Zurich University
of Applied Sciences

School of
Management and Law

Valid for 2024.FS

Module Name: Mathematics 2		
Module Code	w.BA.XX.3Mathe2-FLEX.XX	
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.	
Program and Specialization	§ 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
ECTS	3	
Organizational Unit	W Institut für Risk & Insurance	
Module Coordinator	Wolfgang Sickinger (sici)	
Deputy Module Coordinator	Andreas Haldimann (hald)	
Prerequisite Knowledge	Mathematics 1	
Contribution to Program Learning Goals (Affected by Module)	§ Professional Competence § Methodological Competence § Social Competence § Self-Competence	
Contribution to Program Learning Objectives	Professional Competence § 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 Methodological Competence § Problem-Solving & Critical Thinking § Scientific Methodology § Work Methods, Techniques, and Procedures § Information Literacy § Creativity & Innovation Social Competence § Written Communication § Oral Communication § Teamwork & Conflict Management § Intercultural Insight & Ability to Change Perspective Self-Competence § Self-Management & Self-Reflection § Ethical & Social Responsibility § Learning & Change	
Module Learning Objectives	Students... § 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	§ 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	-
Methods of Instruction	§ Lecture § Interactive Instruction § Exercises § Discussion **Social Settings Used:** -
Digital Resources	§ Reader § Teaching Videos § Teaching Materials § Practice and Application Exercises (with Key)

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	Approved calculator according to "Guidelines on Supplementary Materials"	With dictionary	

Others	Assessment	Length (min.)	Weighting
-	-	-	-

Classroom Attendance Requirement	Mandatory Attendance: None
Language of Instruction/Examination	German
Compulsory Reading	§ Becker, J., Bruer, M., Scherrer, B. & Sickinger, W. (2021). Wirtschaftsmathematik 2: Theorie und Beispiele. 2nd edition. Zürich: Compendio. ISBN 978-3-7155-4827-2. § Becker, J., Bruer, M., Scherrer, B. & Sickinger, W. (2021). Wirtschaftsmathematik 2: Übungen mit Lösungen. 4th edition. Zürich: Compendio. ISBN 78-3-7155-4828-9.
Recommended Reading	§ 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	-