

CMSI 585

PROGRAMMING LANGUAGES (GRADUATE LEVEL)

<http://myweb.lmu.edu/dondi/fall2006/cmsi585>

Fall 2006 — Pereira 206
T 6:30–9:30pm, 3 semester hours
Office Hours: TR 3–6pm or by appointment

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Course Objectives

To master 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*, Second Edition, Morgan Kaufmann, 2005.
- Assorted handouts, articles, and sample code to be distributed throughout the semester.

Additional information is also available on the Web; do not hesitate to look for further sources of information regarding the concepts, 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. The instructor may curve grades 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; the due date is encoded in the homework number. Submissions after the deadline receive half credit, period. Extra credit homework may be assigned; fulfilling this is counted on top of the 20% allocation of homework to your final grade.

Tests

The midterm is initially scheduled for October 10. The final exam is scheduled for December 12. All tests are open-paper-everything; no sharing. “Open computer” might also be allowed depending on the scope, subject matter, or circumstances. You may neither solicit nor give help while the exam is in progress. Late and/or missed tests are handled on a case-to-case basis; in all instances, talk to me about them.

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 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 19 class, and we shall try to finalize it by October 3 at the latest. The paper and presentation are due at the beginning of our last class, December 5.

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 text structured well? Are its ideas and flow easy to follow? Are distinct sections or topics clearly identified?
3. *Writing (20%)*: Are statements clear and easy to follow? Is the language precise and grammatically correct? Is the paper's tone appropriate?
4. *Polish (10%)*: Is the content properly proofread? Are there any misspellings, typos, or other formatting faux pas?

The paper and presentation are due on December 5. Late papers will not be accepted.

Use of CVS

Version control is an indispensable component of today's computer science landscape in industry, the academe, and the open source community. The Keck Lab provides each user with individual version control depots via CVS (Concurrent Versions System). We will make heavy use of CVS in this course: all programming assignments are to be turned in electronically via CVS, and electronic versions of your prospectus, research paper, and final presentation must be committed to CVS. Specific instructions and guidelines on CVS use will be provided. Until then, you are encouraged to read up on CVS on your own, particularly if you've never used it before.

Attendance

I am not a stickler for attendance, but I do like having a full class. Remember that the university add/drop with 100% refund deadline is September 1. The deadline for withdrawal or credit/no-credit status is November 3.

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 1</i>	<i>University add/drop deadline for full refund</i>
September 19	Paper prospectus due
October	Expressions, control flow, types
October 3	Paper topics finalized
October 10	Midterm
November	Subroutines, concurrency, miscellaneous topics (time permitting)
<i>November 3</i>	<i>University withdraw/credit/no-credit deadline</i>
<i>December 5</i>	<i>Research paper and presentations due</i>
<i>December 12</i>	<i>Final exam, 6:30pm</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.