Course Number: CS598-51

Course Title: Knowledge Representation and Reasoning with an emphasis on Applications To Knowledge/Data Integration and Fusion

Instructor: Richard Scherl

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Class Times: Tuesdays 8:10-10:00  Thursdays 8:10-10:00

Class Location: HH522

Office Hours: 3:00-7:00 Mondays, Other times by appointment.

Texts:

Knowledge Representation and Reasoning by Ron Brachman and Hector Levesque, 2004 (to be distributed in class).


http://www.coli.uni-sb.de/~kris/prolog-course

Selected additional papers.

Expected Work: Regular reading assignments, two midterm examinations, a number of homework assignments, and a final examination.

Class Web Page bluehawk.monmouth.edu/~rscherl/CS598/

Class Information All computer-generated overheads and handouts will be put on the course web page.

Grading:

Midterms 30 %
Final 30 %
Homeworks 40 %

Exam Dates Tuesday October 14, Thursday November 13, Final to be announced.

Class Participation: If you miss a class, it is your responsibility to find out about any announcements made in class, and about the material covered. Similarly you are responsible for all information included in any assignments whether handed out or transmitted online and for all the information in this syllabus. Class participation is strongly encouraged, but you will not be graded for your class participation. Feel free to ask questions. When in doubt, ASK.

Late Policies: Homeworks should be handed in on the date due. The deduction for late homeworks is 5% per day up till 1 week late. Late homeworks may not be handed in by email except by special arrangement under special circumstances. They should be handed in to me directly. If you leave them in my mail box or under my door, you should also send me an email saying that you left it. They may also be mailed in by U.S. mail with the postmark date being used as the date handed in. After the one week has ended, late homeworks can be corrected, but will not receive credit as the solutions will have been discussed in class.

Computer: All students will need an account on cslab. You may do your assignments on any machine (including your own PC), but I can only guarantee that the software will work as intended on cslab.

Prerequisites: The prerequisite for the course is CS520 or a course in Logic. Also, it is strongly recommended that students have had CS517

Goals of the Course: The course aims to develop the basic principles of the field of Knowledge Representation and Reasoning and to apply them to problems in the areas of knowledge fusion and data integration. These latter topics involve the problem of making use of data/information from various sources in diverse formats to answer particular questions. One important example of the application of techniques from Knowledge Representation and Reasoning to information integration is the Semantic Web.

Academic Honesty: Cheating in this course will not be tolerated. The penalty is likely to be an F in the course and may very well lead to expulsion from Monmouth University. All such cases will be handled as outlined in the Monmouth University Student Handbook.
Homeworks may NOT be solved in collaboration. You may talk about problems with each other. Where does talking end and cheating start? My rule of thumb is: you may not have a pen/pencil in your hand while you are talking (and no keyboard!).

**Special Accommodations** Students needing accommodations are encouraged to see me during office hours or to make a specific appointment to discuss their needs. Students with disabilities who need special accommodations for this class are encouraged to meet with me and/or the appropriate disability service provider on campus as soon as possible. In order to receive accommodations, students must be registered with the appropriate disability service provider on campus as set forth in the student handbook and must follow the University procedure for self-disclosure, which is stated in the University Guide to Services and Accommodations for Students with Disabilities. Students will not be afforded any special accommodations for academic work completed prior to the disclosure of the disability and prior to completion of the documentation process with the appropriate disability service office.

**Regrades** All disagreements about grading must be discussed in my office only. A request for an assignment or exam to be regrades must include a written note explaining the disagreement and also the original exam or assignment. These requests may be submitted in class or in my office. Regrade requests for a particular exam or assignment can only be accepted until the next test or assignment is due.

**Topics** A very tentative schedule, subject to change.

1. Classical Logic (Syntax and Semantics)
2. Automated Deduction
3. Uncertainty: Reasoning with Probabilistic Information
4. Prolog
5. Datalog
6. Description Logics
7. Ontologies
8. Natural Language Semantics and Lexical Meaning (Wordnet)
9. Agent Specification
10. Data Integration
11. The Semantic Web

**Initial Assignment** Chapters 1, 2, and 3 of Brachman and Levesque.