

An Introduction to Artificial Intelligence
Principles of Artificially Intelligent Machines
CS 427/527 MWF 9:00-9:50 AM, Room: online, synchronous

Instructor: Prof. Lydia Tapia, Farris 3400B, Email: tapia@cs.unm.edu (**email with [CS427_527] in the subject**)

Office Hours: M 1:00-3:00PM, W 12:00-1:00PM, schedule one hour before online at <https://tinyurl.com/yxv6> and outside these hours by email arrangement.

Teaching Assistant: Harshita Sahni, Email: hsahni@unm.edu

Office Hours: Th 11-12, F 2-5, schedule one hour before online at <https://tinyurl.com/yxv6x4zl>, and outside these hours by email arrangement.

Course Webpage: on UNM Learn

Textbook: (main) Artificial Intelligence: Structures and Strategies for Complex Problem Solving (6th Edition), George F. Luger, Addison-Wesley Pearson, 2009.

<http://www.cs.unm.edu/luger/ai-final/>

(optional) AI Algorithms, Data Structures and Idioms in Prolog, Lisp, and Java, George F. Luger and William A. Stubblefield, Pearson Education, 2009. (available online)

Course Outline (Subject to change):

Book chapter	Topic/Assignment
main, chpt 1	AI, its roots and scope
main, chpt 3	Structures and strategies for state space search
main, chpt 4	Heuristic search
main, chpt 2	Predicate calculus
main, chpt 5	Probabilistic methods in AI
optional, chpt 2	Prolog
main, chpt 6	Architectures for AI problem solving
main, chpt 7	Intro. AI representational schemes
optional, chpt 3-4	Search in Prolog
main, chpt 8	Representation & knowledge-based systems
main, chpt 9	Reasoning in uncertain situations
N/A	Advanced topic: robotic intelligence
N/A	Advanced topic: TBD
N/A	Advanced topic: TBD

Grade Policy: Your grade will be based on four components:

- exams 30% There will be three exams
- homework and quizzes 15% There will be weekly assignments and/or in class exercised and/or quizzes.
- programs 30% There will be a series of programming projects. More details will be posted on UNM Learn as the assignments are released.
- paper 15% There will be a group paper, on a topic in AI of the student's choice. More details will be available on UNM Learn during the semester.
- participation 10% We will define participation during this course. Options will include: in class activities, attendance, etc.

Assignments will be turned-in using UNM Learn and other online mechanisms. Detailed instructions will be given out for each assignment. For any given assignment, its online mechanism **MAY OR MAY NOT** accept late turn-ins late, but if it does, there will be fixed percentage penalties for lateness. Once the online turn-in window closes for an assignment **no further turn-ins** will be accepted, and note there are **absolutely NO 'free late days' or any other grace period**. If you are unable to turn-in an assignment on time due to an extraordinary circumstance (e.g., illness, death in the family, COVID-19, or any other reason), you must make **ARRANGEMENTS** with the instructor via email, **then turn-in according to those arrangements AND follow-up** with appropriate problem-specific documentation as required (e.g., note from doctor, newspaper announcement, etc). Without such prior arrangements and supporting documentation, **any assignment not turned in by its online closing will receive a grade of 0**. There will be **no make-up exams except for university-excused absences**. Please discuss unusual circumstances in advance with the instructor.

Requests for instructor-initiated drops **MUST** be in writing via email to the course instructor before the final exam. They will be evaluated on a case-by-case basis.

Once final course grades have been reported, **no changes to grades or grade modes will be made**, except possibly to correct a significant instructor error, or to complete a medical Incomplete under conditions that were prearranged before grades were reported

Academic Honesty: For everyone's benefit, students should uphold the guidelines in the University of New Mexico Student Code of Conduct.

For the assignments in this class, discussion of concepts with others is encouraged, but all assignments must be done on your own, unless otherwise instructed. If you use any source other than the text, reference it/him/her, whether it be a person, a book, a solution set, a web page or whatever. You **MUST** write up the solutions in your own words. Copying is strictly forbidden.

Programming courses can present some difficult situations for the student as to what is allowable. The guiding principle is that the work you turn in must be your own, not merely in terms of the specific code, but also in terms of the overall design of the program. The basic principle for discussing projects with other students is: *You may help each other understand the problems, but not the solutions*. It is acceptable to discuss algorithms and data structures in general, and coding style, and the requirements of the assignment, with other members of the class. It is acceptable to get a limited amount of debugging help from another member of the class.

The following are some examples of behavior that is not acceptable with regards to programming: Copying another person's program with or without their knowledge, codeveloping a program for an individual project, mailing all or portions of your program to another person, making your files readable so another person can copy them, reading another person's files, using another person's listing (taken from the trash, for example), having another person write any portion of your program for you.

The following are some examples of behavior that is not acceptable with regards to summaries and reports: Copying language from a research paper or any other document without placing in quotation marks and citing and copying algorithms or figures from other documents without appropriate citation.

Cheating or plagiarism will result in an automatic F for the entire course and turning the case over to the appropriate authorities for further disciplinary action. There will be no second chances. In cases of copying, where it is sometimes difficult to tell who was copying from whom, all students with knowledge of the cheating will be penalized except in rare circumstances. If in doubt it is your responsibility to ask your instructor in advance.

Americans with Disabilities Act (ADA) Policy Statement: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Affairs, Accessibility Resource Center in Mesa Vista Hall, Rm. 2021.

Being Successful in CS427/527 Tips

Programming Style: Good programming style includes many things, such as:

- creating methods to avoid ‘cut and paste’ code duplication at all costs,
- following whatever are the prevailing conventions for low-level code formatting such as indentation and capitalization,
- selecting clear and consistent names for everything from classes to temporary variables,
- producing clean and readable code free of debugging ‘battle scars’, and
- writing clear, grammatical, and correctly-spelled comments, and comments in code where needed for readability.

Programming is a process, not a finished product, and you will do better if you document as you go rather than promising yourself you’ll add comments at the last minute. (What you should do at the end is just check that your existing comments still reflects your actual code!)

You will do best, both in this class and in general, if you think of creating a program not as a private interaction between you and a computer, but as a public dialogue between you and all the other programmers that may ever read, modify, debug, extend, praise, ridicule, learn from or furiously delete your code.

Working Programs: It is absolutely essential that programs work. A submitted program may contain subtle bugs of which you might not even be aware. However, if your program does not work in even a minimal way, it will not receive a passing grade.

Proofread Writing Assignments: It is absolutely essential that any writing assignment that you turn in is carefully proofread. A simple solution is to read each other’s papers. Spell checking and basic grammar checking is also expected. **All writing assignments are expected to be turned in in PDF format.**

Time Management: This class is a senior level/graduate level course where assignments are challenging. Failure to achieve working programs and ontime submissions is most commonly due to starting too late. Think ahead, ask questions, and plan your time accordingly.