I. Course Description:

This course provides overview of information retrieval (IR) and human computer interaction processes, ranging from creating information resources to delivery of information to the information seeker. The content of the course includes an introduction to the logical concepts and tactics relevant to online searching, including bibliographic databases and internet search engines. In addition, the course includes exercises relating to the formulation, conduct, and evaluation of database searches; the examination of theories and practices bearing on an understanding of information seekers and their needs; and a review of the basic processes in the management of online information services.

Required for all MLIS students except students declared in the Archives & Records Management Specialization.

II. Course Objectives:

Students will understand:
1. the social and economic environment for information resources;
2. the role played by information networks, standards and the information industry;
3. the range of interactive and human computer processes and associated variables in human information seeking and searching;
4. the process of user modeling, mediation and interviewing;
5. principles of online searching, including selection of databases, search strategies, search term selection and tactics;
6. how to use a range of information retrieval systems efficiently and effectively, including traditional online systems, graphical user interfaces (GUIs), federated search systems, and Web search engines;
7. application of various search tactics for variation in search effectiveness and efficiency;
8. evaluation of search results and user utility assessments;
9. issues relating to reference services and instruction services for end users; and
10. basic aspects of the management of database searching services, including a working knowledge of the functions, user requirements and design of several information retrieval systems.

Upon successful completion of the course, students will be able to do the following:
1. analyze an information problem and identify appropriate information resources;
2. formulate an appropriate search strategy and conduct an efficient search; and
3. evaluate performance and output of an IR system.

Please note that this syllabus is subject to change. Any changes will be announced in class and by e-mail and a revised copy of the syllabus will be placed online on the CourseWeb site.

III. CourseWeb Information:

CourseWeb is a Web-based system using BlackBoard software that facilitates course-related communication as well as distribution of course materials and grades. You can access CourseWeb at http://courseweb.pitt.edu. You must log in with your University Computer Account – this is the one that goes with your ‘pitt.edu’ e-mail address. If you do not have a Pitt account, please contact Computing Services (CSSD) at 412-624-HELP (4357) to find out how to get one. Course-related e-mail will be sent to your Pitt e-mail account. If you do not read e-mail on your Pitt account, you are responsible for forwarding any e-mail received on your Pitt account to the e-mail address that you use. See http://accounts.pitt.edu/ for information on managing your Pitt account and forwarding e-mail. If you have trouble logging in to CourseWeb, you may need to log in to the accounts website above to activate your Pitt e-mail account. Call 412-624-HELP with any problems relating to your account.

IV. Textbook and Readings:

The textbooks for this course are:

There will be about 3 required readings each week. You will be asked to submit to the class wiki site each week before the class to respond to the issues raised in the required readings. This can be informal in style – even bulleted lists can be used when appropriate, however, the response should clearly indicate the context, including the part of the text that triggered your questions. Do not summarize the readings. Instead, discuss your thoughts, ideas, and questions related to them. Please include at least one question each week that you have from the readings that you might like me to address in class. E-mail responses for each week’s readings should be submitted by 5pm the Sunday before the class. As described below, 10 responses are required as part of your final grade, each of which counts for .5 participation point.

Readings will generally be available via CourseWeb (if available in electronic format) and on reserve in the IS Library. I will communicate each week which readings are required both in class and on CourseWeb. Additional readings may be added as needed.

V. Course Schedule At a Glance

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<thead>
<tr>
<th>Date</th>
<th>Unit</th>
<th>Assignment</th>
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<td>Jan. 8</td>
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<td>Jan. 15</td>
<td>2: Information Retrieval Environment</td>
<td></td>
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<td>Jan. 22</td>
<td>3: IR Theories and Systems: Collection and Indexing</td>
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<tr>
<td>Jan. 29</td>
<td>4: IR Theories and Systems: Interface and Matching</td>
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<tr>
<td>Feb. 5</td>
<td>5: Search Strategies - Controlled Vocabulary Searching</td>
<td>Assignment 1 Out</td>
</tr>
<tr>
<td>Feb. 12</td>
<td>6: Search Strategies - Full Text, Natural Language, and Federated Searching</td>
<td>Assignment 2 Out</td>
</tr>
<tr>
<td>Feb. 19</td>
<td>7: Evaluating Search Results and System Performance</td>
<td>Assignment 1 Due</td>
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<tr>
<td>Feb. 26</td>
<td>8: The Information Professional as Intermediary</td>
<td>Due Assign 2 Hand out Assignment 3 Interview Observation</td>
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<tr>
<td>Mar. 4</td>
<td>9: Retrieving Information on the Web</td>
<td>Hand out Assignment 4 Web Retrieval</td>
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<tr>
<td>Mar. 11</td>
<td>Spring break, no class</td>
<td></td>
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<td>Mar. 18</td>
<td>10. Exam</td>
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<td>Mar. 25</td>
<td>11: Selection and Evaluation of Databases</td>
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<td>Apr. 1</td>
<td>12: Retrieving Information from Other Sources</td>
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<td>Apr. 8</td>
<td>13: User Issues and Behaviors</td>
<td>Due Assign 4</td>
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<tr>
<td>Apr 15</td>
<td>14: Information Retrieval Services and Future Trends</td>
<td>Due Term Project</td>
</tr>
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VI. Course Assessment

Participation 10%

Class attendance is required for success in this course, as material will be covered in class that is not included in the readings. Participation is based on off-class contribution to each week’s “my reading questions” before the class and “my muddiest points” after the class (10 participation points total). The detail of assess contribution to “my reading questions” is stated in section IV. Your muddiest points can be submitted at the end of the class or with the reading questions for the next week. Just list any questions regarding the issues covered during the class. Again, 10 responses are required as part of your final grade, each of which count .5 participation point.

If you must miss a class, please notify the teaching assistant, and make arrangements to obtain course notes and handouts. Makeup exams will not be offered except under extreme circumstances.

You are strongly recommended to attend the “Library Science Resources” class offered by the Information Sciences Library. To see the class schedule, go to http://www.library.pitt.edu - click on “Libraries & Collections” and then “Information Sciences Library” and then “Library Instruction Calendar.” The calendar is also available in print form in the library.

Assignment 32%

There are total four assignments, each of which will count 8% in the final course score. You are required to make a clear presentation about your ideas.

The deadline of submitting each assignment is before 3pm of the due date. Each 24 hours delay will have 40% deduction of the maximal score. No submission later than 2 days will be accepted except in the case of emergencies and personal disasters.

Exam 28%

Mid-term will last 90 minutes, and covers all the topics taught in the weeks before it. Common exam questions include multiple choices, short definitions, and discussion questions.

Term Project 30%

Please see section VIII for detail description of term project.

Course Grading Scale:

The final grade depends on the percentage of points you have earned, and the definition of letter grades is:
Unit 1: Introduction to IR and Overview of Course

Objectives: After this class, you should be able to

- restate the definitions of data, information, and knowledge
- explain the basic concepts of information retrieval
- restate the expectations and requirements of the course
- make decision on whether attending the course

Required Readings
1. WALKER & JANES CHAPTER 1.

Unit 2: Information Retrieval Environment

Objectives: After this class, you should be able to

- restate the relationship between IR process and its surrounding environment
- explain and identify the major factors that affect IR process
- explain the general issues of interoperability, connectivity, and role of networks in IR process

Required Readings:
1. WALKER & JANES CHAPTER 2.

Unit 3: IR Theories and Systems: Collection and Indexing
Objectives: After this class, you should be able to

- explain the difference between two types of collections
- restate the characteristics of bibliographic records and at least one of their common used formats.
- explain how documents are processed into inverted files, and
- write inverted files based on some simple document collections

Required Readings:
1. WALKER & JANES Chapter 5 Note: You do NOT need to read pages 66-74. Or BELL chapter 1

Interesting Links:
1. MARC21 online tutorial http://www.lib.usm.edu/~techserv/pdc/marc21_tutorial_ie/
2. Traugott Koch, Controlled vocabularies, thesauri and classification systems available in the WWW. DC Subject, http://www.lub.lu.se/metadata/subject-help.html

Unit 4 : IR Theories and Systems: Interface and Matching

Objectives: After this class, you should be able to

- explain the basic process involved in query processing
- explain how Boolean matching model selects documents for a given query
- restate the characteristics of various methods for presenting

Required Readings:
1. WALKER & JANES Chapter 6, pp 83-89 only or BELL chapter 4
3. Peter Jackson, Isabelle Moulinier, “Document Retrieval”, In “Natural Language Processing for Online Applications”, chapter 2, pp23-36. (available in CourseWeb)

Interesting Links:

Unit 5 : Search Strategies Part 1: Controlled Vocabulary Searching
Objective: After this class, you should be able to
  • develop an ability to analyze searcher’s information needs, formulate effective search
    strategies and to provide techniques and practice so that students are able to perform an
    efficient search on commonly used information retrieval systems.
  • Develop ability to utilize devices provided by the system for improving retrieval effectiveness
    Boolean logic, proximity searching, truncation and other tools

Required Readings:
1. WALKER & JANES Chapter 6, pp 75-104 exclude 83-89, WALKER & JANES Chapter 7, or
   BELL chapters 2 and 6
   (Available in CourseWeb)
   Online 6(3): 12-19. (Available in CourseWeb)

Interesting Links
   effectiveness of search terms. Journal of the American Society for Information Science, 48(8),

Assignment 1: Searching citation/abstract databases

Unit 6: Search Strategies Part 2: Full Text, Natural Language and Federated Searching

Objectives: After this class, you should be able to
  • explain the challenges unique to searching full text, natural language, and federated search
    systems
  • apply specific techniques to perform an efficient search on these systems.
  • understand the research and development of improving full text, federated search systems.

Required Readings:
1. WALKER & JANES Chapter 8 or BELL chapter 3
   (Available online through InfoTrac- at Pitt E-Journal
   http://ug4f7ck2h.search.serialssolutions.com/ )
   retrieval. Online, 23(3): 63-72. (Available online through InfoTrac- at Pitt E-Journal
   http://ug4f7ck2h.search.serialssolutions.com/ )

Interesting Links
   http://www.dlib.org/dlib/april97/04lynch.html
Assignment 2: Searching full text databases

Unit 7: Evaluating Search Results and System Performance

Objective: After this class, you should be able to
- explain the evaluation criteria and general issues relating to the evaluation of search results
- adopt an evaluation framework for your own need

Required Readings:
1. WALKER & JANES Chapter 12

Interesting Readings:

Unit 8: The Information Professional as Intermediary

Objective: After this class, you should be able to restate the functions of the intermediary role
- apply the tactics and strategies for assessing the patron’s information needs in reference interview
- explain the various new forms of reference interview in current Internet environment

Required Readings:
1. BELL chapter 9 part 2
Interesting Readings:


Assignment 3: Reference observation

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Unit 9: Retrieving information on the World Wide Web

Objectives: After this class, you should be able to
- identify the similarity and difference between search on the Web and other medias
- explain the basics of Web retrieval techniques
- search effectively and efficiently using some Web search tools

Required Readings:


Interesting Readings:


Assignment 4: Retrieving information on the Web

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Unit 11: Selection and Evaluation of Databases

Objectives: After this class, you should be able to
identify criteria for selecting appropriate databases, both from an IR standpoint and from a collection development standpoint.

provide an overview of issues involved in evaluating databases in terms of performance as an IR system.

Required Readings:
1. WALKER & JANES Chapter 10, “choose database” section  (Note: On pages 207-212, become familiar with the features described (they're cool) but don't worry about remembering all the details of how to do them unless you plan to search Dialog regularly.) or BELL chapters 10 and 11.

Unit 12: Retrieving Information from Special Resources

Objective: After this class, you should be able to

• restate strategies and techniques for retrieving information from print reference resources.
• Change to advance search? Including searching for patent, print resources, and medical information

Required Readings:
1. BELL chapters 5 and 8

Interesting Readings:

Unit 13: User Issues in Information Retrieval

Objective: After this class, you should be able to
• Restate theories and research on people’s information seeking behavior
• Explain the characteristics of different user groups in seeking information

Required Readings:
1. BELL chapter 9 part 1.

Interesting Readings:

Unit 14: Information Retrieval Services and Future Trends

Objectives: After this class, you should be able to
• examine challenges and issues related to manage information retrieval services, including allocating resources, establish policies, teaching retrieval to others, etc.
• explain major issues and challenges as well as future trends in information retrieval and information technology and their implications for professional library and information services.

Required Readings
1. WALKER & JANES Chapter 13, 14. Or BELL chapter 12

VIII. Term Project: Client Information Problem, Interaction and Analysis

The student will undertake a search or searches for a client with an information problem. The aim of the project is to conduct as many searches as required to resolve the client’s information problem.
Searches of DIALOG, Westlaw, CD-ROM databases, the Web or any other electronic information service can be included in the project. The client may be present or absent during each search process.

During the project, the following data should be collected from the client:
- Description of the client’s information problem on a search request form before each search conducted (see the “Search Request Form” in the textbook – WALKER & JANES).
- Client’s relevance judgments written next to each retrieved item on each search log, as either: Relevant (R), Partially Relevant (PR), Partially Not Relevant (PNR), Not Relevant (NR).
- PRECISION of each search.
- Client indicates their information seeking stage on the Kuhlthau Six Stage Information Search Process Model before and after each search. Searcher will also question the client regarding how their information problem has changed after their initial and any subsequent searches.
- Written notes of all conversations and interviews with the client.
- Client’s evaluation of each search process: utility, satisfaction.

Include the following in your 10-15 page project report:
- Overview of the project.
- Project time-line.
- Discussion of client characteristics. Although you are not required to list the client’s name and contact detail. Your discussion of the clients, especially their characteristics related to retrieval, should be clear and detail enough.
- Analysis of the data collected for each search session, including:
  - Changes in the client’s information problem in relation to the retrieved items.
  - Reasons and rationale for your selection and use of databases, systems, search terms, tactics, and strategies. List the source of each search term.
  - Sources used for each search: DIALOG databases, CD-ROM databases, WWW.
  - Copy of each search log with client’s relevance judgments and reasons for judgments on Relevant and Partially Relevant items.
  - Copies of all written notes.
- The search should be performed on at least three different databases.
- Discussion of the problems and issues you confronted during the project; including the client modeling, client interviews, search interaction, results, relevance judgments and evaluations, and interesting aspects of the interaction related to the class readings.
- What worked and what didn’t work?

When writing either your assignment essays or project reports, please follow one of the established styles for reference and citation (visit “Research, Writing, and Style Guides” (http://www.aresearchguide.com/styleguides.html) for various existing styles). However, you are highly recommended to adopt the American Psychological Association APA style (the fifth edition of the Publication Manual of the American Psychological Association published by the American Psychological Association (2001)). “A Guide for Writing Research Papers” (http://webster.commnet.edu/apa/) is a wonderful online place to obtain the guidance for this style.

IX. Course Policies:
**Ground rules for class discussion:**

On-class interaction and discussion will be an important means of learning in this course, therefore, it is important that we work together to create a constructive environment by observing these rules:

- You should participate in the discussion of ideas.
- You should respect diverse points of view.
- You should aware the diverse backgrounds of peers.
- You may not belittle or personally criticize another individual for holding a point of view different than your own.
- Your use of language should be respectful of other individuals or groups.

**Academic Integrity:**

It is expected that the work you submit in this course will be your own. While collaboration is allowed for the course project, it should be approved in advance and the nature of each contribution should be specified in the project proposal and the final submission.

The following statement is taken from *The Teaching Assistant Experience: A Handbook for Teaching Assistants and Teaching Fellows at the University of Pittsburgh* (A.P. Haley and J.M. Nicoll, eds.)

Plagiarism means submitting work as your own that is someone else’s. For example, copying material from a book or other source without acknowledging that the works or ideas are someone else’s and not your own is plagiarism. If you copy an author’s words exactly, treat the passage as a direct quotation and supply the appropriate citation. If you use someone else's ideas, even if you paraphrase the wording, appropriate credit should be given. You have committed plagiarism if you purchase a term paper or submit a paper as your own that you did not write.

Plagiarism is a violation of the University of Pittsburgh’s standards on academic honesty, and violations of this policy are taken seriously. **From the Guidelines on Academic Integrity: Student and Faculty Obligations and Hearing Procedures (effective September, 1995):**

A student has an obligation to exhibit honesty, and to respect the ethical standards of the historical profession in carrying out his or her academic assignments. Without limiting the application of this principle, a student may be found to have violated this obligation if he or she:

- Presents as one’s own, for academic evaluation, the ideas, representations, or words of another person or persons without customary and proper acknowledgment of sources.
- Submits the work of another person in a manner which represents the work to be one’s own. (Quotation ellipsed.)

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**Special Needs:**

Students with disabilities who require special accommodations or other classroom modifications should notify the instructor and the University's Office of Disability Resources & Services (DRS) no later than the 2nd week of the term. Students may be asked to provide documentation of their disability to determine the appropriateness of the request. DRS is located in 216 William Pitt Union and can be contacted at 648-7890 (Voice), 624-3346(Fax), and 383-7355(TTY). Students who must miss an exam or class due to religious observances must notify the instructor ahead of time and make alternative arrangements.

Students in this course will be expected to comply with the University of Pittsburgh’s Policy on Academic Integrity. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators.