

## Analytical Customer Relationship Management (F000881)

Course size (nominal values; actual values may depend on programme)

Credits	8.0	Study time	240 h	Contact hrs	80.0 h
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Course offerings and teaching methods in academic year 2018-2019

A (semester 1)	English	seminar: practical PC room classes	57.5 h
		self-reliant study activities	5.0 h
		lecture	7.5 h
		group work	5.0 h
		seminar: coached exercises	5.0 h

Lecturers in academic year 2018-2019

Van den Poel, Dirk	EB23	lecturer-in-charge
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Offered in the following programmes in 2018-2019

<a href="#">Master of Science in Marketing Analysis</a>	crdts	offering
	8	A

Teaching languages

English

Keywords

Marketing models, Quantitative methods in marketing, CLV, LTV, Data Mining, CRISP-DM, logistic regression, decision trees.

Position of the course

This course provides a refresher of some basic techniques required for marketing modeling.

The main purpose of this course is to learn to understand the most important quantitative models for analytics in CRM. Much attention will be paid on learning a high-level data manipulation and modeling language as well as techniques of model construction.

The program aims at providing a thorough scientific training. The overall objective is to train and educate marketing graduates specialised in marketing analysis, who can support the marketing strategy and marketing action plans of a company. Emphasis is placed on the practical use of these analysis techniques within a company setting.

Contents

- 1 Basic techniques for marketing modeling:
  - econometrics (regression analysis)
  - statistics (statistical tests)
- 2 In-depth coverage of logistic regression and decision trees for classification
- 3 CRM modeling
  - Customer Relationship Management (CRM) , analysis of CRM: customer acquisition analysis, growing customers, retention analysis.
- 4 Data Mining (CRISP-DM) methodology
- 5 Feature Engineering: models need variables to be computed based on existing data.
- 6 High-level data manipulation and modeling language (SAS Software: basic programming language as well as macro programming)
- 7 Customer Lifetime Value (CLV) modeling
- 8 Data visualization for decision support

Initial competences

Introduction to statistics.

## Final competences

- 1 Awareness of the most important quantitative CRM models in marketing and their assumptions.
- 2 Building CRM models for customer acquisition/up- or cross-sell/customer churn.
- 3 Mastering a higher level programming language for data manipulation and modeling (SAS).
- 4 Using the appropriate techniques for model building and developing creative approaches to solving real-life problems.
- 5 Taking appropriate business decisions based on the outcomes of analytical models and communicating results and conclusions towards professionals and laymen using complex data structures.
- 6 Feature Engineering: Creative construction of variables to be used in marketing models.
- 7 In-depth coverage of research methodology (logistic regression, classification models)
- 8 Applying a literature study in international, peer-reviewed journals to CRM problems.
- 9 Validating the results of one's own research with existing CRM literature
- 10 Executing a real-life business case study in an international and interdisciplinary team with different levels of experience.
- 11 Delivering a professional oral report on complex issues and their solutions.

## Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

## Conditions for exam contract

This course unit cannot be taken via an exam contract

## Teaching methods

Group work, lecture, self-reliant study activities, seminar: coached exercises, seminar: practical PC room classes

## Extra information on the teaching methods

Interactive exercises about marketing models, using programming languages and /or software tools. Active class discussions of the different techniques and models.

## Learning materials and price

- Manual of high-level data manipulation and modeling language  
Lora D. Delwiche, Susan J. Slaughter (2003), *The Little SAS Book: A Primer*, 3rd edition
- Own syllabus
- Scientific papers about analytical customer relationship management, including:
  - D'Haen J., Van den Poel D., Thorleuchter D., Benoit D. (2016), "Integrating expert knowledge and multilingual web crawling data in a lead qualification system", *Decision Support Systems*, 82: 69-78.
  - Burez J. & Van den Poel D. (2007), "CRM at a pay-TV company: Using analytical models to reduce customer attrition by targeted marketing for subscription services", *Expert Systems with Applications*, 32, p. 277-288.
  - Van den Poel D., Larivière B. (2004), "Customer Attrition Analysis for Financial Services Using Proportional Hazard Models", *European Journal of Operational Research*, 157: 196-217.

## References

Malthouse E. (2013), "Segmentation and Lifetime Value Models Using SAS", SAS Institute.

## Course content-related study coaching

Numerous exercises are being solved during sessions. In addition, assignments (to be solved in teams) are handed out.

Students receive coaching in the process of solving the assignments and feedback afterwards (collectively, by team and individually).

After numerous tests about the programming languages SAS and SAS Macro's, students will receive individual feedback & coaching.

## Evaluation methods

continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Examination methods in case of periodic evaluation during the second examination period

Examination methods in case of permanent evaluation

Written examination with open questions, open book examination, oral examination, assignment, skills test, peer assessment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

Written and oral to determine to what extent the student mastered (1) the principles of analytical CRM, (2) the higher programming language SAS and SAS macro's and (3) formulating business conclusions based on results obtained by using marketing models.

Calculation of the examination mark

Permanente evaluation (100%)

1/6th of the score is the team effort in SAS

2/6th of the score is the SAS programming test

3/6th of the score is the CRM part

potentially adjusted by peer assessment.