Course Number:	CSC 849
Course Title:	Information Retrieval
Number of Credits:	3
Course Level	Graduates and Senior undergraduates.
Schedule	Three hours of lecture/discussion per week.
Prerequisite:	Consent of the instructor.
Textbook:	Introduction To Information Retrieval by Manning, Raghavan, and Schüzte. Cambridge University Press New York, NY, USA 2008 ISBN:0521865719 9780521865715 (http://nlp.stanford.edu/IR-book/)
Catalog Description:	Introduces the techniques and algorithms employed for organizing, processing, storing, and searching textual data. Provides hands-on experience with developing and extending search applications for large text collections.
Detailed Description:	This course will introduce the core concepts of Information Retrieval (IR), along with the common applications, and provide a brief overview of important topics in modern IR. Specifically, we will cover the following topics: Statistical properties of text data. Commonly employed text processing operations/pipelines, and representations. Data structures used for efficient retrieval of textual units. Query representations, analysis and processing. Retrieval models used for document search and ranking. Empirical evaluation techniques and metrics. Overview of topics in modern IR: Link Analysis (PageRank), Learning-to-Rank (LeToR), Distributed and Federated information retrieval.

Overview of applications of IR: BioInformatics, Enterprise search, Legal IR, Medical Decision Support Systems, Patent search.

Course Objectives:

The objectives of this course are:

1. Introduce the students to the fundamental concepts of text processing and information retrieval.
2. To help the students gain appreciation for the pervasiveness of search technology in current times through real-world applications.
3. To provide the students a venue for practicing the IR theory that they have learned through research projects.

Learning Outcomes:

At the end of this course students will:

1. have a thorough understanding of the basic concepts of text processing, and information retrieval.
2. have a good grasp of the internals of a modern search engine.
3. have a broad understanding of the applications of IR.
4. have the skillset to develop or extended a complex textual search system.

Instructional Method:

Classroom teaching through lectures and discussions, and guided research projects.

Method of Evaluation:

Student learning will be evaluated on the basis of the

1. grade on homework assignments,
2. grade on project proposal,
3. grade on project deliverables, and
4. grade on project report.

The weight assigned to each item above will be determined by the instructor, and will be shared with the students on the first day of the classes.

Revised by A. Kulkarni, 4/21/14