Lincoln University

BA 280 IV
Special Topics in Business: Big Data

COURSE SYLLABUS
FALL 2025

Instructor:	Dr. Walter Kruz, DBA
Lecture Schedule:	Weds, 3:30 PM – 6:15 PM
Credits:	3 units / 45 lecture hours
Level:	Advanced (A)
Office Hours:	Weds, 11:45 PM – 12:30 PM, By appointment
	e-mail: wrkruz@lincolnuca.edu
Main Textbook:	*The AI Advantage: How to Put the Artificial Intelligence Revolution to Work by T. Davenport. ISBN: 0262538008
	*Various instructor technical resources.
Prerequisite:	*Instructor's permission*
Last Revision:	July 5, 2025

CATALOG DESCRIPTION:

This course offers topics of specialized interest in the major fields of study. Case studies and independent research may be included. Topics vary each term; so, students should not include this in a concentration unless they know it will be available. (1-4 units) Prerequisite: Instructor's permission.

EDUCATIONAL OBJECTIVES

By taking this course, students will learn a practical roadmap for embedding AI into a firm's core operations with emphasis on gaining a competitive advantage. The focus is on "low-hanging fruit" projects that deliver solid business value—improved processes, smarter decisions, and workforce training. Case studies from Amazon, Google, and other industry leaders illustrate each step toward becoming a high-performance enterprise

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COURSE LEARNING OUTCOMES[1]

	Course Learning Outcome	Program LO	Institutional LO	Assessment activities
1	Demonstrate an ability to analyze business models and incorporate appropriate computing and Big Data technologies for performance improvement.	PLO 1	ILO 1a, ILO 2a	Homework, participation in the in-class discussions; case studies; quizzes; midterm/final exams
2	Demonstrate ability to map conceptual data model into artificial intelligence paradigm	PLO 1	ILO 1a, ILO 2a, ILO 4a	Participation in the in-class discussions; case studies; quizzes
3	Demonstrate ability to integrate Quantum Computing and Artificial Intelligence capabilities into the firm's business model	PLO 3	ILO 2a, ILO 7a	Course project presentation, course project report; case studies; quizzes
4	Demonstrate understanding of latest Big Data and Artificial Intelligence systems and tools	PLO 5	ILO 4a, ILO 5a	Course project presentation; case studies

INSTRUCTIONAL METHODS

This class offers a highly interactive learning environment. All students will expect to participate in class discussions, research findings, and class exercises. Short oral presentations may be assigned. Assignments may consist of presentations of AI and Big Data technologies and systems. Assignments and projects require students to actively use resources of the library and the Computer Lab. Detailed guide to business *resources of the library* as well as the description of Lincoln University approach to *information literacy* are available at the LU Library website (lincolnuca.libguides.com).

CLASS ATTENDANCE

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

EXAMS

Typically, the class will include several exams of equal weight as well as homework and spot quizzes throughout the sessions. All exams are individual deliverables. These activities enable the student to accumulate points which will be used to calculate grade performance. Exams are designed to demonstrate a student's mastery of concepts being discussed and consist mostly of short answers and calculations 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.

[1] Detailed description of learning outcomes and information about the assessment procedure are available at the Learning Outcomes Assessment section of LU website.

COURSE PROJECT

A project will consist of research resulting in the creation of a written report plus a presentation describing how a particular application of AI methods and tools will create a competitive advantage for given firm. A project outline is provided in class as guidance to complete the report.

COURSE GRADE DISTRIBUTION

Weights	
Homework	10%
Quizzes	5%
Midterm Exams (20% each) (3 exams)	60%
Business Improvement Project using AI & Big Data	25%
Total	100%

The points needed for securing a given course grade are shown in the table posted below:

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Points	94-100	90-93	87-89	83-86	80-82	77-79	73-76	70-72	67-69	60-66	0-59

SCHEDULE OF TESTING

Session	Test
5	Exam 1
10	Exam 2
15	Exam 3

PROPOSED CLASS SCHEDULE

Session	Activity	Assignment
Session 1	Chapter 1. Business model and information technologies. Intro to AI and Big Data, Class Project planning. Video review.	Lecture, class exercises, business model description and selection for project
Session 2	Business model improvement, Artificial Intelligence Basics	Project proposal
Session 3	Big Data and Big Data Analytics Quantum computing for business	Review quantum computing (QC) technology notes
Session 4	Case studies demonstrating AI capabilities	Review AI technology notes
Session 5	Exam 1	Business model and AI , Big Data, and QC notes
Session 6	AI tools and capabilities in industry today	AI exercises TBA
Session 7	Intelligent Systems	AI exercises TBA
Session 8	Research Areas of AI	AI exercises TBA
Session 9	Fuzzy Logic	FL exercises TBA
Session 10	Exam 2	AI systems, FL
Session 11	Natural Language processing	NL exercises TBA
Session 12	Robotics	R exercises TBA
Session 13	Business Performance Metrics	BPM exercises TBA
Session 14	Review	Submit Project
Session 15	Exam #3 or Final presentation	

Last Revision: 7/5/25