

## CRASH COURSE ON MATHEMATICAL TOOLS FOR ECONOMISTS

Master's degree in Economics, Finance and Sustainability, A.A. 2025-26

### Instructor:

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The module is structured into five sessions, scheduled in the week preceding the start of the Optimization course. The sessions are dedicated to the following topics, which are assumed to be familiar to the students:

- Calculus in one variable.
- Fundamental concepts in the calculus of several variables.
- Basic notions in integral calculus.
- Linear Algebra: matrix and vector algebra, determinants, systems of linear equations, vector spaces and subspaces.

Each session will be structured as follows: first, the fundamental notions, definitions and theorems will be reviewed; then, each topic covered in class will be illustrated using a selection of exercises to provide an overview of the subject matter.

The sessions will be followed by mandatory homeworks. The purpose of these exercises is twofold: first, to test the students' knowledge of the topic; and second, to identify possible doubts and weaknesses.

The main reference is Simon C.P., Blume L.E. (1994): *Mathematics for Economists*, W.W. Norton & Company Press, Cambridge, (1994): chapters 2-5, appendix A4, chapters 7-14, 23, 26-28.

### Schedule and location:

Friday September 5: 15.00-16.30 MR1

Monday September 8: 15.00-16.30 MR1

Tuesday September 9: 15.00-16.30 MR1

Thursday September 11: 15.00-16.30 MR1

Friday September 12: 15.00-16.30 MR1

Meeting room 1 (MR1) is situated at the Department of Economics, building A.