DESCRIPTION OF STUDY COURSE

Course unit title	**Mathematics**	
Programme	Bachelor International Finance	
Year of study	1st year	
Level of course unit (e.g. first, second or third cycle)	First, Bachelor's study	
Course unit code	**BFa008**	
Name of lecturer(s)	Aivars Vembris	
Credit points	6 CP	
Number of ECTS allocated	9 ECTS, Latvian credit points are multiplied by 1,5 to get ECTS	
Language of instruction	English	
Type of course unit (compulsory, optional)	Compulsory	
Semester when the course unit is delivered	1	
Mode of delivery	Face-to-face.	
Aim of Course	The aim of the course is to explore the main concepts of calculus, as a mathematical study of change, coupled with their applications in business and economics	
Preliminary knowledge (prerequisites and co-requisites)	Students are expected to possess solid knowledge and skills in elementary algebra	
Course contents	1.Basic algebra review 2.Limits and continuity 3.Derivative 4.Application of derivatives 5.Integral and techniques of integration 6.Application of integrals 7.Exponential and logarithmic functions 8.Multivariate calculus 9.Differential equations.	
Planned learning activities and teaching methods	Lectures, seminars, performance tests, in-class problem solving, in-class discussions, individual and group assignments. Final course evaluation consists of 30% seminars and home works, 30% intermediate exam, 30% final exam, 10% attendance.	
	Teaching methods	Student work load (1 CP = 40 hours of student work)
	Lectures	20%

<table>
<tr><td></td><td>Practical work and progress tests</td><td>20%</td></tr>
<tr><td></td><td>Work at the library, independent studies</td><td>60%</td></tr>
<tr><td></td><td></td><td>Total 240 hours</td></tr>
<tr><td>Learning outcomes of the course unit</td><td colspan="2">After the course students should be able to:

Work with functions represented in a variety of ways: graphical, numerical, analytical, or verbal. Understand the connections among these representations.

1. Understand the meaning of the derivative in terms of a rate of change and local linear approximation and be able to use derivatives to solve a variety of problems.
2. Understand the meaning of the definite integral both as a limit of Riemann sums and as the net accumulation of change and use integrals to solve a variety of problems.
3. Understand the relationship between the derivative and the definite integral as expressed in both parts of the Fundamental Theorem of Calculus.
4. Communicate mathematics both orally and in well-written sentences and be able to explain solutions to problems.

5. Apply mathematical models to theoretical and real-life economic and business situations and problems.</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><td>Learning outcome
The form of assessment</td><td>1-2</td><td>3-4</td><td>5-6</td></tr><tr><td>Practical in-class works</td><td>●</td><td>●</td><td>●</td></tr><tr><td>Home works</td><td>●</td><td>●</td><td>●</td></tr><tr><td>Intermediate exam</td><td>●</td><td>●</td><td>●</td></tr><tr><td>Final exam</td><td>●</td><td>●</td><td>●</td></tr></table></td></tr>
<tr><td>Recommended or required reading</td><td colspan="2">Compulsory literature:
1. Raymond Barnett, Michael Ziegler, Karl Byleen (2018); Calculus for Business, Economics, Life Sciences and Social Sciences; International Edition, 14th Edition.
Recommended literature:
1. Laurence Hoffmann, Gerald Bradley, David Sobecki, Michael Price (2012). Applied Calculus for Business, Economics, and the Social and Life Sciences, Expanded Edition, 11th Edition</td></tr>
<tr><td>Recommended optional programme components</td><td colspan="2">To be agreed at the start of the course</td></tr>
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