MASTER IN ECONOMICS

Concentration: Web Science and Digital Economics
Concentration: Banks and Financial Markets

Main Language of Instruction:
French ☑ English ○ Arabic ○

Campus Where the Program Is Offered: CIS

OBJECTIVES

The Master in Economics meets the analysis and expertise needs expressed by companies, consulting firms and various organizations in terms of analysis and collection of economic information, forecasts, market research and modeling, in an increasingly digitalized environment where artificial intelligence is becoming an essential work tool.
It aims to introduce students to modeling tools, essential support for decision-making, as well as problem-solving methods through the mastery of specialized software in the fields of data analysis and econometrics (Excel spreadsheet and VBA, Python, R, Gretl, Eviews).
In addition, the objective of the Master program is to train not only economic data analysts but also strategists in finance. By the end of this program, students will obtain fundamental and applied competencies which will facilitate their professional integration into financial institutions and companies within which they will be able to occupy managerial positions and positions of high responsibility.

PROGRAM LEARNING OUTCOMES (COMPETENCIES)

- Effectively use common information and communication technologies (data entry, processing, sharing, and presentation of documents).
- Identify, select, evaluate and monitor sources to document a subject or project.
- Ability to solve complex problems: analyzing and synthesizing data for exploitation/suggesting innovative solutions.
- Critical thinking: present arguments while being able to take a position between different options and explain them by taking into account the theoretical and pragmatic frameworks.

CONCENTRATION: BANKS AND FINANCIAL MARKETS

- Formulate a diagnosis of the economic and financial environment.
- Manage financial investments for customers (individuals, companies and financial institutions).
- Ensure the internal development of the financial institution.
- Promote the external growth of the financial institution.
- Undertake fundamental and applied research in the field of economics and finance.

CONCENTRATION: WEB SCIENCE AND DIGITAL ECONOMICS

- Confront traditional economic models and theories with the changes brought about by the deployment of digital and artificial intelligence.
- Analyze in depth the behavior of economic agents (business – households) in a digitized environment.
- Use statistical and econometric tools effectively – thanks to software incorporating artificial intelligence – to offer solutions and answers to problems concerning companies and institutions.
- Understand the competitive environment and business company strategies in a digital transformation context.
- To present in-depth studies, both in writing and orally, that reflect the results of economic, statistical, and econometric analyses.

ADMISSION REQUIREMENTS

Bachelor in Economics or an equivalent diploma.

PROGRAM REQUIREMENTS

Required Courses (111 credits), Closed Elective Courses (9 credits)

Required Courses (111 Cr.)
Alternative Investments (3 Cr.). Corporate Finance (3 Cr.). International Banking Law (2 Cr.) Business Criminal Law (2 Cr.) Financial Macroeconomics (4 Cr.) Innovation Economics (4 Cr.) Industrial Economics II (3 Cr.) Digital Economics (4 Cr.) Valuation and Hedging of Derivatives (3 Cr.) Financial Analysis and Company Valuation (3 Cr.) Economic Engineering (4 Cr.) Labor Market (4 Cr.) Master Dissertation I (15 Cr.) Master Dissertation II (15 Cr.) Master Dissertation III 3 (15 Cr.) Research Methodology (4 Cr.) Modeling I (4 Cr.) Modeling II (4 Cr.) Portfolio Management (3 Cr.) Macroeconomic Forecasting and AI (4 Cr.) Specialized Seminars (6 Cr.) Digital Transformation of Companies (4 Cr.)

Closed Elective Courses (3 credits)
Leadership and Communication (3 Cr.), Corruption and Political Market (3 Cr.), Credit Risk Management (3 Cr.), Financial Market Microstructure (3 Cr.)

SUGGESTED STUDY PLAN

The following tables outline the 111 required credits. Students must select 9 credits from the closed elective courses over the 4 semesters of the master's program.

Semester 1

Code	Course Name	Credits
012ECNUM1	Digital Economics	4
012INECM3	Economic Engineering	4
012MDL1M1	Modeling I	4
012MAFIM1	Financial Macroeconomics	4
	Total	**16**
Elective Course		
012LECOM1	Leadership and Communication	3
012DRFIM1	Financial Law	3

Semester 2

Code	Course Name	Credits
012ECINM2	Innovation Economics	4
012MEREM2	Research Methodology	4
012MDL2M2	Modeling II	4
012PRMEM2	Dissertation Project	15
Course – Concentration: Banks and Financial Markets		
012COFIM2	Corporate Finance	3
012ECPDM2	Valuation and Hedging of Derivatives	3
	Total	**33**
Course – Concentration: Web Science and Digital Economics		
012DRAMM4	Business Criminal Law	2
	Total	**29**

Elective Course		
012GOUVM2	Corruption and Political Market	3
012ENERM3	Energy Economics	3

Semester 3

Code	Course Name	Credits
Course – Concentration: Banks and Financial Markets		
012ALTEM3	Alternative Investments	3
012AFEEM1	Financial Analysis and Company Valuation	3
012DBINM2	International Banking Law	2
012MMM1M3	Master Dissertation I	15
012SEMIM4	Specialized Seminars	6
	Total	**29**
Elective Course		**32**
012CRIMM4	Credit Risk Management	3
Course – Concentration: Web Science and Digital Economics		
012MATRM3	Labor Market	4
012IND2M2	Industrial Economics II	3
012PMIAM3	Macroeconomic Forecasting and AI	4
012MMM1M3	Master Dissertation I	15
012DIMAM4	Digital Transformation of Companies	4
	Total	**30**

Semester 4

Code	Course Name	Credits
Course - Concentration: Banks and Financial Markets		
012MMM2M4	Master Dissertation II	15
012MRIIM4	Master Dissertation III	15
012POMGM4	Portfolio Management	3
	Total	**33**
Elective Course		
012MISMM4	Financial Market Microstructure	3
Course – Concentration: Web Science and Digital Economics		
012MMM2M4	Master Dissertation II	15
012MRIIM4	Master Dissertation III	15
012SEMIM4	Specialized Seminars	6
	Total	**36**

COURSE DESCRIPTION

012ALTEM3 Alternative Investments 3 Cr.

This course offers a comprehensive understanding of alternative investments, encompassing hedge funds, private capital, real estate, natural resources, and infrastructure. Investors frequently explore alternative investments for their potential to diversify portfolios and yield higher returns. Consequently, these investments now constitute significant portions of both institutional and private wealth portfolios. Common characteristics of alternative investments include limited liquidity, transparency, and disclosure compared to traditional asset classes such as equity and fixed income. They also feature complex legal structures and performance-based compensation arrangements. Upon completion of this course, students will be proficient in articulating the essential attributes and considerations involved in integrating alternative investments into a portfolio.

012AFEEM1 Financial Analysis and Company Valuation 3 Cr.

This course aims to provide students with a deep understanding of the fundamental principles of financial analysis and company valuation. Students learn to evaluate the financial health of a company, interpret its financial statements, use advanced financial analysis techniques and estimate the intrinsic value of a company using different company valuation methods.

012COFIM2 Corporate Finance 3 Cr.

This course offers Master students an overview and understanding of the fundamental principles guiding financial decision-making. It delves into their application to both internal and external challenges within business enterprises. Additionally, the course serves as a solid foundation for graduate students looking to enhance their understanding of financial economics and investments. The topics covered align with those tested in the Chartered Financial Analyst (CFA) Institute examinations focusing on corporate finance.

012GOUVM2 Corruption and Political Market 3 Cr.

By the end of the course, students should be able to:

- Present the theoretical and methodological issues that form the main debates and controversies on the analysis of the nature of the State and governance.
- Analyze the link between corruption and the quality of the economic structure.
- Write a summary report which evaluates the quality of institutions and governance in a country.
- Present an economic analysis of political markets while referring to microeconomic and macroeconomic instruments.
- Interpret governance indicators in relation to the economic, social, and political situation of a country.

012CRIMM4 Credit Risk Management 3 Cr.

The objective of the course is to allow students to:

- Understand credit risk models, and their benefits and uses, and become familiar with the concepts and tools for measuring and managing credit risk according to the various Basel approaches (standard approach, IRB method, rating systems, IFRS9, data collection, uses of models, PD, EAD, credit scoring, etc.).
- Master risk reduction techniques and manage collateral and guarantee-related risks (credit portfolio models and management, standard and advanced approaches, Basel and CRD perspectives, collateral and derivatives, etc.).
- Master the concepts and methods of market risk measurement and management and be familiar with prudential regulations (qualitative and quantitative criteria, the prudential ex-post control system for the use of internal models, VaR, stress-testing programs, etc.).
- Master cashflow risk management and the best practices for managing assets and liabilities.
- Master the concepts and methods of sovereign risk management and other risks, and understand the role of rating agencies and hedging mechanisms (Credit Default Swaps, political risk insurance, credit insurance for both commercial and political risks, etc.)
- Master the concepts and regulatory context of operational risk, and understand the structure required for a bank to identify and measure operational risk (risk measurement, quantitative and qualitative evaluation, the standardized approaches Basic Indicator Approach and Standardized Approach, the Advanced Measurement

Approach methods and measures, mapping, the Scorecard approach, organization of the data collection base, defining alert indicators and the key steps in transitioning to advanced methods, self-evaluation of the risk management framework, etc.)
- Become familiar with Lebanese banking regulations concerning the management and measurement of different banking risks, the calculation of equity, prudential ratios and the preparation of reports on banking risks.

012DBINM2 International Banking Law 2 Cr.

Study of the banking activities legal framework at both the national and international levels, the fundamental elements of international banking transactions and the related regulations, including internationalization and computerization.
Study of payment mechanisms, notably documentary credits and transfers. The course also examines the role of supervisory bodies such as the Central Bank and the Banking Control Commission, as well as the procedures for establishing a bank in Lebanon.

012DRAMM4 Business Criminal Law 2 Cr.

This course in Business Criminal Law aims to provide students with a thorough understanding of economic and business-related criminal offenses. The main topics covered include corruption, financial fraud, abuse of social assets, unfair competition and criminal liability of legal persons. Students will analyze the various criminal offenses in the business context, examine investigative powers and prosecution procedures, and also study issues of business ethics and company social responsibility. They will develop an in-depth understanding of business criminal law and practical skills to advise companies on preventing criminal offenses, managing internal investigations and assisting with potential criminal prosecutions.

012ECINM2 Innovation Economics 4 Cr.

Economic analysis of innovation in terms of both its determinants (microeconomics) and its impact on the economy (macroeconomics). Particular attention is paid to information and web technologies as major innovations, their characteristics and the challenges they pose for the economy. Each year, students are tasked with exploring an aspect of "digital" innovation and studying its challenges. This year the theme is artificial intelligence.

012IND2M2 Industrial Economics II 3 Cr.

The emergence of Information and Communication Technologies (ICT) has given rise to the digital economy and ushered in the Fourth Industrial Revolution (Industry 4.0). The objective of this course is to analyze and explain the microeconomic foundations of the digital economy.
The democratization of the internet and information technology has modified the characteristics of markets. First, the volume of raw data collected from internet users has modified the quality of information available on the markets thus enhancing transparency. Second, the multiplication of process and product innovations has revolutionized production processes (Additive manufacturing, 3D Printing, Sharing Economy, Collaborative Economy, etc.). Third, the use of digital platforms has modified the behavior of economic agents, notably the active role of consumers in price determination (Pay What You Want Strategy) and even in production (Prosumption). All these transformations will be analyzed and explored in the light of new theories developed to accompany the digital era. The reevaluation or, on the contrary, the updating of traditional theories will also be tackled.

012ECNUM1 Digital Economics 4 Cr.

The aim of this course is to put traditional theoretical knowledge in economics to the test against the changes brought about by the digital age, in order to evaluate its relevance. The aim is to highlight the new types of goods, economic agent behaviors, and market equilibria justifying the need for a new theoretical framework of analysis. Two online markets will be analyzed in depth: the goods and services market, and the labor market.

012ECPDM2 Valuation and Hedging of Derivatives 3 Cr.

Derivatives are widely used in market finance. This course enables students in the Banks and Financial Markets Master's program to familiarize themselves with derivatives, their uses (speculation, hedging, arbitrage) and valuation methods. The course also explains how banks manage their derivatives portfolios by analyzing market risks and hedging these portfolios.

012INECM3 Economic Engineering 4 Cr.

Economic engineering is an applied branch of microeconomics taught during the 2nd year of the Master's program (M3).
It focuses on the development of tools and analytical models to address resource allocation and guide strategic and tactical decision-making by managers and consultants within both private and public companies.
Decision-making focuses on achieving and optimizing the company's goals while considering the constraints of both its internal and external environment. This course aims to teach students various computational techniques related to Machine Learning, allowing them to simulate optimal managerial decisions in uncertain situations.

012LECOM1 Leadership and Communication 3 Cr.

This leadership seminar is dedicated to the human aspects of management, often referred to as "People management."
The objective is to introduce participants to certain critical aspects of the manager's role such as setting objectives, dealing with conflicts, social negotiation (social conflicts), conducting meetings (including managing an executive committee), team building and leadership (management styles).

012MAFIM1 Financial Macroeconomics 4 Cr.

This course focuses on a main competency: diagnosing the financial situation in both its national and international dimensions, and suggest policy recommendations in the field of financial macroeconomics.
It offers a range of theoretical approaches and analytical tools that allow for an evaluation of the financial changes accompanying the globalization process.
It focuses on the following themes:

- Financial challenges: financial structures and instruments – financial crises – finance and economic performance.
- Financial theories: capital structure and company finance – capital markets – banking regulations – general equilibrium in financial stability.
- Financial policies: banking regulation and supervision – capital markets regulation and supervision – macroprudential policies – the future of financial regulation.

012MATRM3 Labor Market 4 Cr.

This course links stylized facts about the labor market to relevant theories. It begins by examining the decision to participate in the labor market, then moves on to firm hiring strategies, the matching mechanism between labor supply and demand, wages and working conditions, incentive and promotion mechanisms within firms, and concludes with collective bargaining and labor-management relations.
The aim of this course is to enable students to confront theories about the labor market with facts in order to analyze the behavior of agents and their implications for the functioning of the labor market.

012MMM1M3 Master Dissertation I 10 Cr.

The Master Dissertation is a three-stage process spread over two semesters. The aim of the "Specialized Research I" course is to finalize the research in question, design the plan for the theoretical part based on an in-depth analysis of the literature on the subject, and finally reflect on the proposed project in terms of empirical work.

012MMM2M4 Master Dissertation II 10 Cr.

This course is a continuation of "Specialized Research I" and is designed to help students finalize their dissertation in both its theoretical and empirical parts.

012MRIIM4 Master Dissertation III 15 Cr.

This course is exclusively dedicated to the defense of the dissertation. At this stage, students make the final corrections to their Master dissertation and prepare themselves for a 60-minute oral presentation.

012MEREM2 Research Methodology 4 Cr.

The main objective of this course is to familiarize students with the theoretical and practical principles of economic research and to provide them with the basic knowledge necessary to undertake research work. The goal is to equip students with the scientific tools that will ultimately lead them to write a Master dissertation project.

012MISMM4 Financial Market Microstructure 3 Cr

This course focuses on the fundamental behavior of the financial market. Therefore, the empirical analysis focuses on the share price index during a given period characterized by major fluctuations in recorded prices, leading to a radical change in the behavior of the market fund.
One of the fundamental principles of modern financial theory remains that of the distribution shape of financial asset returns. In this course, we analyze the distribution shape over different sub-periods as well as the parameters of the process that generated these returns.

012MDL1M1 Modeling I 4 Cr.

This course is a discipline offered during the 1st semester of the Master in Economics program. Its aim is to model complex economic phenomena using econometric methods estimated with GRETL software (version 2020). Following a revision of the estimation methods and statistical inference used to validate hypotheses related to econometric models studied during the bachelor's degree program (S5), this course introduces other more technical estimation methods such as instrumental variables, generalized method of moments, non-linear models and time lag models.

012MDL2M2 Modeling II 4 Cr.

This course is a discipline offered during the 2nd semester of the Master in Economics program. Its aim is to model complex economic phenomena using econometric models estimated with GRETL and Eviews (version 10). After a revision of the methods covered in the Modeling I course, this course introduces other estimation methods, such as the estimation of models with qualitative endogenous variables, as well as time series models and VAR (Vector Autoregressive) models, with analysis of causality between stationary variables.
Prerequisites: Modeling I (012MDL1M1)

012POMGM4 Portfolio Management 3 Cr.

This course introduces the portfolio management approach in investments. It delves into the unique requirements of both individual and institutional investors, offering insights into the diverse investment solutions available. Key topics include the process of portfolio management, essential measures of portfolio risk and return, and an exploration of modern portfolio theory.

012PMIAM3 Macroeconomic Forecasting and AI 4 Cr.

The Macroeconomic Forecasting and Artificial Intelligence (AI) course is offered during the 2nd semester of the Master in Economics program, as part of the concentration in Economic Analysis and Artificial Intelligence. This course aims to model complex economic phenomena and conduct macroeconomic forecasts using AI tools, particularly through the R software. After a revision of classic macroeconomic forecasting methods, with the use of the GRETL software, this course offers other estimation methods belonging to Machine Learning, which is an important AI tool, such as Ridge or Lasso type regressions and artificial neural networks.

012SEMIM4 Specialized Seminars 6 Cr.

Web Science: The aim of this seminar is to introduce students to the concept of Web Science by having them work in a flipped classroom on the fundamental texts in the field, and the research methodologies specific to this discipline. They also learn how to design research articles for publication.
Students must prepare complete sessions based on a corpus of Web Science documents and articles:

- The concept of Web Science
- Web Science research methodology
- Quantitative approaches
- Mixed approaches.

Ethics and Regulations: In today's workplaces, the ability to navigate ambiguity is increasingly recognized as a crucial skill. Ambiguity brings challenges such as identifying reliable decision-making principles and implementing a systematic process for evaluating actions. Ethical dilemmas, common in fields like finance and investment, are a prime example of workplace ambiguity. Contrary to popular belief, unethical actions are not limited to inherently bad individuals; rather, they often involve otherwise ethical people making questionable decisions influenced by psychological biases, social dynamics, and organizational pressures.
This case-based Ethical Decision-Making workshop aims to achieve three main objectives:

- Foster awareness among participants about their thoughts and behaviors to proactively address ethical issues;
- Normalize the occurrence of ethical dilemmas in various professions;
- Discuss and practice strategies for effectively managing ethical challenges.

Link to website: https://www.cfainstitute.org/en/ethics-standards/ethics/ethical-decision-making
Financial Econometrics: This course aims to introduce the primary econometric approaches for modeling the conditional variance of time series, with a focus on financial series. The first part reviews the key statistical properties typically observed in the return or price series of a financial asset. The second part is dedicated to univariate ARCH-GARCH models, which are utilized to model the conditional variance of these financial series. Three types of models will be discussed: linear GARCH models, asymmetric GARCH models, and models that account for long-memory effects.

012DIMAM4 Digital Transformation of Companies 4 Cr.

This course addresses the essential competencies that digitization requires, as well as the indispensable transformations for any company wishing to make a successful transition to the digital age.
It contributes to the development of the following competency:
Conducting an evaluation process of the successful digital transformation of a company taking into account the economic, technological, regulatory, and social challenges that this transformation presents.
Students should be able to analyze the opportunities and challenges that digital transformation brings and provide answers to questions such as:

- What are the key success factors for a digital transformation of a company?
- How are companies preparing to overcome the challenges and seize the opportunities of digital transformation?