

Course Syllabus

ISM 6136 & ISM 4541 Data Mining

Instructor

Kiran Garimella, Ph.D.

M: 262-909-4192

E-mail: kgarimella@usf.edu (<mailto:kgarimella@usf.edu>)

Class Information

Location: BSN 111

Class Hours: Tuesdays, 6:30 pm - 8:30 pm ET

Office Hours: By appointment on Teams

Course Description and Objectives

This course is designed for the MS in Information Systems graduate, MBA, and highly motivated undergraduate students. The course covers fundamental, powerful, and evergreen data mining and machine learning techniques that are crucial in the business world.

The last several years have seen an unprecedented explosion in the amount of data collected by businesses and have witnessed enabling technologies such as database systems, visualization tools and statistical and machine learning algorithms reach industrial strength. These trends have spawned a new breed of business analytics systems that go significantly beyond reporting capabilities, to support predictive modeling and the extraction of business insights from data. These trends have also created a new role of “data scientists” who are professionals with expertise in the concepts and tools necessary for the skilled use of these systems. Understanding the power and limitations of these technologies can provide business managers and information systems professionals new approaches to support the task of solving hard business problems using data-driven approaches. This course will provide an understanding of fundamental data science concepts, techniques and business

applications.

General Learning Outcomes

- Demonstrate understanding of specific data mining methods
- Describe different ways in which models can be evaluated
- Use data mining and AI tools to build descriptive and predictive models
- Analyze a dataset using data analytics methods

Text and Readings

There is no textbook. Online links to readings will supplement the custom course content.

Course Work and Grading

Scores will be rounded up to the next whole point. To adhere to consistency, academic integrity, and fairness to everyone, requests for extra points in order to get the next higher letter grade for any reason will not be accepted. Reasons include, "I need the next letter grade otherwise my employer won't reimburse my tuition expenses", "I need to meet my scholarship requirements", or "It's a matter of cultural pride", "I've always been an A student", etc.

Exceptions for makeup work are provided only for true, documented emergencies or based on guidance from the University due to any extraordinary circumstances.

Grading Scale

Grade	> or =	<
A+	97.0%	100.0%
A	94.0%	97.0%
A-	90.0%	94.0%
B+	87.0%	90.0%
B	84.0%	87.0%
B-	80.0%	84.0%

C+	77.0%	80.0%
C	74.0%	77.0%
C-	70.0%	74.0%
D+	67.0%	70.0%
D	64.0%	67.0%
D-	60.0%	64.0%
F	0.0%	60.0%

Grade Categories and Weights

Activity	Points
Quizzes, 8 * 15	120
Assignments, 8 * 20 (Excl. FDA)	160
Project	75
Final Exam	65
	420

Detailed Syllabus

Week	Dates	Topic

1	Aug 25 - Aug 31	Analytic Thinking, Process, and Methods
2	Sep 01 - Sep 07	Supervised Learning: Regression
3	Sep 08 - Sep 14	Supervised Learning: Decision Trees
4	Sep 15 - Sep 21	Supervised Learning: Neural Networks
5	Sep 22 - Sep 28	Unsupervised Learning: Clustering
6	Sep 29 - Oct 05	General Techniques: k-Nearest Neighbors
7	Oct 06 - Oct 12	Association Rules & Market Basket Analysis
8	Oct 13 - Oct 19	Recommender Systems
9	Oct 20 - Oct 26	Time-Based Analysis
10	Oct 27 - Nov 02	Dimensionality of Data
11	Nov 03 - Nov 09	Final Exam Tuesday, Nov 04, in BSN 111 Prep: 6:30 - 7:00 pm ET Exam: 7:00 - 9:00 pm ET
12	Nov 10 - Nov 14	Project: Due Sunday Nov 16, 11:59:00 pm ET

Late Submission

One-day late submission on assignments incurs 10% penalty. No late submissions beyond 1 day.

Extra Credit and Make Up Work

There is no extra credit or make up work available. Quizzes or exams will not be re-opened in case of issues with your computer. It is your responsibility to keep your computer and wifi in full working order. Widespread network failures will be dealt with on a case-by-case basis and in accordance with University guidelines.

Policy Statements

<https://www.usf.edu/provost/faculty/core-syllabus-policy-statements.aspx> 

<https://www.usf.edu/provost/faculty/core-syllabus-policy-statements.aspx>).