CSE303  Introduction to the Theory of Computation  
Summer 2009  
Professor Anita Wasilewska  
http://www.cs.sunysb.edu/~cse303/  

Time and Place 
Tuesday, Thursday  9:30 am - 12:55 pm,  Humanities 3020  

Professor  Anita Wasilewska  
e-mail  anita@cs.sunysb.edu  
      Tuesday, Thursday  1- 2 pm and by appointment.  Comp. Sci. Building  
room 1428, telephone: 2-8458.  

TA  Raksik Kim  
e-mail  raksik@gmail.com  

TA Office Hours  practice sessions each Thursday in class  

Textbook  Elements of the Theory of Computation  by Harry R. Lewis and  

Grading General Principles and Workload  
Workload:  there will be 4 homework assignments, 4 quizzes covering respec-  
tive homework assignments, one midterm and a final examination.  There  
also will be 4 Practice Quizzes and 2 Practice Tests for practice and extra  
credit.  

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

None of the grades will be curved.  

Records  of students grades are being kept by the course TA.  Contact the TA  
for information.  

Homework assignments:  there will be four (4) homework assignments.  
Look below for the homework assignment and schedule.  None of them  
will be collected or graded.  Students are responsible for solving the prob-  
lems and checking if their solutions are correct by comparing them with  
the posted solutions.  The solutions of some homework problems will be  
discussed during the Practice Quizzes solutions sessions.  
Students are strongly encouraged to discuss the intellectual aspect of the  
problems, but are responsible for formulating solutions in their own words.  

Quizzes (total 100pts):  there will be 4 quizzes (35 minutes), 25 points each.  
The problems will be taken from, or very close to Homework assignments.  


Quizzes will be given at the beginning of class on TUESDAYS:
Q1 - June 9,   Q2 - June 16,   Q3 - June 30   Q4 - July 7.

Practice Quizzes (total 20pts): there will be 4 Practice Quizzes (20 minutes), 5 points each. They will be given on THURSDAYS during PRACTICE SESSIONS:
PQ1 - June 4, PQ2 - June 11, PQ3 - June 25, PQ4 - July 2.
The Practice Quizzes will be given at the END of the Practice Sessions, so you will be able to ask TA questions related to homework BEFORE the Practice Quizzes.

Solutions to Practice Quizzes will be posted on the WEB on the day of the Practice Quiz, so you can study it and be better prepared for the real quiz on the following Tuesday.

Solutions to Quizzes will also be on the WEB on the day of the Quiz.

Each quiz will also contain some SHORT questions that test your knowledge of basic facts and definitions from material covered.
The format of Quizzes is similar to the SAMPLE Q1, as put on the Web, and to Practice Quizzes given before each real Quiz.

Mid-term (100pts) Midterm will cover material from Q1, Q2, and Homework 1 and Homework 2. It will also contain some SHORT questions that test your knowledge of basic facts and definitions from material covered. Short questions are similar to those of Quizzes and Practice Midterm.

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, Q4 and Homework 3 and Homework 4. It will also contain some SHORT questions that test your knowledge of basic facts and definitions from material covered. Short questions are similar to those of Quizzes and Midterm.

Practice tests: total 10 extra points There will be a practice midterm and a practice final, each worth 5 extra points.

Practice Tests and Quizzes Policy Practice tests and quizzes are designed to help you to learn what 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).

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 – 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%.

**Midterm Test (100pts)**  The test will be given Tuesday JUNE 23 in class.
It will take only a HALF of the class time.

**Practice Midterm (5pts)**  The test will be given on Thursday, June 18
during the second part of the lecture (no problem session).

**Final**  Final examination - total 100pts. The final will be given the last day
of classes (JULY 9) and will last the whole period of 3 hours.

**Practice Final**  It is a take home test.

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**Course Content and Schedule**

The course will follow the book very closely and in particular we will cover
the following chapters and subjects.

**WEEK 1**

**Chapter 1**  Sets, Relations, Languages. (pp. 1 - 53)
Some of it a review material, languages part is new. You can use any
other book for the review. Our book is very condensed.

**Problems session 1**  Covers Homework 1  Thursday, June 4.

**Practice Quiz 1**  given at the end of Problem Session. Study SAMPLE Q1
posted on the Web.

**Solutions to PQ1**  posted on the Web on Thursday after class.

**WEEK 2**

**QUIZ 1**  Covers Homework 1  **Tuesday, June 9** at the end of class.

**Chapter 2**  Deterministic and Non-Deterministic Finite Automata. Their
equivalence. (pp.55-75)

**Chapter 2**  Finite automata and regular languages. (pp 75 - 102)

**Problems session 2**  Covers Homework 2.

**Practice Quiz 2**  at the end of Problems session 2, Thursday, June 11.

**WEEK 3**
QUIZ 2  Covers Homework 2  Tuesday, June 16 at the end of the class.

Chapter 3  Part 1.  Context-free grammars. Pushdown automata. (pp. 113 - 130)

Practice Midterm  covers Hmk 1 and 2, Thursday, June 17, during second part of the lecture.

WEEK 4

Chapter 3  Part 2.  Context-free grammars. Pushdown automata. (pp. 113 - 130)

MIDTERM  Covers homework 1 and 2  TUESDAY, JUNE 23 at the beginning of class for 70 minutes. Regular Lecture follows.

Problems session 3  Covers Homework 3, Thursday, June 23

Practice Quiz 3  at the end of Problems session, Thursday, June 23.

WEEK 5

Chapters 3, 4  Properties of CF Languages, Turing Machines

QUIZ 3  Covers Homework 3  Tuesday, June 30 given at the beginning of the class.

Problems session 4  Covers Homework 4

Practice Q4  at the end of Problems session 4, Thursday, July 2.

WEEK 6

QUIZ 4  Covers Homework 4  Tuesday, July 7 at the beginning of the class.

Chapter 4, 5, 6  OVERVIEW: Church- Turing Thesis, Computability. Computational Complexity.

Practice Final  will be POSTED. It is a take home practice final due on July 7.

FINAL TEST  THURSDAY, JULY 9.

HOMEWORK ASSIGNMENTS

Homework 1 = Quiz 1  Covers book pages 1-52.

Problems:  Pages 18-23: 1.1.4, 1.3.1, 1.3.5, 1.4.1, 1.4.3.  Page 28: 1.5.4, 1.5.5, 1.5.8, 1.5.9.  Page 40: 1.6.1, 1.6.2, 1.6.4, Page 46: 1.7.4, 1.7.5, Page 51: 1.8.2, 1.8.3, 1.8.5, 1.8.6.

Homework 2 = Quiz 2  Covers book pages 55 - 83.
Problems: Pages 60-63: 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1. 7. Pages 73-73: 2.2.1, 2.2.2, 2.2.3, 2.2.6 2.2.9, 2.2. 10. Pages 83-85: 2.3.3, 2.3.6, 2.3.7 a, 2.3.11 (extra credit).

Homework 3 = Quiz 3 Covers book pages 86 - 120.

Problems Pages 90-91: 2.4.5, 2.4.8. Pages 120-122: 2.5.1, 2.5.2, 2.5.3, 3.1.3, 3.1.7, 3.1.9, 3.1.10a, c d.

Homework 4 = Quiz 4 Covers book pages 122- 194.

Problems: Page 129: 3.2.1, 3.2.2, Page 135: 3.3.1, 3.3.2, Page 148: 3.5.1, 3.5.2 a,b (extra credits). Pages 191-193: 4.1.1 4.1.3, 4.1.4, 4.1.6, 4.1.7, Page 200: 4.2.2.

Quizzes and Tests Schedule

QUIZ 1 Covers Homework 1 Tuesday, June 9
QUIZ 2 Covers Homework 2 Tuesday, June 16
Midterm TUESDAY, JUNE 23
QUIZ 3 Covers Homework 3 Thursday, June 30
QUIZ 4 Covers Homework 4 Tuesday, July 7 Practice FINAL due (in class).
FINAL THURSDAY July 9

Practice Quizzes and Practice Tests Schedule

Practice QUIZ 1 (Practice session 1) Covers Homework 1 Thursday, June 4
Practice QUIZ 2 (Practice session 2) Covers Homework 2 Thursday, June 11
PRACTICE MIDTERM THURSDAY, JUNE 19.
Practice QUIZ 3 (Practice session 3) Covers Homework 3 Thursday, June 25
Practice QUIZ 4 (Practice session 4) Covers Homework 4 Thursday, July 2
PRACTICE FINAL posted on July 3 due July 7 in CLASS.