REGIS UNIVERSITY

COLLEGE OF COMPUTER & INFORMATION SCIENCES

Syllabus

Course Number: MSDS 610
Course Title: Data Engineering

Course Description:

Presents techniques for designing, building, and managing information with relational databases, NoSQL databases, and big data infrastructure. Provides a hands-on experience running the MapReduce algorithm on Hadoop ecosystem.

Prerequisite Courses: MSDS 600

Course Overview

Key concepts to be covered in this course include:

- Installing, configuring, and testing components of the Apache Hadoop ecosystem of software.

Course Outcomes:

Upon completion of this course, learners should be able to:

- Install, configure, and test Apache Hadoop
- Install, configure, and test a Hadoop cluster
- Install, configure, and test Apache HBase
- Install, configure, and test Apache Hive
- Install, configure, and test Apache Pig
- Install, configure, and test Apache Spark
- Install, configure, and test Apache Mahout
- Use the analytic capabilities of Apache Spark
- Describe how the Hadoop software ecosystem operates

Course Materials

Required Texts: None

Required Resources: None

Technology Tools: Access to CentOS Linux servers. This may be accomplished using remote access to services on the CC&IS Academic Research Network or using virtualization on your personal computer.

Optional Materials: None

Pre-Assignment:

Online Format: Sign on to D2L (Home Page) and become familiar with the course navigation of the Web Curriculum

Classroom-based Format:

Course Assignments and Activities:

	Topics	Readings	Activities Assignments and Associated Points
1	Using Virtualization Installing CentOS Install, Configure, and Test Hadoop		Lab Assignment – 100 pts
2	Install, Configure, and Test Hadoop on a Cluster		Lab Assignment – 100 pts
3	Install, Configure, and Test HBase		Lab Assignment – 100 pts
4	Install, Configure, and Test Hive		Lab Assignment – 100 pts
5	Install, Configure, and Test Pig		Lab Assignment – 100 pts
6	Install, Configure, and Test Spark		Lab Assignment – 100 pts
7	Install, Configure, and Test Mahout		Lab Assignment – 100 pts
8	Use Spark to analyze network traffic data		Lab Assignment – 100 pts
			Maximum Points Possible: 800

Course Policies and Procedures:

Student Evaluation Grid:

(Should not be part of template, but included in many syllabi)

Assignments	Weighted Percentage
Week 1 Lab	12.5%
Week 2 Lab	12.5%
Week 3 Lab	12.5%
Week 4 Lab	12.5%
Week 5 Lab	12.5%
Week 6 Lab	12.5%
Week 7 Lab	12.5%
Week 8 Lab	12.5%
Total	100%

CC&IS Grading Scale

Letter Grade	Percentage	Grade Point
A	93 to 100	4.00
A−	90 to less than 93	3.67
B+	87 to less than 90	3.33
B	83 to less than 87	3.00
B−	80 to less than 83	2.67
C+	77 to less than 80	2.33
C	73 to less than 77	2.00
C−	70 to less than 73	1.67
D+	67 to less than 70	1.33
D	63 to less than 67	1.00
D-	60 to less than 63	.67
F	Less than 60	0

Additional information about grading can be found in the latest edition of the University Catalog, available at http://www.regis.edu/Academics/Course%20Catalog.aspx.

CC&IS Policies and Procedures

Each of the following CC&IS Policies & Procedures is incorporated here by reference. Students are expected to review this information each term, and agree to the policies and procedures as identified here and specified in the latest edition of the University Catalog, available at http://www.regis.edu/Academics/Course%20Catalog.aspx or at the link provided.

- The CC&IS Academic Integrity Policy.

- The Student Honor Code and Student Standards of Conduct.

- Incomplete Grade Policy, Pass / No Pass Grades, Grade Reports.

- The Information Privacy policy and FERPA. For more information regarding FERPA, visit the U.S. Department of Education.

- The HIPPA policies for protected health information. The complete Regis University HIPAA Privacy & Security policy can be found here: http://www.regis.edu/About-Regis-University/University-Offices-and-Services/Auxiliary-Business/HIPAA.aspx.

- The Human Subjects Institutional Review Board (IRB) procedures. More information about the IRB and its processes can be found here: http://regis.edu/Academics/Academic-Grants/Proposals/Regis-Information/IRB.aspx.

The CC&IS Policies & Procedures Syllabus Addendum summarizes additional important policies including, Diversity, Equal Access, Disability Services, and Attendance & Participation that apply to every course offered by the College of Computer & Information Sciences at Regis University. A copy of the CC&IS Policies & Procedures Syllabus Addendum can be found here: https://in2.regis.edu/sites/ccis/policies/Repository/CCIS%20Syllabus%20Addendum.docx.