

**Course Outline**

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**Department of Management  
School of Business and Economics**

**MNGT 4710-3  
Decision Analysis (3,0,0)**

**Calendar Description**

Students focus on the development, implementation, and utilization of business models for making informed managerial decisions. Models and management cases from diverse industries, and functional areas are used extensively to illustrate important decision tools, their assumptions and limitations, and how to communicate decisions to management. Topics include critical thinking, avoiding bias in decision making, data analysis, decision analysis, forecasting, resource allocation, and risk analysis.

**Educational Objectives/Outcomes**

Upon completing this course, students will be able to:

1. Describe the range of cognitive, psychological and social pitfalls, which decision makers should avoid.
2. Discuss the different approaches, support tools, and analytical methods used for decision making, evaluate decisions of others and recommend ways they could have improved their decision making.
3. Identifying appropriate settings in which models can be used and how to apply the best decision-making and problem-solving method for the given type of problem or situation.
4. Demonstrate how to translate decision problems into formal models, and investigate those models in an organized and systematic fashion.
5. Use online data sources and Internet resources to access necessary information for model development.
6. Demonstrate how analytical techniques and statistical models can help enhance decision making by converting data to information and insights for decision-making, including introducing the students to a process for team decision making.
7. Illustrate best practice modeling techniques such as the FAST modelling standard, strategies for reducing errors, and other methods to ensure consistent and easy to understand models.

**Prerequisites**

ACCT 2250; ECON 2330 or equivalent; MNGT 3730

## Co-requisites

None

## Texts/Materials

Tillman, Frank and Deandra T. Cassone, A Professional's Guide to Decision Science and Problem Solving: An Integrated Approach for Assessing Issues, Finding Solutions, and Reaching Corporate Objectives, FT Press, 2012.

Charlesworth, David, Decision Analysis for Manager, Business Expert Press, 2013.

## Student Evaluation

Case studies/research projects/assignments	30-40%
Tests/quizzes	30-40%
Final exam	30-40%

Students must pass exam to pass the course.

## Course Topics

1. Introduction
  - Introduction to decisions and why decisions go bad
  - Making choices: bias, logic and their implications
  - Tools: Decision Making Models and Tools: Ladder of Inference and Kepner-Tregoe Matrix
2. Overview of Decision Analysis and Critical Thinking
  - What is decision analysis, situation and stakeholder analysis?
  - Objectives hierarchy, uncertainly assessment and the determining the value of information
  - Tools: Mind Maps, Influence Diagrams and Tornado Charts
3. Data Analysis
  - Data sources and reliability
  - Data classification and visualization and managing "Big Data"
  - Spreadsheet engineering, spreadsheet errors and the FAST modelling standard
  - Tools: Dashboards, Power View, Power Pivot
4. Decision Analysis
  - Information gathering and sensitivity analysis
  - Multistage decision problem analysis
  - Tools: Decision Trees, Analytical Hierarchy Process (AHP) and Data Envelopment Analysis (DEA)
5. Forecasting
  - Forecast process, data considerations, and model selection
  - Probability distributions , their impact and estimation

- Tools: Short-term Forecasting Models and Regression Analysis
6. Resource Allocation
- Allocation of resources, data considerations, conflicts and model selection
  - Decision engineering and sensitivity analysis
  - Tools: Linear, Non Linear and Goal Programming Models
7. Risk Analysis
- Assessing uncertainty
  - Decision making under uncertainty models
  - Tools: Monte Carlo Simulation

**Methods for Prior Learning Assessment and Recognition**

As per TRU policy

**Attendance Requirements – Include if different from TRU Policy**

As per TRU policy

**Special Course Activities – Optional**

**Use of Technology – Optional**