



Course Syllabus

Department/Faculty Applied Social Science Center
Graduate Program Economics and Markets –Professional Master's
Degree <input type="checkbox"/> Academic Master's <input type="checkbox"/> Doctorate (PhD) <input checked="" type="checkbox"/> Professional Master's
Course Name: Mathematics and Economic Analysis
Professor(s): Álvaro Alves de Moura Junior
Office hours: 48 hours
Course Overview: Search for understanding the fundamental concepts of linear algebra applied to economic analysis. Application of differential calculus and integral calculus in economic problems. Use of conditioned and unconditioned optimization in Economics. Application of numerical methods to economic analysis. Study of applied questions of Linear Programming. Introduction to Differential Equations and Differential Equations.
Topics outline: <ul style="list-style-type: none">- Review of Functions and Introduction to Wofram Mathematica Software- Limit and Introduction to the derivative (with applications in the Wofram Mathematica software)- Derivatives and Unconditioned Optimization (with applications in Wofram Mathematica software)- Derivatives and Conditional Optimization (with applications in Wofram Mathematica software)- Integral Calculus (using Wofram Mathematica software)- Integral Calculus applied (with applications in Wofram Mathematica software)- Linear Algebra (using Wofram Mathematica and Excel software)- Applied Linear Algebra (using Wofram Mathematica and Excel software)
Letter Grade Assignment Grade A (Excellent) Grade B (Good) Grade C (Satisfactory) Grade D (Unsatisfactory)



Texts, Materials, and supplies

- Basic Bibliography:

CHIANG, Alpha C.; WAINWRIGHT, Kevin. Matemática para economistas. Rio de Janeiro: Elsevier, 2006.

GUIDORIZZI, Hamilton Luiz. Um curso de cálculo. 5. ed. Rio de Janeiro: Livros Técnicos e Científicos, 2013. 4 v.

POSTERNAK, Regina; PEDREIRA, Carlos. Álgebra Linear para Cursos de Economia. Rio de Janeiro: Campus, 2002.

SIMON, Carl P.; BLUME, Lawrence. Mathematics for economists. New York: Norton, c1994.

- Complementary Bibliography:

ANDRADE, Eduardo Leopoldino de. Introdução à pesquisa operacional: métodos e modelos para a análise de decisões. 4. ed. Rio de Janeiro: LTC - Livros Técnicos e Científicos, 2009

CYSNE, Rubens Penha; MOREIRA, Humberto Ataíde. Curso de matemática para economistas. São Paulo: Atlas, 1997.

HALSENMAN, D.; LITTLEFIELD, B. MATLAB 5-Versão do estudante: Guia do Usuário. 1999.

JACQUES, Ian. Matemática para economia e administração. 6. ed. São Paulo: Pearson, 2015.

PEDREIRA, Carlos Eduardo; POSTERNAK, Regina. Álgebra linear para cursos de economia. Rio de Janeiro: Campus, 2003.

MORETTIN, Pedro, HAZZAN, Samuel, and BUSSAB, Wilton O. Cálculo: Função de uma e Várias Variáveis. São Paulo: Saraiva, 2010.

STEWART, James. Cálculo. São Paulo: Cengage Learning, c2014. 2 v.

SUNDARAM, Rangarajan K. A first course in optimization theory. Cambridge, MA: Cambridge University, 1996.

VARIAN, Hal R. (ed). Economics and financial modeling with mathematica. New York: SpringerVerlag, c1993.

WOLFRAM, Stephen. The mathematica book. 4th ed. Champaign: Wolfram Media, c1999.

EDWARDS, Dilwyn; HAMSON, Mike. Guide to mathematical modelling. 2nd ed. New York: Palgrave, c2001.