Année universitaire 2024/2025

M1 : Première année du Master - Research in Finance

Responsable pédagogique : DELPHINE **LAUTIER** - https://sites.google.com/site/delphinelautierpageweb/

Les objectifs de la formation :

"Research in Finance" est un parcours de la 1re année de Master Finance, entièrement enseigné en anglais.
Ce parcours est recommandé aux étudiants qui ont l'intention de postuler en 2ème année de master 104 "Research in Finance". Les cours et séminaires obligatoires de cette voie Recherche fournissent la base de connaissances idéale pour réussir le cursus du M2 104, tandis que les séminaires optionnels permettent de se spécialiser dans un domaine (par exemple la finance d'entreprise, la gestion d'actifs, la finance quantitative...).

POURSUITE D'ÉTUDES

Après la 1re année du Master Research in Finance, les étudiantes et les étudiants peuvent choisir entre plusieurs M2, en formation initiale ou en alternance. Avant d'intégrer un M2, ils peuvent réaliser une année de césure si leur cursus le permet, afin de développer une expérience professionnelle en France ou à l'étranger : stage, CDD, service civique, entreprenariat, formation complémentaire…?

En 2ème année de Master, les étudiantes et les étudiants choisissent une spécialisation afin de préciser leur domaine de compétences et se professionnaliser. Ils bénéficieront d'enseignements de haut niveau dispensés par des enseignants-chercheurs de Dauphine et d'intervenants extérieurs issus du monde de l'entreprise.

Enfin, l'université aide les étudiantes et les étudiants, à se préparer à l'entrée sur le marché du travail au travers de nombreux projets professionnels ou dispositifs de stage. Les jeunes diplômés de Dauphine bénéficient ainsi d'un taux d'insertion professionnelle très élevé.

Dans le cas d'un Master recherche, cette 2ème année leur permettra de préparer au mieux leur projet de recherche, pour s'orienter par la suite vers un doctorat.

PROGRAMME DE LA FORMATION

- Semester 1
  - Mandatory Fundamental S1
    - Derivatives : Instruments and markets
    - Investment and financial markets
    - Fixed income markets
  - Specialisation Seminars S1 : Choose 2 mandatory courses + 1 to choose
    - Financial analysis
    - International finance
    - Introduction to econometrics
    - Microeconomics for finance
  - Broadening Seminars S1 : Choose 1 mandatory course + 1 to choose
    - Private equity
    - Algorithms and programming
    - Financial econometrics
- Semester 2
  - Mandatory Fundamental S2

        - Corporate finance
        - Financial modeling and applications (VBA)
        - Banking and financial intermedation
    - Specialisation Seminars S2 : Choose 1 mandatory course + 1 to choose
        - Behavioral finance
        - Introduction to quantitative finance
        - Business valuation
        - Financial macroeconomics
    - Broadening Seminars S2 (2 mandatory courses)
        - Research methodology and practice
        - Master's Thesis

DESCRIPTION DE CHAQUE ENSEIGNEMENT

SEMESTER 1

Mandatory Fundamental S1

Derivatives : Instruments and markets

ECTS : 6

Enseignants : DELPHINE **LAUTIER**, EVGENIA **PASSARI**
https://sites.google.com/site/delphinelautierpageweb/
https://dauphine.psl.eu/recherche/cvtheque/passari-evgenia-1

Langue du cours : Anglais

Description du contenu de l'enseignement :

- Introduction to derivative markets and derivative instruments

- The characteristics and the valuation of futures and forward contracts

- Risk management with futures

- The characteristics and the valuation of option contracts

- Swaps and OTC instruments

- Interest rate risk: definition and management with futures contracts

- Credit risk: definition and management with derivative instruments

Compétences à acquérir :

- Understanding, on the basis of concrete examples (commodities, interest rates, equities, ...), the functioning of derivatives markets and their organization (OTC markets / organized markets).

- Explain the use of the main derivative instruments such as futures, options and swaps.

- Master the basics of the evaluation of these instruments.

Mode de contrôle des connaissances :

Mid-term exam : 50%

Final exam: 50%

Bibliographie, lectures recommandées :

- Hull J.C, *Options, futures and other derivatives*
- Hull J.C, *Options, futures and other derivatives : solutions manual*
- The handout associated to the course.

Investment and financial markets

ECTS : 6

Enseignant responsable : FABRICE **RIVA** (https://dauphine.psl.eu/recherche/cvtheque/riva-fabrice)

Langue du cours : Anglais

Description du contenu de l'enseignement :

The objective of this course is to acquaint students with the concepts that are key to understand the functioning of capital (mostly equity) markets.
The course is divided in five parts.

Part 1 is about the organization of trading. The structure of European Stock Exchanges has been considerably evolving over the last 20 years. These evolutions have been fostered by the progress made in information technologies and the changes in the European regulatory environment. Open-outcry markets have been progressively replaced by computer-assisted trading markets. Stocks can now be traded continuously, new trading protocols such as MTF (Multilateral Trading

Facilities) and Dark Pools have emerged, real-time remote access to markets has been made possible, high frequency trading has become more prevalent (latency times are now lower than 1 millisecond) while trading costs have experienced a dramatic decline. The financial intermediation profession has been evolving too. ISD (Investment Services Directive) constitutes a major change for the European regulatory environment. The concentration of orders on a single stock exchange is no longer mandatory and former national monopolistic stock exchanges must now compete with new entrants. Euronext market share has dropped from 100% to less than 50% as stocks of major European companies can now be traded on several trading venues. To gain understanding in the recent trends that characterize the stock exchange industry it is important to understand where transaction costs (both explicit and implicit) and liquidity arise from. This will be the subject of the first part of the course with a particular focus on the evolution of the Paris stock exchange.

Part 2 covers the core concepts of return, risk and the optimization of the risk-return tradeoff through efficient portfolios. After introducing the definition of returns (discrete and continuous) and various risk measures (volatility and Value at Risk – VaR) for single assets, the course moves to the analysis of the joint behavior of assets when these are combined into portfolios. This will allow student to understand the benefits of diversification, which is a first step towards the computation of efficient portfolios through the Markowitz's program and the determination of asset efficient frontier.

Part 3 is about how investors account for risk in their investment decisions. This part shows how to characterize risk aversion and how risk aversion is accounted for in equilibrium. This part allows to establish the expression of the CAPM (Capital Asset Pricing Model) and, after highlighting some limitations of this model, to introduce multi-factor pricing models (essentially Fama and French 3-factor model).

Part 4 analyzes how information is incorporated into prices. The erratic behavior of stock prices may cast doubt about their actual meaning. Do stock prices convey valuable information? Is there an incentive for firms to be publicly-traded? On an informationally-efficient market, the expected gain from price forecasts is equal to 0. Is it the case? Although there exist so-called market anomalies (abnormal returns), further examination of abnormal returns shows that these arise mostly as a form of compensation for hidden costs (transaction costs, information costs) and risks.

Part 5 is more practical as it illustrates how the concepts developed in parts 1 to 4 can be used by decision makers. We will focus on investment decision, financing decision and portfolio managers performance measurement.

Course outline
Introduction : The Role of Financial markets
PART I: Stock exchanges and their organization

- Markets and their structure
- Organization of trades
- Liquidity and transaction costs
- The role of regulation and technology

PART 2: Risk and return

- Stock market indices
- Calculating returns

Compétences à acquérir :

Course objectives:

- To understand the functioning of markets, trading costs, and liquidity
- To understand the concepts of risk, diversification, and portfolio theory
- To understand asset pricing models
- To understand the incorporation of information into prices and how prices behave in efficient markets
- To understand how to use asset pricing models for fund performance evaluation, firm valuation, and investment decisions

Pré-requis recommandés

Though there will be brief reminders during the classes of the mathematical and statistical tools that are needed to understand the various concepts used in the course, students must have some prior knowledge of the following concepts: calculus (derivatives, Taylor expansion), probability (discrete and continuous variables, moments, covariance, correlation), statistics (sample estimators, linear regression), linear algebra (matrix operations) and optimization (Lagrangian).

Mode de contrôle des connaissances :

12 3-hour classes. Practical examples and solutions to exercises in class.
Grading: mid-term exam (40%) and final exam (60%).

Coefficient : 1

Bibliographie, lectures recommandées :

Class handouts are downloadable from course webpage on MyCourse
Berck K. and P. De Marzo, “Corporate Finance”, 4th edition, Pearson

Fixed income markets

ECTS : 6

Enseignant responsable : CAROLE **GRESSE** (https://www.marchesdetauxdinteret.fr/)

Langue du cours : Anglais

Description du contenu de l'enseignement :

This course aims at presenting the fundamental principles of fixed income investments. It starts with a description of debt securities, debt markets, and risks associated with investing in corporate and sovereign bonds. The course recalls the traditional valuation model of bonds and explains how to measure bond returns. It explains the relations between yields, spot interest rates, and forward rates, and presents the interest rate term structure. It studies the measurement of interest rate risk and the impact of credit risk on corporate bond valuation. The course also addresses the arbitrage-free valuation approach.

Compétences à acquérir :

At the end of this course, students should know:
- how to price non-sophisticated fixed income securities with the traditional approach and the no-arbitrage approach,
- which risks affect bond portfolios and how to appraise them,
- how to measure interest rate risk with duration and convexity,
- how to derive zero-coupon rates and forward rates from a yield curve,
- the main theories explaining the interest rate term structure.

Pré-requis obligatoires

Mathématiques financières at the L3 level for students from the Dauphine "licence" in "Management et gestion des organisations"

Pré-requis recommandés

Fixed Income Mathematics at the bachelor level

Mode de contrôle des connaissances :

Tutorial participation: 20%
Final exam: 80%

Coefficient : 1

Bibliographie, lectures recommandées :

Fabozzi, Frank J., *Fixed Income Analysis*, 2nd edition, 2007, Wiley, CFA Institute Investment Series.
or
Adams, James F., and Donald J. Smith, *Fixed Income Analysis*, 5th edition, 2022, Wiley, CFA Institute Investment Series.

En savoir plus sur le cours :https://moodle.psl.eu/

Specialisation Seminars S1 : Choose 2 mandatory courses + 1 to choose

Financial analysis

ECTS : 3

Enseignant responsable : Guillaume **RENARD** (https://dauphine.psl.eu/recherche/cvtheque/renard-guillaume)

Langue du cours : Anglais

Description du contenu de l'enseignement :

- Financial Analysis and Financial Statements
- FA using ratios

- Master the tools of financial analysis
- Master the tools of financial analysis
- Present the main methods for valuing companies

International finance

ECTS : 3

Enseignant responsable : EVGENIA **PASSARI** (https://dauphine.psl.eu/recherche/cvtheque/passari-evgenia-1)

Langue du cours : Anglais

Description du contenu de l'enseignement :

The aim of this module is to provide a thorough foundation of the key concepts in international finance with a focus on exchange rate economics. The module begins with an overview of the institutional characteristics of the foreign exchange market and subsequently examines the fundamental determinants of exchange-rate dynamics. By the end of the course the students will be familiar with both the theoretical models and the empirical evidence regarding exchange-rate behaviour. Emphasis will be given to the implications of these outcomes for exchange rate forecasting, international diversification and investment decisions.

Course outline

- Week 1: Foreign Exchange Market Structure
- Weeks 2 and 3: Foreign Exchange Market Eficiency
- Weeks 4 and 5: Real Exchange Rate and Purchasing Power Parity
- Week 6: Balance of Payments
- Weeks 7 and 8: Exchange Rate Determination

Mode de contrôle des connaissances :

Mid-term (30%) and final exam (70%).

Bibliographie, lectures recommandées :

General
Bekaert, G. and R.J. Hodrick (2009). International Financial Management. New Jersey: Pearson Education.
Sarno, L. and M.P. Taylor, (2005), The Economics of Exchange Rates, Cambridge University Press.
Specific
Week 1

- Bekaert and Hodrick, Ch. 2 & 3.
- King, M.R., Osler, C. and D. Rime (2012). Foreign Exchange Market Structure, Players and Evolution, in James, Marsh and Sarno (eds.), Handbook of Exchange Rates, Wiley.
- Foucault, T., Kozhan R. and W. Wah Tham (2017). Toxic Arbitrage Review of Financial Studies, 30, 1053-1094.

Weeks 2 and 3

- Bekaert and Hodrick, Ch. 6 & 7.
- Akram, Q.F., Rime, D., and L. Sarno (2008). Arbitrage in the Foreign Exchange Market: Turning on the Microscope, Journal of International Economics, 76, 237-253.

Weeks 4 and 5

- Bekaert and Hodrick, Ch. 8 & 9.
- Marsh, I., Passari, E., and L. Sarno (2012). Purchasing Power Parity in Tradable Goods, in James, J., L. Sarno and I.W. Marsh (eds.) Handbook of Exchange Rates, London: Wiley.

Week 6

- Bekaert and Hodrick, Ch. 4 & 5.
- Rey, H. (2013). Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence, Federal Reserve Bank of Kansas City Economic Policy Symposium.

Weeks 7 and 8

- Bekaert and Hodrick, Ch. 10.
- Mark N. C. (1995). Exchange Rates and Fundamentals: Evidence on Long-Horizon Predictability, The American Economic Review, 85, 201-218

Introduction to econometrics

ECTS : 3

Enseignant responsable : GAELLE **LE FOL** (https://dauphine.psl.eu/recherche/cvtheque/le-fol-gaelle)

Langue du cours : Anglais

Description du contenu de l'enseignement :

Introduction : issues and problems of financial econometrics ; Simple and multiple regression models ; Statistical inference and regression quality ; Hypotheses and tests of the hypotheses of the linear regression model ; Applications : linear regression models in finance.

Compétences à acquérir :

This course is an introduction and/or refresher course in Econometrics that focuses on techniques for estimating regression models, on problems commonly encountered in estimating such models, and on interpreting the estimates. The goal is to provide participants with the basic skills and knowledge necessary to undertake empirical research and to prepare them to more advanced course in Econometrics for Finance. Gretl will be the econometric software used in the course (alternatively, R can be used). If some theoretical aspects will be studied, the focus is more on the acquisition of a scientific empirical approach.

Concretely, this course will allow students to

- keep a critical eye on econometrics results,
- acquire a method to answer economic and financial questions in a quantified manner
- to use this knowledge to carry out basics empirical studies in finance.

Pré-requis obligatoires

Applied statistics, Financial Mathematics (BSc. in Economics and Management Level)

Pré-requis recommandés

A first cours in programming

Bibliographie, lectures recommandées :

Adkins, L., 2018, *Using Gretl for Principles of Econometrics*, 5th Edition, Version 1.0, http: ;
Brooks C., 2019, *Introductory Econometrics for Finance*, 4th Edition, Cambridge University Press, 724 pages ;
Carter Hill R., W. E. Griffiths and G.C. Lim, 2018, Principles of Econometrics, 5th Edition, John Wiley & Sons, 912 pages.

Microeconomics for finance

ECTS : 3

Enseignant responsable : JEROME **DUGAST** (https://dauphine.psl.eu/recherche/cvtheque/dugast-jerome)

Langue du cours : Anglais

Description du contenu de l'enseignement :

Syllabus:
1. Equilibrium in an Exchange Economy
2. Decision Making under Uncertainty
3. Equilibrium in Markets for Securities
4. Investment Decision under Market Imperfections: the Principal-Agent Problem

Compétences à acquérir :

This 24 hours course aims at acquainting students with relevant microeconomics methods to tackle finance issues.

Pré-requis recommandés

Basic notions of mathematical analysis and algebra are required.

Mode de contrôle des connaissances :

Final exam and assignment

Broadening Seminars S1 : Choose 1 mandatory course + 1 to choose

Private equity

ECTS : 3

Enseignant responsable : ANTOINE **RENUCCI**

Langue du cours : Anglais

Description du contenu de l'enseignement :

- Private Equity
- Start-up
- Leverage Buy Outs
- Debt restructuring

- The objective of this course is to provide students who wish to work in this industry or who want to study the specifics of private equity financing with the necessary tools.
- Professionals from the industry are invited to present real-world cases.

Algorithms and programming

ECTS : 3

Langue du cours : Français

Financial econometrics

ECTS : 3

Enseignant responsable : GAELLE **LE FOL** (https://dauphine.psl.eu/recherche/cvtheque/le-fol-gaelle)

Langue du cours : Anglais

Description du contenu de l'enseignement :

Going further the introductory course : « TRUE » model and DGP ; Revisiting the multiple regression model: Hypotheses, statistical inference, criteria for model selection, dummy and explanatory variables ; Revisiting OLS hypotheses violation, tests and correction : Heteroskedasticity, Autocorrelation, Normality, Multicollinearity, Exogeneity, specification error ; Alternative to OLS: Two stage least square (2SLS), Maximum likelihood, Generalized least squares (GLS), Quantile regression (if time permits).

Compétences à acquérir :

This second course of econometrics applied to finance has three objectives: The first is to comeback to some of the theoretical aspects of econometrics in order to better understand how it works, what are the implications of assumption failures, and what to do to correct the estimators and their precision. The second objective aims to discuss the practices and the concrete implementation of these methods and their corrections as well as new estimation tools. Finally, the third objective is in the way this course is approached as it is based on simulation.

Concretely, simulating the "real" model and observing what happens when we are not in the conditions of use of an estimator, a quality criterion or a test allows:

1. *to master the details of the regression tools (simulation of the data generating process - DGP -, choice of the characteristics and laws of variables, choice of hypotheses, etc)*
2. *to understand the consequences of any assumption failure as well as the interaction of several failures,*
3. *to use this knowledge to carry out empirical studies.*

Pré-requis obligatoires

Statistiques appliquées à la gestion (L3), Mathématiques financières (L3), Introduction to Econometrics (M1)

Bibliographie, lectures recommandées :

- Adkins, L., 2018, *Using Gretl for Principles of Econometrics*, 5th Edition, Version 1.0, http: http://www.learneconometrics.com/gretl/poe5/using_gretl_for_POE5.pdf ;
- Brooks C., 2019, *Introductory Econometrics for Finance*, 4th Edition, Cambridge University Press, 724 pages;
- Carter Hill R., W. E. Griffiths et G.C. Lim, 2018, Principles of Econometrics, 5th Edition, Wiley, 912 pages;
- Gudjarati D. N., 2011, *Basics Econometrics*, 5th Edition, De Boeck, 1010 pages.

SEMESTER 2

Mandatory Fundamental S2

Corporate finance

ECTS : 6

Enseignants : ZORAN **FILIPOVIC**, EDITH **GINGLINGER**
https://dauphine.psl.eu/recherche/cvtheque/filipovic-zoran
https://dauphine.psl.eu/recherche/cvtheque/ginglinger-edith

Langue du cours : Anglais

Description du contenu de l'enseignement :

This course examines important issues in corporate finance from the perspective of financial managers who are responsible for making significant investment and financing decisions. The concept of net present value, suitably adapted to account for taxes, uncertainty, and strategic concerns, is used to analyze how investment and financing decisions interact to affect the value of the firm. The course covers topics such as capital structure, cost of capital, capital budgeting in the presence of uncertainty, payout policies.

The primary purpose of this module is to provide an integrated overview of the most important concepts in Corporate Finance, both in theory and in practice. The subject extends the student's knowledge about the context in which corporations operate. While the course is not designed to dwell on abstraction, the basic theoretical underpinnings of the various topics are a prerequisite to competent analysis and intellectual discussion. We emphasize the development of problem-solving skills based on a good understanding of the business environment as opposed to pure theorizing. Because of the practical importance of the material and as an illustration of the relevant theory, we will discuss examples and cases.

Compétences à acquérir :

- After completing this module, the student should be able to:
  · use the CAPM and apply skills in estimating cost of equity
  · estimate the cost of each source of capital and calculate a weighted average cost of capital for a company
  · compare and contrast leverage strategies in ideal versus real capital markets and be able to explain the expected impact of alternative taxation systems on the use of debt in a firm's capital structure
  · understand capital structure and outline the main factors that financial managers should consider when determining a company's financing strategy and payout policy
  · use capital budgeting tools in presence of uncertainty ; introduce extra-financial criteria in the investment decision making process
  · critically apply and discuss the theories relating dividends to share price and cost of capital

Pré-requis recommandés

The prerequisite for this course is a course of Introduction to Finance (for example 2110 U08-corporate finance L3). Some basic familiarity with Excel will be assumed. It is expected that students will be comfortable with the following topics: time value of money, risk-return trade-off, valuation of bonds and stocks, Capital Asset Pricing Model (CAPM).

Coefficient : 1

Bibliographie, lectures recommandées :

· Berk J., et P. DeMarzo, Corporate finance, Pearson, 2016
· Brealey R., S.Myers, F.Allen Principles of corporate finance, Mc Graw Hill, 2016
· Vernimmen P., P.Quiry, Y.Le Fur, Corporate finance, Dalloz, 2017

Financial modeling and applications (VBA)

ECTS : 6

Enseignant responsable : FABRICE **RIVA** (https://dauphine.psl.eu/recherche/cvtheque/riva-fabrice)

Langue du cours : Anglais

Description du contenu de l'enseignement :

Part 1: Introduction to VBA programming

- The Excel object model

- The VBA language: variables, conditional statements, loops

Part 2: Financial modeling
- Properties of stock returns
- Diversification and optimal portfolios
- Option pricing

Compétences à acquérir :

The objective of this course is to acquaint students with the VBA programming language in Excel to do financial modeling and solve standard financial problems

Pré-requis recommandés

Investments and Financial Markets (1st semester course in M1 Finance), basic programming knowledge (variables, loops, conditional statements)

Mode de contrôle des connaissances :

- 35% midterm exam

- 15% in-class participation during tutorial sessions

- 50% final exam

Coefficient : 1

Bibliographie, lectures recommandées :

- Jackson M. and Staunton M., "Advanced Modelling in Finance using Excel and VBA", Wiley Finance
- Riva F., "Applications financières sous Excel en Visual Basic", Economica (4ème édition)

Banking and financial intermedation

ECTS : 6

Enseignant responsable : Mattia **GIROTTI** (https://drm.dauphine.fr/fr/drm/membres/detail-cv/profile/mattia-girotti.html)

Langue du cours : Anglais

Description du contenu de l'enseignement :

This is a graduate-level course aimed at providing in-depth knowledge of banks and financial intermediaries, their role in the economy, their specificities, and the regulation that applies to them. In the first part, the course describes banks and financial intermediaries, and the risks to which they are exposed. In the second part, the course presents how banks and financial intermediaries deal with those risks, and the role of regulation. In the last part, the course discusses money and monetary policy, with a particular focus on monetary policy transmission through banks, and decentralized finance.

Session 1: Banks and Financial Intermediaries

Session 2: Bank Accounting

Session 3: Interest Rate Risk

Session 4: Credit Risk

Session 5: Liquidity Risk

Session 6: Prudential Regulation

Session 7: Financial Markets and Financial Intermediaries

Session 8: Interbank Markets

Session 9: Systemic Risk and Contagion

Session 10: Money and Monetary Policy (part 1)

Session 11: Money and Monetary Policy (part 2)

Session 12: Blockchain and Decentralized Finance

Compétences à acquérir :

By the end of the course, students should be able to identify and analyze challenges for banks and financial intermediaries and connect theoretical elements about banking discussed in class with recent debate.

Pré-requis recommandés

A good knowledge of accounting and corporate finance is recommended.

Mode de contrôle des connaissances :

Final exam 100%.

Coefficient : 1

Bibliographie, lectures recommandées :

- Saunders, Anthony, Marcia Millon Cornett, and Otgo Erhemjamts. *Financial institutions management: A risk management approach*. McGraw-Hill, 2021.

- Casu, Barbara, Claudia Girardone, and Philip Molyneux. *Introduction to banking*. Pearson, 2021.

Specialisation Seminars S2 : Choose 1 mandatory course + 1 to choose

Behavioral finance

ECTS : 3

Enseignant responsable : Marie-pierre **DARGNIES** (https://dauphine.psl.eu/recherche/cvtheque/dargnies-marie-pierre)

Langue du cours : Anglais

Description du contenu de l'enseignement :

-Violations of expected utility theory and alternatives to this theory

-Time preference: standard model (Discounted utility), violations, alternatives

- Overconfidence
- Bayesian updating and cognitive heuristics
- Behavior in strategic situations
- The endowment effect

- Over the past several decades, the field of finance has developed a successful paradigm based on the notions that investors and managers were generally "efficient". In recent years, however, anecdotal evidence as well as theoretical and empirical research have shown this paradigm to be insufficient to describe various features of current financial markets. Taking into account insights from psychology and the fact that investors and managers are sometimes affected by biaises has allowed a deeper understanding of financial markets. In this course we will study experimental and theoretical research to examine how the insights of behavioral finance complement the traditional paradigm.

Compétences à acquérir :

At the end of the course, students are capable of understanding quite complicated theoretical models and the differences and respective contributions of theory, empirical and (both field and lab) experimental work. Students are also able to understand a large amount of non-trivial quantitative content and make it their own such that they are able to use it in different contexts.

Pré-requis recommandés

Undergraduate micro (expected utility theory), conditional probabilities

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Introduction to quantitative finance

ECTS : 3

Enseignant responsable : EMMANUEL **LEPINETTE** (https://sites.google.com/view/emmanuel-lepinette/research-cv-and-others)

Langue du cours : Français et anglais

Description du contenu de l'enseignement :

The goal of this course is to provide a good background in quantitative finance. After some reminders on probability theory (change of probability measure, random variables, usual distributions, conditioning), the course is planed as follows:
1) Classical financial market modeling: stochastic basis, stochastic processes, price processes and self financing portfolio

processes in discrete-time. Examples of price dynamics and portfolio dynamics in continuous time; interpretation by discretization.
2) Fundamental theorem of asset pricing; pricing of European and Asian options.
3) Examples of pricing by Monte Carlo numerical simulations. Programming in Python applied to classical models, e.g. the Black and Scholes model.

Compétences à acquérir :

Théorie des probabilités et mathématiques financières.

Pré-requis recommandés

Il est préférable de vous mettre à niveau sur les notions suivantes: intégrales de Riemann, espace probabilisé, tribu, espérance, espérance conditionnelle.

Bibliographie, lectures recommandées :

https://www.amazon.com/Quantitative-Finance-Beginners-Stochastic-European/dp/B0C6BMGWGH

Business valuation

ECTS : 3

Enseignant responsable : ZORAN **FILIPOVIC** (https://dauphine.psl.eu/recherche/cvtheque/filipovic-zoran)

Langue du cours : Anglais

Description du contenu de l'enseignement :

(Subject to adjustments)
1. Financial Analysis (review)
Value creation, WACC, DCF
2. Valuation Techniques
Valuation with changing capital structure, Adjusted Present Value (APV), Economic Value Added (EVA), Venture Capital Method, Valuation by parts, Real options, Earnouts
3. Applications and special situations
Leveraged Buyouts (LBO), Mergers and acquisitions (M&A), Private companies, High-growth companies, Emerging markets, Cyclical companies

Compétences à acquérir :

This course introduces advanced valuation techniques for analysis of a business, with focus on their usefulness in valuing and financing companies and in the evaluation of corporate performance. We will apply the techniques on real world cases such as leveraged buyouts (LBO) and mergers and acquisitions (M&A) and analyse several special situations like high-growth companies, emerging markets and private companies. Throughout the semester we will make extensive use of case studies so that you can gain the knowledge of the relevant theory and techniques and an ability to use them in actual situations. The course will combine traditional lectures, exercise sessions and case method teaching. You will be working individually and in groups.

Pré-requis recommandés

This is a master-level course that assumes students have had prior exposure to basic corporate finance principles, cash-flow discounting techniques and introductory accounting. Students should also be able to proficiently use Microsoft Excel and be able to access .pdf documents.

Mode de contrôle des connaissances :

• Final written exam
• Group work
The numerical grade distribution will dictate the final grade. The passing grade for a course is 10/20.
Class participation: Active class participation is encouraged thus all students should be able to verbally participate in class discussions. Class participation is based on quality of comments, not quantity. Come on time and prepared.

Bibliographie, lectures recommandées :

• Valuation: Measuring and Managing the Value of Companies, University Edition, by Tim Koller Marc Goedhart and David Wessels, McKinsey & Company, John Wiley & Sons, 2015, 6th edition
• Investment Banking: Valuation, Leveraged Buyouts, and Mergers and Acquisitions, by Joshua Rosenbaum and Joshua

Pearl, John Wiley & Sons, 2nd edition
• Valuation: Mergers, Buyouts and Restructuring, by Enrique R. Arzac, John Wiley & Sons, 2nd Edition
• Corporate finance, Theory and Practice, by Pierre Vernimmen, Pascal Quiry, Maurizio Dallocchio, Yann Le Fur and Antonio Salvi, John Wiley & Sons, 5th edition
• Vernimmen English website: www.vernimmen.com
• Data sources: COMPUSTAT, Companies' websites

Financial macroeconomics

ECTS : 3

Enseignant responsable : VERONIKA **SELEZNEVA** (https://sites.google.com/view/veronikaselezneva/home)

Langue du cours : Anglais

Description du contenu de l'enseignement :

· *Deterministic dynamic optimization problems.*

a. Firm's hiring decision

b. Consumption & Savings Under Uncertainty

c. Theory of Investment.

· *Asset pricing and risk.*

a. Equity premium puzzle.

· *Monetary economics.*

a. Introducing money. Classical issues in monetary economics.

b. Introducing price setting. Monetary economics with frictions.

c. Monetary policy.

Compétences à acquérir :

This 24-hour course is a graduate-level introduction to financial macroeconomics. The main objective of this course is to provide students with a rigourous approach to the basic ingredients behind any macroeconomic model, i.e the consumption/demand and production/supply sides. In an intuitive approach, students are first thaught the standard techniques of dynamic programming. The traditional consumer's decision problem is then covered, potentially but not exclusively through the lens of this newly exposed method. Before studying real business cycle models as a whole and therefore being able to investigate why aggregate economic activity fluctuates in a general equilibrium setting, students learn about the neoclassical theory of investment (i.e the Ramsay model). Finally, to better understand the links between output and inflation and if time allows, students are introduced to the role played by money and the importance of prices. In particular, the New Keynesian framework with its price and/or wage rigidities allows students to analyze the costs and benefits of price stability and the inherent role of central banks.

Pré-requis obligatoires

Basic notions in intermediate macroeconomics

Mode de contrôle des connaissances :

Bibliographie, lectures recommandées :

The textbooks for the course are:

- Stokey, Nancy L., Robert E. Lucas, Jr., and Edward C. Prescott: Recursive Methods in Economic Dynamics. Cambridge: Harvard University Press, 1989.
- Ljungquist, Lars and Thomas J. Sargent: Recursive Macroeconomic Theory. Second Edition. MIT Press. 2004.
- Galí, Jordi. Monetary Policy, Inflation, and the Business Cycle: an Introduction to the New Keynesian Framework. Princeton University Press, 2008
- Cochrane, John H. Asset Pricing:(Revised Edition). Princeton university press, 2005.

Additional reading materials and the related readings will be made available later.

Broadening Seminars S2 (2 mandatory courses)

Research methodology and practice

Langue du cours : Anglais

Description du contenu de l'enseignement :

Knowledge of WRDS database

Compétences à acquérir :

How to use WRDS database

Master's Thesis

ECTS : 6

Enseignant responsable : EVGENIA **PASSARI** (https://dauphine.psl.eu/recherche/cvtheque/passari-evgenia-1)

Langue du cours : Anglais

Description du contenu de l'enseignement :

The master's thesis should address a precise question and methodology and display a rigorous treatment of the empirical analysis of this question. You will choose your research topic from a proposed list, and you will be guided through the methodology and the empirical treatment of the question.

The course is intended for both the students who would like to prepare for a research track but also for those who have a career goal in mind and would like to develop a set of data analysis and presentation skills for it.

Compétences à acquérir :

The aim of this module is to provide you with the necessary tools that will help you complete your master's thesis. It will give you the opportunity to deepen your knowledge in a topic of your interest and teach you to work independently and with confidence. The purpose of the master's thesis will be to conduct a study of an empirical question within the recent developments of the finance field, as well as to present the results of this study.

Mode de contrôle des connaissances :

The module is assessed via the master's thesis and its presentation via an oral examination. The oral examination will be scheduled after the submission of the master's thesis. The questions that will be posed during the oral examination will be linked to your research question, methodology, data analysis, etc.

Coefficient : 1

Bibliographie, lectures recommandées :

Slides, along with a companion reading list, will be provided by the lecturer.