



## **Visiting Professor Program Academic Year 2024/2025**

**TEACHING COMMITMENT:** 14 hours

**COURSE TITLE**

**Mathematics for Business and Finance**

**TEACHING PERIOD**

1st term

**SCIENTIFIC AREA**

Applied Mathematics

**LANGUAGE USED TO TEACH**

English

**COURSE SUMMARY**

The course is composed of two modules.

Mathematics: Functions of one variable. Definition, domain, codomain, image, graph of a function. Elementary functions and injective, surjective, inverse, composite functions. Bounded, monotone, convex functions. Maximum and minimum of a function. Limits and continuity. Notion of limit. Computation of limits and fundamental theorems. Important limits and indeterminate forms. Continuous functions and theorems. Differential calculus and applications. Notion of derivative and its geometrical meaning, higher-order derivatives, rules of derivation. Derivatives of elementary functions, of inverse functions and composite functions. Theorems of differential calculus. Monotonicity and convexity tests. Optimum problems. Study of functions.

Financial Mathematics: Notions of linear algebra. Vectors, matrices and operations. Functions of two variables. Definition and domain. Graph and level curves. Continuity and derivability. Partial derivatives and gradient. Differentiability and tangent plane. Problems of unconstrained optimum.

Economic and business applications. Fixed costs, variable costs and revenues. Demand function. Income taxes. Production optimization. Profit maximization. Elasticity. Financial calculus. Accumulation and discount. Standard systems of financial laws. Annuities and amortization plans.

### **LEARNING OBJECTIVES**

The aim of the course is to present a tool-kit to face economic and financial environments, putting stress on business applications.

### **OTHER ACTIVITIES BESIDES THE COURSE**

Seminars on the research field of the VP (if in line with the research topics of the PhD students) will be delivered to PhD students.

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### **VISITING PROFESSOR PROFILE**

Large experience in teaching Applied Mathematics in English to big groups. Teaching organisation experience required (organising classes for Class Teachers, schedule of classes, managing exams). Good record of publications preferably on Mathematics for Managers.

### **CONTACT REFERENT**

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