Lucerne University of
Applied Sciences and Arts
HOCHSCHULE
LUZERN
Business
FH Zentralschweiz

M3: Risk Management

General Information	
Module Code	W.MSCBF_RM02.08
Programme	Master of Science / Banking and Finance
Type of Module	Core module in focus programme
Level of Module	Specialisation
ECTS Credits / Workload	6 ECTS Credits (180 hours)

Module Dependencies	
Pre-requisites	Students have a bachelor's degree in Business Administration with a specialization in Banking and Finance. They have a basic knowledge of bank risk management. In particular, students: - are able to classify and describe bank risks. - know the typical steps followed in a risk management process (identification, measurement, aggregation, management and control, reporting, and monitoring). - know the basics of risk measurement, such as value at risk and scenario analysis. - know the main features and the structure of regulatory requirements for risk and capital management of banks. - have a basic knowledge of the regulatory standard approaches for assessing the capital requirements that cover banking risks. Basic literature: Michel Crouhy, Dan Galai, Robert Mark; The Essentials of Risk Management (third edition 2023); McGraw-Hill; New York
Follow-up modules	

Module Aims

The last global financial crisis in 2008 evidenced the utmost importance of firm's risk management capabilities. Besides, it spawned doubts about the hitherto existing 'state of the art'. In any case, risk management will continue to be strategically important and good risk management capabilities will create a competitive advantage in a competitive environment.
Upon succesful completion of all three courses students are able to start a career in the field of risk management.

Submodule 1: Risk Management in Financial Services

Submodule code RMB
ECTS Credits / Workload 2 ECTS Credits (60 hours)

Learning Outcome 1

The course provides an introduction to the main topics of risk and examines why risk management makes sense economically. It discusses corporate governance aspects of risk management, operational risk, model risk and cyber risk. Moreover, it covers issues such as identification, measurement, modelling and, finally, the management risks in financial services organizations. Furthermore, it outlines key trends in risk management.

	Importance	Relevant NQF-Descriptors
Subject knowledge and skills: Students know how i) to analyse and assess (qualitatively and quantitatively) the risk exposure of a corporation; ii) to calculate the capital requirement for the	high	knowledge; application

aggregate corporation; iii) to calculate risk adjusted performance measures and how to interpret them		
Methodology: Students are able to specify and to make use of adequate risk management methods and concepts.	medium	application; judgement

Content Outline

Session 1: Introduction to Risk and Their Assessment
Patrizia Baur (Insurance Executive & Board Member)

- Risk Definition
- Typology of Risk
- Risk Assessment Methods
- Correlation & Causality, Stress Testing & Scenarios

Sesson 2: Risk Management Process & Organisation
Patrizia Baur (Insurance Executive & Board Member)

- Risk Management Process
- Risk Tolerance & Appetite
- Risk Management Organisation

Session 3: Rounding Off: Trends and Success Factors
Patrizia Baur (Insurance Executive & Board Member)

- Governance and Risk Culture
- The Increasing Importance of Non-Financial Risks (ESG, AI, etc.)
- Regulatory Developments

Session 4: Cyber Risk Management
Dr. Carlo Pugnetti

- Terminology and Cyber Risks
- Threat Agents and Motivation
- Kill Chain/SOC
- Cyber Risk Mgmt/Governance/ CISO
- Integration in ERM / Insurability
- Behavioral Vulnerabilities

Session 5: Operational Risk
Dr. Matthias Aepli

Session 6: Model Risk
Dr. Matthias Aepli

Teaching and Learning Methods

Contact Hours	exercises; lecture; discussion; case studies
Directed Study	

Workload

Contact Hours	24 lessons / 18 hours (30%)
Directed Study	40 lessons / 30 hours (50%)
Private Study	12 hours (20%)

Assignments and Assessments

Assessment Type	Quantity	Weight	Form	Evaluation Type	Time
Written examination	60 minutes	100%	closed book	grades	during exam weeks

Submodule 2: Credit Risk Management

Submodule code MK0
ECTS Credits / Workload 2 ECTS Credits (60 hours)

Learning Outcome 1

The students get a high-level overview of the key issues in credit risk management. They get familiar with simple static models for the yield curve, the quantification of credit risk and the key notions as well as techniques of state-of-the-art credit risk management. Moreover, the impact of new technologies is discussed.

	Importance	Relevant NQF-Descriptors
Subject knowledge and skills: Students know the prevalent terms of credit risk management and are able to benchmark the credit risk exposure.	-	knowledge; application
Methodology: Students are able to specify and make use of credit risk models.	-	application; judgement

Content Outline

Session I: Introduction
Dr. Leonard Fister
• Key notions and issues of credit risk management
• Basis mathematical toolbox

Session II: Estimating and Modelling Default Risk
Dr. Leonard Fister
• External rating models
• Migration risk

Session III: Credit Derivatives
Dr. Leonard Fister
• Multiple yield curves
• Credit Default Swaps

Session IV: Credit Portfolios
Dr. Leonard Fister
• Merton's firm value model
• CVaR, RAROC

Session V: Credit Risk and the Basel Accords
Dr. Leonard Fister
• Overview of Basel I-III
• Elements of best practice

Session VI: Credit Risk Management in the Era of Machine Learning
Dr. Thomas Krabichler
• Brief introduction into ML in Finance
• Implications for credit risk management

Teaching and Learning Methods

Contact Hours exercises; lecture; discussion; case studies; group work
Directed Study

Workload

Contact Hours 24 lessons / 18 hours (30%)
Directed Study 40 lessons / 30 hours (50%)
Private Study 12 hours (20%)

Assignments and Assessments

Assessment Type	Quantity	Weight	Form	Evaluation Type	Time
Written examination	60 minutes	100%	closed book	grades	during exam weeks

Submodule 3: Market Risk Management

Submodule code MM0
ECTS Credits / Workload 2 ECTS Credits (60 hours)

Learning Outcome 1

Students understand the principles and instruments of effective market risk and asset liability management. They are prepared to participate in the identification, measurement, assessment and active management of market risks. Lectures will differentiate between risks and concepts in both the bank's trading books and in their bank books.

	Importance	Relevant NQF-Descriptors
Subject knowledge and skills: Students know how to - disaggregate financial products to their core parts and analyze them systematically. - evaluate a trading book's financial products by means of risk figures. - determine ALM risks and subsequently hedge them.	-	knowledge; application
Methodology: Students are able to - apply their knowledge on methods in practical cases. - collaborate in expert teams on the above issues.	-	application; judgement

Content Outline

Session 1: Asset Liability Management (1)
Prof. Dr. Florian Schreiber
- Bank balance sheet management, current challenges, the bank treasury functions
- Mearuring ALM risk: value vs. income effect
- The concept of a bank‘s banking book
- Risk modelling of non-maturing accounts (replication)

Session 2: Asset-Liability Management (2)
Prof. Dr. Florian Schreiber
- Replication case study, model risk in replication
- Strategic ALM
- Case study: negative interest rates
- Treasury organization
- Funds transfer pricing

Session 3: Asset-Liability Management (3)
Prof. Dr. Florian Schreiber
- Liquidity risks
- Funding risks
- Funds transfer pricing
- Regulations and ALM governance

Session 4: Risk Measurement
Dr. Matthias Aepli
- Calculating VaR: model exploration and discussion
- Market price dynamics
- Validation / back-testing
- Modifications and improvements to VaR models

Session 5: Risk Measurement, continued
Dr. Matthias Aepli
- Mapping of positions to risk factors
- Survey of alternative risk measures
- The expected shortfall approach
- (Regulatory view on market risk / trading book)

Session 6: Stress Testing and Scenario Analysis
Dr. Matthias Aepli
- Types of stress testing and scenario analysis: overview
- Regulatory requirements for stress testing
- Purposes and methodologies of stress testing
- Current developments and discussion

Teaching and Learning Methods

Contact Hours seminar; lecture; group work
Directed Study individual work

Workload

Contact Hours	24 lessons / 18 hours (30%)
Directed Study	40 lessons / 30 hours (50%)
Private Study	12 hours (20%)

Assignments and Assessments

Assessment Type	Quantity	Weight	Form	Evaluation Type	Time
Written examination	60 minutes	100%	closed book	grades	during exam weeks