Wharton County Junior College

Administrative Master Syllabus

Course Information

Course Title	Natural Language Processing
Course Prefix, Num. and Title	ITAI 2373 - Natural Language Processing (NLP)
Division	Technology and Business
Department	Computer Science
Course Type	WECM Course
Course Catalog Description	Exploration of Natural Language Processing (NLP). It encompasses aspects of computer science, information engineering, and artificial intelligence (AI), focusing on the interactions between computers and human (natural) language. Gain insights into the fundamental pillars of AI and study the challenges related to language, including near-linguistics, continuous processing, sound processing, and the significant ambiguities of context, semantics, and meaning. The course will involve an in-depth study of AI applications and the most recognized NLP systems from Hanson Robotics to Online Customer Service Systems.
Pre-Requisites	ITAI 1370
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 13:10:33 -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).

- Exploration of Natural Language Processing (NLP)
- Understand computer science, information engineering, and artificial intelligence (AI)
- Collaboration between computers and human (natural) language.
- Gain insights into the fundamental pillars of AI and study the challenges related to language
- Practice in-depth AI applications and the most recognized NLP systems

Course Learning Outcomes:

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

- Describe standard techniques in Natural Language Processing and associated applications
- Describe the data acquisition process in NLP and how it contrasts depending on the datasets
- Explore common NLP-focused libraries
- Apply data preprocessing techniques like document similarity
- Compare and describe different Neural Language Models
- Implement Language Detection, Transliteration, Translation, and Sentiment Analysis
- Discuss and describe advanced models in NLP

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:

- Natural Language Processing with Transformers, Revised Edition by Lewis Tunstall, Leandro von Werra, et al. ISBN: 9781098136796 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

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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