CSE 4308, 5360: Artificial Intelligence I
Fall 2017

Instructor: Vamsikrishna Gopikrishna

Office Number: ERB 553 (If I am not here then I am usually in ERB 128)

Email Address [All email regarding the course must contain CSE4308 or CSE5360 at the beginning of the subject line]**:** vamsikrishna.gopikrishna@uta.edu

Office Hours:

- **Time (CSE 4308)**: Monday, Wednesday :11:00 AM – 12:00 PM
- **Time (CSE 5360)**: Monday, Wednesday :1:00 PM – 2:00 PM
- If you cannot meet during these times, email me and we can try and set up meeting times

Section Information: CSE 4308-001, CSE 5360-001

Time and Place of Class Meetings:

- **Location**: ERB 129
- **Time (CSE 4308)**: Monday, Wednesday – 4:00 PM to 5:20 PM
- **Time (CSE 5360)**: Monday, Wednesday – 2:30 PM to 3:50 PM

Web Page: http://omega.uta.edu/~gopikrishnav/classes/2017/fall/4308_5360/. Too Long? Just go to http://omega.uta.edu/~gopikrishnav/ and follow the links

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, 3rd Edition by Stuart Russell, Peter Norvig**. (2nd 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 is no Final Exam. There will be three exams in this course. 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 posted online or the lecture videos on blackboard 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:

You will be assigned two grades based on your performance in both your assignments and your exams. These grades are converted from average numeric score to letter grades according to this rubric

Numerical Score	Grade
>= 85	A
>= 70	B
>= 55	C
>= 40	D
Otherwise	F

These cutoffs 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 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.

For your midterm and final grades, your assignment letter grade and your exam letter grade are combined to give a single letter grade using the following rubric.

		Grade in Exam →				
		A	B	C	D	F
Grade in Assmt. →	A	A	A	B	C	D
	B	A	B	B	C	D
	C	B	B	C	D	F
	D	C	C	D	D	F
	F	D	D	F	F	F

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 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, or view the information at www.uta.edu/resources.

Title IX: The University of Texas at Arlington (University) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. For information regarding Title IX,

visit www.uta.edu/titleIX. If the actions of any student make you feel that you are being sexually harassed, please inform me so that I can let the university know so that they can take appropriate action.

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: 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.

Due to the absence of a Final Examination, the Final Review week will be used for last mid-term examination, its review and for discussing the optional assignments (if any).

Course Schedule (Tentative):

Week	Day	Topic	Assignments
1	08/28/2017	Course Details, Overview	
	08/30/2017	Solving Problems with search, Uninformed Search	
2	09/04/2017	LABOR DAY - NO CLASS	
	09/06/2017	Informed Search	Assmt 1 Due end of week
3	09/11/2017	Agents, Game Playing	
	09/13/2017	Game Playing (Contd.)	Assmt 2 Due end of week
4	09/18/2017	Knowledge and Logic Reasoning	
	09/20/2017	Inference (Contd.)	Assmt 3 Due end of week
5	09/25/2017	Exam 1 Material Review, Inference (Contd.)	
	09/27/2017	EXAM 1	
6	10/02/2017	Exam 1 Discussion, First Order Logic	
	10/04/2017	First Order Logic (Contd.)	Assmt 4 Due end of week
7	10/09/2017	Planning	
	10/11/2017	Planning (Contd.)	Assmt 5 Due end of week
8	10/16/2017	Contingency Planning, Online Replanning	
	10/18/2017	Exam 2 Material Review, Probability	
9	10/23/2017	EXAM 2	
	10/25/2017	Exam 2 Discussion, Probability (Contd.)	Assmt 6 Due end of week
10	10/30/2017	Prior and Posterior Probabilities	
	11/01/2017	Bayesian Networks	Assmt 7 Due end of week
11	11/06/2017	Learning	
	11/08/2017	Learning (Contd.)	Assmt 8 Due end of week
12	11/13/2017	Decision Trees	
	11/15/2017	Decision Trees (Contd.)	Assmt 9 Due end of week
13	11/20/2017	Bayesian Classifiers, Probability Estimations	
	11/22/2017	Probability Estimations (Contd.), Nearest Neighbor Classifiers	Assmt 10 Due end of week
14	11/27/2017	Neural Networks, Backpropogation Learning	
	11/29/2017	Exam 3 Material Review, Backpropogation Learning (Contd.)	
15	12/04/2017	EXAM 3	
	12/06/2017	Exam 3 Discussion, Final Assignment Information, Q&A	
16	12/11/2017	FINALS WEEK - NO CLASS	
	12/13/2017	FINALS WEEK - NO CLASS	Opt. Assmt Due end of week

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