**Fakultät für Informatik**
**Facoltà di Scienze e Tecnologie informatiche**
**Faculty of Computer Science**

# COURSE DESCRIPTION – ACADEMIC YEAR 2022/2023

| Course title | **Information Retrieval** |
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| Course code | 76057 |
| Scientific sector | INF/01 |
| Degree | Master in Software Engineering for Information Systems (LM-18) |
| Semester | 1 |
| Year | 2 |
| Credits | 6 |
| Modular | No |

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| Total lecturing hours | 40 |
| Total lab hours | 20 |
| Attendance | Not compulsory |
| Prerequisites | None |
| Course page | https://ole.unibz.it/ |

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| Specific educational objectives | The course belongs to the type "caratterizzanti – discipline informatiche" in the study path without curriculum". 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). 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. |

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| Lecturer | Barbara Russo |
| Contact | Piazza Domenicani 3, Room 1.15, Barbara.Russo@unibz.it, +39 0471 016170 |
| Scientific sector of lecturer | INF/01 |
| Teaching language | English |
| Office hours | During the lecture time span, Tuesdays 14:00 - 16:00, arrange beforehand by email. |
| Lecturing Assistant (if any) | -- |
| Contact LA | -- |
| Office hours LA | -- |
| List of topics | • Document Indexing<br>• Vector Space Model<br>• Web search<br>• Text Classification<br>• Topic Modelling<br>• Introduction to text mining |
| Teaching format | Frontal lectures, inverted classroom model, exercises and discussions in the lab, work in small teams solicited. |

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| **Learning outcomes** | Knowledge and understanding:<br>• D1.4 - Sound basic knowledge of storing, querying and managing large amounts of data and the associated languages, tools and system.<br>Applying knowledge and understanding:<br>• D2.2 - Ability to address and solve a problem using scientific Methods<br>Making judgments<br>• D3.2 - Ability to autonomously select the documentation (in the form of books, web, magazines, etc.) needed to keep up to date in a given sector.<br>Communication skills<br>• D4.1 - Ability to use English at an advanced level with particular reference to disciplinary terminology. |

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| **Assessment** | The assessment of the course consists of the following parts:<br>• Assignments in small teams (ideally 2 students), 40%<br>• Final exam, written, 60% of mark |
| **Assessment language** | English |
| **Assessment Typology** | Monocratic |
| **Evaluation criteria and criteria for awarding marks** | The assignments consist of different implementation exercises as well as reading and presentation tasks. Each assignment requires a submission.<br>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 and communication skills.<br>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. |

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| **Required readings** | The suggested book for the introduction to information retrieval topics is:<br>• C. D. Manning, P. Raghavan and H. Schutze. Introduction to Information Retrieval, Cambridge University Press, 2008. (Online: http://informationretrieval.org)<br><br>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.<br><br>Subject Librarian: David Gebhardi, David.Gebhardi@unibz.it |
| **Supplementary readings** | -- |
| **Software used** | Python, R, Web browser |