

Collegio Carlo Alberto

Mathematics for Economics

Instructor: Pierpaolo De Blasi

Contact Information

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Web site

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<https://sites.google.com/a/carloalberto.org/pdeblasi/teaching>

Course Description

The purpose of this course is to provide basic mathematical tools used in macro and microeconomics. Knowledge of elementary calculus is assumed. The main topic is linear algebra, see below for a detailed course outline. Each topic is complemented with a problem set; some of the exercises will be solved in class; solutions will be available on my webpage in due time. It is highly recommended to try to solve the exercises prior to look at the solutions. Attendance to classes is *mandatory*.

Schedule

The course will take place during the last week of August and the first two weeks of September, for a total of 30 hours.

Exam

There will be a final examination during the third week of September, consisting of a series of problems to be solved in 3 hours time. No lecture material will be allowed (closed-book exam).

Course Outline

1. Elements of vector and matrix algebra	S	Chp 1--2
	SB	10.1—10.4, 8.1—8.4
2. System of linear equations	S	Chp 2
	SB	7.1—7.3, 8.7
3. Vector spaces, linear independence and basis	S	Chp 3, Chp 4
	SB	11.1—11.3, 27.1—27.2, 27.6
4. Rank and linear mappings	S	Chap 3, Chap 7
	SB	7.4, 13.3, 27.3—27.5
5. Orthogonality	S	Chap 4
6. Determinant	S	Chp 5
	SB	9.1—9.2, 26.1—26.3
7. Eigenvectors and eigenvalues	S	Chap 6
	SB	16.1, 16.2, 23.1—23.3, 23.7, 23.8
8. Limits and open sets in \mathbb{R}^m	SB	12.2—12.5

Textbooks

Lecture Notes at <https://sites.google.com/a/carloalberto.org/pdeblasi/teaching>

Lang, S. (1986). *Introduction to Linear Algebra (2 edn)*. Springer. (L)

Simon, C. P. and Blum L. (1994). *Mathematics for Economists*. W. W. Norton & Company. (SB)

Strang, G. (2009). *Introduction to Linear Algebra (4 edn)*. Wellesley Cambridge Press. (S)