

CAP6XXX – Data Analytics Project

COURSE DESCRIPTION

This is a project-focused course, where the student will work individually with a faculty member. The course provides practical training that enables effective participation in future big data analytics projects. The extensive research and software development activities provide the opportunities for the student, as a practicing Data Scientist, to apply knowledge learned from previous courses on machine learning, statistical analysis, databases, and data mining, to address a big-data analytics challenge. The student needs to find a faculty mentor to work with. The professor can guide the student through the initial planning process and suggest project topics.

COURSE TEXTS

There is no textbook for the course. The faculty will recommend books or reference materials from conferences and journals specific to the student's project.

COURSE OBJECTIVE

The student will demonstrate mastery of data analytics through development of novel algorithms or innovative application of existing computation techniques for data mining applications that involve massive data sets. Upon successful completion of this course, the student should be able to immediately participate and contribute as a Data Scientists on various big-data analytics projects.

COURSE REQUIREMENTS

The applied project serves as the Master's degree culminating experience. There are four phases in this course, each with specific tasks and requirements designed to support the course objectives.

Research	The student will read recent research papers on data analytic techniques. The project can be an improvement of some existing computation methods or employment of these techniques to solve a significant data analysis problem in a field of application.
System Development	The student will develop computer software and test it on a big data set to assess the performance of the data analytics techniques under investigation.
Written Report	The student will turn in a written report. It must include an extensive survey of the related work, a detailed description and discussion of the software, and the results of the performance study.

Presentation After the written report is approved, the student will give an oral presentation of the project and demonstrate the functionality and performance of the software system.

The research orientation is intended to push the envelope of the student's skills to under-explored big-data topics. In addition, the student works on an end-to-end project whereby communication skills can be challenged and advanced.

GRADING POLICY

The grading policy follows:

Research	30%
System Development	50%
Written Report	10%
Oral Presentation	10%

The student may opt for a standard letter grade or S/U (Satisfactory/Unsatisfactory) grade. In the latter case, an "S" grade requires an overall score of 80% or better.

PREREQUISITES

In essence, the prerequisites are the required courses in the MS in Data Analytics degree. The actual prerequisites are:

COP 5711, CAP 5610, CNT 5805, and STA 6704