


QFO-AP-FI-MO02	اسم النموذج: Course Syllabus	جامعة فيلادلفيا
رقم الاصدار : 1 ( Revision)	الجهة المصدرة: كلية تكنولوجيا المعلومات	
التاريخ: 2017/11/05	الجهة المدققة: عمادة التطوير والجودة	Philadelphia University
عدد صفحات النموذج:		

Course code: 750464	Course Title: Information and Data Retrieval
Course prerequisite: 731221 (Fundamentals of DB)	Course Level: 4
Credit hours: 3	Lecture Time:

### Academic Staff Specifics

Name	Rank	Office	Office Hours	Email

#### **Course Description:**

Databases are not the only means for the storage, and subsequent retrieval of information, in fact databases only hold the subset of information known as "structured data". Documents and hypermedia are also information repositories, often referred to as semi-structured data, and forming the backbone of Digital Libraries and the Web.

Work has gone on for at least a decade on how to manage and find electronic documents, how to structure and navigate hypertexts, and how to manage and catalogue libraries. The Web, as a global document repository and a distributed hypermedia, makes this area of information management more important than ever. A customer or another business finding one's businesses web pages is a matter of that business's survival in e-Commerce land. This module introduces topics related to information retrieval systems, hypermedia systems and web search.

#### **Course Objectives:**

This module aims to give students an understanding of the fundamental techniques for hypermedia architectures, design and usability, document management and retrieval, metadata management, and searching the web.

#### **Course Components**

##### Text book:

*Title:* Information retrieval models : foundations and relationships

*Author(s)/Editor(s):* Poelleke, Thomas

*Publisher:* Morgan & Claypool, 2013

*Website:* <http://www.morganclaypool.com/doi/abs/10.2200/S00494ED1V01Y201304ICR027>

##### Teaching Methods:

*Duration:* 16 weeks, 48 hours in total

*Lectures:* 42 hours, 2-3 hours per week (2 of them are for the first and second 1-hour exams)

*Tutorials:* 6 hours, (average 1 per 2 weeks)

*Assignments:* 2 Assignments

## **Learning Outcomes:**

### **A- Knowledge & Understanding.**

- A1) Understand the essential mathematics relevant to Computer Science.
- A2) Know & understand a wide range of principles and tools available to the software developer, such as design methodologies, choice of algorithm, language, software libraries and user interface technique.
- A3) Understand the principles of various current applications and research areas of the subject including Intelligent Systems, databases, software engineering, networks, and distributed systems.
- A4) Know & understand a wide range of software and hardware used in development of computer systems.
- A5) Know & understand the professional and ethical responsibilities of the practicing computer professional including understanding the need for quality, security, and computer ethics.

### **B- Intellectual Skills.**

- B3) Identify a range of solutions and critically evaluate and justify proposed design solutions.
- B4) Practice self-learning by using the e-courses.

### **C- Practical Skills.**

- C2) Prepare and deliver coherent and structured verbal and written technical reports.
- C3) Give technical presentations suitable for the time, place, and audience.
- C4) Use the scientific literature effectively and make discriminating use of Web resources.
- C5) Design, write, and debug computer programs in appropriate languages.

### **D-Transferable Skills and Personal Qualities.**

- D2) Use IT skills and display mature computer literacy.
- D4) Strike the balance between self-reliance and seeking help when necessary in new situations.
- D5) Display personal responsibility by working to multiple deadlines in complex activities.

## **Learning outcomes achievement**

- Development: A1, A2, A3, A4, A5, D2: lectures and laboratory sessions.  
A2, A3, C2: Tutorials and Lab sessions,  
B3, B4, C2, C3, C4, C5, D2, D4, D5: Homework
- Assessment : A1, A2, A3, A4, A5, B3: Quizzes, written exams, and Practical Works Exams.  
A4, B3, B4, C2, C3, C4, C5, D2, D3, D5: Homework Exam.

## **Assessment Instruments**

<b><u>Allocation of Marks</u></b>	
<b>Assessment Instruments</b>	<b>Mark</b>
First Examination	<b>20%</b>
Second Examination	<b>20%</b>
Final Examination	<b>40%</b>
Projects	<b>20%</b>
<b>Total</b>	<b>100%</b>

*\* Make-up exams will be offered for valid reasons only with consent of the Dean. Make-up exams may be different from regular exams in content and format.*

## **Practical Submissions**

*The assignments that have work to be assessed will be given to the students in separate documents including the due date and appropriate reading material.*

## **Documentation and Academic Honesty**

Submit your homework covered with a sheet containing your name, number, course title and number, and type and number of the homework (e.g. tutorial, assignment, and project).

Any completed homework must be handed in to my office (room --- ) by 15:00 on the due date. After the deadline “zero” will be awarded. You must keep a duplicate copy of your work because it may be needed while the original is being marked.

You should hand in with your assignments:

- 1- A printed listing of your test programs (if applicable).
- 2- A brief report to explain your findings.
- 3- Your solution of questions.

For the research report, you are required to write a report similar to a research paper. It should include:

- **Abstract:** It describes the main synopsis of your paper.
- **Introduction:** It provides background information necessary to understand the research and getting readers interested in your subject. The introduction is where you put your problem in context and is likely where the bulk of your sources will appear.
- **Methods (Algorithms and Implementation):** Describe your methods here. Summarize the algorithms generally, highlight features relevant to your project, and refer readers to your references for further details.
- **Results and Discussion (Benchmarking and Analysis):** This section is the most important part of your paper. It is here that you demonstrate the work you have accomplished on this project and explain its significance. The quality of your analysis will impact your final grade more than any other component on the paper. You should therefore plan to spend the bulk of your project time not just gathering data, but determining what it ultimately means and deciding how best to showcase these findings.
- **Conclusion:** The conclusion should give your reader the points to “take home” from your paper. It should state clearly what your results demonstrate about the problem you were tackling in the paper. It should also generalize your findings, putting them into a useful context that can be built upon. All generalizations should be supported by your data, however; the discussion should prove these points, so that when the reader gets to the conclusion, the statements are logical and seem self-evident.
- **Bibliography:** Refer to any reference that you used in your assignment. Citations in the body of the paper should refer to a bibliography at the end of the paper.

### **• Protection by Copyright**

1. Coursework, laboratory exercises, reports, and essays submitted for assessment must be your own work, unless in the case of group projects a joint effort is expected and is indicated as such.
2. Use of quotations or data from the work of others is entirely acceptable, and is often very valuable provided that the source of the quotation or data is given. Failure to provide a source or put quotation marks around material that is taken from elsewhere gives the appearance that the comments are ostensibly your own. When quoting word-for-word from the work of another person quotation marks or indenting (setting the quotation in from the margin) must be used and the source of the quoted material must be acknowledged.
3. Sources of quotations used should be listed in full in a bibliography at the end of your piece of work.

### **• Avoiding Plagiarism.**

1. Unacknowledged direct copying from the work of another person, or the close paraphrasing of somebody else's work, is called plagiarism and is a serious offence, equated with cheating in examinations. This applies to copying both from other students' work and from published sources such as books, reports or journal articles.
2. Paraphrasing, when the original statement is still identifiable and has no acknowledgement, is plagiarism. A close paraphrase of another person's work must have an acknowledgement to the source. It is not acceptable for you to put together unacknowledged passages from the same or from different sources linking these together with a few words or sentences of your own and changing a few words

from the original text: this is regarded as over-dependence on other sources, which is a form of plagiarism.

3. Direct quotations from an earlier piece of your own work, if not attributed, suggest that your work is original, when in fact it is not. The direct copying of one's own writings qualifies as plagiarism if the fact that the work has been or is to be presented elsewhere is not acknowledged.
4. Plagiarism is a serious offence and will always result in imposition of a penalty. In deciding upon the penalty the Department will take into account factors such as the year of study, the extent and proportion of the work that has been plagiarized, and the apparent intent of the student. The penalties that can be imposed range from a minimum of a zero mark for the work (without allowing resubmission) through caution to disciplinary measures (such as suspension or expulsion).

### Course Academic Calendar

Week	Basic and support material to be covered	Homework/reports and their due dates
(1)	Introduction to Information Retrieval (IR) systems Boolean Retrieval (1)	
(2)	Boolean Retrieval (2) <b>Tutorial 1</b>	
(3)	The term vocabulary and posting lists	
(4)	Dictionaries and tolerant retrieval	
(5)	Index construction and index compression <b>Tutorial 2</b>	
(6)	Scoring, term weighting and vector space model (1)	<b>First Exam</b>
(7)	Scoring, term weighting and vector space model (2) <b>Tutorial 3</b>	
(8)	Computing scores in a complete search system (1)	
(9)	Computing scores in a complete search system (2) <b>Tutorial 4</b>	<b>Homework</b>
(10)	Evaluation in Information retrieval (1)	
(11)	Evaluation in Information retrieval (2) <b>Tutorial 5</b>	
(12)	XML Retrieval	<b>Second Exam</b>
(13)	Web Search basics. <b>Tutorial 6</b>	
(14)	Web Crawling and indexes.	
(15)	Link analysis	
(16)	Homework presentation, Revisions	<b>Final Exam</b>

#### Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

#### Attendance Policy:

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

### **Module References**

1. Ricardo Baeza-Yates and Berthier Ribeiro-Neto, Modern Information Retrieval, Addison Wesley, 1999
2. David Lowe and Wendy hall, Hypermedia and the Web: an Engineering Approach, John Wiley, 1999, ISBN: 0-417-98312-8
3. R.K. Belew, Finding out about--A cognitive perspective on search engine technology and the www, Cambridge University Press, 2001
4. Internet Sites:  
<http://www.informationretrieval.org/>  
<http://www.cs.utexas.edu/users/mooney/ir-course/>  
<http://www.ischool.washington.edu/efthimis/courses/lis544/>