

ARIZONA WESTERN COLLEGE  
SYLLABUS

AIM 201 Natural Language Processing

Credit Hours: 3 Lec 2 Lab 2

PREREQUISITE: AIM-103

COURSE DESCRIPTION

This course gives an overview of modern data-driven techniques for natural language processing. The course moves from shallow bag-of-words models to richer structural representations of how words interact to create meaning, including language models. At each level, we will discuss the salient linguistic phenomena and most successful computational models. Along the way we will cover machine learning techniques which are especially relevant to natural language processing.

1. COURSE GOAL

Natural language processing (NLP) seeks to endow computers with the ability to intelligently process human language. NLP components are used in conversational agents and other systems that engage in dialogue with humans, automatic translation between human languages, automatic answering of questions using large text collections, the extraction of structured information from text, tools that help human authors, and many, many more. This course will teach you the fundamental ideas used in key NLP components as well as current state-of-the-art practice in developing NLP algorithms.

2. OUTCOMES

Upon satisfactory completion of this course, students will be able to:

- 2.1 implement a variety of commonly used algorithms for natural language text processing including statistical approaches and neural network approaches
- 2.2 implement variety of successful solutions to common natural language text processing problems including text classification, text generation, dialogue, language translation, and document retrieval
- 2.3 analyze the statistical properties of text documents.
- 2.4 Describe the significance of different algorithms, why they were developed, and when they should be used

3. METHODS OF INSTRUCTION

- 3.1 Lecture
- 3.2 Programming demonstrations
- 3.3 Problem-solving sessions

4. LEARNING ACTIVITIES

- 4.1 Lab exercises
- 4.2 Programing assignments
- 4.3 Group challenges

## 5. EVALUATION

### 5.1 Quizzes/Exams

### 5.2 Lab assignments

### 5.3 Final project

## 6. STUDENT RESPONSIBILITIES

- 6.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
- 6.2 Classroom Assignments: Students are responsible for work missed and for completing all work before the next class meeting. Students are responsible for participating in all oral drills and for taking all exams.
- 6.3 If a student is unable to attend the course or must drop the course for any reason, it will be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course may be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.
- 6.4 Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through AccessABILITY Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.
- 6.5 Academic Integrity: Any student participating in acts of academic dishonesty including, but not limited to, copying the work of other students, using unauthorized “crib notes”, plagiarism, stealing tests, or forging an instructor’s signature—will be subject to the procedures and consequences outlined in AWC’s Student Code of Conduct.
- 6.6 Textbooks and materials: Students are required to bring notebook or looseleaf book, pens, pencils, dictionaries, and purchase textbook required for class.
- 6.7 Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for “No Show” reporting during the first 10 days of each semester. Students who have enrolled but have never attended class may be issued a “No Show” (NS) grade by the professor or instructor and receive a final grade of “NS” on their official academic record. An NS grade may result in a student losing their federal financial aid.

For online classes, *student attendance in an online class is defined as the following* (FSA Handbook, 2012, 5-90):

- Submitting an academic assignment
- Taking an exam, an interactive tutorial or computer-assisted instruction
- Attending a study group that is assigned by the school
- Participating in an online discussion about academic matters

- Initiating contact with a faculty member to ask a question about the academic subject studied in the course