CSE371, MAT371
LOGIC
Professor Anita Wasilewska
Web page: www3.cs.stonybrook.edu/~cse371
Spring 2020

Lecture  TUESDAY, THURSDAY  1:00pm - 2:20 pm
Location  FRAY HALL 105

Professor  Anita Wasilewska, e-mail: anita@cs.stonybrook.edu
Please e-mail the professor with serious concerns only

Phone number  632 8458

Office Hours  Tuesday, Thursday  5:30 pm - 7:30 pm and by appointment.

Place  New Computer Science Building, Room 208, telephone: 2-8458

TA  TBA

TA Office Hours  TBA

Textbook

Anita Wasilewska
LOGICS FOR COMPUTER SCIENCE: Classical and Non - Classical
Springer 2018

You can get the book in Hard cover, or in Electronic form.
Springer also has an option of providing you with chapters of your choice.


BOOK Chapters Slides
Lectures Slides covering all book chapters are posted on the course webpage.

COURSE Lectures Slides
The course webpage also contains current LECTURES Slides with material we cover during the semester.

Course Goal
The goal of the course is to make student understand the need of, and to learn the formality of logic. The book, and the course is developed to teach not only intuitive understanding of different logics, but (and mainly) to teach formal logic as scientific subject, with its language, definitions and problems.
Course Structure

I will progress relatively slowly, making sure that the pace is appropriate for the students in class. But it doesn’t mean that you can just come to class and listen without doing work at home. You have to go over the text in proper chapters; in fact to go over and over again. The book is written with students on my mind so that they can read and learn by themselves, even before coming to class. For sure, it is also essential to study after the class.

Important

There is no recitations, but I will cover some solutions to the course book homeworks assignments and held questions/answers sessions in class. Students are also responsible to study chapters examples that are not included in Lectures. I may include them in Quizzes and Tests.

Workload

There will be 2 quizzes, Midterm, and Final examination

The consistency of your efforts and work is the most important for this course.

None of the grades will be curved.

Quizzes: total 50 pts

There will be 2 quizzes (35 minutes), 25 points each.

No make-up for quizzes except of important, well proven reasons

I might give some additional quizzes for extra credit

Quizzes will be given on Thursdays at the end of the class.

Each quiz will consist of 2 -4 questions

Quizzes and Tests problems will be taken mainly from examples, exercises and problems solved in the Textbook and from Homework Assignments located at the end of the chapters of the book, or will be similar to problems from previous Quizzes and Tests as published on the course Webpage.

Quizzes and Tests are closed book (and cell phones) examinations.

Midterm (75pts)

Midterm will covers material from Q1 and material covered after Q1 in class before Midterm

Final (75pts)

Final will cover mainly material covered after Midterm including material from Q2 and covered after Q2.

Extra Credit

I will give some extra credit problems on Tests and Quizzes.

Previous TESTS and Quizzes

I posted a collection of past Quizzes and Tests on the course Webpage. They are designed to help you to learn what you have learned and what you still may not understand.

Final grade computation

You can earn up to 200 points + x extra credit points = (200 + x ) points during the semester.

Extra points are BENEFICIAL for students as they add to the TOTAL number of points!!

None of the grades will be curved
The grade will be determined in the following way:
# of earned points divided by 2 = % grade.
The % grade is translated into a letter grade in a standard way i.e.
100 – 95 % is A, 94 – 90 is A–,
89 – 86% is B+, 85 – 83 % is B, 82 – 80 % is B–,
79 – 76 % is C+, 75 – 73 % is C, 72 – 70 % is C–,
69 – 60 % is D range and F is below 60%.
Tentative Quizzes and Tests schedule
Changes (if any) will be advertised on the course webpage

Q1    Thursday, February 2015 -22

MIDTERM     Thursday, March 12 in class

Spring Break  March 15 - 22

Q2           Thursday, April 16

Last Class  (Review for Final)    Thursday, May 7

FINAL   time and place as scheduled by University during the FINALS TIME: May 12 - 20

Course Content

The course will cover a selection of the following subjects.

1. Paradoxes and Puzzles (Chapter 1)
2. Introduction to classical Logic (Chapter 2).
   Propositional and predicate languages. AI languages. Basic propositional and predicate tautologies.
   Equational Laws for quantifiers.
3. Propositional Semantics: Classical and Many Valued (Chapter 3).
   Formal propositional languages. Classical semantic: formal definitions of model, counter model,
   tautology. Equivalence of propositional languages, Some many valued semantics.
   General definition and examples. Definition of a formal proof. Relationship between proof systems
   and their semantics. Definition of notions of soundness and completeness of a given proof systems
   relatively to given semantics. Definition of a logic as a complete proof system.
   Hilbert style proof systems for classical propositional logic. Proofs of the Deduction theorem, and
   two different proofs of the Completeness theorem.
   Automated Gentzen type proof systems: RS, RS1, RS2 for Classical logic. Examples of the auto-
   matic proof-search. Constructive proof of the Completeness Theorem. Original Sequent Gentzen
   proof systems GL, G, LK or Classical logic.. Completeness and Hauptxatz Theorems.
7. Introduction to Intuitionistic and Modal logic (Chapter 7).
   Hilbert and Gentzen style proof systems for Intuitionistic logic. Heuristic decision procedures.
   Relationship between Intuitionistic and Classical logics. Hilbert style proof systems for Modal
   logics S4 and S5. Relationships with Intuitionistic logic.
   Completeness theorem.
   Reduction of Predicate logic to Propositional logic. Proof of the Completeness Theorem.


ACADEMIC INTEGRITY STATEMENT (Adopted by the Undergraduate Council September 12, 2006)

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person’s work as your own is always wrong. Any suspected instance of academic dishonesty will be reported to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at http://www.stonybrook.edu/uaa/academicjudiciary/

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