Course Information

CSE/MAT 371 - Fall 2012

Stony Brook University

http://www.cs.stonybrook.edu/~cse371

Course Description

- "A survey of the logical foundations of mathematics: development of propositional calculus and quantification theory, the notions of a proof and of a model, the completeness theorem, Gödel's incompleteness theorem. This course is offered as both CSE 371 and MAT 371."
- *Prerequisites*: CSE 150 or CSE 215 or MAT 200.

General Information

- Meeting Information:
  - Lectures: TuTh 2:30PM - 3:50PM, Earth&Space 069
- Course Web page: http://www.cs.stonybrook.edu/~cse371
- Blackboard will be used for assignments, grades and course material

Instructor Information

- Dr. Paul Fodor
  1437 Computer Science Building
- Office hours: Tuesdays&Thursdays 8:00AM-9:30AM
  - I am also available by appointment
- Email: pfodor (at) cs (dot) stonybrook (dot) edu
- TAs: TBD
- Please include "CSE 371" in the email subject and your name in your email correspondence

Official Course Outcomes

- The following are the official course goals agreed upon by the faculty for this course.
- An understanding of classical propositional and predicate logic, including a full development of syntax, semantics, and proof techniques.
- An understanding of semantic and syntactic concepts, e.g., truth versus proof, by exploring the soundness and completeness of calculi for these logics.
- An ability to apply abstract reasoning skills through experience with formal proofs.
- A working knowledge of non-classical logics and their use in Computer Science.

Textbook

- Anita Wasilewska, Logic for Computer Science, 2012, Distributed to Students.
- **Major Topics Covered in Course:**
  - Syntax and Semantics for Classical and various non-classical propositional logics.
  - Two proofs of Completeness Theorem for classical propositional Logic.
  - Automated Theorem proving systems for classical, intuitioinistic amd modal S4, S5 logics.
  - Constructive Completeness Theorem proofs.
  - First Order Classical Logic; syntax and semantics.
  - Proof of Completeness Theorem.
  - Formal Theories based on first order logic; Peano Arithmetic.
  - Discussion of Godel Incompleteness and Inconsistency results.

Grading Schema

- Homework assignments and quizes -- 25%
- Midterm exams (2) -- 40% (20% each)
- Final exam -- 35%

Examinations

- **Midterm 1:** Thursday 10/4, in classroom
- **Midterm 2:** Thursday 11/15, in classroom

- **Final Examination:** Monday 12/17 @ 11:15AM - 1:15PM in Earth&Space 069

(see rules in http://www.stonybrook.edu/registrar/finals.shtml)