CS5363: Programming Languages and Compilers

Class homepage: `www.cs.utsa.eda/~qingyi/cs5363`
Class Schedule: TR, 5:30-6:45pm BB 3.03.02
Final Exam Schedule: Dec 14 (Mon) 5:00-7:30pm

Instructor: Qing Yi (`qingyi@cs.utsa.edu`)
Office: SB 4.01.30 **Phone**: x5671
Office Hours: TR:6:45-7:30pm; by appointment

Textbook Engineering a Compiler by Keith Cooper and Linda Torczon, Morgan-Kaufmann, 2004. ISBN: 1-55860-698-X

Reference Books Programming Language Pragmatics, by Michael Scott, Second Edition, Morgan Kaufmann Publishers, 2006

Overview This class is a study of programming languages with an emphasis on their implementation. Topics include lexical analysis, language syntax, control structures, the binding of names, procedures, and their implementation in compilers. An emphasis will be put on compiler analysis and optimizations to improve the quality of automatically generated machine code.

Class Objective Students will study implementation techniques for modern programming languages and learn how to build modern compilers. Additionally, students will learn important algorithms and data structures used to automatically improve the quality of translated machine code, while gaining experience in implementing significant algorithms.

Prerequisites CS 3233 and CS 3343; Programming skill in C/C++/Java.

Requirements By the end of the class, you should have sufficient understanding of the fundamental theories, basic implementation skills, as well as advanced analysis and optimization techniques in compilers. You will be required to work on regular assignments, including several class projects which implement various components of a compiler.

Grading
30%: projects;
20% homeworks;
15% midterm;
30% Final Exam;
5% in-class exercises.

Attendance You are responsible for the presented materials and assigned readings in class. Please refrain from distractive behavior in class, such as side conversations and cell phones/pagers/etc. Please turn off your cell phones/pagers before the beginning of each class.

Collaboration Policy You are expected to work on all the assignments for this course individually. It is acceptable to ask others (the instructor or other students) for help,

and encouraged to discuss general problem-solving strategies. However, you must work on your assignments independently and must indicate in your assignments any assistance you have received. Any assistance received that is not given proper citation may be considered cheating. In any event, you are responsible for understanding and being able to explain all statements in your homework and exam solutions.