. It includes study of financial markets from both the point of view of international law, history and economics.

The first year courses, common to both curricula, also provide for the establishment of capabilities in statistics, mathematics and computational techniques for the analysis of financial data and economic time series.

The second year of the master program is organized in two curricula. The first, Financial Economics, is dedicated to the training of economists capable of operating at international institutions or central government level in both the financial and economic sphere.

The second curriculum, named Quantitative Finance, is aimed at preparing financial specialists capable of operating in the areas of pricing of derivatives, portfolio management, risk management and control in the financial and / or actuarial sector.

Expected learning outcomes

In the spirit of armonization of education within European Union, the graduates of this master program in Economics and Finance are expected to attend the following standards according to the so called Dublin Descriptors:

A. Knowledge and understanding

Graduates are expected to gain theoretical knowledge and advanced skills on the following areas: economics, mathematics and statistics, corporate and financial law.

For the economic area, topics offered include: monetary economics, advanced micro and macro economics, decisions under conditions of uncertainty. The theories and analytical tools from economics learned will enable students to understand the processes of economic integration and the functioning of markets, the role of multinational corporations and financial institutions.

For the area of mathematics and statistics, the topics include: mathematical and statistical analysis, econometrics, mathematical finance, risk theory, portfolio optimization and optimal control. The students are expected to learn how to perform quantitative analyses for business and economics decision making, management of investments and financial forecasting of macroeconomic scenarios.

For the business and financial area, topics include: corporate finance, business management, economics of markets and financial intermediaries. The knowledge and skills acquired in this area will enable graduates to understand the politics of enterprise management, strategies of internationalization of firms, the principles of corporate finance, the functioning of the financial system, investment decisions and financial risk management.

For the law area the main focus will be on international financial and economic law. The lectures will provide legal expertise to understand the laws that rule the markets and financial institutions and international trade.

B. Applying knowledge and understanding

Graduates will be able to apply the knowledge and skills acquired to the analysis and management of business tasks posed by the process of economic integration, to the design and implementation of internationalization strategies of firms, to the assessment of the financial and balance sheet, to the identification of policy interventions in the context of open economies (market regulation, competition policies, supervision of financial institutions, etc.); to the mathematical evaluation of investments; to the analysis and forecasting of economic and financial scenarios.

C. Making judgements

Graduates will gain the ability to make judgments about developing critical skills: the effects and effectiveness of the decisions of firms and financial institutions in which they were to operate, even in reference to the ethical implications of these actions and decisions, the consequences and the effectiveness of economic policies. They will also need to assimilate fully the principles of professional ethics that guide interpersonal relationships in the contexts of employment. They should also learn the fundamental principles of the scientific approach to problem solving in economics and business administration that they will face during their professional activity. The multidisciplinary approach of this course encourages the development of independent judgment and critical thinking by offering students the opportunity to compare methodological approaches in different disciplines. The significant relevance of quantitative methods and their applications

to economics and finance, facilitates the comprehension of the scientific approach to problem solving.

D. Communication skills

Graduates will be able to present and communicate effectively within the company the results of their work (projects, reporting, analysis, documentation, etc.) Argue their positions and communicate clearly and effectively in writing and oral set up cooperative relationships and collaborative working within groups, proposals and solutions to the problems of working contexts of reference using mathematical and quantitative tools, access to a more specialized audience, for example, through the publication of research results. The ability to communicate effectively in the workplace is primarily gained from the presentation and discussion of case studies. The drafting of reports and essays, as required by some of the courses, and the writing of the final dissertation will help to enhance written communication skills.

E. Learning skills

Graduates will have the ability to develop and increase their skills through the consultation of the published scientific literature and the use of databases and other information. The master degree in Economics and Finance also provides the methodological skills that support capabilities for further learning up to the possibility to continue their studies in doctoral programs.

The students have also the opportunity to attend other activities organized by the Department of Economics, Management and Quantitative Methods such as seminars and workshops to improve their ability to understand scientific challenges and new topics of research.

The preparation of the final dissertation provides students further opportunities to develop the skills of independent learning.

Professional profile and employment opportunities

The master course in Economics and Finance aims at forming the following professional profiles.

Profile: Analyst and financial adviser.

Functions: the professionals included in this category make suggestions for investment and give technical advice to managers on which they depend functionally; assist the management of financial investments through the economic and financial analysis of market data; propose predictive models of economics, financial time series and provide guidance for the calibration of theoretical models using market data.

Skills: baggage of theoretical knowledge and operational tools aimed at evaluating financial investments, the evaluation of the financial and credit risk.

Career opportunities: They operate in the office of financial management of banks, investment firms, investment funds, banks, financial intermediaries, research and financial statement purposes. They also work as private consultants.

Profile: Operator of financial markets and financial intermediary.

Functions: the figures included in this category act directly or on behalf of their company in the financial markets or as brokerage agents, also assist the company in the interaction with the regulatory authorities in the markets thanks to a thorough knowledge of the rules that govern them.

Skills: baggage of theoretical knowledge and legal advice for the management of financial investments, executives and management of contracts; ability to operate on traditional and digital markets.

Career opportunities: They operate in the office of financial management of banks, investment firms, investment funds, banks, financial intermediaries, research and financial statement purposes.

Profile: Manager or Director of the departments of finance, financial institutions or international economic institutions.

Functions: the occupations included in this category exercise managerial functions of high responsibility in private and public companies with an international vocation, in finance, risk management and credit.

Skills: baggage of theoretical knowledge of economic-legal type for the management of economic institutions and private companies or in banking and financial institutions operating in international contexts.

Career opportunities: They operate private or public companies in industry and services to businesses, banks and similar institutions, and international and governmental institutions.

Profile: Professionals in the management of programs and projects of international development.

Functions: the occupations included in this category contribute to the formulation, management, monitoring, reporting of programs and projects of business development and market expansion within the international arena.

Skills: baggage of theoretical and operational knowledge about international economy, strategy of business management, legal and administrative regulation of the markets, processes of economic integration and economic policies that govern them.

Career opportunities: They operate private or public companies of industry, trade, business services, banks and similar institutions, and international and governmental institutions.

Pre-requisites for admission

To attend the Master program in Economics and Finance it is necessary to have adequate knowledge of mathematics, economics and statistics at undergraduate level.

Students with an Italian degree (ex. DM 270 /04) of the following classes:

l-7 Ingegneria civile e ambientale
 l-8 Ingegneria dell'informazione
 l-9 Ingegneria industriale
 l-16 Scienze dell'amministrazione e dell'organizzazione
 l-18 Scienze dell'economia e della gestione aziendale
 l-20 Scienze della comunicazione
 l-30 Scienze e tecnologie fisiche
 l-31 Scienze e tecnologie informatiche
 l-32 Scienze e tecnologie per l'ambiente e la natura
 l-33 Scienze economiche
 l-35 Scienze matematiche
 l-36 Scienze politiche e delle relazioni internazionali
 l-37 Scienze sociali per la cooperazione, lo sviluppo e la pace
 l-41 Statistica

and students with an italian degree (ex DM 509/99) in the classes equivalent to those listed above can apply.

Candidates can also enroll to the course from undergraduate classes other than those listed above after positive evaluation of the Collegio Didattico or its delegates (ad hoc committee or the President of the Collegio Didattico) if they substantively satisfy the access requirements.

To all candidates, the following minimum requirements apply in order to be admitted to the course:

- a) at least 6 ECTS credits in the area of mathematics (MAT/01 - MAT/09, SECS-S/06).
- b) at least 6 ECTS credits for the statistical area (SECS-S/01 - SECS-S/05, SECS-P05): a statistics course or a basic econometrics one.
- c) at least 12 ECTS credits for the economic area (SECS-P/01 - SECS-P/03, SECS-P/06): at least one course of Microeconomics and one of Macroeconomics.
- d) evidence of computer skills (ECDL) or 3 ECTS credits of Computer Science (INF/01, ING-INF/05) or equivalent diploma.
- e) English language knowledge, level B2 or higher, properly certified (eg.: TOEFL, IELTS, etc.) or any other relevant documentation (eg.: award of a degree held in English, English language as mother tongue, etc.).

Each applicant will have to submit, together with the application, a motivation letter and a curriculum vitae (using the mandatory format and template approved by the Faculty Board – Collegio Didattico). Failing to provide the above mentioned documentation, the applicant will be excluded from the selection.

Furthermore, a recommendation letter is requested: it has to be sent by an external Referee, directly to the Master's degree Secretariat, by post (ordinary mail) or fax or email.

Students with foreign qualification are expected to meet the substantive requirements equivalent to the minimum requirements for students with italian title. Such checking of pre-requisites will be conducted by a special Admission Board of faculties appointed by the Faculty Board - Collegio Didattico.

Applicants who meet the minimum entry requirements (irrespective of their nationality) are assessed by the Admission Board according to the following criteria grid. Applicants who obtain less than 50 points are not admitted. Applicants who obtain more than 80 points are admitted without any further verification.

Criterion: Academic curriculum

Description: length and quality of the previous degree as well as the final grade

Maximum score: 40

Criterion: Recommendation letter

Maximum score: 10

Criterion: Motivation letter

Maximum score: 30

Criterion: Choice coherence

Description: coherence between the academic curriculum and/or activities previously carried out and the learning objectives of the master's degree in Economics and Finance

Maximum score: 20

The Admission Board reserves the possibility to request the applicant an oral interview for admission, held in English language and exclusively done via electronic devices (eg.: via skype). Such possibility is reserved for the students that have not fully fulfilled one or more of the minimum requirements for the admission due to the irregularities in the credit system or title of study or due to other objective motivation relevant in the analysis of the material attached to the application for

admission (including the motivation letter and the recommendation letter, other relevant documents/titles attached and the potential lack of any English certification) that results in a score above 50 points but less than 80 points out of 100, according to the above mentioned grid. The interview is aimed at verify the applicants' motivations, the English language knowledge and the above mentioned skills, according to the procedure established by the internal Regulation – Regolamentoo didattico.

Programme structure

The master degree in Economics and Finance is a genuinely multidisciplinary programme, presenting a balanced offer of courses in economics and finance supported by several quantitative courses.

Students must earn 120 ECTS credits to complete programme requirements.

Campus

Faculty of Political, Economic and Social Sciences - Via Conservatorio, 7 - 20122 MILANO

Compulsory attendance

No obligation

Study plan definition and submission for approval

Students may choose a complete study plan starting from the first year.

Degree programme final exam

The final exam consists in the submission and public discussion, in front of a committee, of a master's dissertation.

The master's dissertation is an original piece of work, written by the candidate under the guidance of a supervisor.

For the preparation of the final Master thesis, the students will earn 21 ECTS which includes a mandatory stage equivalent to 3 ECTS (no additional credits earned). The Master thesis might (and strongly suggested to) be related to the stage project.

Criteria for admission to degree course final exam

Having earned at least 99 credits for the learning activities contemplated by his/her study plan, a student may be admitted to undertake the final exam leading to the award of the master's degree.

A total of 21 credits are reserved to the design, preparation and writing up of the master's dissertation, including the mandatory stage of 3 credits.

The formal assignment of these credits can only take place at the moment when the stage is completed, the dissertation is discussed and the final exam is passed.

EXPERIENCE OF STUDY ABROAD AS PART OF THE DEGREE PROGRAM

The University of Milan supports the international mobility of its students, offering them the opportunity to spend periods of study and training abroad, a unique opportunity to enrich their curriculum in an international context.

Study and internships abroad

One of the most effective policies adopted by European Union in the last years has been the internationalization of higher education. The various Erasmus programmes that have been implemented since the nineties have greatly increased the mobility of European students.

Being a brand-new programme with an internationally oriented educational core strategy, MEF promotes a wide internationalization of their students, and therefore strongly encourages them to spend part of their studies abroad in Erasmus+ Programmes.

Erasmus+ provides opportunities to study, train, gain work experience and skills. Students can go abroad from 3 up to 12 months (including a complementary traineeship period, if planned), and may receive additional grants for studying or training. At the end of their foreign stay, students get full recognition of completed activities in terms of credits for their degree. Student mobility is carried out in the framework of prior "inter-institutional agreements" between the sending and receiving institutions.

Students can also join the traineeship programme (Placement), by going abroad from 2 up to 12 months, starting their traineeship from the first year of study. For a traineeship which is an integral part of the curriculum, the sending institution must give full academic recognition for the period spent abroad. For a traineeship that is not part of the curriculum of the student, the sending institution shall provide recognition at least by recording this period in the Diploma Supplement or, in the case of recent graduates, by providing a traineeship certificate. Traineeship may also be established with private and public companies, educational or research centers other than the hosting institution, especially in the field of finance.

MEF academic staff has strong relations with some important European universities, in particular in Germany, France and Poland but also outside the EU, and is actively involved in research and education networks, so that students' activity abroad (including the development of the final dissertation) can be successfully supervised. Short exchange programs are in place with the HSBC Business School - Peking University Shenzhen (China), Plekhanov Russian University of Economics (Moscow, Russian Federation).

How to participate in Erasmus mobility programs

To gain access to mobility programs for study purposes, lasting 3-12 months, the enrolled students of the University of Milan must attend a public selection that starts usually around the month of February each year through the presentation of specific competition announcements, which contain information on available destinations, respective duration of the

mobility, requirements and deadlines for submitting the online application.

The selection, aimed at evaluating the proposed study abroad program of the candidate, knowledge of a foreign language, especially when this is a preferential requirement, and the motivations behind the request, is performed by specially constituted commissions.

Each year, before the expiry of the competition announcements, the University organises information sessions for the specific study course or groups of study courses, in order to illustrate to students the opportunities and participation rules.

To finance stays abroad under the Erasmus + program, the European Union assigns to the selected students a scholarship that - while not covering the full cost of living abroad - is a useful contribution for additional costs as travel costs or greater cost of living in the country of destination.

The monthly amount of the communitarian scholarship is established annually at national level; additional contributions may be provided to students with disabilities.

In order to enable students in economic disadvantaged conditions to participate in Erasmus+ program, the University of Milan assigns further additional contributions; amount of this contributions and criteria for assigning them are established from year to year.

The University of Milan promotes the linguistic preparation of students selected for mobility programs, organising every year intensive courses in the following languages: English, French, German and Spanish.

The University in order to facilitate the organisation of the stay abroad and to guide students in choosing their destination offers a specific support service.

More information in Italian are available on www.unimi.it > Studenti > Studiare all'estero > Erasmus+

For assistance please contact:

Ufficio Accordi e relazioni internazionali

via Festa del Perdono 7 (ground floor)

Tel. 02 503 13501-12589-13495-13502

Fax 02 503 13503

E-mail: mobility.out@unimi.it

Desk opening hour: Monday-friday 9 - 12

ADMISSION CRITERIA: 1ST YEAR OPEN, SUBJECT TO ENTRY REQUIREMENTS

Practical instructions

Applicants, both foreign and Italian holding a bachelor's degree or expecting to obtain it by October 31st, 2019, must apply for admission to the MEF programme from March 1st, 2019 till July 12th, 2019.

Non EU Applicants from outside Italy holding a non-Italian bachelor's degree or expecting to obtain it by October 31st, 2019, must submit a pre-application at the Italian Embassy of their own country before June 30th 2019 (this date may be subject to change according to Italian Ministry of Foreign Affairs).

For more specific information about the selection criteria, please check the 'prerequisites for admission' section of this document.

For an idea of the appropriate level of knowledge, competences, and skills, candidates may consult the following textbooks:

Mathematics

Topics: Calculus, Linear Algebra.

Suggested reference:

- Sydsæter, K., Hammond, P. (2008) Essential Mathematics for Economic Analysis, (3 edition), Pearson. Chap: 1-10 (Calculus I), 15-16 (Vector and Matrices)

Economics

Topics: Principles of micro and macro economics.

Suggested references (both):

- Blanchard O. (2010) Macroeconomics, 5th edition, Pearson Prentice-Hall, Upper Saddle River, N.J., 2010.
- Varian H. (2009) Intermediate Microeconomics. A Modern Approach, 8th edition, Norton, New York, N.Y.

Statistics

Topics: elementary probability and random variables, descriptive statistics, statistical inference.

Suggested references (any of those):

- Ross S. (2010) Introductory Statistics, 3d Edition, Elsevier.
- Trosset M.W. (2008) An introduction to statistical inference and its applications with R, Chapman & Hall/CRC.
- Moore D., McCabe G.P., Craig B. (2012) An Introduction to the Practice of Statistics, 7th edition, W.H. Freeman & Company.

Econometrics

Topics: Linear regression model with one or more regressors: estimation and testing, Instrumental Variables.

Suggested reference:

- Stock J., Watson M. (2010) Introduction to Econometrics, 3rd Edition, Addison-Wesley.

Further detailed information concerning the MEF programme and the admission procedures are available at <http://www.mef.unimi.it>, or can be asked directly to the programme Director, Prof. Emanuele Bacchiocchi, Department of Economics, Management and Quantitative Methods: emanuele.bacchiocchi@unimi.it; or the programme secretary, mef@unimi.it, tel. +39 02 503-21527 or +39 02 503-21553, fax +39 02 503-21505.

N° of places reserved to non-EU students resident abroad

50

ADMISSION CRITERIA: 2°YEAR

Notes

Candidates who wish to enroll to the second year of MEF need to satisfy the entry requirements of the first year and submit a motivational letter along with the required documents.

1st COURSE YEAR Core/compulsory courses/activities common to all curricula		
Learning activity	Ects	Sector
Advanced Microeconomics and Macroeconomics	12	SECS-P/01
Data Mining and Computational Statistics	9	SECS-S/01
Financial Investments and Corporate Finance	12	(6) SECS-P/09, (6) SECS-P/11
International Economic Law	6	IUS/13
Mathematical Methods for Finance	9	SECS-S/06
Statistical Methods for Finance	6	SECS-S/01
Time Series Analysis	6	SECS-P/05
Total number of compulsory credits/ects		60
2nd COURSE YEAR Core/compulsory courses/activities common to all curricula		
Learning activity	Ects	Sector
Decision Theory and Behavioural Economics	6	SECS-P/02
Financial Markets and Financial Crises: A Historical Approach	6	SECS-P/12
Total number of compulsory credits/ects		12
Further elective courses common to all curricula		
Students must earn 9 credits for elective activities.		
Students must earn 3 credits by selecting an Internship/Stage.		
End of course requirements common to all curricula		
Final Exam	18	NA
Total number of compulsory credits/ects		18

LIST OF CURRENTLY AVAILABLE CURRICULA

FINANCIAL ECONOMICS Course years currently available: 1st, 2nd
 QUANTITATIVE FINANCE Course years currently available: 1st, 2nd

CURRICULUM: [B73-A] FINANCIAL ECONOMICS

2nd COURSE YEAR Core/compulsory courses/activities Curriculum-specific features FINANCIAL ECONOMICS		
Learning activity	Ects	Sector
Asset Pricing and Financial Contracts	12	SECS-P/01
Money and Finance	6	SECS-P/01
Total number of compulsory credits/ects		18

CURRICULUM: [B73-B] QUANTITATIVE FINANCE

2nd COURSE YEAR Core/compulsory courses/activities Curriculum-specific features			
QUANTITATIVE FINANCE			
Learning activity		Ects	Sector
Numerical Methods for Finance and Risk Management		12	(6) SECS-S/01, (6) SECS-S/06
Portfolio Optimization		6	SECS-S/06
		Total number of compulsory credits/ects	18

COURSE PROGRESSION REQUIREMENTS

None