

	Hashemite University	
	Prince Al-Hussein bin Abdullah II Faculty for Information Technology	
	Department of Computer Information Systems	

## Course Syllabus

**Year: 2018-2019**

**Semester: (1)**

Course No.	Course Title	Designation	Prerequisite	Co-requisite	Credit Hours Lectures /Lab.
151002372	Information Retrieval Systems	Compulsory	151002372	-	3 / 0

Instructor Name	E-mail	Office No.	Office ext.	Office Hours
Dr. Zaher Salah	<a href="mailto:zaher@hu.edu.jo">zaher@hu.edu.jo</a>	340	5060	Sun, Tue, Wed (1:00-2:00)

<b>Coordinator's Name:</b>	Dr. Zaher Salah
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<b>Course Description</b>	<p>Along with the explosive growth of online textual information (e.g., web pages, email, news articles, social media, and scientific literature), it is increasingly important to develop tools to help us access, manage, and exploit the huge amount of information. Web search engines, such as Google and Bing, are good examples of such tools, and they are now an essential part of everyone's life. In this course, you will learn the underlying technologies of these and other powerful tools for accessing and mining text information. You will be able to learn the basic principles and algorithms for information retrieval. Unlike structured data, which is typically managed with a relational database, textual information is unstructured and poses special challenges due to the difficulty in precisely understanding natural language and users' information needs. In this course, we will introduce a variety of techniques for accessing and mining text information. The course emphasizes basic principles and practically useful algorithms. Topics to be covered include, among others, text processing, inverted indexes, retrieval models (e.g., vector space and probabilistic models), ir evaluation, text categorization, retrieval system design and implementation, issues of web search engines, and applications of text retrieval and mining.</p>
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### **Learning References:**

<b>1- Textbook (s):</b>
1. Christopher D. Manning, Prabhakar Raghavan and Hinrich Schütze, Introduction to Information Retrieval, Cambridge University Press. 2009. <a href="http://nlp.stanford.edu/IR-">http://nlp.stanford.edu/IR-</a>

book/information-retrieval-book.html

**2- References:**

1. ChengXiang Zhai, Statistical Language Models for Information Retrieval (Synthesis Lectures Series on Human Language Technologies), Morgan & Claypool Publishers, 2008.

**Course Learning Outcomes CLOs**

1. **Identify** and **recognize** the concepts of natural language processing, text retrieval systems and the system development life cycle for the information retrieval systems. (a, b)
2. **Analyze** and **identify** all issues around the natural language processing and text retrieval systems. (a, b)
3. **Design** and **recognize** all methodologies and aspects of designing information retrieval systems like Web Search Engines. (c)
4. **Design** and **recognize** all aspects of the retrieval models and implementation: Vector Space Models (c)
5. **Apply** knowledge of computing and mathematics appropriate to the linguistic models, probabilistic models and statistical language models (a, b)
6. **Design** and **evaluate** the appropriate retrieval model. (c)
7. **Understanding** of professional, ethical, legal, security and social issues and responsibilities that rest upon the Information Retrieval Systems. (e)

**Addressed Student Learning Outcomes (SLOs)**

a, b, c and e

Topics	CLO number	Reference	No. of Weeks	Contact hours*
1. Overview of text retrieval systems.	1+2	Ch-1, textbook	1	3
2. Building dictionary	3	Ch-2, textbook	2	6
3. Tolerant information retrieval systems	3	Ch-3, textbook	3	9
4. Index construction: Scoring, Term Weighting and the Vector Space Model	4+5	Ch-4+ Ch-6, textbook	3	9
5. Evaluation	6+7	Ch-8, textbook	3	9
6. Relevance feedback and query expansion	5	Ch-9, textbook	2	6
<b>Total</b>			<b>14</b>	<b>42</b>

Assessment method	Grade	Comments
<b>First Exam</b>	25 %	Covers Chapters 1, 2 , 3
<b>Second Exam</b>	25 %	Covers Chapters 4, 6 , 8
<b>Assignments</b>	10%	TBA
<b>Final Exam</b>	40%	Covers all topics
<b>Total</b>	100%	