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Syllabi

Course Syllabi

Spring 2-1-2018

CSCI 464.01: Applications of Mining Big Data

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Recommended Citation

CSCI 491/595: Mining Big Data Spring 2018

Instructor: Rob Smith
Social Science 413
Office Hours: MWF 2-3pm
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Class times:

MWF 3pm – 3:50 pm, SS 362

Overview:

This class will expose students to applications of data. Students will become functionally adept at data acquisition, data cleansing, feature selection, and data analysis. Though some time will be spent on the internals of popular algorithms for data mining, this discussion will be limited to developing intuition for proper use of off-the-shelf utilities, not for implementation. Significant portions of class and outside of class will focus on using GUI versions of existing algorithms for data discovery. In addition, the following outcomes are desired:

- Recognize real-world sources of information for automated knowledge discovery.
- Investigate large data sets with the ability to identify and take informed corrective actions for non-standard/missing data.
- Understand the implications of different methods for cleaning data.
- Become proficient in the use of off-the-shelf and ad-hoc tools for data mining.
- Demonstrate proficiency in feature selection techniques, including methods for evaluation of features and costs of selection techniques.
- Become proficient in using available information visualization tools for knowledge discovery.
- Experience the full life cycle of data mining: problem identification, data selection, data preparation, application of algorithms, and analysis of results.
- Explain the pros and cons of a range of data mining algorithms.
- Understand the social responsibility of data mining, including the ethical and legal considerations of knowledge discovery.
- (Graduate version) Conduct an independent data mining research project.
- (Graduate version) Demonstrate the ability to communicate data mining results from independent research project to the class.

Attendance:

My intent is that every class will provide enough value to entice you to attend. You will also be completing many group and individual assignments for a grade in class. Your absence will mean receiving a zero for any assignment performed during that class period. There is no make up policy. Students in extraordinary situations (e.g.

death of an immediate family member or medical emergency) may approach me on a case-by-case basis.

Grading:
(Undergrads)
Individual Project 1 (6%)
Individual Project 2 (6%)
Individual Project 3 (6%)
Individual Project 4 (6%)
Individual Project 5 (6%) (Drop lowest Individual Project Grade)
Final Individual Project (11%)
10 In Class Assignments (30%)
Group Project (10%)
15 Reading check ins (25%)

(Grads)
Individual Project 1 (5%)
Individual Project 2 (5%)
Individual Project 3 (5%)
Individual Project 4 (5%)
Individual Project 5 (5%) (Drop lowest Individual Project Grade)
Final Individual Project (10%)
10 In Class Assignments (15%)
Group Project (10%)
15 Reading check ins (15%)
Grad Project 1 (10%)
Grad Project 2 (10%)
Grad Project 3 (10%)
Grad Project 4 (10%) (Replace lowest Grad Project)

No late submissions are permitted.

Text Book:
There is no required textbook for this course. However, all students will be required to read, "The Information" by James Gleick.

Cheating:
Any form of collusion or dishonesty will be prosecuted to the full extent allowable by University standards and may result in an automatic failing grade in the course.

Incompletes and Late Drops:
The university empowers instructors with discretion to approve incompletes or late drops (dropping the course after 45 days). I will not approve either as a means of avoiding a low grade or as a means of protesting course policies. Valid reasons

include family emergencies, work complications, or registration issues, but I reserve the right of approval on a case-by-case basis.

Disabilities:

This course is accessible to and usable by otherwise qualified students with disabilities. To request reasonable program modifications, please consult with the instructor. Disability Services for Students will assist the instructor and student in the modification process. For more information, visit the Disability Services website at http://life.umt.edu/dss/.