CSE371
LOGIC for COMPUTER SCIENCE
SPRING 2021
Professor Anita Wasilewska

Course Webpage:
http://www3.cs.stonybrook.edu/~cse371

Time: Tuesday, Thursday 1:15pm - 2:35pm

Place: ZOOM LECTURES each Tuesday, Thursday 1:15pm - 2:35pm

Additional Place: YOUTUBE CHANNEL: Logic, Theory of Computation
https://www.youtube.com/channel/UCLZp06JC9yit6M_YW3XuvIw
The first 4 Lectures are of the Theory of Computation, the LOGIC Lectures follow.
The Logic Videos cover Chapter 1 to Chapter 11 of the course TEXTBOOK

Professor Anita Wasilewska
e-mail anita@cs.stonybrook.edu
Office phone (631) 632 8458
Office location: New Computer Science Department, office 208 but we will have only ZOOM and email contact
I read emails DAILY and respond within a day- two to students e-mails

ZOOM Office Hours: Tuesday, Thursdays 2:30 pm - 4:00 pm
Join Zoom Meeting https://stonybrook.zoom.us/j/93307954191?pwd=WTRiWlhHVkJUYgWGVlRmorL2cydz09

Teaching Assistants POSTED on course webpage
ZOOM TAs office hours: POSTED on course webpage
Course TEXTBOOK

Anita Wasilewska

LOGICS FOR COMPUTER SCIENCE: Classical and Non-Classical

Springer Nature Switzerland AG 2018

SBN 978-3-319-92590-5 ISBN 978-3-319-92591-2 (e-book)


COURSE WEBPAGE contains two sets of Lectures

L1. A set of very detailed Class Lectures developed for each Chapter of the Textbook.
    Usually there are 2-5 Lectures for one Chapter. They also contain many extra examples and carefully written detailed problems solutions, and reviews for your tests.
    The ZOOM Lectures are based on the Class Lectures

L2. A set of VIDEO Lectures created especially for the LOGIC YOUTUBE CHANNEL
    The VIDEO Lectures correspond, chapter by chapter to the slides used in the VIDEO CHAPTERS so students can follow them with exactly the same slides in hand as those used in the the VIDEOS.

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.

I will progress relatively slowly, making sure that the pace is appropriate for the students in class. 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

Students are responsible to read then BOOK and to study examples and problems solutions that are there. They may be included in Quizes and Tests.

ZOOM CLASSES UNIVERSITY STATEMENT

Students are expected to attend every class, report for examinations and submit major graded coursework as scheduled.
If a student is unable to attend lecture(s), report for any exams or complete major graded coursework as scheduled due to extenuating circumstances, the student must contact the instructor as soon as possible.

Students may be requested to provide documentation to support their absence and/or may be referred to the Student Support Team for assistance.

Students will be provided reasonable accommodations for missed exams, assignments or projects due to significant illness, tragedy or other personal emergencies. In the instance of missed lectures or labs, the student is responsible for insert course specific information here (examples include: review posted slides, review recorded lectures, seek notes from a classmate or identified class note taker, write lab report based on sample data).

Please note, all students must follow Stony Brook, local, state and Centers for Disease Control and Prevention (CDC) guidelines to reduce the risk of transmission of COVID.

TESTING

All QUIZZES and TESTS, including the FINAL examination will be given as a TAKE HOME test. I design them is a way the most profitable for your new way of learning

TAKE HOME TESTS POLICY

TAKE HOME TEST means that you take it at home and have access to, and can freely use the BOOK, Videos, Slides and all information posted on your course Web Page.

You also will have 1-2 days to complete the tests- as described in the schedule posted below.

This schedule is designed to give you time to think deeper and to work on your tests problems longer. It gives you time to write solution carefully and clear.

Follow the way the solutions are written in the Lectures and posted tests. Clarity and style of your solutions will be part of your grade. All is designed to help you to learn to write properly solutions, not only scribbled answers. It is also designed to HELP you to study and learn better in the new online environment and to help you in this new and lonely process of learning.

IT ALL is a carefully designed and thought out PROCESS of learning. Important: our BOOK has hundreds of exercises, examples, homework problems to help you to understand the material and is an excellent source for you to study for tests.

Your QUIZZES and TESTS will have the same FORMAT as those published on the Webpage. They are there to help you to study and train yourself using their specific format. Ours will be a bit longer as you will have much more time to complete them. I am your FRIEND who is here to teach you and to help you in the process Sometimes you will be able to find answers to some tests questions in the materials you have access to. I decided to include such questions in your tests as an encouragement and help for you to study from the book, Class and Videos Lectures with help of the Videos and other posted materials But you always have to write your solutions in your own words and to do it in such way as to make it VISIBLE to US (and yourself)
that you really worked and you understood he material you supposed to study Straightforward copy of what
was published and you have found in the the materials you have access to will result in 0pts for the problem-
as in any case of cheating

GRADING PRINCIPLES and WORKLOAD

Workload

There will be 2 Quizzes, Midterm, a Practice Final (for extra credit), and Final examinations.
The consistency of your efforts and work is the most important for this course.

None of the grades will be curved

Records of students points are kept on BLACKBOARD.

Contact the TA for information about grading, grades changes, etc....

TESTS and Quizzes cover Lectures and Book Chapters only for the portion of material that was covered in class
before the dates of tests.

Quizzes: total 50 pts There will be 2 quizzes, 25 points each

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

I might give some additional quizzes for extra credit

Each quiz will consist of 3 - 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.

Midterm (75pts) Midterm will covers material from Q1 and material covered after Q1 in class before Midterm

Practice Final (15 extra pts)

Final (75pts) Final will cover mainly material covered after Midterm including material from Q2 and covered
after Q2, and on Practice Final

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

TESTS POLICY

We do not give makeup tests or quizzes except of documented cases of Illness or other emergencies.
All Quizzes and Tests are **TAKE HOME** examinations.
They will be posted on the Blackboard and you submit them there.

**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%.

**QUIZZES and TESTS PRELIMINARY SCHEDULE**
Changes, if any, will be posted on Blackboard and the course Webpage

**Q1** - posted March 20 **due** March 20

**MIDTERM** - posted March 27 **due** March 28

**Q2** - posted April 22 **due** April 22

**Practice Final** - posted posted May 5 **due** May 6

**FINAL** - given during the FINALS - to be scheduled by University

**COURSE CONTENT**
The course will follow the book very closely and in particular we will cover some or all of the following chapters and 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).

   - 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.


7. Introduction to Intuitionistic and Modal logic (Chapter 7).


   - Reduction of Predicate logic to Propositional logic. Proof of the Completeness Theorem.

    - Automated Gentzen type proof system QRS. Constructive proof of the Completeness Theorem.

11. Formal Theories and Gödel Theorems (Chapter 11).
Student Accessibility Support Center Statement

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, 128 ECC Building, (631) 632-6748, or via e-mail at: sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Academic Integrity Statement 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/

Stony Brook University Syllabus Statement If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services at (631) 632-6748 or http://http://studentaffairs.stonybrook.edu/dss They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: http://www.sunysb.edu/ehs/fire/disabilities.shtml

Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students’ ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.