REGIS UNIVERSITY

COLLEGE OF COMPUTER & INFORMATION SCIENCES

COURSE NUMBER: MSDS 650

COURSE DESCRIPTION: Data Analytics
Examines techniques for the discovery and communication of meaningful patterns in data. Techniques include experimental design, statistical modeling, machine learning, computer programming, operations research, and data visualization. Introduces classification, clustering, and recommender systems.

PREREQUISITE COURSES:
None

COURSE OUTCOMES:
Upon completion of this course, learners should be able to:
1. Conduct statistical tests to make inferences about populations
2. Create visualizations that describe properties of data
3. Manipulate and analyze text data
4. Describe the types of problems that machine learning addresses
5. Demonstrate mathematical programming to optimize the performance of a system

COURSE MATERIALS:

Required Texts:
None

Required Resources:
"From the Expert" presentations linked within the course and provided in Course Resources folder.

Technology Tools:
Minimum Technology Requirements: http://www.regis.edu/CPS/CPS-Student-Portal/College-for-Professional-Studies/Academic-Resources/Online-Learning/System-Requirements.aspx

Optional Materials:
None

PRE-ASSIGNMENT:
See Course Assignments and Activities table below.

RELATED STANDARDS
None

COURSE ASSIGNMENTS AND ACTIVITIES:

Week	Topics	Readings	Graded Assignments or Assessments
1	Introduction to Data Analytics	*From the Expert Presentation	Introductions – due by Wednesday of Week 1 Discussion Questions/threads Exercise – Data Analytics
2	Exploratory Data Analysis and Experimental Design	*From the Expert Presentation	Discussion Questions/threads Exercise – EDA Exercise – Experimental Design
3	Inferential Statistics	*From the Expert Presentation	Discussion Questions/threads Exercise – Statistical Tests Exercise – Hypothesis Testing
4	Information Visualization	*From the Expert Presentation	Discussion Questions/threads Exercise – Visualization
5	Text Mining	*From the Expert Presentation	Discussion Questions/threads Exercise – Text Mining Analysis
6	Processing Test using Python and Unix	*From the Expert Presentation	Discussion Questions/threads Exercise – Unix Text Analysis Exercise – Python Text Analysis
7	Machine Learning	*From the Expert Presentation	Discussion Questions/threads Exercise – Supervised Learning Exercise – Unsupervised Learning Exercise – Sequential Decision Making
8	Operations Research	*From the Expert Presentation	Discussion Questions/threads Exercise – Mathematical Programming

Summary of Assignments and Percentage Weight towards course grade:

Assignments	Weighted Percentage
Discussion Questions (8 at 1.25% each)	10%
Exercises (13 exercises at 6.9% each)	90%
Total	**100%**

COLLEGE OF COMPUTER & INFORMATION SCIENCES GRADING SCALE:

CC&IS Grading Scale	
Letter Grade	*Percentage*
A	93 to 100
A–	90 to less than 93
B+	88 to less than 90
B	83 to less than 88
B–	80 to less than 83
C+	78 to less than 80
C	73 to less than 78
C–	70 to less than 73
D+	68 to less than 70
D	63 to less than 68
D–	60 to less than 63
F	Less than 60

POLICIES (LINKS):

You will be asked to enter a valid Regis University UserID and password to access the following policies.

Academic Integrity

http://regis.edu/~/media/Files/University/Academic/Academic%20Integrity%20Policies/CPS%20Academic%20Integrity%20Policy.ashx

Attendance Participation

https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Attendance%20Participation.pdf

Confidential Proprietary Information Policy

https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Confidential%20Proprietary%20Information%20Policy.pdf

Dayton Memorial Library

https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Dayton%20Memorial%20Library.pdf

Diversity

http://www.regis.edu/About-Regis-University/Our-Jesuit-Education-and-Heritage/Jesuit-Education/Diversity/About.aspx

Equal Access and Disability Services

http://www.regis.edu/Academics/SDS-UT/Disability-Services.aspx

Human Subjects Review (IRB)

http://www.regis.edu/Academics/Academic-Grants/Proposals/Regis-Information/IRB.aspx

Inclement Weather and Class Cancellation

http://www.regis.edu/About-Regis-University/Policies-and-Procedures/Emergency-Management-Plan/Weather-Policy.aspx

Late or Incomplete Course Procedures

https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Late%20Assignments_Assignment%20Revisions%20Policy%20CPS.pdf

Learner Conduct

https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Learner%20Conduct.pdf

Writing Assistance

http://www.regis.edu/Academics/Learning-Commons/Writing-Center.aspx

OTHER INFORMATION:

NOTE TO LEARNERS: On occasion, the course facilitator may, at his or her discretion, alter the Learning Activities shown in this Syllabus. The alteration of Learning Activities may not, in any way, change the Learner Outcomes or the grading scale for this course as contained in this syllabus. Examples of circumstances that could justify alterations in Learning Activities could include number of learners in the course; compelling current events; special facilitator experience or expertise; or unanticipated disruptions to class session schedule.