

Prerequisites – Convex Analysis and Optimization

Essential prerequisites to the course are basic calculus of one and several variables and basic linear algebra.

Candidates are recommended to review the following references:

1. Carl P. Simon, Lawrence Blume, Mathematics for Economists, W.W. Norton Company, Inc. 1994:

- **Analysis:** Part I (Ch.1, 2, 3, 4, 5); Part III (Ch. 12, 13, 14, 15.1-15.3); Part VII (Ch. 29, 30);
- **Linear Algebra:** Part II (Ch. 7, 8.1-8.4, 9.1-9.2, 10.1-10.6, 11); Part VI (Ch. 26.1- 26.3, 27.1-27.5); Part V (Ch. 23.1, 23.3, 23.7-23.8);
- **Optimization:** Part IV (Ch. 16.1-16.2, 17.1-17.4, 18.1-18.3, 18.5-18.6, 19.1, 19.3, 19.6, 20.1, 21.1- 21.2, 21.5);

2. Guerraggio, A., Salsa, S., Metodi matematici per l'economia e le scienze sociali, Giappichelli, Torino, 1997.

Prerequisites – Measure Theory

Essential prerequisites to the course are basic probability theory and basic Riemann integration theory.

Students should be able to do basic exercises as well.

Students are requested to check whether they have studied and remember these topics. For example, they could refer to the textbooks:

- **For probability:** Casella, G., Berger, R.L. (2002), Statistical Inference, Duxbury, Pacific Grove – Chapter 1

or

Borra, S., Di Ciaccio, A. (2008), Statistica, McGraw-Hill, Milano – Chapters 8 and 9 (in Italian)

- **For integration theory:** Hoy, M., Livernois, J., McKenna, C., Rees, Stengos, T. (2011), Mathematics for Economics, 3rd edition, MIT Press -- Chapter 16

or

Allevi, E., Bertocchi, M., Birolini, C., Carcano, G. and Moreni, S. (2003), Manuale modulare di Metodi Matematici - modulo 5 - Giappichelli, Torino – Chapter 3 (in Italian).

Students with any gap with respect to the content of these chapters are kindly requested to fill them in before the course starts.