University of Illinois at Chicago
Fall 2003
CS 476 / MCS 415 — Programming Language Design
Course Syllabus

Room: A6 LC
Time: TTh 9:30-10:45
URL: via Blackboard, under Engineering: CS - Computer Science: Fall 2003 CS476

Staff

Instructor: Barbara Di Eugenio
Office: 916 SEO   **Teaching Assistant:** Yong Mao
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Office Hours: Tue 2:00-3:30

Course Objectives

The aim of this course is to provide students with the tools necessary for the critical evaluation of existing and future programming languages. We will do so by examining the process design and features of three of the four main types of programming languages: imperative (C, Fortran, C++, Java); functional (Common Lisp, Scheme, ML); logic (Prolog). In addition, we will touch on some object-oriented programming features of C++ and Java (object-oriented programming is not a focus of this class). Students will be exposed to two programming paradigms that are usually not taught in other classes: functional (mainly via Common Lisp) and logic (via Prolog).

Textbooks

Required: Robert W. Sebesta. Concepts of Programming Languages (6th edition). Addison Wesley, 2003.
Note. The 6th edition of Sebesta's book is different enough from the 5th that I recommend using the 6th edition.
Recommended book on Lisp: Paul Graham. ANSI Common Lisp. Prentice Hall, 1996.

I will also distribute / refer you to other papers as necessary.

Many references for learning Common Lisp are listed at http://www.elwoodcorp.com/alu/table/learn.htm. Among the listed on-line tutorials, *Lisp Primer* by Collin Allen and Maneesh Dhagat is the best (http://grimpeur.tamu.edu/~colin/lp/).

An on-line tutorial on Prolog can be found at http://computing.unn.ac.uk/staff/cgpb4/prologbook/

Prerequisites

CS 340 (for CS students), MCS 360 (for MCS students)

Notes

- I use email and the web page message board a lot to communicate with the whole class. Please check your email frequently, especially around deadlines (homeworks and exams). You should use the web page message board to post any questions of general interest, such as clarification on the homework etc. I won't answer general questions by email but on the board.

- The web page will contain all materials relevant to the class, syllabus, assignments, additional papers, etc. Some materials used for transparencies will be made available there as well. You can also see you own grades.

Tentative Schedule

Dates	Topic	Readings
Week 1	Introduction	Ch. 1-2
Week 2	Syntax, Semantics	Ch. 3
Week 3	Names, Scope	Ch. 5
Week 4-6	Functional Programming: Common Lisp	Ch. 15, Lisp Primer
Week 7	Functional Programming: other languages	Ch. 15
Week 8	Data Types, Expressions	Ch. 6-7
Week 9	Control Structures	Ch. 8
Week 10	Subprograms	Ch. 9-10
Week 11-12	Logic programming: Prolog	Ch.16, Prolog materials
Week 13-14	Concurrency, Exception Handling	Ch. 13-14
(11/27)	**Thanksgiving, no class**	
Week 15	Review, etc ...	

Important Dates

Note: homework deadlines are tentative. Unless otherwise specified, homeworks must be electronically submitted by midnight (i.e., 11:59pm) on the day they are due.

Date	Event
9/25	Homework 1 due
10/2 (Th)	**Midterm 1**
10/16	Homework 2 due
11/4 (Tu)	**Midterm 2**
11/11	Homework 3 due
12/4	Homework 4 due
Finals week (12/8-12)	**Final**

Grading Criteria

- **5 Quizzes** (6% total): Each quiz will be worth 1.5% of the grade (the lowest score will be eliminated). Quizzes are announced in class the lecture prior to the lecture in which they are given. They are **not** announced by email or on the web site.

- **4 Homework Assignments** (32% total): Each homework will be worth between 6% and 10% of the grade. One homework may be substituted by a small class project – this will be determined later.

- **3 Exams (62% total):** 2 midterms (worth 18% and 20% respectively), 1 final (24%).

Important Note: To pass the class you must get at least 60% of the total available points for the three exams.

Letter grades will be decided **only at the end**. However, the following guidelines will be adhered to:

Overall Score (undergraduate)	Overall Score (graduate)	Letter grade
88%	92%	A
78%	82%	B
68%	72%	C

Policies on homeworks and exams

General Policies

1. Late homeworks will not be accepted in any case, unless there is a **documented** personal emergency. Arrangements must be made with the instructor as soon as possible after the emergency arises, preferably before the homework due date.
   Advice: If for whatever reason you don't manage to finish an assignment, hand in what you have. Partial credit may be given at the grader's discretion.

2. Statute of Limitations: **Two weeks!** No grading questions or complaints — **no matter how justified** — will be listened to two weeks after the item in question has been returned.

Homeworks

There will be 4 homeworks. Homeworks will be a mixture of pen and pencil and programming assignments. Homeworks will have to be handed in either via the facility available under the web page, or by means of the **turnin** command under UNIX. More details will be available later.

Exams

1. The two midterms will be given during class time; consequently, **no make-ups** will be given.

2. Exams will be closed-book.

3. The final is cumulative, with more emphasis on the last part of the class.

Policy on Academic Integrity

Academic dishonesty will not be tolerated. Please see the CS department policy below on the topic; this policy specifies penalties for violations.

What is academic dishonesty? To hand in any work which is not 100% the student's creation, unless you are explicitly allowed to do so. Thus:

1. **Exams.** All work on all exams must be individually performed.

2. **Homeworks:** no student may give any other student any portion of their solutions or code, through any means. Students are not allowed to help each other debug the code, or to show each other any portions of code or homework.

Important Note: every semester somebody is caught red-handed and as a consequence fails the class. Isn't it better to get a B or a C than an E?

CS department policy on academic dishonesty

The CS Department will not tolerate cheating by its students. The MINIMUM penalty for any student found cheating will be to receive an E for the course and to have the event recorded in a department and/or College record. The maximum penalty will be expulsion from the University.

We intend to devote more effort than in the past to detecting and punishing cheating. Cheating includes all the following, though this is not a complete list:

- Copying or any other form of getting or giving assistance from another student during any test, quiz, exam, midterm, etc.

- Plagiarism–turning in writing that is copied from some other source.

- Obtaining solutions to homework by posting to the Internet for assistance, purchasing assistance, obtaining copies of solutions manuals for instructors, and obtaining copies of previous year's homework solutions.

- Computer programs: Any time you look at another student's code, it is cheating. (Exception: If you are EXPLICITLY told that you may do so by the instructor, for instance, in working on a large group project in the 400-level software engineering course.)

For computer programs, if for some reason we cannot determine who copied from whom, we may, at our discretion, give failing grades to both students.

It is the responsibility of all engineering and computer science professionals to safeguard their company's "trade secrets." An employee who allows trade secrets to be obtained by competitors will almost certainly be fired. So, YOU are responsible for making sure that your Unix directories have permissions set so that only you can read your files, for being sure to log out at the end of working in the computer lab, etc.