

# CSCI 400 Course Overview

David Grisham

22 August 2017

# Introduction

# Who am I?

- David Grisham
  - dgrisham@mines.edu
- Master's student under DJ Yang
  - Distributed systems, game theory
- Member of Protocol Labs
  - IPFS, Filecoin

# Why am I teaching PL?

- Took PL in 2014
- Previous prof. (Cyndi Rader) retired
- Experience/enjoyment

(also, alias PL='Programming Languages')

# Why are you taking PL?

Is it worth an entire semester?

# Motivation

- Toolbox
  - Partly choose language based on problem
- Crossover knowledge
  - Haskell  $\rightarrow$  C++
- Research
  - Type systems, memory management, ...

# Motivation

*When the only tool you have is a hammer, everything looks like a nail." - Abraham Maslow*

What are we going to do?



# Roughly...

- 1 Discuss programming language concepts
- 2 Explore languages/their paradigms
- 3 Implement (simple) languages

# PL Concepts

- Syntax & features decisions
- Code reuse, polymorphism
- Error handling
- Type system
- Meta-programming

# PL Concepts

What kind of criteria do you use to evaluate/choose a language?

Categories of programming languages

# Exploring Languages

	Ruby	Haskell
Paradigm	Multi, Object-oriented	Functional
Typing	Dynamic	Static
Meta-programming?	Yes	With an extension

# Exploring Languages

## Ruby

- Learn Ruby
  - While keeping in mind higher-level PL concepts
- Discussion on design/etc.
- Exam

# Exploring Languages

## Haskell

- Similar to Ruby
  - But no exam
- Implement simple (subsets of) programming languages
  - Haskell experience
  - Better understanding of PL implementation

# Conclusion

# Credit

Significant credit to Cyndi Rader for slide content