

Module description: Finanzielle Unternehmensmodellierung	
Module Code	t.BA.WI.FUM.19HS
ECTS Credits	4
Language of Instruction/Examination	German
Organizational Unit	IDP
Module Coordinator	Christoph Schmidhuber
Legal Framework	The module description is part of the legal basis in addition to the general academic regulations. It is binding. During the first week of the semester a written and communicated supplement can specify the module description in more detail.
Module Characteristic	Type 3a 2 lecture lessons per semester week and class+ 2 lab bi-weekly lessons per semester and half-class
Module Description	This module presents a general overview over financial markets and their influence on the development of firms. Commodity-, interest rate-, currency-, and equity markets are introduced. Profit and losses, equity capital, and the liquidity of firms are modelled in their dependence on this market environment, and the impact of random market fluctuations and market crises is simulated in R/Python. Along the way, basic elements of interest rate theory, corporate finance, and financial risk management are introduced. As a term project, the participants compute a fair share price for their own start-up in groups.
Module Content	<ul style="list-style-type: none"> • Development of firms in a changing market environment under the influence of commodity prices, exchange rates, interest rates and equity markets • Overview over financial markets and practical handling of financial market data at the example of historical time series • Fixed income instruments: to most important types (bonds, annuities, amortizing loans) and their cash flow patterns • Interest rate theory: compounding, discounting, present and future value, internal rate of return, price-yield curves • Duration and the yield curve Sensitivity of bond prices to changes in interest rates, term structure of interest rates • Start-up ideas: financial part of the business plan Formation of groups, business models: expected revenues, costs, and profits • Annual financial statements of firms Balance sheet, profit and loss statement, cash flow statement • Capital structure and firm valuation Optimal equity ratio of a firm, valuation with dividend discount model • Financial planning in a dynamic market environment Modeling at the examples of a gas power plant and a bank • Random variables in financial markets Continuous vs. discrete random variables, Monte-Carlo simulations • Foundations of risk management Value-at-Risk, Expected Shortfall, historical market crises • Hedging of market risks Forwards and futures on commodities, FX rates, interest rates and equity indices • Simulation and risk analyses for the start-ups Using the acquired concepts from interest rate theory and corporate finance • Presentation in groups for (fictitious) private investors to convince them to buy shares of the start-ups
Prerequisite Knowledge	

Module description: Finanzielle Unternehmensmodellierung

Learning Objectives (Competences)	Students...		Competencies	Taxonomies		
	They will be able to transfer the acquired methods and skills to new cases and to consider them in a larger context.		M, F	K4, K5		
	The students will acquire fundamental knowledge and skills of classical financial analysis, in particular interest rate theory. They will be able to address questions from the areas of business management and economics by means of mathematical models and to investigate them with adequate simulation software. A focus is on the modeling and valuation of simple financial and non-financial institutions.		F, SE, M	K2, K3		
	They will be able to gauge the validity and limits of the acquired methods and skills in a given situation.		M, F	K6		
Performance Assessment	End-of-module exam	Assessment	Length (min.)	Weighting	Form	
	written exam	Grade	90	60	acc. to module agreement	
	Performance assessment during the semester		Assessment	Length (min.)	Weighting	Form
	report		Grade		40	
Classroom Attendance Requirement	None					
Learning material						
Comments						