

## Analytical Customer Relationship Management (F000881)

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

**Credits 8.0**

**Study time 240 h**

**Course offerings and teaching methods in academic year 2025-2026**

A (semester 1)

English

Gent

seminar

lecture

group work

independent work

**Lecturers in academic year 2025-2026**

Van den Poel, Dirk

EB23

lecturer-in-charge

**Offered in the following programmes in 2025-2026**

[Master of Science in Data Science for Business](#)

**crdts**

8

**offering**

A

**Teaching languages**

English

**Keywords**

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

**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 (Python software with python packages)
- 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 (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 en 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, Seminar, Lecture, Independent work

#### **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.

#### **Study material**

Type: Slides

Name: Slides and papers

Indicative price: Free or paid by faculty

Optional: no

Language : English

Available on Ufora : Yes

#### **References**

#### **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 the tests about the programming language Python and the content aCRM students will receive individual feedback & coaching.

#### **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 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 Python and Python Packages and (3) formulating business conclusions based on results obtained by using marketing models.

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

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

Exam in exam period (60%), 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.