



UNIVERSIDADE LUSÍADA
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Course Unit Program
Mathematics

Academic Year 2026/2027

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Business Management

3. Cycle

1st

4. Course Unit

Mathematics (24102)

5. Scientific Area

6. Curricular Year

1st

7. Type of Curricular Unit / Semester

1st Semester



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8. Class type and workload (work time)

Theoretical classes:	
Practical classes:	
Theoretical-Practical Classes	30,00
Tutorial Guidance:	20,00

9. ECTS Credits

6,00

10. Scientific Area Coordinator

11. Regent

Prof. Doutor ALEXANDRE MANUEL MORAIS MENA E SILVA

12. Assistants

Dr. JOSÉ MANUEL SILVA GUERREIRO LOUÇÃO DE MATOS

13. Teaching Language

Portuguese

14. General Objectives

To introduce the main mathematical tools, fundamental to the comprehension of several subjects in economy and management area.

15. Specific Objectives

Familiarize students with the fundamental concepts of Matrix Algebra. Review the study of Differential Calculus in R.

16. Skills to be acquired

Students should acquire the following skills:
Operate with matrices;
Calculate the determinant of a matrix using the Gaussian method;
Apply the Gaussian method to solve systems of linear equations;
Study functions of a single variable and solve optimization problems.

17. Teaching Methodology

The course is organised into theoretical-practical classes, supported by tutorial sessions in which examples illustrating the material covered are presented.



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18. Course Unit Program

1. Matrix Algebra
 - 1.1. Systems of linear equations. Gauss method.
 - 1.2. Determinants. Calculation of determinants by the Gauss method and by the Laplace method.
 - 1.3. Operations with matrices: addition, multiplication by a real number and multiplication.
 - 1.4. Inverse matrix and resolution of matrix equations.
2. Differential calculus complements in R
 - 2.1. Generalities about real functions of real variable.
 - 2.2. The concept of derivative
 - 2.3. Application of derivatives to the study of functions. Optimisation issues.
 - 2.4. Cauchy's rule.

19. Assessment Methods

The Regulations for the Assessment of Knowledge and Skills currently in force will apply. Continuous assessment must include oral contributions distributed throughout the teaching period and a final written test.

20. Didactic Resources

Students are provided with extensive bibliographic guidance and a theoretical-practical course handbook available on Moodle.

21. Sustainability Objectives

SDG 4. Quality Education. Develop skills in logical reasoning, inductive and deductive reasoning. Modeling and problem solving.

SDG 8. Decent Work and Economic Growth. Improve employability through mathematical skills and analytical skills.

SDG 9. Industry, Innovation and Infrastructure. Apply mathematics to innovation and technological development.

22. Keywords

Matrix
Determinant
Derivative
Limit



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23. Main Bibliography

Author(s): Isabel Cabral, Cecília Perdigão e Carlos Saiago
Title: Álgebra Linear
Edition: 7^a Year: 2024
Local: Lisboa
Publisher: Escolar Editora
ISBN Code: 978-972-592-626-0

Author(s): António Monteiro
Title: Matrizes
Edition: 1^a Year: 2010
Local: Lisboa
Publisher: Verlag Dashöfer
ISBN Code: 978-989-642-083-3

Author(s): J. Campos Ferreira
Title: Introdução à Análise Matemática
Edition: 12^a Year: 2018
Local: Lisboa
Publisher: Fundação Calouste Gulbenkian
ISBN Code: 978-972-31-1388-4

24. Complementary Bibliography

Author(s): Ron Larson, Robert P. Hostetler, & Bruce H. Edwards
Title: Cálculo
Edition: 8^a Year: 2006
Local: São Paulo, Brasil
Publisher: MacGraw-Hill Interamericana do Brasil
ISBN Code:

Author(s): Ricardo Jorge Castro Gonçalves
Title: Álgebra Linear - Teoria e Prática
Edition: 3^a Year: 2022
Local: Lisboa
Publisher: Edições Sílabo
ISBN Code: 978-989-561-226-0



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Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'MATEMÁTICAS GERAIS': Academic Year 2026/2027
Autor / Author	Prof. Doutor ALEXANDRE MANUEL MORAIS MENA E SILVA
Classificação / Classification	-
Descritores / Descriptors	-
Colaborador(es) / Colaborator(s)	-
Data Hora / Date Time	
Formato de dados / Data Format	Texto / Text, PDF
Estatuto de utilização / Usage	Acesso público / Public Access
Relação / Relation	Version 1,0
(c) Universidade Lusíada, 2026	