

LECTURE 1

Instructors: James A. Jones
Copyright © Instructors.

Outline

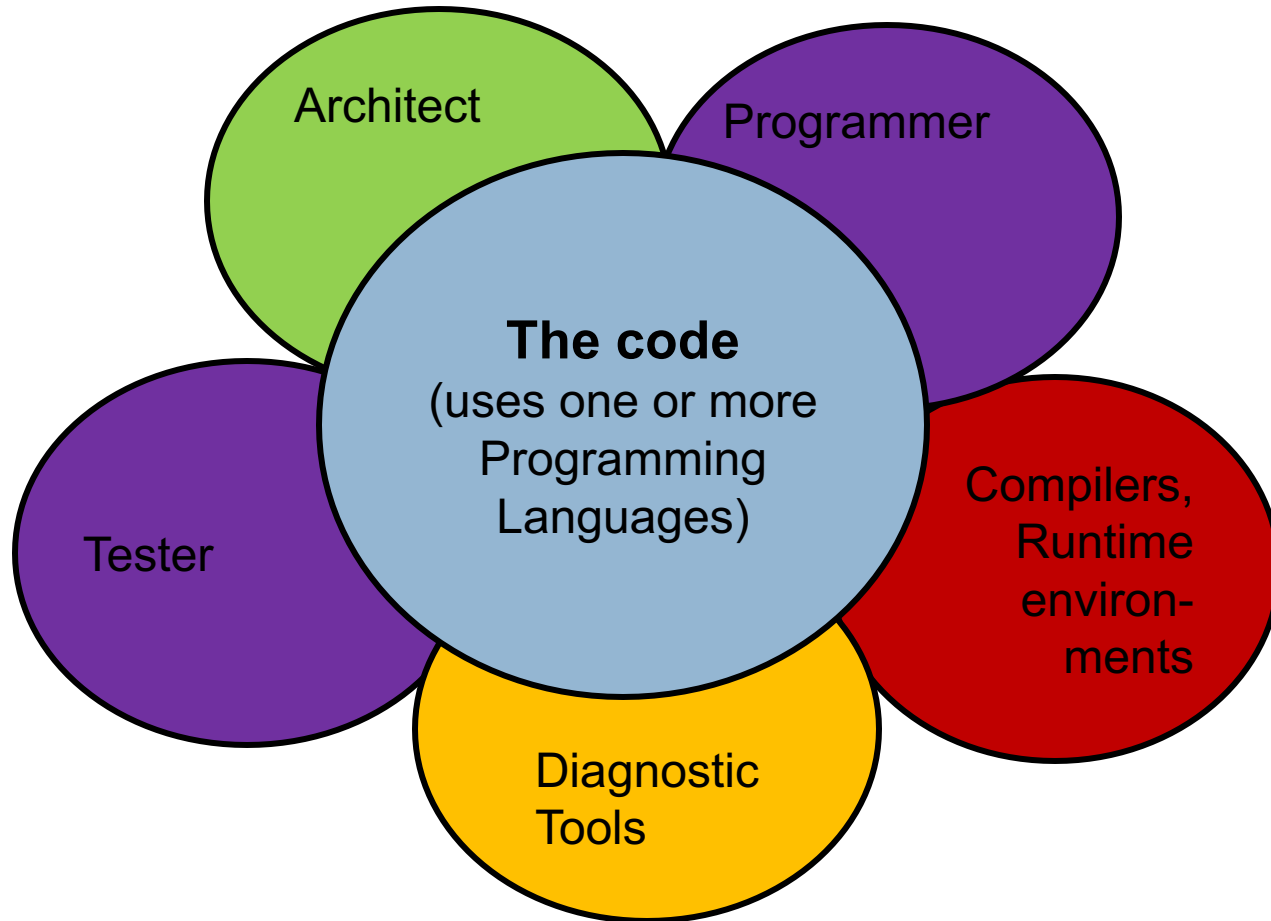
- Course objectives
- The course

Credits:

This presentation uses material from

<https://courseware.stanford.edu/pg/courses/lectures/96023>

Where the rubber hits the road



Programming Languages

- Universe of design ideas
 - ▣ Some get baked into languages, others are in libraries and idioms
- Language design concepts often pop out into systems design concepts
 - ▣ E.g. Map-Reduce, stateless – REST, ...

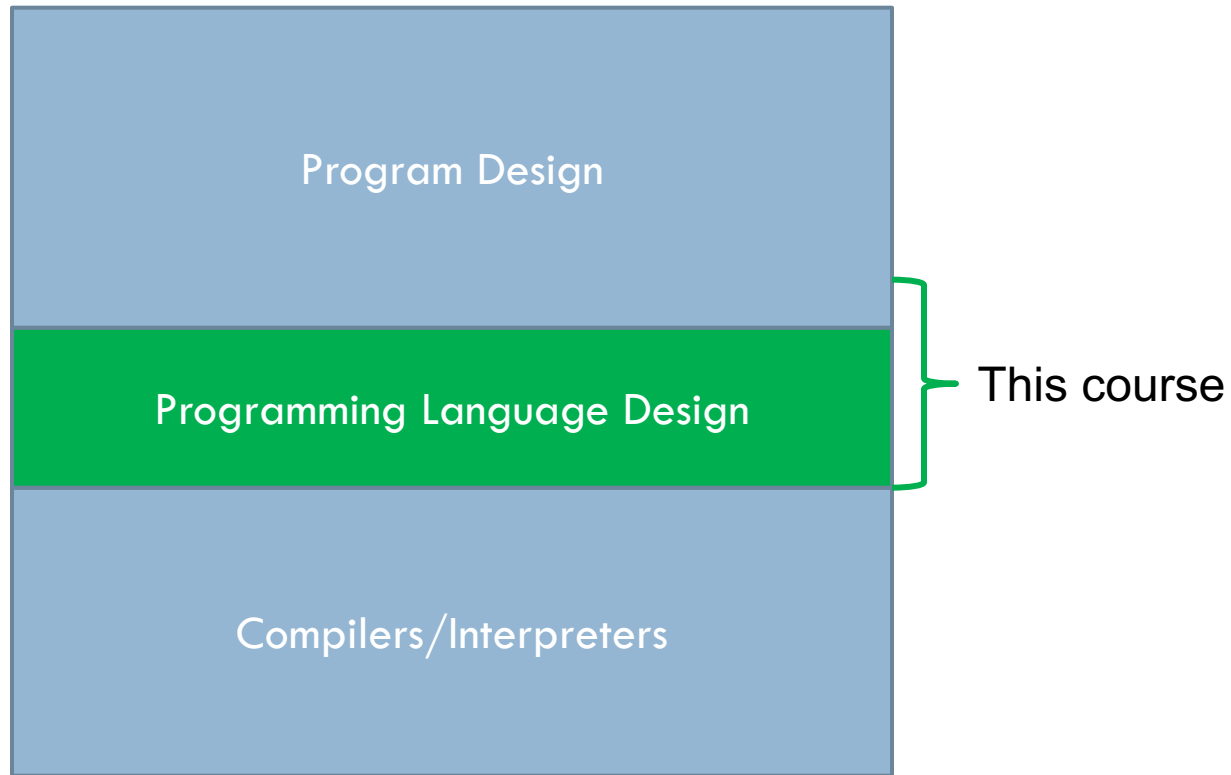
Programming Languages History

- Most concepts were invented in the 40s through 70s
 - ▣ A few in the 80s, even less in the 90s
 - ▣ Lots of detail work, combinations and optimizations
- People keep reinventing things, when the context is right
- “Know the past to understand the present”

Objectives of the course

- Understand concepts in PLs
 - 100's of PLs, all *look* different → they aren't that different
 - Appreciate history, diversity of ideas
 - Be prepared for new languages
 - See beyond hype & sales pitches
- Learn some important facts about existing language systems and techniques
- Learn and think critically about design tradeoffs

Where this course stands



We will cover how PLs influence program design and vice-versa

Not covered: implementation of PLs. Recommended:

- CS 241 Advanced Compiler Construction
- EECS 221 Program Analysis

The Course

- Historical Languages
- Basics of PLs
- Function composition
- Objects and object interactions
- Reflection and metaprogramming
- Adversity: dealing with the outside world
- Data-centric concepts
- Concurrency
- Interactivity

Assignments and Grading



See course's web page

<http://www.ics.uci.edu/~jajones/INF102-S18/>

Homework projects

- Weekly
- Will be posted as we go
- Collections of small programming exercises

Due Dates & Grading

- Weekly projects and summaries due on Saturdays
- ~~□ Peer grading!~~
 - ~~□ No submission week $N \Rightarrow$ no peer grading week $N+1$~~
 - (This may happen after we figure out how to do this)
- Penalties:
 - 1% for every hour late for first 24 hours
 - 25% from then until next Saturday
 - No credit after 1 week