Syllabus

1 Who

Chris Stone stone@cs.hmc.edu Olin 1251, MW 4–5:30pm, TR 3–4pm

Course mail to cs132help@cs.hmc.edu *will get noticed faster!*

2 What

The design and implementation of compilers. Topics include elegant theoretical results underlying compilation techniques, practical issues in efficient implementation of programming languages, and bit-level interactions with operating systems and computer architectures. Over the course of the semester, students build a working compiler. Prerequisites or Corequisites: CS 105 and CS 131.

3 Where (and When)

Physical: Mon, Wed 1:15pm–2:30pm TG 103

Virtual: http://www.cs.hmc.edu/wiki/CS132Spring2011

4 Why (i.e., Selected Goals)

By the end of this course you:

- Will understand the major theory and systems issues in compiler design (including parsing, optimization, and code generation);
- Will have applied these ideas in practice by building a working compiler for a small but realistic programming language;
- Will have acquired skills and learned tools that will be useful in the rest of your career, even if you never work on another compiler.

5 Getting Help

If you're stuck or you find yourself making random changes to your Haskell code *please* contact the professor. Don't waste time just spinning your wheels.

In addition to Professor Stone's regularly-scheduled office hours, you can drop by his office (Olin 1251) any time his office door is open, or make appointments for other times. (See http://www.cs.hmc.edu/~stone/schedule.html.)

You can also use e-mail, especially for short, easily answered questions or statements. **You will get the fastest response by sending your message to** cs132help@cs.hmc.edu **; these messages get highlighted specially in the professor's mail client.**

6 Your Responsibilities

Reading E-mail

E-mails will be sent *both* to the course mailing list **cs-132-l@hmc.edu** (which generally goes to your main campus account) and directly to your HMC CS email account.

If you do not read both on a daily basis, be sure to set up forwarding from one account to the other. (To forward mail *from* your CS account to another system, see http://www.cs.hmc.edu/wiki/QREF/Mail#How_do_I_forward_my_mail)

Attendance

I expect you to attend every class and participate actively.

Collaboration

Most assignments are "optional pair-programming." (Labs are always done in pairs.) For each assignment, you may choose to work on your own, or to work with a partner.

When you work with a partner, you must follow the CS 70 Pair Programming rules. Essentially, this means one computer for two people, with a roughly equal division of time between being the person doing typing and being the persion giving be higher-level guidance. **Unless otherwise specified, you will be violating the honor code if you divide the work such that you work separately with one person doing part of the work and the other person doing the other part.**

Even if you're working on your own, you're encouraged to discuss the lecture and reading topics with any or all of your classmates. This can range anywhere from informal

chats in the hallway to formal study groups. You can even discuss high-level features of assignments and the ideas involved, including general approaches to the problems, bugs in the specification, how long you've spent working on a problem, and so forth. You may also help each other with basic issues related to completing the assignments—how to use Unix, basic functional-language issues, and the like.

The caveat is that **you should come away from these discussion with understanding in your head, not physical or electronic artifacts.** Thus you are not allowed to meet as a group and leave with notes on paper, nor can you help someone fix a bug and then leave without first reverting the bug to its unfixed state.

Let us know if you helped someone or got help, so we can thank people properly.

7 Course Work and Grading

55%	Homeworks
10%	Midterm
15%	Final Exam
15%	Presentations
5%	Participation

Homework Policy

There will be approximately 10 week-long homework assignments, making up half of your final grade. Homeworks are **due at 11:59pm on Tuesday evenings** unless otherwise specified. Assignments will be accepted no more than 3 days late, with a penalty of 15% per day.

Extenuating circumstances (such as illness) are dealt with on a case-by-case basis. In general, you are only excused for situations before the due date that you could not have foreseen, and only if you explain the situation at your soonest opportunity.

Presentations

The ability to explain a complicated topic is a valuable skill, but it requires practice. In the second half of the course, I will therefore ask you to form groups of three; each group will present an "advanced" compilers topic to the class.

You will also be asked to make a much briefer presentation at the very end, describing the unique features of your compiler project.