

South East European University, Tetovë

Mathematics II – 6 ECTS

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Location:

Times:

Department: Business Administration, Bachelor Studies

Required Materials

- F. M. Berisha, M. Q. Berisha, *Matematikë për biznes dhe ekonomiks*, Prishtinë, 2006.
- L. D. Hoffmann, G. L. Bradley, *Calculus - for business economics, and the social and life sciences*, Mc Graw Hill, 2000.

Materials for additional reading

- R. J. Harshbarger, J. J. Reynolds, *Mathematical applications – for the managements, life, and social sciences*, Houghton Mifflin, 2000.

- H. Hughes-Hallett, et al., *Applied calculus*, John Wiley & Sons, 2003.
- T. Mitre, B. Ruseti, O. Stringa *Matematika I për Fakultetin Ekonomik*, Tiranë, 1990.
- J. Slater, R. Ponticelli, *Business mathematics for college*, Irwin, 1997.
- F. Rizvanolli, M. Dema, *Matematika për ekonomistët*, Prishtinë, 1995.
- D. Janev, M. Mitsevska, M. Stojanovski, K. Naumov, *Primeneta matematika: biznes i ekonomija*, Shkup, 1998.
- A. Ahmeti, *Matematika për ekonomistë*, Prishtinë, 2003.

Course Description

The course introduces the notions of functions and differentiation.

Teaching delivery will be by two lectures and two exercises per week in small groups of students.

Lectures will be supported by detailed handouts. Concepts learned during the course of Mathematics will be heavily used. When appropriate, computer applications using a symbolic computation and a spreadsheet software will be demonstrated to the students.

Student will be encouraged to active contributions in discussing and solving problems and exercises, which will be presented to them on regular basis.

Course Objectives

By the end of the course, students should be able to:

- Prove that they possess knowledge about dependencies between the quantities used in business and economics and simple mathematical models.
- Identify the relation between differential calculus and functions of business and economics.

- Apply these relations for studying dependencies between the quantities in business and economics.
- Apply differential calculus for solving different problems involving business or economics applications.

Evaluation Policy

Each student will be evaluated at the end of the semester according to the total number of points accumulated from: exams, homework and participation into the classroom activities. The assignments will be designed to measure the students knowledge of the module content and their abilities to apply the knowledge in solving application problems.

The percentage achieved by a student will be used to calculate the students final course grade as described in the table below.

Grade Scale	Grade Description	Grade Points	Letters
95%–100%	Magnificent	10	A
86%–94%	Excellent	9	A–
77%–85%	Very Good	8	B
68%–76%	Good	7	C
60%–67%	Satisfactory	6	D
59%–below	Failing	5	F

Evaluation

Assignments given to the students will be graded by the following scheme.

Assignment	Num. Points
Pop-up quiz	10
Midterm exam	30
Homework	10
Final exam	40
Participation	10

Attendance Policy

Attendance is compulsory.

Academic Integrity

Cheating, in all of its forms, is strictly forbidden. The penalty for academic dishonesty is failing the student in the module.

Course Content

Week	Topics	References
Week 1	Functions. Notion. Properties.	<ol style="list-style-type: none">1. Section 4.1 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>,2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>
Week 2	The graph of a function.	<ol style="list-style-type: none">1. Section 4.2 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>,2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>

Week 3	Linear function.	<ol style="list-style-type: none"> 1. Section 4.3 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>
Week 4	Functional models.	<ol style="list-style-type: none"> 1. Section 4.4 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>
Week 5	Limits. Continuity.	<ol style="list-style-type: none"> 1. Section 4.5 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>

Week 6	Applications in business and economics. Midterm exam.	<ol style="list-style-type: none"> 1. Section 4.6 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>
Week 7	Differential calculus. The derivative: Slope and rates.	<ol style="list-style-type: none"> 1. Section 5.1 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>
Week 8	Techniques of differentiation.	<ol style="list-style-type: none"> 1. Section 5.2 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>

Week 9	The product and quotient rules.	<ol style="list-style-type: none"> 1. Section 5.3 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>
Week 10	Marginal analysis: approximation by increments.	<ol style="list-style-type: none"> 1. Section 5.4 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>
Week 11	The chain rule.	<ol style="list-style-type: none"> 1. Section 5.5 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>

Week 12	The second derivative.	<ol style="list-style-type: none"> 1. Section 5.5 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>
Week 13	Increasing and decreasing functions.	<ol style="list-style-type: none"> 1. Section 5.6 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>
Week 14	Concavity.	<ol style="list-style-type: none"> 1. Section 5.7 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>

Week 15	The study of a function in its entirety. Applications in business and economics	<ol style="list-style-type: none"> 1. Section 5.8 in F. M. Berisha, M. Q. Berisha, <i>Matematikë për biznes dhe ekonomiks</i>, 2. L. D. Hoffmann, and others, <i>Calculus - for business, economics, ...</i>
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