

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



**MASTER SYLLABUS**

**DATA 155 – Survey of Data Science**

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**Updated by:**

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

- A. **TITLE:** Survey of Data Science
- B. **COURSE NUMBER:** DATA 155
- C. **CREDIT HOURS:** 3
- D. **WRITING INTENSIVE COURSE:** No
- E. **GER CATEGORY:** None
- F. **SEMESTER(S) OFFERED:** Fall and Spring
- G. **COURSE DESCRIPTION:** This course provides the fundamentals of data science. It helps students understand and learn some concepts necessary to start and work as data scientists. It covers the definitions, main concepts, 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 data science concepts, careers in data science, lifecycle, and ethics in data science.	3
Explain data collection and why probability and statistic is needed in data science	5
Define data wrangling, cleaning, structuring, and enriching.	5
Identify Data Exploration approaches like visualization(including tools), exploratory data analysis, and detecting outliers	5
Describe evaluation model including model error, classification and regression metrics, training, validation, and test sets, cross-validation, and comparing models	5

<b>KEY</b>	<b><u>Institutional Student Learning Outcomes [ISLO 1 – 5]</u></b>
<b>ISLO #</b>	<b>ISLO &amp; Subsets</b>
<b>1</b>	<b>Communication Skills</b> Oral [O], Written [W]
<b>2</b>	<b>Critical Thinking</b>

	<i>Critical Analysis [CA] , Inquiry &amp; Analysis [IA] , Problem Solving [PS]</i>
3	<b>Foundational Skills</b> <i>Information Management [IM], Quantitative Lit./Reasoning [QTR]</i>
4	<b>Social Responsibility</b> <i>Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</i>
5	<b>Industry, Professional, Discipline Specific Knowledge and Skills</b>

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

K. **TEXTS:**  
ZyBooks

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. **DETAILED COURSE OUTLINE:**

- Introduction to Data Science
- Probability and Statistics
- Data Wrangling
- Data Exploration
- Evaluating Model Performance

Q. **LAB** NA