

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



MASTER SYLLABUS

DATA 415 – ETHICS IN DATA SCIENCE

Created by: Kambiz Ghazinour
Updated by:

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

A. **TITLE:** Ethics in Data Science

B. **COURSE NUMBER:** DATA 415

C. **CREDIT HOURS (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity):**

Credit Hours: 3

Lecture Hours per Week: 3

Lab Hours per Week:

Other per Week:

Course Length (# of Weeks): 15 weeks (or 7 weeks)

D. **WRITING INTENSIVE COURSE:** n/a

E. **GER CATEGORY:** n/a

F. **SEMESTER(S) OFFERED:** Fall and Spring

G. **COURSE DESCRIPTION:** This course discusses the ethical considerations on the collection, storage, use and analysis of data. This course helps students to examine the ethical and privacy aspects of collecting and managing data. Discovering the effect of the data science in the 21st century. The students are presented with discussions on the complications of data collection in the modern society and the principles of transparency, accountability and fairness as they understand the crucial aspect of having a shared set of ethical values. Students learn about best practices for responsible data management, using basic methods to preserve anonymity of the users when dealing with personal identifiable information.

H. **PRE-REQUISITES/CO-REQUISITES:**

a. Pre-requisite(s): None

I. **STUDENT LEARNING OUTCOMES:**

<u>Course Student Learning Outcome /SLO/</u>	<u>ISLO</u>
a. Identify the current codes of ethics and understand the importance of responsible data collection and the importance of ethics in data science.	2
b. Describe data ownership, privacy and informed consent in collecting data.	2
c. Apply methods to prevent data discrimination and biased-judgement.	2

- K. TEXTS:**
None. The Material will be provided by the instructor.
- L. REFERENCES:** n/a
- M. EQUIPMENT:** FLEX technology
- N. GRADING METHOD:** A-F
- O. SUGGESTED MEASUREMENT CRITERIA/METHODS:**
- Participation
 - Writing Assignments
 - Case Study Projects
- P. DETAILED COURSE OUTLINE:**
- I. Introduction
 - A. What are ethics?
 - B. Why data science needs ethics?
 - II. Basic codes of ethics
 - A. History
 - B. Standards currently used in the IT industry
 - III. Consent
 - A. Principle of informed consents
 - B. Responsible data collection
 - IV. Ownership
 - A. Data Ownership
 - B. Data Privacy
 - V. Data Anonymization Techniques
 - A. K-anonymity
 - B. L-diversity
 - C. T-closeness
 - VI. Data Validity
 - A. Basic concepts of data validity
 - B. Examples of data validity
 - VII. Fairness in Data Analytics
 - A. Analytical Fairness
 - B. Preventing Algorithms with discrimination
 - C. Preventing biased judgement
- Q. LABORATORY OUTLINE:**
n/a