Syllabus

Name:

Managerial Analytics & Decision Making

Responsible:

Professor Richard Pibernik, Chair of Logistics and Quantitative Methods

Program:	**Type:**	**Term:**	**ECTS:**
Master	Lecture	Winter	5

Contents & Objectives:

The daily working life of a manager naturally involves taking a large number of decisions, with varying amounts of importance, complexity and availability of supporting data. This course will initially cover concepts and methods to structure managerial decisions in a coherent fashion and to deal with multiple objectives. Thereupon, the concepts of risk, uncertainty, and managers' risk attitudes will be introduced, along with modeling via Monte Carlo Simulation and scenario analysis. The framework will then be extended to groups of interacting subjects, both with common and contrasting objectives. Finally, in order to link theory with practice, models and methods will be applied to a variety of different case studies from different business domains.

After successfully completing the course, students should be able to:

- Understand and apply the principles of rational decision making in a business context.
- Apply advanced decision support methods (such as decision trees, Monte Carlo simulations, scenario analysis) to analyze and structure strategic business decisions.
- Recognize common pitfalls in daily business decisions resulting from heuristics and biases in order to avoid their negative consequences.

Prerequisites:

The course is designed for students in the Master's program with working knowledge in quantitative methods and statistics. A background in Logistics & Supply Chain Management is not required. International exchange students from Bachelor programs may attend this course if they have good quantitative skills.

Course Structure:

Week	**Content**
1	I Introduction to Decision Analysis
2	II Multiple Objectives II.a Structuring Objectives II.b Fundamentals of Multi-attribute/Multi-objective Problems
3	II.c Methods to solve Multi-objective Problems
4	III Decisions Under Risk III.a Fundamentals
5	III.b Risk preferences of managers
6	IV Simulation for Decision Making under Risk IV.a Motivation and Fundamentals
7	IV.b: Simulation Case Studies
8	IV.b Simulation Case Studies (continued)
9	V Linked Decisions V.a Fundamentals

10	V.b Case study: Outlet Simulation
11	VI Behavioral Aspects of Decision Making
12	Wrap-up, Presentation of bonus assignments, Q&A

Literature:

[1] A package of reading materials (consisting of chapters from different Textbooks like Hammond/Keeney/Raiffa, Russo/Shoemaker, Eisenfuhr, Albright/Winston/Zappe , Kahnemann etc., and practice-oriented articles) will be made available on WueCampus for every chapter

[2] Various case studies (Whirlpool, Thyssen Krupp, A-CAT Corp, Wozac, Condos and others)

Grading:

60-minute final written exam + optional bonus assignment

Contact:

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