Course Information

- Instructor: Fan Long

- Contact Info: fanl@cs.toronto.edu

- Office Hours: Thursday after the class in Zoom. Or schedule with email.

- Lectures: Thrusday 13:00-15:00 EST (WI1017 or zoom)

- Tutorial: Tuesday 10:00-11:00 EST (BA1190 or zoom)

- References: Charles Fischer, Ron Cytron and Richard LeBlanc Jr. , Crafting a Compiler, Addison-Wesley 2009

    LLVM Infrastructure websites https://llvm.org

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Project Assignments & Marking

- Assignment 1 (4%)   Prepare environment
- Assignment 2 (10%)   Revise grammar and build parser
- Assignment 3 (11%)   Build AST Tree
- Assignment 4 (12%)   Symbol tables and semantic checking
- Assignment 5 (22%)   LLVM IR generation
- Assignment 6 (16%)   IR optimization
- Final Exam (25%)

Course Schedule

- Jan 13,   First class
- Jan 26,   Assignment 1 Due
- Feb 2,   Assignment 2 Due
- Feb 16,   Assignment 3 Due
- Feb 21,   Reading Week, no class
- Feb 28,   Assignment 4 Due
- March 18,   Assignment 5 Due
- April 4,   Assignment 6 Due
- April 11-22,   Final Exam

Course Content

- Introduction
- Parsing Techniques (Lexical and Syntax Analysis)
- AST Trees and Symbol Tables
- Semantic Analysis
- LLVM IR
- IR Code Generation
- Optimizations
- Runtime & Backend Code Generation

Course Project Submission Policies

- Everyone has a grace period of **96 hours** for late for the semester.

- For late beyond the grace period, **2%** penalty is applied per hour

- Sample solutions and test cases will be posted **4 days** after the submission deadline so **no late submission is allowed** after this point.

- If an exception is indeed required, we may approve to shift the mark of the missed submission to other assignments. We will calculate your mark based on your average scores on other assignments.

- However, the **maximum** you can obain in this way is **70%** of the missed assignment. The only exception for this rule is student who add this course and request to shift weights for early assignments.

- You must complete at least **2 out of last four assignments** to receive score in this course.

Course Project Submission Policies

- A student may attempt a second submission within **7 days after the initial deadline** to fix bugs based on the released test cases. Fixed cases will allow the student to retain 70% of marks lost on the cases.

- The second submission must be modifications on the student own code base (not copying sample solutions) and contain descriptions on the root cause of the bugs.

- The assignments are incremental, i.e., future assignments depend on previous ones.

- The student has the freedom to choose continue future assignments based on its own code base or the released sample code.

Course Project Submission Policies

- Discussion is encouraged, but plagirism is not tolerated.
- You are encouraged to share your thoughts and ideas, but not code.
- Offenders will receive zero on the corresponding assignment.

- **Please refrain from posting your code or sample code online**, even after the submission deadline, we may reuse the course project in future years.

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