

CVO103: Programming Languages

Lecture 0 — Course Overview

Hakjoo Oh
2018 Spring

Basic Information

Instructor: Hakjoo Oh

- **Position:** Assistant professor in CS, Korea University
- **Expertise:** Programming Languages
- **Office:** 616c, Science Library
- **Email:** hakjoo_oh@korea.ac.kr
- **Office Hours:** 1:00pm–3:00pm Mondays and Wednesdays (by appointment)

Course Website:

- <http://pr1.korea.ac.kr/~pronto/home/courses/cvo103/2018/>
- Course materials will be available here.

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This course is *not* about

- to learn particular programming languages



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To succeed in this course, you must

- have basic programming skills
- be familiar with at least two PLs (e.g., C, Java)
- have taken Theory of Computation, Discrete Math, etc
- be prepared to learn new things

Topics

- **Part 1 (Preliminaries):** inductive definition, basics of functional programming, recursive and higher-order programming
- **Part 2 (Basic concepts):** syntax, semantics, naming, binding, scoping, environment, interpreters, states, side-effects, store, reference, mutable variables, parameter passing
- **Part 3 (Advanced concepts):** type system, typing rules, type checking, soundness/completeness, automatic type inference, polymorphic type system, lambda calculus, program synthesis

Course Materials

- Essentials of Programming Languages (Third Edition) by Daniel P. Friedman and Mitchell Wand. MIT Press.



(Not required but recommended)

- Self-contained slides will be provided.

Grading

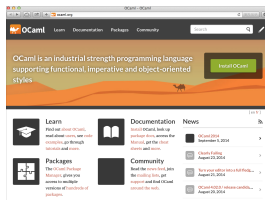
- Homework – 50%
 - ▶ 5–6 programming assignments
 - ▶ No late submissions will be accepted.
- Final exam – 45%
- Attendance – 5%

Assignment Policy / Academic Integrity

- **All assignments must be your own work.**
- Discussion with fellow students is encouraged and you can discuss how to approach the problem. However, your code must be your own.
 - ▶ Discussion must be limited to general discussion and must not involve details of how to write code.
 - ▶ You must write your code by yourself and must not look at someone else's code (including ones on the web).
 - ▶ Do not allow other students to copy your code.
 - ▶ Do not post your code on the public web.
- Cheating (violating above rules) gets you 0 for the *entire* HW score.
 - ▶ We use automatic technology for detecting clones

Programming in ML

- ML is a general-purpose programming language, reflecting the core research achievements in the field of programming languages.
 - ▶ higher-order functions
 - ▶ static typing and automatic type inference
 - ▶ parametric polymorphism
 - ▶ algebraic data types and pattern matching
 - ▶ automatic garbage collection
- ML inspired the design of modern programming languages.
 - ▶ C#, F#, Scala, Java, JavaScript, Haskell, Rust, etc
- We use OCaml, a French dialect of ML:



<http://ocaml.org>