

## Analytical Customer Relationship Management (F000712)

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

**Credits 6.0**

**Study time 180 h**

**Course offerings and teaching methods in academic year 2024-2025**

A (semester 1)	English	Gent	lecture seminar
----------------	---------	------	--------------------

**Lecturers in academic year 2024-2025**

Van den Poel, Dirk	EB23	lecturer-in-charge
--------------------	------	--------------------

**Offered in the following programmes in 2024-2025**

	<b>crdts</b>	<b>offering</b>
<a href="#">Master of Science in Business Engineering(main subject Data Analytics)</a>	6	A
<a href="#">Master of Science in Business Engineering (Double Degree)(main subject Data Analytics)</a>	6	A
<a href="#">Master of Science in Business Engineering (Double Degree)(main subject Operations Management)</a>	6	A
<a href="#">Master of Science in Business Engineering(main subject Operations Management)</a>	6	A
<a href="#">Exchange programme in Economics and Business Administration</a>	6	A

**Teaching languages**

English

**Keywords**

analytical customer relationship management (aCRM), Marketing models, Quantitative methods in marketing, computer programming, Python, CRISP-DM, CLV, LTV, Data Mining, logistic regression.

**Position of the course**

Analytical CRM represents the last part of the supply chain (contact with final customers). This course introduces students to the analytical tools to carry out projects in aCRM.

**Contents**

Introduction to:

- analytical Customer Relationship Management (CRM), analysis of CRM:
  - 1 customer acquisition analysis,
  - 2 growing customers,
  - 3 retention analysis,
  - 4 recapturing 'lost' customers.
- Data Mining (with a strong emphasis on classification models to predict the four types of customer behavior mentioned in the previous bulletpoint)
- High-level data manipulation and modeling language (Python with Python packages)

**Initial competences**

Intermediate statistics & Econometrics

**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 (Python).
- 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 team as a group assignment).
- 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**

Seminar, Lecture

#### **Extra information on the teaching methods**

Ex cathedra sessions as well as active class discussions of the different techniques and models with interactive exercises in the PC room.

#### **Study material**

Type: Slides

Name: Slides and papers

Indicative price: Free or paid by faculty

Optional: no

Language : English

Available on Ufora : Yes

#### **References**

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.

VAN DEN POEL Dirk, LARIVIÈRE Bart (2004), "Customer Attrition Analysis for Financial Services Using Proportional Hazard Models", *European Journal of Operational Research*, 157 (1), 196-217.

BUREZ Jonathan, VAN DEN POEL Dirk (2006), CRM at a Pay-TV Company: Using Analytical Models to Reduce Customer Attrition by Targeted Marketing for Subscription Services, *Expert Systems with Applications*, 32 (2), 277-288.

#### **Course content-related study coaching**

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

#### **Assessment moments**

end-of-term and continuous assessment

#### **Examination methods in case of periodic assessment during the first examination period**

#### **Examination methods in case of periodic assessment during the second examination period**

#### **Examination methods in case of permanent assessment**

Oral assessment, Skills test, Written assessment with open-ended questions, Peer and/or self assessment, Assignment

#### **Possibilities of retake in case of permanent assessment**

examination during the second examination period is possible

#### **Extra information on the examination methods**

Written exam to determine to what extent the student mastered

- the principles of analytical CRM,
- the higher-level programming language Python.

The use of generative AI is not allowed during the programming exam.

#### **Calculation of the examination mark**

Exam period (60%) and permanent evaluation (40%).

The total grade is computed as follows:

60% aCRM programming exam in Python during the exam period

40% group assignment during the academic year (potentially adjusted by peer assessment).

To pass, a student should pass both parts of the evaluation. If a student does not pass for both parts and the score is 10/20 or more, the score will be reduced to 9/20.