

Spring 2022 – Course Syllabus

Course Number: CSC429/629

Course Title: Artificial Intelligence

Credits: 3

Prerequisites: Grade of at least C in CSC330 and CSC350 or consent of instructor.

Lectures: Tuesday/Thursday 2:00-3:15, Petty 150

Instructor: Chunjiang Zhu

E-mail: chunjiang.zhu@uncg.edu;

Office: Petty 152; or <https://uncg.zoom.us/j/5191068080>

Office Hours: Thursdays 11am - 1pm, in-person or Virtual Office on Zoom

Course Objective: To gain an overview of the field of Artificial Intelligence with **logic** as a unifying thread.

Student Learning Outcomes: Upon completion of the course students should be able to

1. Demonstrate knowledge of some of basic concepts, methods, and algorithms of AI.
2. Demonstrate ability to design and implement simple AI programs in the Prolog logic programming language.
3. (grad. students): Summarize and present peer-reviewed articles on theory and practice of AI.

Required Textbook: *Artificial Intelligence: Foundations of Computational Agents*, by Poole & Mackworth, Cambridge U. Press, 2010. (You may use a **free, on-line** copy of the 1st edition that is available on the web at <http://artint.info/aifca1e.html>.)

Supplementary Readings: Lecture notes, slides, example problems and readings will be placed on Canvas. You are responsible for all material covered in lecture and any materials placed on Canvas unless they are listed as optional.

Optional Reference Books:

- Bratko, *Prolog Programming for Artificial Intelligence*, 3rd ed. Addison-Wesley, 2001.
- Russell and Norvig, *AI: A Modern Approach*, 4th ed. This provides in-depth encyclopedic coverage of AI and is used as the AI textbook at some universities.

Topics: (chapters refer to Poole & Mackworth textbook unless otherwise noted)

- Introduction (ch. 1); Agent architecture (ch. 2.5); AI Ethics (see Canvas)
- Logic Programming, Inductive Logic Programming (see notes on Canvas and Bratko)
- Search and Constraint Satisfaction (ch. 3-4)
- Logical Foundations of AI; Semantic Networks to Ontologies (ch. 5, 12-13)
- Knowledge-based/Expert Systems (KBS) and Cognitive Architectures (see Canvas)
- Reasoning under Uncertainty (ch. 6)
- Planning (ch. 8, 14.1)
- Decision Making under Uncertainty (ch. 9)
- Other topics as time allows, e.g., Natural Language Processing/Understanding (NLP/NLU)

Grading (100 points total):

Mid-term Exam	Final Exam				Total
30	30				60
Homework 1	Homework 2	Homework 3	Project design	Project implementation	
5	5	5	5	5	25
Participate in Research Seminar (1 mandatory + 2 optional)					5
Undergraduate students: Practice quizzes					10
Graduate students: Practice quizzes					5
Graduate students: Presentation on AI research paper					5

COVID-19 Policies:

As we return for spring 2022, all students, faculty, and staff are required to uphold UNCG's culture of care by actively engaging in behaviors that limit the spread of COVID-19. These actions include, but are not limited to:

- Following face-covering guidelines
- Engaging in proper hand-washing hygiene
- Self-monitoring for symptoms of COVID-19
- Staying home when ill
- Complying with directions from health care providers or public health officials to quarantine or isolate if ill or exposed to someone who is ill
- Completing a self-report when experiencing COVID-19 symptoms, testing positive for COVID-19, or being identified as a close contact of someone who has tested positive
- Staying informed about the University's policies and announcements via the COVID-19 website

Instructors will have seating charts for their classes. These are important for facilitating contact tracing should there be a confirmed case of COVID-19. Students must sit in their assigned seats at every class meeting. Students may move their chairs in class to facilitate group work, as long as instructors keep seating chart records. Students should not eat or drink during class time.

A limited number of disposable masks will be available in classrooms for students who have forgotten theirs. Face coverings are also available for purchase in the UNCG Campus Bookstore. Students who do not follow masking requirements will be asked to put on a face covering or leave the classroom to retrieve one and only return when they follow the basic standards of safety and care for the UNCG community. Once students have a face covering, they are permitted to re-enter a class already in progress. Repeated issues may result in conduct action. The course policies regarding attendance and academics remain in effect for partial or full absence from class due to lack of adherence with face covering and other requirements.

For instances where the Office of Accessibility Resources and Services (OARS) has granted accommodations regarding wearing face coverings, students should contact their instructors to develop appropriate alternatives to class participation and/or activities as needed. Instructors or the student may also contact OARS (336.334.5440) who, in consultation with Student Health services, will review requests for accommodations.

Other Policies:

- **Attendance Policy:** Attendance will not be taken in class, and is voluntary; however, all students are responsible for everything done or said in class (this can include changes in assignments, due dates, etc.). If attendance becomes a problem, the instructor reserves the right to give pop-quizzes or graded in-class exercises.
- The university allows for a limited number of excused absences for religious observances. Students who plan to take such an absence should notify the instructor at least two weeks in advance so that accommodations can be made.
- It is your responsibility to obtain notes from another student if you miss a lecture. The instructor will not give private instruction for missed lectures nor will the instructor provide personal lecture notes. Get the notes from another student, review the material, and then seek assistance for topics that are not clear.
- **Due dates:** Penalties for late work will be specified in the instructions for each assignment. Make arrangements with the instructor to turn in work early if you will not be in class on the due date.
- **Missed exams:** may be taken only if the student's absence has been excused by the instructor and if the exam is made up on the make-up exam time announced by the instructor.
- **Academic Integrity:** The new Department of Computer Science policy will be enforced. Read it here: <https://compsci.uncg.edu/students/academic-integrity-policy/>
- **Disruptive Behavior:** If you engage in non-course-related or disruptive activities (such as reading email, arriving late or leaving early, sending text messages, doing work for another class) you may be asked to leave the room and counted as absent; persistent behavior of this type may result in your being dropped from the course (see UNCG's [Disruptive Behavior Policy](#)).
- **Commercial services:** Selling class notes and other class materials for commercial gain is a violation of the University's Copyright Policy and of the Student Code of Conduct. Sharing notes for studying purposes, or borrowing notes to make up for absences, without commercial gain, are not violations.
- **Emergency university closure:** Closure of university facilities in response to emergencies (flu outbreak, weather, etc.) does not mean that this class is halted; check Canvas for announcements about how the class will proceed in the event of such an emergency.
- **Academic Accommodations:** The University of North Carolina Greensboro respects and welcomes students of all backgrounds and abilities. If you feel you will encounter any barriers to full participation in this course due to the impact of a disability, please contact the Office of Accessibility Resources and Services (OARS). The OARS staff can meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations. You can learn more about OARS by visiting their website at <https://ods.uncg.edu/> or by calling 336-334-544 or visiting them in Suite 215, EUC.
- **Health and Wellness:** Health and well-being impact learning and academic success. Throughout your time in the university, you may experience a range of concerns that can cause barriers to your academic success. These might include illnesses, strained relationships, anxiety, high levels of stress, alcohol or drug problems, feeling down, or loss of motivation. Student Health Services and The Counseling Center can help with these or other issues you may experience. You can learn about the free, confidential mental health services available on campus by calling 336-334-5874, visiting the website at <https://shs.uncg.edu/> or visiting the Anna M. Gove Student Health Center at 107 Gray Drive. For undergraduate or graduate students in recovery from alcohol and other drug addiction, The Spartan Recovery Program

(SRP) offers recovery support services. You can learn more about recovery and recovery support services by visiting <https://shs.uncg.edu/srp> or reaching out to recovery@uncg.edu.