CS3133
Foundations of Computer Science
A-14

PROFESSOR: Stanley Selkow, M,Tu,Th,F: FL140
email: sms@wpi.edu
Office Hours: M,Tu,Th,F 9→10
Class: M, Tu, Th, F - 10→10:50 am

TEACHING ASSISTANTS: (TA office hours will be in FL-A22)
Qingyang Wang (wangqy@cs.wpi.edu)
Office Hours: M,Tu,Th 6→7pm, F 4→5
Antonio Umali (avumali@cs.wpi.edu)
Office Hours: M,W 2 →3, Tu,Th 3→4

TEXT: Dexter Kozen, *Automata and Computablity*, Springer, 1997

GOALS OF COURSE: The course introduces the theoretical foundations of computer science. These form the basis for a more complete understanding of the limits of computation. Topics include computational models, formal languages, and an introduction to computability and complexity theory. The course covers the following ABET goals: the ability to apply knowledge of mathematics, and the ability to formulate and solve problems.

After successful completion of this course, the student will be able to:

- Understand the basic principles of formal languages and abstract models of computation.
- Demonstrate the ability to specify and design finite automata, pushdown automata, and Turing machines.
- Demonstrate the ability to analyze and design regular and context-free languages.
- Demonstrate a working knowledge of computational complexity and limits of algorithmic computation.
- Formalize problems in computer science with greater mathematical maturity.

EXPECTED BACKGROUND: Discrete structures (CS 2022) and algorithms (CS 2223).

EVALUATION FOR GRADING:

Homework - 50%

Assignments and programs are due 10:00 a.m. of the due date. Since solutions will usually be posted shortly after homework is collected, late homeworks will be graded, but these grades will be discounted. If you hand in late homework, do not look at posted solutions before doing the assignment.

Exams - 50%

The two **open-book**, **open-notes** exams will take place Monday, September 22 and Thursday, October 16. Any changes in the above schedule will be announced well in advance. There will be no surprise, quickie exams.

Discretion - ?%

The class will be interactive. Numerical final grades which fall on the border between letter grades will be influenced by classroom participation.

ELECTRONIC MAIL: Mail addressed to cs3133-all@cs.wpi.edu will be sent to the students, the TAs, and the Instructor of this course. Mail sent to cs3133-staff@cs.wpi.edu will be sent to the TAs and the Instructor of this course. Instructions for joining or leaving this list may be found at

www.cs.wpi.edu/Resources/majordomo.html

WEB: Our course materials will be available on the Web from the URL:

http://www.cs.wpi.edu/~sms/cs3133

DISABILITIES: If you need course adaptations or accommodations because of a disability, or if you have medical information to share with me, please make an appointment with me as soon as possible. If you have not already done so, students with disabilities, who believe that they may need accommodations in this class, are encouraged to contact the Disability Services Office (DSO), as soon as possible to ensure that such accommodations are implemented in a timely fashion. The DSO is located in Daniels Hall, (508) 831-5235.

CHEATING: You are encouraged to work with other students. In fact, it is my experience that students who form study groups to discuss the material together generally perform better. However, your homeworks and exams are your responsibility alone. WPI's academic honesty policy can be found at

http://www.wpi.edu/Pubs/Policies/Honesty/