Wharton County Junior College

Administrative Master Syllabus

Course Information

Course Title	Data Science in Artificial Intelligence (AI)
Course Prefix, Num. and Title	ITAI 2377 - Data Science in Artificial Intelligence (AI)
Division	Technology and Business
Department	Computer Science
Course Type	WECM Course
Course Catalog Description	A comprehensive course focusing on the transition from data to information, encompassing various database types, data capture or curation strategies, and the role of Machine Learning as a driving force in a rapidly evolving model. It covers dynamic data, extensively distributed information, and storage systems. This course aims to give students a deep understanding of data integrity and establish effective checkpoints within the data system to address performance issues and errors. Furthermore, students will acquire skills to integrate diverse data types into modern structures and transform average data into valuable information in an age characterized by high-precision data and exceptional insight performance, utilizing specialized hardware and software.
Pre-Requisites	ITAI 1370 and DSAI 1371
Co-Requisites	None

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours: Lab/Other Hours	3:2:2
Equated Pay Hours	3
Lab/Other Hours Breakdown: Lab Hours	2
Lab/Other Hours Breakdown: Clinical Hours	0
Lab/Other Hours Breakdown: Practicum Hours	0
Other Hours Breakdown	0

Approval Signatures

Title	Signature	Date
Department Head:	Muna Saqer, Comp Sci and IT&N Program Director	11/20/2025
Division Chair:	David Kucera, Technology & Business Division	11/20/2025
VPI:	Leigh Ann Collins Digitally signed by Leigh Ann Collins Date: 2026.05.01 13:11:10 -05'00'	

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Additional Course Information

Topical Outline: Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

- Practice the transition from data to information, covering different types of databases, data capture, or curation strategies
- Explain dynamic data, widely distributed information, and storage systems
- Understand data integrity and implement efficient checkpoints within the data system to tackle performance challenges and errors
- Integrate various data types into contemporary frameworks and convert standard data into significant information in an era of high-precision data and outstanding insight performance, employing specialized hardware and software

Course Learning Outcomes:

Learning Outcomes – Upon successful completion of this course, students will:

- Ability to build and assess data-based models
- Apply the principles of artificial intelligence and data science that require problem-solving, inference, perception, knowledge representation, and learning
- Create advanced solutions from data using AI methods and tools
- Recognize responsibilities and make knowledgeable decisions, including understanding the ethical use of AI and data
- Understand fundamentals and apply techniques to real-world problems, including creating valuable information from data

Methods of Assessment:

- Individual Projects
- Group Projects
- Lab Assignments
- Tests and Quizzes
- Final Exam

Required text(s), optional text(s) and/or materials to be supplied by the student:

- Analytics, Data Science, & Artificial Intelligence: Systems for Decision Support, 11th edition, ISBN: 9780135755532 or a similar title

Suggested Course Maximum:

20

List any specific or physical requirements beyond a typical classroom required to teach the course.

- Computer (64-bit CPU) equipped with 16 GB RAM, and one TB or better hard drive for each student and the same for the instructor.
- The instructor's machine needs two network interface cards (one to connect to the WCJC network and one to connect to student PCs).

- Data projector
- Microsoft Windows, the current version (64-bit) operating system software for each PC (students and instructors)
- Microsoft Office suite for each PC (students and instructors)
- Antivirus software for each PC

Course Requirements/Grading System:

Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

Assignments.....20-30%
Labs 20-30%
Tests and Final Exam.....30-50%

Grade System:
90-100% ..... =A
80-89% ..... =B
70-79% ..... =C
60-69% ..... =D
Below 60%.... =F

Curriculum Checklist:

☐**Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.

☐**Administrative WCJC Core Course**. Attach the Core Curriculum Review Forms

- ☐Critical Thinking
- ☐Communication
- ☐Empirical & Quantitative Skills
- ☐Teamwork
- ☐Social Responsibility
- ☐Personal Responsibility

☒**WECM Course** -If needed, revise the Program SCANS Matrix and Competencies Checklist