CSC 358/458
Symbolic Programming
Spring 2003
Sections 358-902, 458-302, 458-303
Tu 5:45 – 9:00 pm, Lewis 1001

Professor: Robin Burke
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Office: CS&T 453
Office hours: Tuesdays 12 noon – 3:00 pm and by appointment
Prerequisite: CSC 212 or CSC 224

Description
This course introduces the basic concepts of symbolic programming as embodied in the language LISP. We will begin with the basic data and control structures of LISP: symbolic expressions, the interpreter, functions, recursion, iteration, and move to advanced data and control structures. We will cover the use of macros for making language extensions and how symbolic programming leads to new techniques of procedural and data abstraction.

Readings

Tools
Allegro Common Lisp 6.1. A free 60-day trial version (with extensions) is available from Franz, Inc.1 The software is also available at CTI labs (on the 6th, 7th and 8th floors of the CS&T building) and via remote desktop on the CTI Terminal Server.

Note
The schedule and other information in the syllabus is subject to change. Consult the Course On-Line website (can be found at http://dlweb.cti.depaul.edu/) for the most up-to-date information.

Resources
In addition to the resources on the DLWeb site, additional information such as lecture notes and assignments can be found at http://josquin.cti.depaul.edu/~rburke/courses/s03/cs358/.
We will make extensive use of the “Class Forum” feature of DLWeb. General questions about course material should be posted to the “General” forum and homework-specific questions should be directed to the “Homework” forum. Do not, however, posted lengthy code excerpts from your homework. If you have a question that requires examination of your full program, please email your code to me (usually it is best to send all of the source files in a zip archive).

Assessment
For undergraduates taking CSC 358, student progress will be assessed through a combination of regular programming assignments, a midterm and a comprehensive final exam. The weights of these components are as follows:

Assignments: 70%
Midterm: 10%

1 http://www.franz.com/downloads/
Final Exam: 20%

Grading will be based on a curve, taking into consideration the performance of the whole class. However, students receiving more than 90% of possible points are guaranteed at least an A-, more than 80% at least a B-, more than 70% at least a C-, and more than 60% at least a D.

Graduate students in CSC 458 will have the same assignments, but in addition, will be required to complete a programming project, selected in consultation with the instructor. For graduate students, the components of the grade will be weighted as follows:

Assignments: 50%
Project: 20%
Midterm: 10%
Final Exam: 20%

**Tentative Schedule**

4/1: Introduction to Lisp

4/8: Lists and Trees
Lists and list manipulation. Implementation of tree data structures. Using lists to represent symbolic information.
Reading: Reading: Slade, Ch. 1, 2 (except 2.10) & 3 (except 3.13)

4/15: Functions and Recursion
Reading: Slade, Ch. 4, 5 (except 5.6), 8 (except 8.6)

4/22: Strings and I/O
Lisp I/O. The Reader. Strings and string manipulation.
Reading: Slade, Ch. 6 (except 6.7), 7 (except 7.8)

4/29: Control
Looping. Iteration vs recursion. Conditionals.
Reading: Slade, Ch. 9

5/6: Midterm

5/13: Application: Symbolic Pattern Matching
Pattern matching. Rule-based systems, deductive retrieval and applications.
Reading: TBA

5/20: Macros
Control of evaluation. Writing macros. Standard techniques for language extension.
Reading: Slade, Ch. 11 (except 11.9)

5/27: Application: Search
Representing problems as search spaces. Search techniques for planning and game playing.
Reading: TBA
6/3: Structures and Objects
Reading: Slade, Ch.12 (except 12.5), 13

6/10: Final exam (5:45 – 8:00 pm)

Policies
Students are expected to attend all classes and participate in in-class exercises. Class will start promptly at 5:45 pm. Students are individually responsible for material they may have missed due to absence or tardiness.

Exams can only be made up with a serious documented excuse (e.g. illness, death in the family). A make-up quiz or test must be arranged as soon as possible and always before the student attends the next class meeting. Arrangements involving other excuses require prior permission from the instructor.

Assignments will be submitted online at the Course On-Line site\(^2\). Do not submit assignments by email. **All assignments should be completed and submitted by class time on the due date.** No late assignments will be accepted. Make time in your schedule for learning a new programming language.

Assignments must represent a student's individual effort. While students are permitted to discuss assignments at the conceptual level and help each other point out compiler errors, under no circumstances should students share code (electronically or otherwise). Using any code in an assignment that does not acknowledge its author is plagiarism.

School Policies

Online Instructor Evaluation
Course and instructor evaluations are critical for maintaining and improving course quality. To make evaluations as meaningful as possible, we need 100% student participation. Therefore, participation in the School’s web-based academic administration initiative during the eighth and ninth week of this course is a requirement of this course. Failure to participate in this process will result in a grade of incomplete for the course. This incomplete will be automatically removed within seven weeks after the end of the course and replaced by the grade you would have received if you had fulfilled this requirement.

Email
Email is the primary means of communication between faculty and students enrolled in this course outside of class time. Students should be sure their email listed under "demographic information" at http://campusconnect.depaul.edu/ is correct.

Plagiarism:
The university and school policy on plagiarism can be summarized as follows: Students in this course, as well as all other courses in which independent research or writing play a vital part in the course requirements, should be aware of the strong sanctions that can be imposed against someone guilty of plagiarism. If proven, a charge of plagiarism could result in an automatic F in the course and possible expulsion. The strongest of sanctions will be imposed on anyone who submits as his/her own work a report, examination paper, computer file, lab report, or other assignment which has been prepared by someone else. If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials be sure to consult the instructor.

\(^2\) http://dlweb.cti.depaul.edu/
Incomplete:
An incomplete grade is given only for an exceptional reason such as a death in the family, a serious illness, etc. Any such reason must be documented. Any incomplete request must be made at least two weeks before the final, and approved by the Dean of the School of Computer Science, Telecommunications and Information Systems. Any consequences resulting from a poor grade for the course will not be considered as valid reasons for such a request.

Project Schedule (CSC 458 only)
Students in CSC 458 will be required to complete an individual LISP programming project in addition to the other course work.

4/23 Proposal
Deadline to submit a proposal for the course project. Email the instructor in advance of this date if you need ideas or want to see if your idea is satisfactory.

5/7 Accepted proposal
Each student should have a project proposal accepted by the instructor by this date.

5/21 Progress Report
Submit a two-page document detailing the current state of the project and remaining milestones.