

**CSE 5360: Artificial Intelligence I**  
Fall 2015

**Instructor:** Vamsikrishna Gopikrishna

**Office Number:** ERB 540 (If I am not here then I am usually in ERB 128)

**Email Address:** [vamsikrishna.gopikrishna@mavs.uta.edu](mailto:vamsikrishna.gopikrishna@mavs.uta.edu) [All email regarding the course must contain **CSE5360** at the beginning of the subject line].

**Office Hours:** Tuesday, Thursday 4:00 PM to 5:00 PM

**Section Information:** CSE 5360-001

**Time and Place of Class Meetings:** WH 402, Tuesday, Thursday –12:30 PM to 1:50 PM

**Web Page:** <http://omega.uta.edu/~vxg3135/classes/2015/fall/ai1/>

**Description of Course Content:**

This course gives an introduction to the philosophies and techniques of Artificial Intelligence. AI techniques have become an essential element in modern computer software and are thus essential for a successful career and advanced studies in computer science. Topics covered in this course include search algorithms (such as breadth-first, depth-first, A\*), game-playing algorithms (such as Minimax), knowledge and logic reasoning, planning methods, probabilistic reasoning and machine learning.

**Student Learning Outcomes:** Students successfully completing this course will be able to apply a variety of techniques for the design of efficient algorithms for complex problems.

**Required Textbooks and Other Course Materials:** Slides of course content will be posted on the website. Recommended textbook: **Artificial Intelligence: A Modern Approach, 3<sup>rd</sup> Edition by Stuart Russell, Peter Norvig.** (2<sup>nd</sup> Edition is also acceptable)

**Descriptions of major assignments and examinations:**

There will be several programming and written assignments in this course. If you find yourself in an emergency situation and cannot deliver homework on time, immediately inform the instructor. Also, while working with other persons on non-graded example problems from the textbook is a good way to help you develop your understanding and insight into the techniques of problem solving, homework solutions must be your work only. Violations of this will not be tolerated and result in severe penalties for all parties involved, in strict compliance to official UTA policy.

Programming assignments have to run on the ACS machine omega. All homework submissions (written and programming) must be submitted via [Blackboard](#).

There will be three midterms in this course. Each midterm is worth 20% of the course grade. All exams are open-book, and students are free to bring any printed or handwritten material (textbooks, notes, etc.) to consult during the exam. Electronic aids and materials are **NOT** permitted (calculators, phones, laptops, tablets, e-book readers). All exams will have equal weight. No exam scores will be dropped. **No make-up exams will be offered.** Absence from exams may be excused, with appropriate documentation, for illness, critical family emergencies, military service obligations, observance of major religious holidays, and certain university service commitments. Car or transportation problems will **NOT** be considered a legitimate reason to miss an exam. Requests for excused absence, and documentation for such absences, must be provided as soon as possible. **Even if the reason for an absence is valid, a request for an excused absence will be rejected if provided unjustifiably late.**

**Attendance:** Students are expected to but not required to attend all classes and meetings. Any material that the student missed will not be covered again in class. If the student is unable to attend a class due to personal reasons, it is the student's responsibility to use the slides and videos posted online and the textbook to learn the content and to meet with either the Instructor or the TA to clarify any doubts.

**Computer Access:** This course will require some programming and all students will have an account on the ACS machine omega. If not otherwise stated on the assignment homework assignments can be programmed in the language of your choice but **have** to compile and run on omega. If partial code is provided, however, it will generally be only provided in a limited number of languages. Additional details will be announced in class.

**Grading:**

Late submission policy: All assignments are graded out of 100 points. Assignments submitted late will be penalized, at a rate of 2 penalty points per hour. The submission time will be the time shown on the Blackboard submission system. Any assignment submitted more than 50 hours late will receive no credit. Exceptions will only be made for documented emergencies, in strict adherence to UTA policy. Computer/network crashes are NOT an acceptable excuse for late submissions. To avoid problems with such crashes and last-minute problems, students are encouraged to submit early. You can always revise your submission till the deadline.

Grading Policy: Exams and homework assignments will contribute to the overall grade in the following way:

Written Assignments	20 %
Programming Assignments	20 %
Midterm 1	20 %
Midterm 2	20 %
Midterm 3	20 %

These percentages are tentative and may be changed bases on the distribution of scores and the degree of difficulty of the assignments and exams.

There may be optional written or programming assignments near the end of the semester. These will be added to your average if and only if they improve your grade in that section.

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/ses/fao>).

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation

will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Academic Integrity:** All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

Instructors may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

**Student Support Services:** UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at [www.uta.edu/resources](http://www.uta.edu/resources).

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:** Due to the lack of a final exam, there may be **optional** assignments that are due at the end of this week. A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Course Schedule (Tentative):**

Lecture	Date	Chapters, 2nd Edition	Chapters, 3rd Edition	Topic
1	Thu 08/27	1, 3	1, 3.1-3.4	Course Details and Overview Solving Problems by Search
2	Tue 09/01	4	3.5-3.6	Informed Search
3	Thu 09/03	2	2	Agents
4	Tue 09/08	6	5	Game Playing
5	Thu 09/10	7	7	Non-Deterministic Games Knowledge and Logic Reasoning
6	Tue 09/15	7	7	Inference by Enumeration
7	Thu 09/17	7	7	Inference, continued
8	Tue 09/22	7	7	Midterm preparation, and more on inference
9	Thu 09/24	First Midterm		
10	Tue 09/29	7	7	Midterm recap - Inference, continued
11	Thu 10/01	8	8	Resolution, Intro to First Order Logic
12	Tue 10/06	9	9	Inference in First Order Logic
13	Thu 10/11	11	10	Planning
14	Tue 10/13	11	10	Planning, continued
15	Thu 10/15	12	11	Conditional Planning and Replanning
16	Tue 10/20	13	13	Probability
17	Thu 10/22	13	13	Joint Probability Distributions
18	Tue 10/27	14.1-14.4	14.1-14.4	Midterm preparation, Bayesian networks
19	Thu 10/29	Second Midterm		
20	Tue 11/03	14.1-14.4	14.1-14.4	Midterm recap, Bayesian networks continued
21	Thu 11/05	18.1-18.3	18.1-18.3	Learning Methods, Decision Trees
22	Tue 11/10	18.1-18.3	18.1-18.3	Decision Trees, continued

23	Thu 11/12	20.1	20.1	MAP estimation, ML estimation Neural Networks
24	Tue 11/17	20.1	20.1	More on MAP
25	Thu 11/19	20.5	18.7	Neural Networks
26	Tue 11/24		21, 25	Learning, Robotics
27	Tue 12/01			Overview of Material for Midterm 3
28	Thu 12/03	Third Midterm		
29	Tue 12/08			Midterm Recap

This schedule is tentative and subject to change. If changes are necessary they will be announced in class and posted in the schedule on the course page. As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course - Vamsikrishna Gopikrishna

---