

Subject				
Mathematics				
ECTS code	Semester	Faculty: Finance		
	1	Major: Finance and Accounting		
		Corporate Finance and Accounting		
Faculty:				
Lecture: Andrzej Malawski				
Classes:				
System of studies:				
Full time, first degree				
Subject status	Pass requirement	Number of contact hours		ECTS points
		Lectures	Classes	
Group A		30	30	7
Teaching language				
English				
Subject provisions and objectives (including the expected can-do of students on completion of the course)				
At the completion of the course the student should:				
1. Be able to understand the basic concepts of higher mathematics as well as to use the formal techniques in this area.				
2. Be able to apply the above to economic science and management.				
3. Gain experience in practical problem solving by use mathematics.				
Teaching curriculum ( in case of prescribed subjects, compliance with the standards, maximum 15 topics)				
1. Basis of mathematics: logic, sets,relations, functions as relations				
2. Algebra: matrices, determinants, systems of simultaneous equations, input-output model				
3. Calculus: limits of sequences, limits of a functions, derivative, investigation of a function, integration, functions of several variables				
4. Applications to economics and management: marginal concepts, elasticity of a function, least squares method				
Class topics (maximum 15 topics)				
As above				
Introductory topics				
After standard school mathematics				
Teaching methods				
Lecture plus class problem sessions				
Basic literature and other sources				
"Elementary Linear Algebra" S. Venit, W. Bishop				
"Calculus" L. D. Hoffman, G. L. Bradley				
materials and exercise sheets prepared by teachers				

**Pass requirements for signature/examination**

Assessment of problem sessions: two middle-term tests plus attendance

Assessment of the course: final exam (written form)

**Examples of questions for tests and examinations**

1. Using the Cramer's rule, solve the system of linear equations:  
$$\begin{aligned} 2y + 3z &= 0 \\ -3x + 2z &= -2 \\ -2x + y &= 0 \end{aligned}$$
2. Determine where the function  $f(x) = \ln(x^2 + 1)$  is increasing/decreasing and find the relative extrema.
3. Define the Riemannian integral  $\int_a^b f(x)dx$  and calculate the area of the region between the curves:  $y = x^2 - 9$ ,  $y = 0$ .
4. Interpret  $l$  dimensional vector space  $\mathbf{R}^l$  as a commodity/price space.