

2019.FS

<b>Module Name: Mathematics 2</b>	
Module Code	w.BA.XX.2Math2-en.XX
Module Description	Students know, understand, and master the basic set of tools of mathematical analysis in the area of differentiation and integration. They can apply this set of tools in formalizing, modelling, and solving quantitative problems of business administration and economics.
Program and Specialization	Business Administration - Banking and Finance (PiE)
Legal Framework	Academic Regulations BSc dated 29.01.2009, Appendix to the Academic Regulations for the degree programs in Business Administration, Business Information Technology, and Business Law, first adopted on 12.05.2009
Module Category	<b>Module Type:</b> Compulsory
	<b>Program Phase:</b> First-Year Studies
ECTS	3
Organizational Unit	W Zentrum für Risk & Insurance Ltg.
Module Coordinator	Beat Scherrer (scee)
Deputy Module Coordinator	Johannes Gerd Becker (bece)
Prerequisite Knowledge	Mathematics 1
Contribution to Program Learning Goals (Affected by Module)	<ul style="list-style-type: none"> <li>§ Professional Competence</li> <li>§ Methodological Competence</li> <li>§ Social Competence</li> <li>§ Self-Competence</li> </ul>
Contribution to Program Learning Objectives	<ul style="list-style-type: none"> <li>Professional Competence <ul style="list-style-type: none"> <li>§ Knowing and Understanding Content of Theoretical and Practical Relevance</li> <li>§ Apply, Analyze, and Synthesize Content of Theoretical and Practical Relevance</li> <li>§ Evaluate Content of Theoretical and Practical Relevance</li> </ul> </li> <li>Methodological Competence <ul style="list-style-type: none"> <li>§ Problem-Solving &amp; Critical Thinking</li> <li>§ Scientific Methodology</li> <li>§ Work Methods, Techniques, and Procedures</li> <li>§ Information Literacy</li> </ul> </li> <li>Social Competence <ul style="list-style-type: none"> <li>§ Written Communication</li> <li>§ Oral Communication</li> <li>§ Teamwork &amp; Conflict Management</li> </ul> </li> <li>Self-Competence <ul style="list-style-type: none"> <li>§ Self-Management &amp; Self-Reflection</li> <li>§ Learning &amp; Change</li> </ul> </li> </ul>
Module Learning Objectives	<p>Students...</p> <ul style="list-style-type: none"> <li>§ find the derivatives of elementary functions and apply the common differentiation rules.</li> <li>§ interpret the derivative of a function at a point as the local rate of change, as the gradient of the graph of the function, or as the slope of its tangent at this point.</li> <li>§ use derivatives to discuss the monotonicity and curvature of a function.</li> <li>§ find extreme points and inflection points by means of analysis and interpret these terms geometrically.</li> <li>§ use the concept of the differential of a function mathematically and economically.</li> <li>§ use the concept of the elasticity of a function mathematically and economically.</li> <li>§ apply the differential calculus to basic economic problems.</li> <li>§ apply the differential calculus to functions of more than one independent variable.</li> <li>§ explain the interrelationship between differentiation and integration.</li> <li>§ find antiderivatives of elementary functions and apply the common integration rules.</li> <li>§ calculate areas using the definite integral.</li> <li>§ apply integral calculus to basic economic problems.</li> <li>§ solve separable differential equations of basic economic problems.</li> </ul>

Module Content	§ Continuity and differentiability § Derivatives and differentiation rules § Curve sketching including monotonicity, curvature, extreme points, and inflection points § Differential of a function § Elasticity of a function § Application of differential calculus to basic economic problems § Differential calculus of functions with more than one independent variable § Antiderivatives and elementary integration rules § Definite integral and area calculation § Application of integral calculus to basic economic problems § Separable differential equations and their economic applications		
Links to other modules	The content of this module is linked to the following modules: w.BA.XX.2Makro-PiE.XX w.BA.XX.2Math1-en.XX w.BA.XX.2Micro-en.XX w.BA.XX.2Stat-en.XX		
Methods of Instruction	§ Lecture § Interactive Instruction § Exercises § Discussion	<b>Social Settings Used:</b> Individual Work	
Digital Resources	§ Teaching Videos § Teaching Materials § Practice and Application Exercises (with Key)		
Type of Instruction	<b>Classroom Instruction</b>	<b>Guided Self-Study</b>	<b>Autonomous Self-Study</b>
Large Class	28 h	-	
Small Class	14 h	16 h	
Group Instruction	-	-	
Practical Work	-	-	
Seminar	-	-	
<b>Total</b>	<b>42 h</b>	<b>16 h</b>	<b>32 h</b>
Performance Assessment			
<b>End-of-module exam</b>	<b>Form</b>	<b>Length (min.)</b>	<b>Weighting</b>
Written exam	Specified documentation	90	100,00%
<b>Permitted Resources</b>	Approved calculator according to "Guidelines on Supplementary Materials"		
<b>Others</b>	<b>Assessment</b>	<b>Length (min.)</b>	<b>Weighting</b>
-	-	-	-
Classroom Attendance Requirement	No formal attendance required but participation in classroom sessions is strongly recommended.		
Language of Instruction/Examination	English		
Compulsory Reading	§ Scherrer, Beat; Becker, Johannes; Hobein, Günter A.; Jud, Markus; Sickinger, Wolfgang; Stahl, Michael (2016): Mathematics 2 for Business Schools. Theory and Worked Examples. ZHAW School of Management and Law, Winterthur § Scherrer, Beat; Becker, Johannes; Hobein, Günter A.; Jud, Markus; Sickinger, Wolfgang; Stahl, Michael (2016): Mathematics 2 for Business Schools. Exercises and Solutions. ZHAW School of Management and Law, Winterthur.		
Recommended Reading	§ Purkert, W. (2014). Brückenkurs Mathematik für Wirtschaftswissenschaftler. 8th edition. Wiesbaden: Springer Gabler. ISBN 978-3-8348-1932-1. § Tietze, J. (2014). Einführung in die angewandte Wirtschaftsmathematik. 17th edition. Wiesbaden: Springer Spektrum. ISBN 978-3-658-02360-7.		
Comments	-		