

COURSE DESCRIPTION – ACADEMIC YEAR 2019/2020

Course title	Information Retrieval
Course code	76057
Scientific sector	INF/01
Degree	Master in Software Engineering for Information Systems (LM-18)
Semester	1
Year	1
Credits	6
Modular	No
Total lecturing hours	40
Total exercise hours	20
Attendance	Not compulsory
Prerequisites	Introductory courses on: data structures and algorithms, linear algebra, probability theory, and data mining.
Course page	https://ole.unibz.it/
Specific educational objectives	<p>The course belongs to the type caratterizzanti – discipline informatiche and is part of the Specialization Topics.</p> <p>The objective of this course is to present the scientific underpinnings of the field of Information Retrieval. The student will study fundamental, mathematically sophisticated, information retrieval concepts first and then more advanced techniques for information filtering and decision support (personalization of retrieval results and their presentation).</p> <p>Furthermore, this course provides student a rich and comprehensive catalogue of information search and text processing techniques that can be exploited for the analysis of free text resources and in the design and implementation of specific Web applications.</p>
Lecturer	Markus Zanker
Contact LA	Piazza Domenicani 3, Room 2.20, Markus.Zanker@unibz.it , +39 0471 016977
Scientific sector of lecturer	INF/01
Teaching language	English
Office hours	During the lecture time span, Wednesday 14:00 - 16:00, arrange beforehand by email.
Lecturing Assistant (if any)	--
Contact LA	--
Office hours LA	--
List of topics	<ul style="list-style-type: none"> • Document Indexing • Vector Space Model • Web Search • Text Classification • Topic Modelling • Introduction to text mining
Teaching format	Frontal lectures, inverted classroom model, exercises and discussions in the lab, work in small teams solicited.

<p>Learning outcomes</p>	<p>Knowledge and understanding: D1.1 To have a sound knowledge of both the fundamentals and the application aspects of the various core areas of information technology; D1.5 To know the fundamentals, techniques and methods of design, customization and implementation of software to support the automation of new generation information systems for industrial production and business;</p> <p>Applying knowledge and understanding: D2.2 To be able to design and perform experimental analyses of information systems in order to acquire measures related to their behaviour and to evaluate experimental hypotheses in different fields of application, such as business, industrial or research;</p> <p>Making judgments: D3.5 To be able to work with large autonomy, also assuming responsibility for projects and structures.</p> <p>Communication skills: D4.5 To be able to prepare and conduct technical presentations in English; D4.8 To be able to synthesise knowledge gained from reading and studying scientific documentation.</p> <p>Learning skills: D5.1 To be able to independently extend the knowledge acquired during the course of study by reading and understanding scientific and technical documentation in English; D5.2 To be able to keep up to date independently with developments in the most important areas of information technology;</p>
<p>Assessment</p>	<p>The assessment of the course consists of the following parts:</p> <ul style="list-style-type: none"> • Assignments in small teams (ideally 2 students), 40% • Final exam, written, 60% of mark
<p>Assessment language</p>	<p>English</p>
<p>Assessment typology</p>	<p>Monocratic</p>
<p>Evaluation criteria and criteria for awarding marks</p>	<p>The assignments consist of different implementation exercises as well as reading and presentation tasks. Each assignment requires a submission.</p> <p>The assignments will be evaluated at the end of the semester and they are a prerequisite for attending the written exam. The assignments aim at assessing to what extent the student has achieved the above-mentioned learning outcomes related to: applying knowledge and understanding, making judgments, communication skills and ability to learn.</p> <p>The written exam will assess to what extent the student has achieved above-mentioned learning outcomes related to: knowledge and understanding, applying knowledge and understanding, ability to learn.</p>

<p>Required readings</p>	<p>The suggested book for the introduction to information retrieval topics is:</p> <ul style="list-style-type: none"> • C. D. Manning, P. Raghavan and H. Schutze. Introduction to Information Retrieval, Cambridge University Press, 2008. (Online: http://informationretrieval.org) <p>All the required reading material will be provided during the course and will be available in electronic format. Copy of the slides will be available as well.</p> <p>Subject Librarian: David Gebhardi, David.Gebhardi@unibz.it</p>
<p>Supplementary readings</p>	<p>--</p>
<p>Software used</p>	<p>Java, Python, R, Web browser</p>