**Compiler Construction**

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Meeting 1: Welcome
CSCI 4555/5525, ECEN 4553/5523, Fall 2011
http://www.cs.colorado.edu/~bec/courses/csci4555-f11/

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**Introductions**

- Who am I?
- About you?
  - What do you want to get out of this class?

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**Index Cards**

- Name
- Background
  - Comfort with Python?
  - Comfort with x86 Assembly?
  - Experience with building language tools (interpreters, translators)?
- What do you want out of this class?
- Distance Students: post private note

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**Administrivia**

- Website
  http://www.cs.colorado.edu/~bec/courses/csci4555-f11/
  - notes, resources, etc.
- Discussion Group: Piazza
- Grades and Feedback: Moodle
- Office Hours
  - TR 1:45-2:45 and by appointment
  - ECOT 621 and on Skype (see moodle)
- Grader: Neelam Agrawal

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**Today**

- Goals for this course
- Requirements and grading
- Course summary

- Convince you that this course, Compiler Construction, is useful

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**Meta-Level Information**

- Please interrupt at any time!
- It’s completely ok to say:
  - I don’t understand. Please say it another way.
  - Slow down! Wait, I want to read that!
- Discussion, not lecture
Goals

What is a compiler?

- User: high-level PL constructs to machine instruction
- Translator: Python
- Machine dependence
- Machine buy one compiler
- "Just want to write code"
- Compiler writer: we bridge this gap

Goal 1

Become familiar with how code “really” runs

We will build compilers. Why?

1. Write your own compiler
2. Understand how your compiler “thinks” about your code can help you write better code
3. Improve on existing compilers
4. Compilers love hugs!
Most Important Goal

Have Lots of Fun!

Course Summary

This course structure of a compiler
- Python
- P Rex
- Assembly code

Course: structure of this course
- Manipulate things without knowing why
- Do not use restruct
- till end

Instead a
- Build you own compiler this week
- Python
- Do initial work at Python
- Python (Phase 1) and assembly (Phase 2)
- Grow language and build a compiler at each step

Implementation Language

Python
- Advantage: Python comes with its own
  build tools
  - High level stuff
  - Lots of features for you
- Drawback: Dynamic Typy - Very dynamic
Requirements

Assignments

• Homework projects (in pairs, ~every 2 weeks)
• Quizzes
• Reading and Active Participation
• Midterm Exam and Final Exam
• Final Project (groups of 2-3)

Final Project

• Often, build on your basic compiler
• Options:
  - Implementation project
  - Research project
• Write a ~5 page paper
• Give a ~15 minute presentation
• Your opportunity to customize the course to your interests!
• Projects in groups of 2-3

Website