

**STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK**



MASTER SYLLABUS

DATA 321 Big Data Fundamentals

Created by: Kambiz Ghazinour
Updated by:

**SCHOOL OF SCIENCE, HEALTH AND CRIMINAL JUSTICE
CENTER FOR CRIMINAL JUSTICE, INTELLIGENCE AND CYBERSECURITY
SPRING 2023**

- A. **TITLE:** Big Data Fundamentals
- B. **COURSE NUMBER:** DATA 321
- C. **CREDIT HOURS:** 3
- D. **WRITING INTENSIVE COURSE:** No
- E. **GER CATEGORY:** None
- F. **SEMESTER(S) OFFERED:** Fall and Spring
- G. **COURSE DESCRIPTION:** Review the Big Data concepts, methods, and approaches and provide some examples of Big Data applications in Data science.
- H. **PRE-REQUISITES/CO-REQUISITES:**

Prerequisite: None

Co-requisite: None

Pre- or co-requisite(s): None

I. STUDENT LEARNING OUTCOMES:

<i>Course Student Learning Outcome [SLO]</i>	<i>ISLO</i>
Describe Big Data, Types, Characteristics, Examples	5
Explain Indexing Big Data Challenges	5
Identify Big Data Practices	5
Describe MapReduce	5
Describe the Queries Over Big Data	5
List Big Data Applications	5

KEY	<u>Institutional Student Learning Outcomes [ISLO 1 – 5]</u>
ISLO #	ISLO & Subsets
1	Communication Skills Oral [O], Written [W]
2	Critical Thinking <i>Critical Analysis [CA] , Inquiry & Analysis [IA] , Problem Solving [PS]</i>
3	Foundational Skills <i>Information Management [IM], Quantitative Lit./Reasoning [QTR]</i>
4	Social Responsibility <i>Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</i>
5	Industry, Professional, Discipline Specific Knowledge and Skills

J. **APPLIED LEARNING COMPONENT:** Yes No

K. **TEXTS:**

Kuan-Ching Li, Hai Jiang, Laurence T. Yang, and Alfredo Cuzzocrea. Big Data: Algorithms, Analytics, and Applications. Chapman & Hall/CRC Big Data Series, ISBN 9781482240559, 2015.

Thomas Erl, Wajid Khattak, and Dr. Paul Buhler. Big Data Fundamentals: Concepts, Drivers & Techniques. The Prentice Hall Service Technology Series, ISBN-13: 978-0134291079, 2016

L. **REFERENCES:**

Various internet sources (ZyBooks, YouTube, CISA, others)

M. **EQUIPMENT:** None

N. **GRADING METHOD:** A-F

O. **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

- Participation Assignments
- Challenge Assignments
- Quizzes
- Exams

P. **COURSE OUTLINE:**

- Introduction to Big Data
- Indexing Big Data
- MapReduce
- Queries Over Big Data
- Big Data Applications

Q. **LAB** NA