



UNIVERSITA' DEGLI STUDI DI MILANO
MANIFESTO DEGLI STUDI A.A. 2022/23
LAUREA MAGISTRALE IN
FINANCE AND ECONOMICS (MEF) - Classe LM-16
Enrolled from 2021/2022 academic year

GENERALITA'

Classe di laurea di appartenenza:	LM-16 FINANZA
Titolo rilasciato:	Dottore Magistrale
Curricula attivi:	QUANTITATIVE FINANCE / QUANTITATIVE ECONOMICS
Durata del corso di studi:	2 anni
Crediti richiesti per l'accesso:	180
Cfu da acquisire totali:	120
Annualità attivate:	1°, 2°
Modalità accesso:	Libero con valutazione dei requisiti di accesso
Codice corso di studi:	B73

RIFERIMENTI

Presidente Collegio Didattico

Prof. Alberto Bucci

Docenti tutor

Prof. Alessandro Barbiero (Stage/Erasmus/Erasmus+)

Prof. Lorenzo Mercuri

Studenti tutor

Prof. Lorenzo Mercuri (Students' inbound-orientation/Labs/Other activities)

Sito web del corso di laurea

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

Degree Course E-mail

Email: mef@unimi.it

Enrolment and Admission

<http://www.unimi.it/studenti/matricole/77648.htm>

Facebook

<http://www.facebook.com/mefunimi>

Twitter

@mefunimi

CARATTERISTICHE DEL CORSO DI STUDI

Premessa

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, as well as with a promising outlook for a future professional career in today's challenging and dynamic national/international monetary/financial/real markets.

Due to the growing complexity of today's economies, expertise only in economics and finance or, conversely, only in quantitative methods is not enough to succeed in every day's challenges. The Master degree in MEF is organized: to provide theoretical and applied knowledge in both the economic mechanisms and the behaviour and history of financial markets, to build solid bases of quantitative and numerical methods, and to give insights into the process of economic/financial decision-making under uncertainty and/or in the presence of risk.

Indeed, recent and repeated financial crises have proven that mathematical thinking and economic theories cannot be considered separately from historical analyses and regulatory mechanisms.

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 able to comprehend and solve to comprehend complex financial and economic problems and learn how to apply these models in the fields of economic sciences and financial market analyses.

During the second year students of the master degree in MEF choose to specialize in one of the two fields of Quantitative Economics or Quantitative Finance.

Students attending the Curriculum in Quantitative Economics can apply to the double-degree program with the “Master en sciences économiques, orientation générale, à finalité approfondie – ECON2MA - (120 ECTS)”, jointly organized by the Université catholique de Louvain and the Université de Namur.

Working closely together with our outstanding faculty, students will benefit from its international scientific networks as well as its links with the industry-sector. Students may also attend seminars, laboratories and other activities organized yearly by the Department of Economics, Management and Quantitative Methods.

Obiettivi formativi generali e specifici

Graduates of this master course will receive advanced training in quantitative methodologies and tools suitable to interpret and analyze economic and financial phenomena and will be able to operate directly on financial markets or in international economic institutions. The study program is designed to provide students with a solid background through the development of topics of economic theory, analysis of financial markets and the theory of decision making under risk and 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 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, Quantitative Economics, is dedicated to the training of professional economists capable of operating at national/international, public/private institutions (including the academia) or at the level of central government in both the financial and economic spheres.

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 sector intended in a broad sense.

Risultati di apprendimento attesi

In the spirit of armonization of education within the European Union, the graduates of this the master program in Finance and Economics 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 and financial economics, advanced micro and macroeconomics, growth and labour-market theories, the theory of investment-decisions (also under uncertainty) in economics and finance. The theories and analytical tools learnt from economics will enable students to understand the processes of economic globalization and growth, as well as 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 policies of enterprise management, the strategies of internationalization of firms, the principles of corporate finance, the functioning of the financial system, the investment decisions and the policies for 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, the 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 and financial globalization, to the design and implementation of internationalization strategies of firms, to the assessment of the financial risk, to the identification of the best economic policies to be implemented 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 : the effects and effectiveness of the decisions of firms and financial institutions in which they were to operate, even in relation to the ethical implications of these 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. Learning these principles will turn to be extremely useful in trying to solve those problems that they will face during their professional activity. The multidisciplinary approach of this programme 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, reports, analyses, etc.); build cooperative relationships and collaborative working activities within groups; suggest solutions to the problems of faced within the working contexts 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 through 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-sets. The master degree in Finance and Economics 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 with further opportunities to develop the skills of independent learning.

Profilo professionale e sbocchi occupazionali

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

Profile: Consultant and financial adviser.

Functions: the professionals included in this category make suggestions for investment and give technical advice to managers on whom they depend functionally; assist the management of financial investments through the economic and financial analysis of market data; propose predictive models of economics, financial times 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 as well as financial and credit risks.

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

Profile: Operator and analyst of financial markets.

Functions: the figures included in this category act directly 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, the execution 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, commercial and investment banks, financial intermediaries, for research and financial statement purposes.

Profile: Academic researcher, or researcher in research-departments within economic and financial institutions, both national and international.

Functions: the occupations included in this category exercise active research-functions of high responsibility in the fields of finance and economics within institutions and firms (both private and public, national and international).

Skills: baggage of theoretical knowledge in the economic-legal-financial fields aimed at doing active research (both theoretical and applied) in economic institutions and private companies, or else in banking and financial institutions operating in national and international contexts.

Career opportunities: They operate in universities, research-centers, research-departments of public/private firms, research departments of banks and similar institutions, or research-departments of international and governmental institutions.

Profile: Operators in the management and implementation 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 economic development as well as business development (i.e., business market expansion within the international arena).

Skills: baggage of theoretical and operational knowledge in the fields of managerial development and economic development/growth; strategic management of international and multinational firms; legal and administrative regulation of markets; analysis of the processes of economic globalization, and the economic policies that govern such processes.

Career opportunities: They operate in companies (private or public companies of industry, trade, business services, banks and similar institutions) strongly oriented to internationalization and market-expansion (multinational firms), and in international and governmental institutions oriented to economic development

Conoscenze per l'accesso

To attend the Master program in Economics and Finance it is necessary to demonstrate to have strong knowledge of mathematics, economics and statistics at the 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 programme from undergraduate classes other than those listed above after positive evaluation of the Collegio Didattico or its delegates (an Admission Committee or the President of the Collegio Didattico) if they substantively satisfy the access requirements.

Candidates lacking of one or more of the following minimum entry requirements: will not be assessed by the Admission Committee:

- a) at least 6 ECTS in the area of mathematics (MAT/01 MAT/09, SECS-S/06).
- b) at least 6 ECTS in the statistical area (SECS-S/01 SECS-S/05, SECS- P05): a statistics course or a basic econometrics one.
- c) at least 12 ECTS in the economic area (SECS-P/01 SECS-P/03, SECS-P/06): at least one course of Microeconomics and at least one course of Macroeconomics.
- d) evidence of computer skills (ECDL) or 3 ECTS in Computer Science (INF/01, ING-INF/05) or equivalent diploma.
- e) As for the knowledge of the English language, a level C1 or higher (according to CEFR), properly certified (preferably through the TOEFL-test), is required. In this regard, the certification issued by SLAM-UniMI is accepted. On the web-site of the MEF-program, interested students may find the complete list of certifications of knowledge of the English language (level C1, or higher) that are recognized by the University of Milan.

As for the English language knowledge, a level C1 or higher (according to CEFR) properly certified (preferably through the TOEFL-test) is required. In the absence of any certification the Admission Committee reserves the right to not admit the candidate to the programme.

Each applicant will have to submit, together with the application, a detailed curriculum vitae. Failing to provide this document implies that the applicant will be excluded from the selection.

Students with foreign qualification are expected to meet the substantive requirements equivalent to the minimum requirements for students with Italian title. Such checking of the pre-requisites will be conducted by an Admission Committee appointed by the Faculty Board (Collegio Didattico).

Applicants who meet the minimum entry requirements (irrespective of their nationality) are assessed by the Admission Committee according to the following criteria grid:

Criterion: Academic curriculum

Description: length (i.e., number of years taken) and quality (i.e., average grade in the overall number of exams taken) of the

undergraduate degree as well as the final graduation mark
Maximum score: 80

Criterion: Choice coherence

Description: coherence between the previous academic curriculum/professional experience (if any) and the learning objectives of the master's degree in Finance and Economics

Maximum score: 20

Applicants who obtain a score equal or less than 70 points are not admitted.

Applicants who obtain a score above 70 points but less than 80 points will be invited to an oral interview, held in English language and exclusively done via electronic devices (e.g.: via skype). The interview is aimed at examining in more depth the applicants background knowledge and motivation.

Applicants who obtain a score greater or equal to 80 points and satisfy the English knowledge requirements can be subject to further interview before admission.

Applicants not submitting any English knowledge certification (preferably the TOEFL-test) will be excluded even if they exceed the 80 points-threshold.

Students without an Italian degree or diploma can obtain 3 credits in Additional language skills: Italian by proving an Italian language proficiency at level A2 within the Common European Framework of Reference for Languages (CEFR). This level can be assessed by the end of the degree course in the following ways:

-by submitting the language certificate achieved no more than three years prior to the submission, at level A2 or higher, recognised by the University (the list of recognised language certificates can be found at: <https://www.unimi.it/en/node/349/>). The language certificate must be uploaded through the service <https://informastudenti.unimi.it/saw/ess?AUTH=SAML>, by choosing the category SLAM;

-by an entry-level test, organised by SLAM, which can be taken at the beginning of every semester.

Students who fail to reach level A2 will have to attend a 60-hour Italian course organised by SLAM and to pass the final test during the I semester of the second year of study in order to earn 3 ECTS credits of Additional Language Skills: Italian.

Struttura del corso

The master degree in Finance and Economics 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 to complete programme requirements.

Area didattica

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

Obbligo di frequenza

No obligation

Formulazione e presentazione piano di studi

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

Caratteristiche della prova finale

The final exam consists in the submission and public defence, 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).

Criteri di ammissione alla prova finale

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 defended and the final exam is passed.

ESPERIENZA DI STUDIO ALL'ESTERO NELL'AMBITO DEL PERCORSO FORMATIVO

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 chance to enrich their educational path within a new, exciting environment.

The agreements (entered into by the University with over 300 universities from the 27 EU member-countries and other extra-EU countries under the European Erasmus+ programme) allow regularly enrolled students to carry out part of their studies at one of the partner-universities, or to undertake internships at companies, training and research centers and other

organizations. Similar international mobility opportunities are provided outside Europe, through agreements with a number of prestigious institutions.

Cosa offre il corso di studi

One of the most effective policies adopted by the European Union in the last few years has been the internationalization of higher education. The various Erasmus programs 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, Poland and Belgium 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 actually in place with the HSBC Business School - Peking University Shenzhen (China), Plekhanov Russian University of Economics (Moscow, Russian Federation).

Moreover, as already said, students attending the Curriculum in Quantitative Economics can apply to the double-degree program with the “Master en sciences économiques, orientation générale, à finalité approfondie – ECON2MA - (120 ECTS)”, a master-program jointly organized by the Belgian Universities of UCL (Université catholique de Louvain) and Namur.

Modalità di partecipazione ai programmi di mobilità - mobilità Erasmus

The students of the University of Milan can participate in mobility programmes, through a public selection procedure.

Ad hoc commissions will evaluate:

- Academic career
- the candidate's proposed study programme abroad
- his/her foreign language proficiency
- the reasons behind his/her application

Call for applications and informative meetings

The public selection for Erasmus+ mobility for study generally begins around February each year with the publication of a call for applications specifying destinations and requirements. Regarding the Erasmus+ Mobility for Traineeship, the University of Milan usually publishes two calls a year enabling students to choose a destination defined by an inter-institutional agreement or to find a traineeship position on their own.

The University organizes informative meetings to illustrate mobility opportunities and rules for participation.

Erasmus+ scholarship

The European Union grants the winners of the Erasmus+ programme selection a scholarship to contribute to their mobility costs, which may be supplemented by the University funding for disadvantaged students.

Language courses

Students who pass the selections for mobility programmes can benefit from intensive foreign language courses offered each year by the University Language Centre (SLAM).

<https://www.unimi.it/en/node/8/>

Learn more at <https://www.unimi.it/en/node/274/>

For assistance, please contact:

International Mobility Office

Via Santa Sofia 9 (second floor)

Tel. 02 503 13501-12589-13495-13502

Contacts: InformaStudenti; mobility.out@unimi.it

Student Desk booking through InformaStudenti

MODALITA' DI ACCESSO: 1° ANNO LIBERO CON VALUTAZIONE DEI REQUISITI DI ACCESSO

Link utili per immatricolazione

<https://www.unimi.it/en/study/enrolment>

Istruzioni operative

Applicants from EU must apply for admission to the MEF programme from March the 15th to June the 30th.

NON-EU Applicants must apply for admission to the MEF programme from March the 15th to May the 31st.

Further information about the foreign qualifications and about the access of foreign students are published on the Ministry website <http://www.studiare-in-italia.it/studentistranieri/> and on the University website in the sections dedicated to international students.

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 (both):

- Sydsæter, K., Hammond, P. (2008) Essential Mathematics for Economic Analysis, (3 edition), Pearson. Chap: 1-10 (Calculus I), 15-16 (Vector and Matrices)
- Simon, C.P., Blume, L. (2010) Mathematics for Economists, W. W. Norton & Company

Economics

Topics: Principles of microeconomics and macroeconomics.

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 the following):

- 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: <https://mef.cdl.unimi.it/en/enrolment>, or can be asked to the programme secretariat, mef@unimi.it, tel. +39 02 503-21553.

N° posti riservati a studenti extracomunitari non soggiornanti in Italia

30

MODALITA' DI ACCESSO: 2° ANNO

Note

Also candidates who wish to enroll in the second year of MEF need to submit their application and satisfy the entry requirements described above.

1° ANNO DI CORSO Attività formative obbligatorie comuni a tutti i curricula		
Attività formativa	Cfu	Settore
Advanced Microeconomics and Macroeconomics	12	SECS-P/01
Data Mining and Computational Statistics	9	SECS-S/01
Financial Investments: Module I, Portfolio Theory; Module II, Portfolio Management	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
Totale CFU obbligatori		60

2° ANNO DI CORSO Attività formative obbligatorie comuni a tutti i curricula		
Attività formativa	Cfu	Settore
Financial Economics	6	(3) SECS-P/02, (3) SECS-P/01
Financial Markets and Financial Crises: A Historical Approach	6	SECS-P/12
	Totale CFU obbligatori	12
Altre attività a scelta comuni a tutti i curricula		
Students must earn 9 credits for elective activities.		
Students must earn 3 credits by selecting an Internship/Stage.		
Additional Language Skills: Italian (3 ECTS)	3	ND
Attività conclusive comuni a tutti i curricula		
Final Exam	18	NA
	Totale CFU obbligatori	18

ELENCO CURRICULA ATTIVI

QUANTITATIVE FINANCE Annualità attivate: 1°, 2°
QUANTITATIVE ECONOMICS Annualità attivate: 1°, 2°

CURRICULUM: [B73-B] QUANTITATIVE FINANCE

Obiettivi Formativi Qualificanti

The objective of this curriculum is to strengthen students' knowledge in the fields of quantitative finance, numerical methods for finance, portfolio optimization, and risk-management.

2° ANNO DI CORSO Attività formative obbligatorie specifiche del curriculum QUANTITATIVE FINANCE		
Attività formativa	Cfu	Settore
Numerical Methods for Finance and Portfolio Optimization	12	(6) SECS-S/01, (6) SECS-S/06
Risk Management	6	SECS-S/06
	Totale CFU obbligatori	18

CURRICULUM: [B73-C] QUANTITATIVE ECONOMICS

Obiettivi Formativi Qualificanti

The objective of this curriculum is to strengthen students' knowledge in the fields of quantitative economics, dynamic macroeconomics, and micro-econometrics.

2° ANNO DI CORSO Attività formative obbligatorie specifiche del curriculum QUANTITATIVE ECONOMICS		
Attività formativa	Cfu	Settore
Dynamic Macroeconomics (Module I: Growth Theory + Module II: Investment and Labour Markets Theory)	12	SECS-P/01
Microeconometrics	6	(3) SECS-P/05, (3) SECS-P/01
	Totale CFU obbligatori	18

PROPEDEUTICITA'

None