

# Syllabus

[cmcd.economia@fgv.br]

**Course:** Mathematics for Economists

**Professor:**

**SUMMER, 2025**

## 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.

## GRADING

Final examination (100%).

The final grade in Mathematics for Economists will compose 20% of the final grade in Microeconomics I.

## PROFESSOR - EMAIL

## **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: Other Mathematical Tools

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