Wharton County Junior College

Administrative Master Syllabus

Course Information

Course Title	Introduction to Machine Learning (ML)
Course Prefix, Num. and Title	ITAI 1371 - Introduction to Machine Learning (ML)
Division	Technology and Business
Department	Computer Science
Course Type	WECM Course
Course Catalog Description	An introduction to machine learning, encompassing essential concepts, tools, and methodologies for developing ML projects. Participants will acquire hands-on experience in data visualization, supervised and unsupervised learning, and deep neural networks while examining critical metrics and principles within the AI project lifecycle. The course wraps up with practical applications using Python, the development of AI projects, and conversations regarding emerging trends in machine learning.
Pre-Requisites	None
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 13:09:56 -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).

- Understand machine learning, encompassing essential concepts, tools, and methodologies for developing ML projects
- Practice hands-on experience in data visualization, both supervised and unsupervised learning, as well as deep neural networks
- Examine critical metrics and principles within the AI project lifecycle
- Practice practical applications using Python, the development of AI projects, and conversations regarding emerging trends in machine learning

Course Learning Outcomes:

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

- Explain Machine Learning and illustrate how Deep Learning functions as a subset within the broader domain of Machine Learning
- Examine and comprehend the essential tools necessary for constructing Machine Learning Projects by selecting topics from Mathematics and Python Programming
- Design and implement a basic dashboard for data visualization utilizing Data Visualization tools
- Categorize and evaluate various models present in Supervised Learning, Unsupervised Learning, and Reinforcement Learning
- Elucidate common terminology and concepts utilized throughout the various phases of the AI Project Cycle
- Create AI Projects that integrate Supervised Learning and Unsupervised Learning
- Analyze and discuss the future of Machine Learning, considering current and emerging trends

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:

- Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems 3rd Edition by Aurélien Géron, ISBN: 9781098125974 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