**Microeconomics (for Finance)**

Prof. Ferdinando Colombo

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

The course exploits the results of Macroeconomic theory to provide students with detailed knowledge of the foundations of modern financial economics.

The presentation of the theoretical part is constantly accompanied by numerical exercises, which are intended to help students study in-depth the economic-financial concepts and the analytical results introduced in the course.

At the end of the course, students will be able to:

1. know and understand the theory of updating beliefs, investment choices based on the probabilistic relationships between different *assets*, the possible advantages deriving from the presence of evolved financial markets, the determinants of *asset* prices, and the psychological factors that can induce investors to make "irrational" choices. This will enable students to develop investment strategies adopted to the needs of the customer and effectively manage financial advisory relationships.
2. use their knowledge of the modern financial economy to identify the most appropriate investment and communication strategies for their clients, also considering the psychological factors that can create a gap between the objective quality of a strategy and investors' subjective perceptions.
3. independently interpret and analyse the enormous amount of economic-financial data available on numerous specialised platforms, as well as develop alternative probabilistic scenarios.
4. communicate clearly and rigorously - and, if necessary, formally - the conclusions of their analyses and the reasons for their decisions, both to experts in the sector and to investors with limited financial expertise.
5. interpret economic and financial phenomena that will help them understand the complexity of both the markets and the human mind, and in some cases, even develop new theories.

***COURSE CONTENT***

*– Decision theory.* Theories of expected utility and expected subjective utility.

– *Uncertainty and information.* Subjective probability and information. Information value and choice between information structures. Markets and information: analysis of an economic model of rational imitative behaviour.

– *Risk and return*. Expected value. Stochastic dominance of first order. Risk attitude. Equivalent of certainty, risk premium probability premium. Absolute and relative risk aversion. In the small and in the large theoretical results*.*  Prudence and temperance. The most used utility functions in economics and their properties. Stochastic dominance of second order. Monotonous stochastic dominance of second order. Economic applications: insurance and portfolio choice.

– *Mean-variance approach (overview)*. Correlation between *assets* and efficient frontier. Portfolio choice and separation theorem. Some comparative statics results. CAPM. Mean-variance approach *vs.* expected utility: critique and justification.

– *Investment, insurance and savings choices.* Optimal portfolio choice. Expected utility and diversification. Optimal insurance choice. Risk and optimal savings choice.

– *Competitive equilibrium and prices of securities*. Spot markets and Edgeworth box: ex-post but not ex-anteefficiency. Contingent goods markets to world states: ex-ante and ex-post efficiency. Competitive equilibrium with sequential markets: Arrow securities and spot assets. Price per unit of probability of Arrow securities. Market risk and idiosyncratic risk. Result of mutuality. Comprehensive market with complex securities. Law of one price. Competitive equilibrium and absence of arbitrage opportunities. Inter-temporal choice. Securities prices and stochastic discount factor. Risk-neutral probabilities. Expected rate of return and covariance with the stochastic discount factor. Incomplete markets, inefficient risk allocation and the possibility of supplementing the market with options. A financial intermediation model.

– *Behavioural finance*. “Anomalous” financial behaviours. Behavioural economics. Psychological factors that influence the behaviour of investors in financial markets.

***READING LIST***

F. Colombo, *Fondamenti razionali di economia finanziaria,* Giappichelli, 2023.

F. Colombo, *Rischio, informazione, equilibrio. Esercizi di economia finanziaria,* seconda edizione, Giappichelli, di prossima pubblicazione.

N. Barberis-R. Thaler, *A Survey of Behavioral Finance,* in Constandinides *et al*, Handbook of the Economics of Finance, Vol. 1, Parte 2, Elsevier, 2003.

***TEACHING METHOD***

Lessons and frontal exercises.

***ASSESSMENT METHOD AND CRITERIA***

The exam comprises: a 100-minute written test to assess students’ understanding of theoretical course content, also through the resolution of numerical exercises similar to those presented in class and/or assigned, and to assess students’ ability to use their knowledge to discuss economic and financial phenomena, not necessarily covered during the course. All questions and exercises are open-ended. Each question/exercise will be marked out of thirty. The weight assigned to each question counting towards the final mark will be indicated in the exam paper.

There will be the opportunity to pass the exam by taking written interim tests, also consisting of theoretical questions and numerical exercises, similar to the complete examination. The first test (mark I) will take place during the seventh week of the course, while students will decide whether to take the final test, (mark C) during the first or the second call (appello) of the Summer session. Both exams last 80 minutes. The final vote is calculated using the following formula: V = 0,529\*I+0,529\*C, rounding up to the nearest whole number.

***NOTES AND PREREQUISITES***

During the course, students will apply mathematical and statistical concepts studied during the undergraduate degree. For example, students must calculate derivatives of composite functions, dentify the maximum function of a variable, know that the integral of a function is the area under a curve, be acquainted with a density function and a distribution function, calculate conditional probability using Bayes’ Theorem, solve a system of two equations with two unknowns, know the meaning of linearly dependent vectors and identify the relationship between them.

Constant and active class attendance is fundamental, in consideration of a gradual assimilation of the illustrated concepts and of the employed analytic tools.

Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=ENG, or on the Faculty notice board.