

CS 558 Programming Languages - Winter 2008 - Syllabus

Instructor:

Andrew Tolmach

120-23 FAB

(503) 725-5492

email: apt@cs.pdx.edu

Office Hours: MW 1-2pm or by appt.

Course web page: www.cs.pdx.edu/~apt/cs558

Description

A comparative study of programming languages, with emphasis on underlying issues in language implementation. Detailed study of features and concepts of both conventional imperative languages, including object-oriented languages, and less conventional paradigms, including functional and logic programming. Emphasizes “hands on” experience in using various languages, and working with implementations of simplified languages that illustrate the concepts under study.

Goals

The student who successfully completes this course should: understand the fundamental structure of programming languages; be familiar with key issues in language design and implementation; and be aware of the range of available languages and their uses.

Prerequisites

Ability to program fluently in at least two high-level languages, preferably including Java, C#, C++, or C.

Texts

The following text is required:

Kenneth C. Louden, *Programming Languages: Principles and Practice*, 2nd ed., Thomson Brooks/Cole, 2003.

We will cover most, but not all, of this book. See the class schedule for details of which chapters and sections you should read, and by when.

A few additional required readings will be made available on the web from time to time.

Also, you will probably want to have access to introductory texts on Java and Standard ML, the two languages we will be using for homework assignments. For ML, the following book is recommended for optional purchase:

Jeff Ullman, *Elements of ML Programming*, 2nd (ML97) edition, Prentice-Hall, 1998.

Alternative books on ML, and some books on Java are listed on the course home page. It is your responsibility to locate and choose these materials.

Copies of lecture slides will be available in PDF format on the class web page, normally prior to the start of each lecture (but possibly not by much!)

Assignments, Exams, Grading

Homework assignments will be distributed and collected each week (except that no homework is due the week of the midterm). Assignments will typically consist of programming problems in a variety of languages, together with a

few analysis problems that ask for brief answers in English. Assignments must be submitted *by email* (only) to the instructor.

There will be one midterm and a final exam. Exams will be open-book, open-notes.

Grading will be based 35% on homework, 30% on the midterm exam, and 35% on the final exam. Only the top seven homework scores will count towards the homework component of your grade; this allows you to miss one homework without penalty. Each of the remaining homeworks counts equally (although some will probably be harder than others).

Computing Facilities

To do the homework, you will need access to compilers or interpreters for Java (version 1.5 or later) and Standard ML ('97 version). These are all available on the CS department's Solaris and linux machines. You should already have accounts on these machines; your account can be activated by taking your PSU id to one of the CAT front desks (e.g., FAB 60-06). Java is available by default; ML is available via a "package" which you can access using the `addpkg` command. Two good implementations of Standard ML are available in the packages `sml` (Standard ML of New Jersey) and `mosml` (Moscow ML); for this class, it shouldn't matter much which of these you use.

You may also wish to install these languages on your own computer. There are many Java interpreters available. A free implementation for Windows or linux systems is available from java.sun.com/j2se; it comes pre-bundled with MacOS X. You might consider using an integrated development environment such as `eclipse`, available from www.eclipse.org/downloads. Moscow ML can be downloaded for Windows or linux from www.dina.kvl.dk/~sestoft/mosml.html. Standard ML of New Jersey (which consumes a lot more resources) is available from www.smlnj.org.

All program materials needed for doing the assignments will be made available for download from the course web page.

Staying In Touch

Keep an eye on the course web page for late-breaking announcements! Also, all students should subscribe to the course's mailing list `cs558list@cs.pdx.edu`; the subscription page for this list is accessible from the course home page. The instructor will use this list to communicate important announcements, homework hints, etc. Students may also use this list to alert the class to information of general interest (but see the next section).

Individual Work

All homework assignments and exams must represent your own, individual work. It is permissible to discuss assignments with other students, but the solutions must be recognizably your own. *Do not, under any circumstances, copy another person's code and submit it as your own.* Writing code for use by another or using another's code in any form (even with their permission) will be considered cheating. Cheating on an assignment or exam will result in an automatic zero grade for that piece of work, and the initiation of disciplinary action at the University level.

Disabilities

If you are a student with a disability in need of academic accommodations, you should register with Disability Services for Students and notify the instructor immediately to arrange for support services.