

UNIUNEA EUROPEANĂ



GUVERNUL ROMÂNIEI

Fondul Social European  
POSDRU 2007-2013Instrumente Structurale  
2007-2013MINISTERUL  
EDUCAȚIEI  
NAȚIONALE

OPSDRU

UNIVERSITATEA DE VEST  
DIN TIMIȘOARA**Investește în oameni!**

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Proiect cofinanțat din Fondul Social European prin Programul Operațional Sectorial Dezvoltarea Resurselor Umane 2007- 2013

## COURSE SYLLABUS

### 1. Information about the programme:

1.1 Institution of higher education	WEST UNIVERSITY OF TIMISOARA
1.2 Faculty / Department	FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION
1.3 Department of	ECONOMICS AND BUSINESS MODELING
1.4 Area of study	FINANCE
1.5 Level of studies	BACHELOR STUDIES
1.6 Training / qualification	FINANCE AND BANKING / ECONOMIST

### 2. Discipline data:

2.1 Course title	APPLIED MATHEMATICAL ECONOMICS FB1TC1103						
2.2 Course titular	Associate Professor PREDA Ciprian, Ph.D.						
2.3 Workshop activities titular	Associate Professor PREDA Ciprian, Ph.D.						
2.4 Year of study	I	2.5 Semester	1	2.6 Type of assessment	Ex	2.7 Type of subject matter	Md

### 3. Total estimated time (hours of teaching per semester):

3.1 Number of hours per week	3	3.2 course	2	3.3 workshops	1
3.4 Total hours in the curriculum	42	3.5 course	28	3.6 workshops	14
<b>Distribution of time:</b>					<b>hours</b>
Study based on Instructions, course materials, bibliography and notes					35
Additional documentation library, specialized electronic platforms / field					8
Training seminars / laboratories, homework, essays, portfolios and essays					50
Tutoring					5
Examinations					10
Other activities					
<b>3.7 Total hours of private study</b>		<b>108</b>			



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3.8 Total hours per semester	150
3.9 Number of credits	6

**4. Prerequisites (where applicable)**

4.1 of curriculum	<ul style="list-style-type: none"> <li>Applied Mathematical Economics, Statistics</li> </ul>
4.2 of skills	<ul style="list-style-type: none"> <li></li> </ul>

**5. Conditions (where applicable)**

5.1 of the course	Minimum attendance to the courses : 50%
5.2 to lead seminar / laboratory	Minimum attendance to the seminars: 70%

**6. Specific skills acquired**

Professional skills	<p><b>C2 Collection, analysis and interpretation of data and information regarding economic and financial problems</b></p> <ul style="list-style-type: none"> <li>C2.1 Identification and definition of methods, techniques and instruments for collection, analysis and interpretation of data and information regarding an economic and financial problem</li> <li>C2.2 Explanation of various methods, techniques and instruments for collection, analysis and interpretation of data regarding an economic or financial problem</li> </ul> <p><b>ABILITIES</b></p> <ul style="list-style-type: none"> <li>C2.3 To apply the various methods, techniques and instruments for collection, analysis and interpretation of data regarding an economic or financial problem</li> <li>C2.4 To identify the criteria of selection and to apply the most appropriate alternative for collection and analysis of financial-economic data</li> <li>C2.5 Performing economic-financial analysis based on data and information collected</li> </ul>
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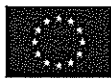
**7. Course objectives (based on the grid of the skills acquired)**

7.1 The overall objective of discipline	<ul style="list-style-type: none"> <li>Mathematical modelling in economic situations, using specific algorithms to solve them, and the economic interpretation of the results obtained</li> </ul>
7.2 The specific objectives	<ul style="list-style-type: none"> <li>The use of linear algebra and mathematical analysis in solving</li> </ul>

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	<p>economic problems</p> <ul style="list-style-type: none"> <li>• Modelling of concrete economic situations</li> <li>• The choice of appropriate strategies to solve a problematic context in order to optimize results</li> <li>• Implementation of algorithms for solving economic situations described by linear and nonlinear optimization problems</li> <li>• Calculation of generalized integral and understanding its use</li> <li>• Calculation of simple and compound interest rates</li> </ul>
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## 8. Contents

8.1 Course	Teaching methods	Comments
n dimensional vector spaces	Interactive lecture, explanation, conversation	Week 1, 2: 4 h
Vector linear functions	Interactive lecture, explanation, conversation	Week 3: 2 h
Limit and continuity for real functions	Interactive lecture, explanation, conversation	Week 4: 2 h
Partial derivatives. Differentials. Applications in economics	Interactive lecture, explanation, conversation	Week 5: 2 h
Extreme values. Extreme points	Interactive lecture, explanation, conversation	Week 6: 2 h
Kuhn-Tucker conditions	Interactive lecture, explanation, conversation	Week 7: 2 h
Linear optimization	Interactive lecture, explanation, conversation	Week 8: 2 h
Some applications in economics	Interactive lecture, explanation, conversation	Week 9: 2 h
Looking for maximum profit. Utility functions. Minimum cost. Optimal conditions	Interactive lecture, explanation, conversation	Week 10, 11: 4 h
Actuarial mathematics	Interactive lecture, explanation, conversation	Week 12, 13, 14: 6 h
<b>Bibliography:</b>		



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1. Michael C. Lovell – Economics with Calculus: A Calculus Introduction, World Scientific, 2004  
ISBN 9812388257, 9789812388254
2. J. Rogawski, Single Variable Calculus, (1st Edition), W.H. Freeman & CO, 2008
3. J. Stewart, Calculus, 6th Ed., Thomson Learning.
4. Stephen G. Nash and Ariela Sofer, Linear and Nonlinear Programming, McGraw-Hill, 1996.
5. Stephen H. Friedberg, Arnold J. Insel and Lawrence E. Spence Linear Algebra, 4th Edition.

8.2. Seminar / lab	Teaching methods	Comments
<b>n dimensional vector spaces</b> <b>Vector linear functions</b>	Questioning, explanation, conversation	Week 2: 2 h
<b>Limit and continuity for real functions</b>	Questioning, explanation, conversation	Week 4: 1 h
<b>Partial derivatives. Differentials. Applications in economics</b>	Questioning, explanation, conversation	Week 4: 1 h
<b>Extreme values. Extreme points</b>	Questioning, explanation, conversation	Week 6: 1 h
<b>Kuhn-Tucker conditions</b>		Week 6: 1 h
<b>Linear optimization</b>		Week 8: 2 h
<b>Some applications in economics</b>	Interactive lecture, explanation, conversation	Week 10: 2 h
<b>Looking for maximum profit. Utility functions. Minimum cost. Optimal conditions</b>	Interactive lecture, explanation, conversation	Week 12: 2 h
<b>Actuarial mathematics</b>	Interactive lecture, explanation, conversation	Week 14: 2 h

### Bibliography:

1. Michael C. Lovell – Economics with Calculus: A Calculus Introduction, World Scientific, 2004  
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### 9. Corroboration of the course contents with the epistemic expectations of the community representative, professional associations and representative employers of the programme itself.

- The course is corroborated to the curricula of most important universities and faculties in Romania and abroad;
- Course content is consistent with the expectations/requirements of the finance and banking representative of companies/employers.

### 10. Evaluation:

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of the final mark
10.4 Course	Final evaluation	Written exam	20%
10.5 Workshop	Continuous evaluation	Presenting projects	30%
	Final evaluation	Written exam	50%
10.6 Minimum performance standards			
<ul style="list-style-type: none"> <li>• knowing the fundamentals of theory and solving basic applications</li> </ul>			

**Date of submission:** September 2014    **Titular of the course:**

Assoc. Prof. PREDA Ciprian Ph.D

*Ciprian*

**Seminary titular:**

Assoc. Prof. PREDA Ciprian Ph.D

*Ciprian*

**Date of approval in department:** September 2014

**Head of the Department:**

Professor CISMAȘ Laura, PhD

*Cismaș*



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