# SYLLABUS DEL CORSO

## Text Mining and Search

**2021-2-F9101Q015**

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### Aims

The aim of the course is to provide an introduction to the fundamental concepts related to Text Mining techniques, and to their applications in various tasks: Text Classification and Clustering and Text Summarization. An introduction to Search Engines and Recommender Systems will be provided.

### Contents

This course will first provide the definition of Text Mining and will point out the basic differences between Data Mining and Text Mining.

The course will then introduce some tasks involved by Text Mining, which include Text Summarization and Text Classification. The issues of text pre-processing and analysis, and of text indexing and representation will be addressed. Then the course will introduce the previously mentioned tasks. Some open source software for Text Mining will be introduced and practiced.

### Detailed program

1. Definition of Text Mining and basic differences between Data Mining and Text Mining.

2. Introduction to some tasks related to Text Mining: Information Retrieval, Information Filtering, Text Classification

3. Text pre-processing and indexing

4. Text Classification

5. Text Clustering

6. Text Summarization

7.  Introduction to Text Based Search Engines and to Recommender Systems

8. Open Source software  for Text Mining and Search

## Prerequisites

Basic knowledge of statistics and of programming languages.

## Teaching form

The course will be taught in English, and it will be constituted of both lectures introducing the main topics and of sessions in a laboratory where open source tools will be explained and employed. In emergency period both lessons and laboratory sessions will be online, and events in presence will be also organized. Seminars held by experts at national and international level will be part of the course.

## Textbook and teaching resource

Christopher D. Manning, Prabhakar Raghavan and Hinrich Schütze, Introduction to Information Retrieval, Cambridge University Press. 2008.

Specific books on text mining that are accessible online will be recommended during the course.

## Semester

First Semester

## Assessment method

Written and oral individual examination, definition of a laboratory project that can be developed also by groups of students (up to three students).

The written examination is aimed at assessing the level of understanding of the basic aspects taught during the course; it is constituted by a set of open questions.

The goal of the group project is the usage of  open source software that will be employed to develop technological solutions to the problems addressed in the course. In particular, real application areas will be considered, which require the definition of systems presented during the course.

## Office hours

To be agreed with the teachers