CS 541: ARTIFICIAL INTELLIGENCE

Lincoln University
Spring 2019

Instructor: Dr. David Heise
Office: 217 Damel Hall

Office hours: 09:00-11:00 M W
09:30-10:30 T R
14:00-15:00 MT RF
(or by appointment)

E-mail: HeiseD@lincolnu.edu

Class mtg time: 17:30-20:00 W
Class mtg room: 310 Damel Hall

Final exam: 16:00-18:00, Wednesday, May 8th

Textbooks:

Artificial Intelligence: A guide to intelligent systems
Negnevitsky, Michael
Addison Wesley, 2011 (3rd ed.)
ISBN: 978-1-4082-2574-5

Fundamentals of Computational Intelligence:
Neural Networks, Fuzzy Systems, and Evolutionary Computation
Keller, James M.; Liu, Derong; Fogel, David B.
IEEE Press, 2016
ISBN: 978-1-119-21434-2

Course Description:

Presents the manager's responsibilities for problem solving and decision making using artificial intelligence, decision support systems and expert systems. The systems covered go beyond traditional program files and information. Three hours lecture with outside laboratory assignments.

Graduate Section:

This is the graduate section of a dually-listed undergraduate/graduate course. Consequently, the graduate student is expected to demonstrate a greater understanding and facility with the topics discussed in this course. This begins with the requirement of an additional textbook (the Keller text), which will provide a deeper theoretical foundation underpinning three primary areas of artificial/computational intelligence. The graduate student will be expected to apply this theory to a significant real-world project that demonstrates the usefulness of AI within a given domain. Additionally, the graduate student will be called upon to lead discussion of topics and illuminate research in the field. Finally, the graduate student will be required to submit completed research/project for presentation at an appropriate conference.

Prerequisites:

CS 321, or sufficient experience in programming and statistics.

Grade Evaluation:

Quizzes/homework	5%
Programming projects	45%
Midterm examination	15%
Final examination	15%
Term project	20%

Grading Scale:

90 <= A
80 <= B < 90
70 <= C < 80
60 <= D < 70
F < 60

Topics:

Introduction to knowledge-based intelligent systems
Rule-based expert systems
Uncertainty management in rule-based expert systems
Fuzzy expert systems
Frame-based expert systems
Artificial neural networks
Evolutionary computation
Hybrid intelligent systems
Knowledge engineering
Data mining and knowledge discovery

Class Assignments:

All assignments must be turned in before or on the indicated due date. Late assignments will not be accepted. Students are responsible for submitting all assignments on time whether or not they are present in class.

Collaborative Efforts:

Any work submitted for the purposes of evaluation must be of an independent effort. Any instance of "collaborative efforts" will be considered academic dishonesty (see University Bulletin policy on academic dishonesty) and will be dealt with harshly.

Attendance / Make-up Policy:

Students are expected to attend all lectures, seminars, laboratories, and field work for each registered class. If total absences exceed twice the number of times a class meets per week (two, for this class), the course instructor may lower the student's grade by one letter grade or administratively withdraw the student from the course. For the purposes of this policy, excessive tardiness may be counted as an absence. In-class evaluation activities (including but not limited to tests and quizzes) missed due to an absence may not be made-up.

Unforeseen circumstances occasionally dictate that you must miss class; please make every effort to discuss such circumstances with your instructor before the absence. Remember that if you are not in class, you are absent – regardless of the reason – and that you are still responsible for all in-class assignments made. Your instructor is not responsible for providing this information to you – you must plan ahead with another student who would agree to share notes, etc., with you and vice versa.

Students with Disabilities

It is Lincoln University's policy to accommodate students with disabilities, pursuant to federal and state law. Any student with a disability who needs an accommodation, for example, in arrangements for seating, examinations, note taking, or access to events, should inform the instructor. Students with disabilities should contact the Coordinator of Access and Ability Services, 304 Founders Hall, 681-5167.

Additional Information:

As a common courtesy to everyone, please do not bring food into the classroom. Beverages are acceptable. Also, please turn off any audible devices (cellular telephones, pagers, scanners, etc.).

ALL ELEMENTS OF THIS SYLLABUS ARE SUBJECT TO CHANGE. THE INSTRUCTOR RESERVES THE RIGHT TO MAKE CHANGES AS NEEDED, AND HE AGREES TO NOTIFY STUDENTS OF CHANGES IN A TIMELY MANNER.