603AA - Principles of Programming Languages [PLP-2016]

Andrea Corradini

andrea@di.unipi.it

Department of Computer Science, Pisa

Academic Year 2016/17

Master in Computer Science some general infos

- **http://www.di.unipi.it/en/education/mcs**
- Some information is in Italian only
- Courses of the first semester:
  - Principles of Programming Languages (PLP)
  - Numerical methods and optimization (Metodi numerici e ottimizzazione, MNO)
    - First lesson: Tue 9-11, Room L1
  - Advanced Algorithms (Algoritmica II, ALG2)
    - First lesson: Tue 11-13, Room N1

Language courses

- **Centro Linguistico www.cli.unipi.it/**
- **Italian courses for foreigners**
  - **ENTRY TESTS: 26, 28, 29 and 30 September 2016**
- **English courses**
  - **Iscrizione: 23 settembre 2016 ore 9:00** per il 1° semestre
- For some logistic support for non-Italian speaking students: **Veronica Tomatis** (tomatis@di.unipi.it)

Principles of Programming Languages (PLP-16) – Admins…

- **http://www.di.unipi.it/~andrea/Didattica/PLP-16/ (in construction)**

- The course is worth 9 CFU/ECTS

- Office Hours: to be fixed

PLP: Evaluation

- 2 midterms
  - Beginning of November
  - Mid December
- Written proof
- Oral exam
- Pre-evaluation:
  - Informal preliminary test: today
  - Goal: assessing the common background
  - No grade

Course Topics and Goals

- The course presents principles and techniques for the implementation and usage of programming languages.

- First part:
  - formal definition of syntax of programming languages
  - main phases of a compiler with emphasis on the lexical, syntactical and semantical analysis phases of the front-end

- Second part:
  - main topics of the structure of programming languages from the viewpoint of the runtime support of its abstract machine and of the expressiveness of the supported linguistic constructs
  - focus on programming constructs of imperative, functional, object-oriented, and scripting languages

Textbooks

- **[Scott] Programming Language Pragmatics**
  by Michael L. Scott, 3rd edition

- **[ALSU] Compilers: Principles, Techniques, and Tools**
  by Alfred V. Aho, Monica S. Lam, Ravi Sethi, and Jeffrey D. Ullman, 2nd edition

- **[GM] Programming Languages: Principles and Paradigms**
  by Maurizio Gabbrielli and Simone Martini

- **[Mitchell] Concepts in Programming Languages**
  by John C. Mitchell
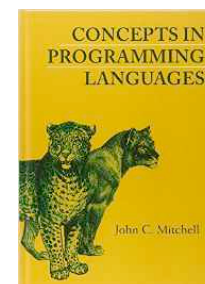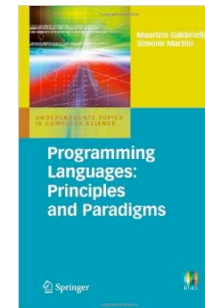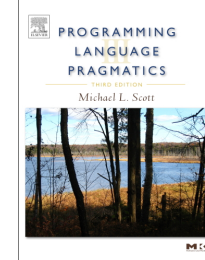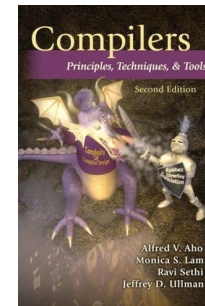
Credits

- Slides freely taken and elaborated from a number of sources:
  - Marco Bellia (DIP)
  - Gianluigi Ferrari (DIP)
  - Robert A. van Engelen (Florida State University)
  - Gholamreza Ghassem-Sani (Sharif University of Technology)