CSE371, MAT371
LOGIC
Professor Anita Wasilewska
Web page: www.cs.sunysb.edu/~cse371

Lecture  TUESDAY, THURSDAY  9:50 - 11:10 am
Location  P116 (Physics Building)
Professor  Anita Wasilewska, e-mail: anita@cs.sunysb.edu
Please e-mail the professor with serious concerns only.

Phone number  632 8458
Office hours  will be held in Computer Science Department building, office 1428 Tu, Th at 11:30 am
-1:30 pm, and by appointments.

TA  There is no TA.

Important  There is no recitations, but I will cover solutions to homework assignments and held ques-
tions/answers sessions each week in class.

BOOKS

Main text:  Anita Wasilewska, *An Introduction to Classical and Non-Classical Logics*, SUNY, Stony
Brook, NY
You have to purchase the book from our Undergraduate Secretary. Her office is located in the
Computer Science Building (entrance is in front of the Javits Center) on the first floor, just in
front of the entrance to the Department.


(2) Any Logic Textbook you find in the Library.

Workload  There will be 4 quizzes, 4 practice quizzes (for extra credit), one midterm and a 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 100pts  There will be 4 quizzes (25 minutes), 25 points each. The problems will be
taken from Problems and Homework Assignments located at the end of the chapters of the main
text. Quizzes are closed book examinations.

Mid-term: 100pts  Midterm will cover material from Q1 and Q2. It is an open book test.

Final: 100pts  Final test will cover some material from the midterm, but mainly (70%) the material
covered after the midterm, i.e. material covered by Q3 and Q4. It is a take home test. It will be
distributed and discussed during last day of classes and due on the scheduled day for the final.
Practice quizzes: total 20 extra points There will be 4 Practice Quizzes, each given before a corresponding regular quiz (see quizzes and tests schedule).

Practice midterm: total 10 extra points There will be a practice midterm test given in class.

Practice tests policy Practice tests (quizzes and tests) are designed to help you to learn what and how much you have learned and what you still don’t understand from the material covered by the test. You can take them for your own practice (don’t need to submit it), or for extra points (need to submit it). Sometimes they will be given as a take home assignments.

Final grade computation You can earn up to 300 points + 30 extra points = 330 points during the semester. None of the grades will be curved. The grade will be determined in the following way:

# of earned points divided by 3 = % grade.

The % grade is translated into a letter grade in a standard way i.e.

- 100 – 93 % is A, 92 – 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%.

Quizzes and Tests schedule

1. Practice Q1 Thursday, September 21, in class
Real Q1 Tuesday, September 26

2. Practice Q2 take home quiz, due Thursday, October 12 in class (put on the Web on October 5))
Real Q2 Tuesday, October 17
Practice MIDTERM Thursday, October 19
MIDTERM Tuesday, October 24 it is an open book test

3. Practice Q3 Thursday, November 9
Q3 Tuesday, November 14

Thanksgiving Break November 23-26

4. Practice Q4 Thursday, December 7
Q4 Tuesday, December 12

PRACTICE FINAL Thursday, December 14, in class

FINAL is a take home test and will be put on the WEB on December 12. It is due on the day of official final date during the Finals week, December 16-22.
Course Goal  The goal of the course is to make student understand the need of, and to learn the formality of logic. I will progress relatively slowly, making sure that the pace is appropriate for the undergraduate 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 essential to study after the class. 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 Content  The course will to cover in depth the following subjects.

CLASSICAL AND NON-CLASSICAL PROPOSITIONAL LOGICS : Syntax, semantics, completeness theorem, and and automated proof theory.

Part one  Motivation, history, syntax and semantics for classical propositional calculus. Formal languages, formal definitions of model, counter model, tautology.

Part two  Semantics for some three valued logics.

Part three  Formal deductive systems, called also proof systems. General definition and examples. Definition of a formal proof. Relationship between proof systems and their semantics, i.e general 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.

Part four : Hilbert style proof systems for classical propositional logic. Proofs of DEDUCTION theorem, and two different proofs of the COMPLETENESS theorem.


Part six  A Hilbert style proof system for Intuitionistic Logic. Relationship between Intuitionistic and classical logic.

Part seven  Automated proof systems 2: Gentzen proof system for Intuitionistic Logic. Heuristic decision procedures.

Part eight  A Hilbert style proof systems for Modal Logics S4 and S5. Relationships with Intuitionistic Logic.