

CMSI 585

PROGRAMMING LANGUAGES (GRADUATE LEVEL)

<http://myweb.lmu.edu/dondi/fall2005/cmsi585>

Fall 2005 — Pereira 206

T 6:30 – 9:30pm, 3 semester hours

Office Hours: TR 1:30–3pm, 4:30–6pm

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Course Objectives

To master some of the fundamental concepts that underlie programming language syntax and semantics through a comparative study of several languages and their features. Understanding conceptual issues on their own, without confusing them with a particular language's implementation of them, is crucial to being able to use a language well and learn new programming languages on one's own.

Course Requirements

Programming proficiency in one but preferably two high-level languages such as C, C++, or Java; some knowledge of scripting languages such as Perl or JavaScript also helps. A previous course in Data Structures and Algorithms is required.

Materials and Texts

- Michael L. Scott, *Programming Language Pragmatics*, Morgan Kaufmann, 2000.
- Assorted handouts, articles, and sample code to be distributed throughout the semester.

Alternatively, much of the content in the above materials is available in various forms on the Worldwide Web; starter links are available on the class Web site. Do not hesitate to search for and find additional sources of information regarding the techniques, tools, and paradigms that we will discuss.

Course Work and Grading

Graded coursework consists of accumulated homework (20%), 1 midterm (20%), 1 research paper (25%), 1 paper presentation (10%), and 1 final exam (25%). Letter grades are determined as follows: $\geq 90\%$ gets an A– or better; $\geq 80\%$ gets a B– or better; $\geq 70\%$ gets a C– or better. Fractions of a percent ≥ 0.5 round up to the next integral value. The instructor may curve your grade upward based on qualitative considerations such as degree of difficulty, effort, class participation, time constraints, and overall attitude throughout the course. Grades are never curved downward.

Homework

Homework consists of questions, exercises, and programming assignments to be given throughout the semester. Homework is where you can learn from your mistakes without grading penalty: if you do the work and submit it on time, you will get full credit, regardless of correctness. What goes around comes around — the effort you put into your homework pays off in the tests and the research paper. The homework submission deadline is always the beginning of class on the designated due date. Any submissions after this deadline receive half credit. Occasionally, extra credit homework may be assigned. Fulfilling extra credit work is counted *on top of* the 20% allocation of homework to your final grade.

Research Paper and Presentation

You are asked to write and present a near-publication quality paper on either (1) a language that you design yourself, or (2) a bleeding-edge or obscure but academically significant programming language from the literature. Prior to launching full-bore into the paper, you will first need to submit a prospectus that we will refine together until we agree on the scope and subject matter of the paper. The prospectus, which counts as a homework assignment, is due at the beginning of our September 20 class, and we shall try to finalize it by October 4 at the latest. The paper and presentation are due at the beginning of our last class, December 6.

To compel you to focus on the actual work and content of the project (as opposed to busy work such as formatting and reference management), the prospectus and paper must be written using LaTeX. We will talk about LaTeX in class, and templates to get you started will be provided.

There are no hard limits on paper length or format, but 10–20 pages in LaTeX's default article format, not including the list of references cited, is typical. Your presentation should be around 10–20 minutes long, preferably 10. Your work will be evaluated along the following criteria:

1. *Content (40%)*: What is the quality of the work? Specific assessment of content will depend on the type of paper or topic chosen.
2. *Organization (30%)*: Is the paper well-structured? Are concepts and the flow of ideas easy to follow? Are distinct sections or topics clearly identified?
3. *Writing (20%)*: Are statements clear and easy to follow? Is the language precise, unambiguous, and grammatically correct?
4. *Polish (10%)*: Is the content properly proofread? Are there many misspellings, typos, or other formatting faux pas?

Tests

The midterm is initially scheduled for October 11. The final exam is scheduled for December 13. All tests are open-*paper*-everything; no sharing. Electronic lookups may also be allowed depending on the scope or subject matter. You may neither solicit nor give help while the exam is in progress. Late and/or missed tests will be handled on a case-to-case basis; in all instances, talk to me about them.

Attendance

I am not a stickler for attendance, but I do like having a full class. Remember that the late registration and change of program deadline is September 2. The deadline for withdrawal or credit/no-credit status is November 4.

University Policy on Academic Honesty

Loyola Marymount University expects high standards of honesty and integrity from all members of its community. Applied to the arena of academic performance, these standards preclude all acts of cheating on assignments or examinations, plagiarism, forgery of signatures or falsification of data, unauthorized access to University computer accounts or files, and removal, mutilation, or deliberate concealment of materials belonging to the University Library.

Course Schedule

This schedule may change based on the actual ebb and flow of the class; deadlines, exams, and university dates (italicized) are less likely to change than lecture topics.

September	Language survey; syntax, naming, binding
<i>September 2</i>	<i>Late registration and change of program deadline</i>
September 20	Paper prospectus due
October	Expressions, control flow, types
October 4	Paper topics finalized
October 11	Midterm
November	Subroutines, concurrency, miscellaneous topics (time permitting)
<i>November 4</i>	<i>University withdraw/credit/no-credit deadline</i>
<i>December 6</i>	<i>Research paper and presentations due</i>
<i>December 13</i>	<i>Final Exam, 6:30 PM</i>

You can view the class calendar on the Web at <http://ical.mac.com/dondi/LMU>. If you have an iCalendar-savvy client (i.e. Mozilla Calendar, Ximian Evolution, KOrganizer, Apple iCal, etc.), you can subscribe to the class calendar at <webcal://ical.mac.com/dondi/LMU.ics>. On-the-fly updates and adjustments to the class schedule will be reflected in this calendar.