Fall 2004

CS 780: Compiler Design and Construction I

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CS 780 Compiler Design and Construction I

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- **Email:** tkprasad@cs.wright.edu
- **Home page:** http://www.cs.wright.edu/~tkprasad/
- **Quarter:** Fall, 2004
- **Class Hrs:** TTh, 12:20pm-1:35pm, 406 RC
- **Office Hrs:** TTh, 11:30am-12pm and 3:30pm-4pm, 337 RC (or by apppt.)

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### Course Description

This course deals with the theory and practice of compiler design. Topics emphasized are scanning and parsing. If time permits, semantic analysis will also be covered.

### Prerequisites

- Formal Languages and Automata (CS466/CS666)
- Comparative Languages (CS480/CS680)

### Required Texts

1997.

References


Relevant Websites

- **ONLINE HELP**
  - GNU Manuals
  - The Compiler Connection

Course Load

The course load includes three programming assignments based on the COOL compiler project worth 35 points, a midterm worth 30 points and a final worth 35 points.

Grading

The letter grades will be assigned using the following scale: A[90-100], B[80-90], C[70-80], D[60-70], and F[0-60]. However, I reserve the right to adjust the scale somewhat to utilize the gaps in the distribution. Academic dishonesty will be "rewarded" with a grade of "F". "Sharing/reuse" of solutions to assignment problems is strictly prohibited.

Class Schedule, Syllabus and Lectures

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<td>Introduction to Compilers</td>
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Class 4  Implementing Lexer
Class 5  FLEX  Chapters 1-2, 6  lex & yacc
Class 6  Context-Free Grammars  Chapter 3
Class 7  Ambiguity: Abstract Syntax Trees
Class 8  BISON
Class 9  Midterm Exam (Oct 6)
Class 10  Top-down Parsing  Chapter 4
Class 11  (continue)
Class 12  Bottom-up Parsing  Chapter 5
Class 13  Bottom-up Parsing: Basics (ppt)
Class 14  Bottom-up Parsing: Algorithms
Class 15  (continue)
Class 16  LR Parsing
Class 17  (continue) (ppt)
Class 18  Overview of Semantic Analysis  Chapter 6
Class 19  Type Checking and Inference
Class 20  (WRAP-UP)

Final Exam (Nov 16) (1pm-3pm)

ASSIGNMENTS (Fall 2003)
• Cool Compiler Project: Programming Assignment 1 (ps)(pdf)
• Cool Compiler Project: Programming Assignment 2 (ps)(pdf)
• Cool Compiler Project: Programming Assignment 3 (ps)(pdf)

RELATED DOCUMENTS
• CoolAid Manual (Alex Aiken) (ps) (pdf)
• A Tour of the Cool Support Code (Alex Aiken) (ps)(pdf)

EXAMINATIONS (Fall 2003)
• Midterm (ps)(pdf)
• Final (ps)(pdf)
Late Submission Policy

You will lose 5% for each day an assignment is submitted late; assignments will be accepted up to 4 days past the submission time. Late penalty is accrued on weekends just as during the week. For every 24 hour period (or fraction thereof) that the assignment is late, 5% is deducted from your score. Partial credit will be given to students who turn in partially completed assignments. Electronic submission will be used for all assignments.

Special considerations will be given for students who have a medical excuse for late submission (written notification from a doctor is required). These considerations may extend to medical emergencies involving children or other family members. Such consideration is at the discretion of the instructor.

Special consideration may also be given for employment conflicts (e.g. military duty, travel) if brought to the attention of the instructor prior to the due date for an assignment.

Course requirements for other courses are NOT a valid reason for special consideration.

Collaboration vs Academic Misconduct

You are encouraged to exchange ideas regarding your programming assignments with your classmates. However, you must turn in your own work for each assignment (unless I explicitly assign a group project). As such, you should discuss programming assignments at the conceptual level only and should not share your code with your classmates. You should also never recycle printouts in public computer labs. Never leave your workstation unattended without first locking the screen, always wait until your printouts have printed or delete them from the print queue when using public printers, always remove any files that you have downloaded to the PC in public PC labs, etc.

Submitting a program as your own, when some or all was written by someone else is an act of plagiarism and constitutes academic misconduct. The minimum penalty for such a misconduct is a score of 0 on the assignment. See your student handbook for more information on academic misconduct and its consequences. Misconduct will be handled in accordance with university policy.

LINKS TO RESEARCH JOURNALS AND CONFERENCE PROCEEDINGS

- ACM Transactions on Programming Languages and Systems
  https://www.cs.wisc.edu/~ooplase/
- ACM SIGPLAN sponsored conferences
  http://www.acm.org/sigplan/conferences
- Upcoming Compiler and Parallel Computing Conferences
  http://www.cs.rice.edu/~roth/conferences.html