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| **University : Basrah University** | | |
| **College: Computer Science and Information Technology** | | |
| **Department : Computer Information Systems**  **Year : 2019-2020**  **Semester : Second** | | |
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# SYLLABUS: < ***INFORMATION RETRIEVAl*** >

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| *InstructoR: dR. ALIAA S. SABER* | ***Phone:*** |
| ***Hours: 2*** | ***Office:***College of Computer Science and Information Technology, Department of Computer Information Systems |
| ***Web:*** | ***Email:*** |

### Course Overview

As the Web continues to grow and evolve, more and more data are becoming available. Particularly, multimedia and XML-based data are produced regularly and in increasing way in our daily digital activities, and their retrieval and access must be explored and studied in this emergent web-based era. This course provides reviews of the cutting-edge technologies and insights of various topics related to XML-based and multimedia information access and retrieval under the umbrella of Web Intelligence and reporting how organizations can gain competitive advantages by applying new different emergent techniques in the real-world scenarios. In addition, multimedia and XML data have become increasingly available on the web . Its applications include video-on-demand systems, video conferencing, social tagging, medical imaging, on-line encyclopedia, cartography, etc. Since the value of this complex content depends on how easy it is to search and manage, the need to efficiently index, store, and particularly retrieve these data is becoming very high. The need for new more relevant and intelligent techniques and approaches for developing and benefiting from collective Web Intelligence is obvious more than ever to help users fetch data and avoid irrelevant web search results (pages, links, etc.), fraud e-business and email transactions, non-personalized Web information, even wrong web decisions, etc.

### Goals and Objectives

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| * To introduce students to the advanced concepts and techniques of Information Retrieval. * To develop skills of using recent Information Retrieval software for solving practical problems. * To gain experience of doing independent study and research. |

### Textbook and Readings

[1] Lakhmi Jain ,Advanced Information and Knowledge Processing, Springer-Verlag London Limited 2010.

[2] M A R C I A J . B A T E S, understanding information retrieval systems, management, and standards , 2012.

[3]Li Yan, Zongmin Ma, Intelligent Multimedia Databases and Information Retrieval: Advancing Applications and Technologies, IGI Globa, 2012.

[4] Nicola Ferro, Carol Peter, Information Retrieval Evaluation in a Changing World, Springer Nature Switzerland AG 2019.

### Course assessments

The course grade ( 30 points ) will be based on the following elements:

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| --- | --- |
|  | Points |
| Exams | 15 |
| Reading Checks | 5 |
| Participation | 4 |
| Attendance | 2 |
| Assignments | 4 |

### COURSE DESCRIPTION AND ASSIGNMENT SCHEDULE

This 2-credit hour course is 16 weeks long. You should invest 2 hours every week in this course.

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| **WK** | **DATE** | **TOPIC** | **READING** | **ASSIGNMENT** |
| **1** |  | Information systems | Ch1[2] |  |
| **2** |  | information retrieval system | Ch2[2] |  |
| **3** |  | Information Searching and Search Models | Ch3[2] |  |
| **4** |  | Contextual and Conceptual Information Retrieval | Ch1 [1] |  |
| **5** |  | Definition of Conceptual Context | Ch1 [1] |  |
| **6** |  | Methodology for a Conceptual and Contextual Information Retrieval and Navigation on the Web | Ch1 [1] |  |
| **7** |  | Automatic Invocation Linking for Collaborative  Web-Based Corpora | Ch2 [1] | Assignment 1 |
| **8** |  | Generalization to Multiple Corpora, Classification Steering | Ch2 [1] |  |
| **9** |  | WS-Query – A Framework to Efficiently Query  Semantic Web Service | Ch3 [1] |  |
| **10** |  | Three-Level Service Model, Generic Operations Representation | Ch3 [1] | Assignment 2 |
| **11** |  | Multimode Matching for Generic Operations, Optimization Strategies | Ch3 [1] |  |
| **12** |  | Semantics-Based Intelligent Indexing  and Retrieval of Digital Images – A Case Study | Ch5 [1] |  |
| **13** |  | Semantic Web  Ontologies  Caption-Based Semantic Annotation  Content-Based Semantic Annotation | Ch5 [1] | Assignment 3 |
| **14** |  | Ontology Development | Ch5 [1] |  |
| **15** |  | Harvesting Intelligence in Multimedia Social  Tagging Systems | Ch6 [1] |  |
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|  |  | Knowledge Retrieval in Social Tagging Systems, Content-Based Multimedia Retrieval | Ch6 [1] | Assignment 4 |
| **14** |  | Integrating Social with Content-Based Knowledge  Content and Tag-Based Clustering Approach  Evaluation Metrics | Ch6 [1] |  |
| **15** | ***Mid Exam*** | | | |