

Valid from 2025.FS

Module description: Mathematics 2		
Module Code	w.BA.XX.3Mathe2-FLEX.XX	
ECTS Credits	3	
Language of Instruction/Examination	German	
Module Description	Students know, understand, and have mastered the basic mathematical tools of analysis in the areas of differentiation and integration. They can use these tools to formalize, model, and solve quantitative business and economic problems.	
Organizational Unit	Institut für Risk & Insurance	
Module Coordinator	Wolfgang Sickinger	
Deputy Module Coordinator	Andreas Haldimann	
Program and Specialization	<ul style="list-style-type: none"> • Business Administration - Specialization in Banking and Finance (FLEX) • Business Administration - Specialization in General Management (Flex) 	
Legal Framework	Academic Regulations BSc dated 29.01.2009, for the degree programs in Business Administration, International Management, Business Information Technology, Business Law, Business Law and Applied Law, first adopted on 12.05.2009	
Module Category	Module Type Compulsory	Program Phase First Year-Studies
Prerequisite Knowledge	Mathematics 1	
Contribution to Program Learning Objectives (by the concerned Module)	<ul style="list-style-type: none"> • Professional Competence • Methodological Competence • Social Competence • Self-Competence 	
Contribution to Program Learning Objectives	<p>Professional Competence</p> <ul style="list-style-type: none"> • Knowing and Understanding Content of Theoretical and Practical Relevance • Apply, Analyze, and Synthesize Content of Theoretical and Practical Relevance • Evaluate Content of Theoretical and Practical Relevance <p>Methodological Competence</p> <ul style="list-style-type: none"> • Problem-Solving & Critical Thinking • Scientific Methodology • Work Methods, Techniques, and Procedures • Information Literacy • Creativity & Innovation <p>Social Competence</p> <ul style="list-style-type: none"> • Written Communication • Oral Communication • Teamwork & Conflict Management • Intercultural Insight & Ability to Change Perspective <p>Self-Competence</p> <ul style="list-style-type: none"> • Self-Management & Self-Reflection • Ethical & Social Responsibility • Learning & Change 	

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Module Learning Objectives	<p>Students...</p> <ul style="list-style-type: none"> • derive the elementary functions and apply the most important derivation rules. • derive the elementary functions and apply the most important derivation rules. • interpret the derivative of a function at a point as the local rate of change, as the slope of the graph of the function, or as the slope of the tangent line at this point. • interpret the derivative of a function at a point as the local rate of change, as the slope of the graph of the function, or as the slope of the tangent line at this point. • discuss monotonicity and curvature of a function using derivatives. • discuss monotonicity and curvature of a function using derivatives. • analytically determine extreme and inflection points of a function and interpret these terms graphically. • analytically determine extreme and inflection points of a function and interpret these terms graphically. • use the differential of a function both mathematically and economically. • use the differential of a function both mathematically and economically. • use the elasticity of a function both mathematically and economically. • use the elasticity of a function both mathematically and economically. • apply differential calculus to economic problems. • apply differential calculus to economic problems. • apply differential calculus to functions with several independent variables. • apply differential calculus to functions with several independent variables. • explain the relationship between differentiation and integration. • explain the relationship between differentiation and integration. • integrate the elementary functions and apply the most important integration rules. • integrate the elementary functions and apply the most important integration rules. • calculate areas using the definite integral. • calculate areas using the definite integral. • apply integral calculus to economic problems. • apply integral calculus to economic problems. • solve separable differential equations in economic applications. • solve separable differential equations in economic applications. 	
Module Content	<ul style="list-style-type: none"> • Continuity and differentiability • Derivation function and derivation rules • Investigation of functions (monotony, curvature, extrema, and inflection points) • Differential of a function • Elasticity of a function • Application of differential calculus to economic problems • Differential calculus for functions with several independent variables • Indefinite integral and elementary integration rules • Definite integral and area • Economic applications of integral calculus • Separable differential equations with economic applications 	
Links to other modules	This module is linked to the following modules:	
Digital Learning Resources	<ul style="list-style-type: none"> • Reader • Teaching Videos • Teaching Materials • Practice and Application Exercises (with Key) 	
Methods of Instruction	<ul style="list-style-type: none"> • Lecture • Application Tasks • Interactive Instruction • Exercises • Discussion 	Social Settings Used:

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Type of Instruction		Classroom Instruction	Guided Self-Study	Autonomous Self-Study	
	Large Class	-	-		
	Small Class	21 h	37 h		
	Group Instruction	-	-		
	Practical Work	-	-		
	Seminar	-	-		
	Total	21 h	37 h	32 h	
Performance Assessment	End-of-module exam		Form	Length (min.)	Weighting
	Written exam		Specified documentation	90	100.00
	Permitted Resources		Spec. calculator acc. to leaflet "Utilities"	With dictionary	
	Others	Assessment	Format	Length (min.)	Weighting
	-	-	-	-	-
Classroom Attendance Requirement	None				
Compulsory Reading	<ul style="list-style-type: none">Becker, J., Bruer, M., Scherrer, B. & Sickinger, W. (2021). Wirtschaftsmathematik 2: Übungen mit Lösungen. 4th edition. Zürich: Compendio. ISBN 78-3-7155-4828-9.Becker, J., Bruer, M., Scherrer, B. & Sickinger, W. (2021). Wirtschaftsmathematik 2: Theorie und Beispiele. 2nd edition. Zürich: Compendio. ISBN 978-3-7155-4827-2.				
Recommended Reading	<ul style="list-style-type: none">Purkert, W. & Herzog, A. (2022). Brückenkurs Mathematik für Wirtschaftswissenschaftler. 9th edition. Wiesbaden: Springer Gabler. ISBN 9783658367411.Tieze, J. (2014). Einführung in die angewandte Wirtschaftsmathematik. 17th edition. Wiesbaden: Springer Spektrum. ISBN 978-3-658-02360-7.				
Comments					