

Information Retrieval and Web Search – Fall 2025
COMP 7/8130
Vasile Rus

Contact Information:

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Office Hours (in DH323):

Monday	Tuesday	Wednesday	Thursday	Friday
	11:05AM-12:05PM		11:05AM-12:05PM	
<i>Also by Appointment</i>				

Course Description:

COMP 7130-8130. (from the University catalog).

Advanced current research topics in database and information management, with emphasis on nontraditional data and applications. PREREQUISITE: COMP 7116 or permission of instructor.

Why this course?

Today, one of the major problems is not lack of information but too much information. We need intelligent ways to organize the vast amount of information available at our fingertips and to effectively search for what we want. We are faced with an Information Overload problem. The Information Retrieval and Web Search class presents the major challenges posed by this problem and solutions to these challenges.

The course introduces computational techniques to search for information in static collections of documents and in dynamic collections, e.g. the web. Students will be exposed to text processing algorithms, classical information retrieval models (e.g., Boolean and Vectorial models), and web search techniques. The course is closely related to the Natural Language Processing course.

Resources:

See the class website: <http://www.cs.memphis.edu/~vrus/teaching/ir-websearch/>

Required Text

R. Baeza-Yates and Berthier Ribeiro-Neto: *Modern Information Retrieval*

Recommended Texts

B. Frakes and R. Baeza-Yates *Information Retrieval: Data Structures and Algorithms*

C. Manning, P. Raghavan, and H. Schütze: *Introduction to Information Retrieval*

Other Resources:

See course materials in Canvas.

Evaluation:

The University policy requires to email a grade to a student's U of M email address **only**.

Final Grades:

Homework 40%, Project 25%, Midterm 15%, Final - 15% each, Participation & Presentations 5%

PhD Students are required to make a presentation as part of the Homework grade. The presentation consists of power point slides presented in front of the class for 20-30 minutes and an accompanied report of 3-5 pages (single spaced).

Grading Scale:

<i>Grade</i>	<i>Letter Grade</i>
90-100+	A
80-89	B
70-79	C
60-69	D
0-59	F

2.5 above or below the cut-off will earn you a + or – in front of your grade.

For example: 89 has a letter equivalent of B+

Exception: A- is for 90-91, A for scores ranging from 92 to 97, anything above 98 leads to A+

Course Policies:

Attendance

Students are strongly encouraged to attend all lectures. **Active participation** to class discussions counts toward your final grade.

Late Policy

Students will have on average one-two weeks from the date the work is assigned. Late submissions are not accepted. In exceptional cases you may have a 48-hour grace period at the cost of 50% of the grade (Students **must** ask for it before the due date).

Testing Policy

Usually exams are closed books. There are no make-up exams. Any code developed as part of the class work must follow the **coding-style** guidelines described on the web site. The coding-style will be strictly enforced.

Final Exam University General Rules and Guidelines

- Attendance is compulsory.
- No exam period may be changed without the written permission of the department chair and the college dean.

Plagiarism/Cheating Policy:

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and ***will not be tolerated***. All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but ***appropriate references must be included for the materials consulted***, and appropriate citations made when the material is taken verbatim.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor's discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the University Judicial Affairs Office for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to:

<http://www.people.memphis.edu/~jaffairs/>

Course Syllabus (tentative)

Week 1: Introduction to IR and Web Search

Week 2: Classic IR: Boolean and Vectorial Models

Week 3: More on IR Models

Week 4: Evaluation of IR

Week 5: Query Operations and Languages

Week 6: Text Properties, Text Operations

Week 7: FALL BREAK, Indexing, and Searching

Week 8: MIDTERM, IR & LLMs

Week 9: IR & LLMs

Week 10: Web Search

Week 11: Text Categorization

Week 12: Text Clustering

Week 13: Question Answering

Week 14: Advanced IR Models, THANKSGIVING

Week 15: Project Presentations

Week 16: Final Exam

NOTE: Recommended languages for assignments and project are Perl or Python. Here are suggested studying materials to polish your Perl or Python skills:

Perl: <https://www.cs.memphis.edu/~vrus/teaching/ir-websearch/papers/perlTutorial.pdf>

Python: <https://wiki.python.org/moin/BeginnersGuide/Programmers>

You may use Jupyter notebooks for programming:

<https://jupyter-notebook-beginner-guide.readthedocs.io/en/latest/execute.html>

<https://jupyter-notebook.readthedocs.io/en/stable/>