QUANTITATIVE FINANCE

Degree(s)	: Economics; Management
Type	: Compulsory course unit
Curricular year/semester	: 1st year - 1st / 2nd Semester
ECTS / hours per week	: 6 ECTS / 4.0 Hours
Workload per week	: 1 Theoretical x 1 Hour + 2 Practical x 1.5 Hours
Teacher responsible	: Professor Alfredo Duarte Egídio dos Reis

OBJECTIVES

- To develop the student's understanding of basic concepts and terminology of financial mathematics;
- To enhance the students ability to solve practical problems; and
- To understand the financial mathematical concepts necessary for other courses dealing with finance, insurance and investments.

PROGRAM

1. Simple interest

1.1 Types of time and interest

1.2 Future value at simple interest

1.3 Present value at simple interest

1.4 Simple interest debt instruments

1.5 Equation of value

1.6 Equivalent time

2. Discount interest

2.1 Comparing simple and discount interest

2.2 Discount applications – Treasury Bills

3. Compound Interest

3.1 Compound interest – Future Value Formula

3.2 Nominal rates and effective interest

3.3 Finding the Compound rate

3.4 Finding the time for an investment to grow

3.5 Equations of Value to Find the unknown

3.6 Continuous compounding

4. Ordinary Annuities

4.1 The future value of an ordinary annuity

4.2 The Present Value of an Ordinary Annuity

4.3 The Periodic Payment or Rent for an Ordinary Annuity

5. Other Annuities Certain

5.1 Deferred Annuities

5.2 Perpetuities;

6. Variable Payment Annuities

6.1 Arithmetic

6.2 Geometric

7. Amortisation of Debts and Amortisation Schedules

8. Investing in bonds

9. Leasing

BIBLIOGRAPHY

Recommended Bibliography:

- Gary. G. & Larry D. (2009), Mathematics of Interest Rates and Finance, Pearson, London;

- Barroso, M. N.; Couto E. & Crespo, N. (2009) Cálculo e Instrumentos Financeiros, Escolar Editora, Lisboa.