

Syllabus

[cmcd.economia@fgv.br]

Course: Mathematics for Economists

Professors: V.Filipe Martins-da-Rocha

SUMMER, 2022

PROGRAM

Basic mathematical tools for economists.

BIBLIOGRAPHY

1. Rudin, W.: "Principles of Mathematical Analysis". McGraw-Hill, 1976.
2. Lima, E. L.: "Análise Real Volume I: Funções de Uma Variável", IMPA, 1989.
3. Lima, E. L.: "Curso de Análise Volume I", IMPA, 1982.
4. Ok, E.: "Real Analysis with Economic Applications". Princeton University Press, 2007.
5. Simon, C. P. and L. Blume: "Mathematics for Economists". W. W. Norton, 1994.
6. Rudin, W.: "Principles of Mathematical Analysis" 3rd ed. McGraw-Hill, 1976.

GRADING

Problem Sets (20%) and final examination (80%).

The final grade in mathematics for economists will compose 20% of the final grade in Microeconomics I.

PROFESSOR - EMAIL

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DETAILED PROGRAM

Part I: Fundamentals

1. Logic
2. Sets
3. Relations
4. Orders
5. Functions
6. Finite and Infinite Sets

Part II: Real Line

7. Sequences of Real Numbers
8. Limits and Continuity of Functions
9. Topology in the Real Line
10. Differentiation

Part III: Beyond the Real Line

11. Metric Spaces
12. Other Spaces

Part IV: Non-linear Programming

13. Concave and Quasi-Concave Functions
14. Convex Separation Theorems
15. Lagrange Multipliers and Karush-Kuhn-Tucker Theorem