Financial Economics
SYLLABUS

Information at a glance

Course: Financial Economics
Professors: Marco Corazza (email: corazza@unive.it)

Purpose of course  The objective of the course is to introduce theoretical and computational methods for static and dynamic portfolio optimization problems, and to provide the basics of some general equilibrium model of financial markets.

In short detail:

- the course presents the classical approaches proposed in literature to static and to revision optimization problems, and considers some issues addressed by recent research contributions in the field;
- the course provides tools to analyze and solve a variety of investment problems with respect to the risk measures, to the objective functions and to the considered constraints;
- the course provides mathematical techniques for the solution of the resulting optimization problems, with particular attention to metaheuristic-based solution approaches;
- the course provides understandings for portfolio management theory and skills to manage the results of the analysis to make informed decisions.
- the course provides the basics of the general equilibrium model of financial markets known as Capital Asset Pricing Model.

The course is directed to students who are interested in broadening their knowledge on mathematical and computational methods in finance. It provides both theoretical and computational approaches to a wide class of portfolio management problems and to the related general equilibrium models.

At the end of the course students are expected to be able to critically analyze a variety of investment problems, to formalize each of them into a proper optimization problem, to be able to choose appropriate solution approaches both in static and revision framework, and to solve such problems.

Prerequisites.  It is necessary familiarity at the level of the courses of the first year with linear algebra, linear and nonlinear optimization, and probability theory. For more detailed information or particular inquiries feel free to contact the teacher.
Examination policy. The course grade will depend on class participation, some homeworks, and a final discussion on a research topic related to the course, exploring both theoretical aspects and computational ones.

Reading material

Chapters of books and research papers will be used. Chapters covering some of the topics in the course are listed below; others references will be made available during the course.

3) G.P. Szegő (1980), *Portfolio Theory with Application to Bank Asset Management*, Academic Press. [Chapters 1, 2, 6, 8, 10 and 12.]