

**Department:** Mathematics and Computer Sciences

**Division:** Computer Sciences

**Level and Major:** Graduate

**Course Title:** Computational Data Mining

**Number of Credits:** 3

**Prerequisite:**

**Lecturer:**

**Course Description:**

**Course Goals and Objectives:**

**Course Topics:**

- Vectors and Matrices in Data Mining and Pattern Recognition
- Vectors and Matrices
- Linear Systems and Least Squares
- Orthogonality
- QR Decomposition
- Singular Value Decomposition
- Reduced-Rank Least Squares Models
- Tensor Decomposition
- Clustering and Nonnegative Matrix Factorization
- Computing Eigenvalues and Singular Values
- Data Mining Applications
- Classification of Handwritten Digits
- Text Mining
- Page Ranking for a Web Search Engine
- Automatic Key

**Reading Resources:**

**Evaluation:**