



# Lincoln University

## BA 355 – Special Topics in MIS – Big Data Analytics

### COURSE SYLLABUS

Spring, 2018

**Instructor:** Prof. Walter Kruz, PhD  
**Lecture Schedule:** Thursdays; 6:30PM – 9:15PM  
**Credits:** 3 units / 45 lecture hours  
**Level:** Mastery 2 (M2)  
**Office Hours:** Thurs 12:00 - 12:30 PM, and Sat 9:00-12:30 PM, or by appointment  
**e-mail:** wrkruz@lincolnuca.edu

**Textbooks:** Data Science and Big data Analytics, by Wiley, 2015, ISBN: 978-1-118-87613-8

**Last Revision:** January 14, 2018

### CATALOG DESCRIPTION

The course focuses on important areas of information systems not covered by the regularly offered courses. A specific topic for it is chosen by the instructor and announced in the syllabus. (3 units)

*Prerequisites: Instructor's permission and BA 160 or BA 350*

### EDUCATIONAL OBJECTIVES

Develop competence and understanding in discovering, analyzing, visualizing, and presenting data within the Big Data paradigm. Big data is creating new opportunities for organizations to create a competitive advantage from their most valuable asset : information. Students will gain familiarity with advanced mathematical concepts that produce the business insight sought by major industry players.

### COURSE LEARNING OUTCOMES<sup>1</sup>

	Course LO	Program LO	Institutional LO	Assessment Activities
1	Develop and exhibit applied and theoretical	PLO 1	ILO 1b, ILO 2b	Homework assignments, quizzes, project

<sup>1</sup> Detailed description of learning outcomes and information about the assessment procedure are available at the [Center for Teaching and Learning](http://ctl.lincolnuca.edu) website (ctl.lincolnuca.edu).

	knowledge in the field of Big Data Analytics			assignment, exams
2	Use theoretical knowledge and advanced problem-solving skills to formulate solutions using methods such as clustering, association rules, and more	PLO 2	ILO 1b, ILO 2b, ILO 4b	Homework assignments, quizzes, project assignment, exams
3	Communicate new developments in related technologies such as data visualization	PLO 3	ILO 2b, ILO 7b	Homework assignments, quizzes, project assignment, exams, technical presentations
4	Demonstrate autonomy, creativity, and responsibility for managing professional practices	PLO 4	ILO 4b, ILO 5b, ILO 6b	Class activities, project teamwork, presentations
5	Demonstrate leadership and set strategic objectives for team performance	PLO 5	ILO 4b, ILO 5b	Homework assignments, quizzes, project assignments

### INSTRUCTIONAL METHODS

*This is a direct classroom instruction course.*

This class offers a highly interactive learning environment. All students will participate in class discussions, research findings, and class exercises. Short oral presentations will be assigned. Assignments will be given weekly and may consist of textbook cases and research questions.

Assignments and projects require students to actively use resources of the library. Detailed guide to business *resources of the library* as well as the description of Lincoln University approach to *information literacy* are available at the [Center for Teaching and Learning](http://ctl.lincolnuca.edu) website (ctl.lincolnuca.edu).

### CLASS ATTENDANCE

Attendance is a school requirement. Exams may include questions from class discussions.

### EXAMS

Typically, the class will consist of several exams of equal weight as well as homework and quizzes throughout the semester. All exams are individual deliverables. They consist mostly of short answers related to the material being discussed. The exam format is closed book with no electronic devices allowed. Failure to follow exam rules will earn 0 points or “F” grade for that exam.

### COURSE PROJECT

Project, if assigned, will require secondary research on a technology or industry chosen by the student. A written report, following the APA standard, and including a Turnitin score, will summarize this research. A detailed report requirement along with suggested data analytics issues will be discussed in class

### GRADING POLICY

Percentage	Grade
90 – 100%	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
below 60%	F

Weights	
Homework	10%
Quizzes	10%
Midterm Exams (each) (3)	20%
Individual Research Project	20%

### COURSE SCHEDULE

Week	Topic
<b>1</b>	Course Introduction: What is Big Data analytics
<b>2</b>	Data analytics lifecycle
<b>3</b>	Learning R
<b>4</b>	Advanced methods: Clustering
<b>5</b>	<b>Exam 1</b>
<b>6</b>	Advanced methods: Association rules
<b>7</b>	Advanced methods: Multivariate regression
<b>8</b>	Advanced methods: Classification
<b>9</b>	Advanced methods: Time series analysis
<b>10</b>	<b>Exam 2</b>
<b>11</b>	Advanced analytics: Hadoop
<b>12</b>	Advanced analytics: Map reduce & Hadoop
<b>13</b>	Advanced analytics: Database analytics
<b>14</b>	Putting it all together
<b>15</b>	<b>Exam 3</b>