**CSE 5/7320 Artificial Intelligence**

Junkins 205, Thu 6:30 pm – 9:20 pm

Office hours: Thu 5:30pm – 6:30pm (Caruth, 4th floor, Room #427)

Tentative Syllabus

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| WEEK # | DATE | # | Lecture |
| 1 | 1/22/2015 | 0 | Introduction. Overview of class material & schedule. |
|  |  | 1 | AI - Introduction, Foundations, History - Chapter 1; |
| 2 | 1/29/2015 | 2 | AI - Introduction, Foundations, History (cont'd) - Chapter 1; |
|  |  | 3 | Recursion; Functional Programming Concepts (LISP)  Lambda Calculus in C#; LINQ, PLINQ |
| 3 | 2/5/2015 | 4 | A brief introduction to F# |
|  |  | 5 | Intelligent Agents (Chapter 2) |
| 4 | 2/12/2015 | 6 | Solving Problems by Searching - Blind Search (Chapter 3) |
|  |  | 7 | Informed Search (Chapter 4: 4.1, 4.2) |
| 5 | 2/19/2015 | 8 | Informed Search (Chapter 4: 4.3)  Online Search Agents and Unknown Environments (Chapter 4: 4.5) |
|  |  | 9 | Special Topic: Genetic Algorithms and Evolutionary Computation |
| 6 | 2/26/2015 | 10 | Constraint Satisfaction Problems (Chapter 5) |
|  |  | 11 | Adversarial Search (Chapter 6) |
| 7 | 3/5/2015 | 12 | Knowledge & Reasoning: Logical Agents (Chapter 7) |
|  |  | 13 | Logical Agents (Chapter 7 cont'd); Midterm Review |
| 8 | 3/12/2015 |  | SPRING BREAK |
| 9 | 3/19/2015 | 14 | MIDTERM |
|  |  | 15 | IBM's Watson |
| 10 | 3/26/2015 | 16 | First Order Logic & Inference (Chapter 8&9 - Part 1) |
|  |  | 17 | First Order Logic & Inference (Chapter 8&9 - Part 2) |
| 11 | 4/2/2015 | 18 | **STUDENT Presentations** |
|  |  | 19 | Knowledge Representation; (KB graph, semantic nets, knowledge & belief). |
| 12 | 4/9/2015 | 20 | **STUDENT Presentations** |
|  |  | 21 | Introduction to Probability.  Uncertainty. Bayes' Rule (Chapter 13) |
| 13 | 4/16/2015 | 22 | Probabilistic Reasoning (Chapter 14.1, 2); Fuzzy logic |
|  |  | 23 | Learning from observations; decision trees, inductive learning (Ch. 18, part 19) |
| 14 | 4/23/2015 | 24 | **STUDENT Presentations** |
|  |  | 25 | Special topics: Software System Modeling |
| 15 | 4/30/2015 | 26 | **STUDENT Presentations** |
|  |  | 27 | Philosophical Foundations (Chapter 26); strong vs. weak AI; Final Review |
|  | TBD | 28 | FINAL EXAMINATION |

What to expect from the AI class

* You will be familiarized with the basic search algorithms that lay at the foundations of most practical AI applications and expert systems
* You will be given an introduction to functional programming with F#, as well as some functional programming constructs in C#, along with a variety of applications to solving recursive problems
* A few special topics of general interest in the field will be presented, such as genetic algorithms, one of IBM’s most advanced expert systems, chatter-bots, etc., while all of you will have the opportunity to research any AI topic of interest to you, and prepare and give a 15-20 minute presentation to the entire class on the topic of your choice
* You will also be provided with some aspects and details that are pertinent to building some of the skills required of a software developer/architect such as and data & conceptual modeling involved in software system design, with concrete examples from the industry and from actual implementation projects

Other Details

* Disability Accommodations: Students needing academic accommodations for a disability must first be registered with Disability Accommodations & Success Strategies (DASS) to verify the disability and to establish eligibility for accommodations. Students may call 214-768-1470 or visit[http://www.smu.edu/alec/dass](https://webmail.smu.edu/owa/redir.aspx?C=0b440bec9629436fbe0238917774c7e7&URL=http%3a%2f%2fwww.smu.edu%2falec%2fdass) to begin the process. Once registered, students should then schedule an appointment with the professor to make appropriate arrangements.
* Religious Observance: Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester, and should discuss with them, in advance, acceptable ways of making up any work missed because of the absence. (See University Policy No. 1.9.)
* Excused Absences for University Extracurricular Activities: Students participating in an officially sanctioned, scheduled University extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work. (University Undergraduate Catalogue)
* Student Learning Outcomes:  Please include in your syllabi all student learning outcomes, both those specific to your course, as well as those that satisfy major and general education requirements.
* Final Exams:  Final course examinations shall be given in all courses where they are appropriate, must be administered as specified in the official examination schedule, and shall not be administered during the last week of classes or during the Reading Period.