COT 3420 - Logic for Computer Science   Spring 2014

Course Syllabus

Instructor:

Dr. Christine Lisetti

Office: ECS 361

Email: lisetti@cis.fiu.edu

Time:	T and TR 2:00am - 3:15pm
Class Room:	ECS 143
Office Hours:	T and TR 3:15 pm - 4:15pm and by appointment
Course URL:	moodle.cis.fiu.edu

Course Objectives:

To introduce the logical concepts and computational aspects of propositional and predicate logic, as well as to concepts and techniques underlying logic programming, in particular the Prolog computer language.

Course Outcomes:

1. Become familiar with the concepts, methods, and results of first order logics.
2. Master formal proofs, both syntactic and semantic.
3. Be able to specify problems as first order logic formulas.
4. Become familiar with the application of logic to logic programming, in particular, be able to write and debug small Prolog programs.

Course Content:

Propositional Logic
- Why study logic in computer science?
- Syntax
- Structural Induction
- Semantics
- Conjunctive Normal Form
- Resolution - the PROLOG Algorithm
- Soundness and Completeness

First Order Logic
- Syntax
- Semantics
- Conjunctive Normal Form
- Resolution
- Soundness and Completeness

Introduction to Logic Programming and Prolog

- What is logic programming?
- Prolog: facts and rules
- Queries and variables in Prolog
- Resolution in Prolog
- Lists in Prolog
- Applications

Recommended texts:

- Uwe Schoening. *Logic for Computer Scientist*s. Birkhaeuser Verlag, 2008 (reprint).
- Some of the lectures and homework will be based on portions of a manuscript written by Dr. Ana Pasztor which complements the text "Logic for Computer Scientists" by Uwe Schoening with Prolog programming examples.

Additional related text:

- Ivan Bratko. *Prolog Programming for Artificial Intelligence (International Computer Science Series).* Addison-Wesley Educational Publishers Inc, 4th edition, 2011.
- Russell and Norvig. *Artificial Intelligence - A Modern Approach.* Third Edition. Prentice Hall, 2010.

Grading:

Midterm: 40%	Exam:40%	Quizzes/Homework: 15%	Participation: 5%

Homework:

Homework will be posted on the class web page, and their solution one week-later. Some of the homework will not be graded. There will be quizzes on the material taught in class and on the homework. Make-ups will not be given (except for documented medical reasons).

Academic Conduct:

Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook.

See you in class!