

NOVA Information Management School

NOVA IMS

Course	Data Mining
Coordinator:	Roberto Henriques
ECTS	6
Objectives:	<p>In terms of skills, this discipline aims to stimulate the student to:</p> <ul style="list-style-type: none"> • the analysis and synthesis; • The organization and planning; • Problem solving , partially structured ; • The ability to make decisions ; • Teamwork ; • The ability to apply acquired knowledge in practice; • The ability to generate new ideas (creativity); • Leadership; • Work independently.
Curricular Unit Contents:	<p>Introduction to Data Mining;</p> <p>Predictive models and descriptive models;</p> <p>Inductive learning;</p> <p>Methodology for Data Mining;</p> <ul style="list-style-type: none"> • The process; • The definition of the problem; • Measuring the quality of the models; <p>Exploration and evaluation of data;</p> <p>Visualization tools;</p> <p>Preparation and pre-processing of data;</p> <p>Descriptive models;</p> <ul style="list-style-type: none"> • Market basket analysis • RFM analysis; • Clustering algorithms (K-Means); • Self-Organizing Maps;

	<ul style="list-style-type: none"> • Topics about segmentation databases; <p>Predictive Models</p> <ul style="list-style-type: none"> • simple classifiers • Introduction to Bayesian classifiers • Classification based on instances • Drawing a learning system; • Classification Trees - DDT, Cart and C 4.5 • Neural Networks - Layered with perceptron training by Backpropagation • Additional Topics on Predictive Modeling
Teaching methods:	<p>Lectures where theory is presented</p> <p>Practical classes in computer rooms allowing students to apply the presented concepts.</p> <p>Tutorial classes in which students must work autonomously,</p>
Grading methods:	<p>Continuous assessment - Test 1 (35%), Test 2 (35%), Project (30%)</p> <p>2nd epoch - Exam (75%), Project (25%)</p>
Bibliography:	<ul style="list-style-type: none"> • Berry, M. and G., Linoff, Mastering Data Mining: The Art and Science of Customer Relationship Management. 2000, Brisbane: John Wiley & Sons. • Hand, D., Mannila, H., Smyth, P., 'Principles of Data Mining'. MIT Press. 2001. ISBN 026208290X • Course Notes Enterprise Miner™: Applying Data Mining Techniques, SAS Institute • Livro da disciplina