CS2322 Course Outline
Principles of Functional Languages

November 8, 2011

Instructor: John E. Howland
Texts: J Primer, J Dictionary and J Phrases (provided in HTML, Postscript and PDF formats on the course web site).

1 Course Objectives

- Learn the functional programming paradigm
- Learn about array based programming
- Learn functional language expressions of data and procedural abstraction
- Learn practical applications of functional programming
- Provide functional language expressions of some of the core topic areas of computer science including data structures, computer arithmetic, computer organization and programming languages

2 Examinations

There will be three hour exams and a final exam or project on Tuesday, December 13, 2011 at 12:00 p.m. in HAS 340.

- Exam I, September 15, 2011
- Exam II, October 13, 2011
- Exam III, November 17, 2011

3 Laboratory Problems

Several laboratory problems will be assigned. These problems are to be done on an individual basis following the Trinity University Academic Integrity Policy or Honor Code.

4 Academic Integrity and Honor Code

All students are covered by a policy that prohibits dishonesty in academic work. The Academic Integrity Policy (AIP) covers all students who entered Trinity before the Fall of 2004. The Academic Honor Code covers all those who entered the Fall of 2004 or later.

The Integrity Policy and the Code share many features: each asserts that the academic community is based on honesty and trust; each contains the same violations; each provides for a procedure to determine

if a violation has occurred and what the punishment will be; each provides for an appeal process. The main difference is that the faculty implements the AIP while the Honor Code is implemented by the Academic Honor Council. Under the Academic Integrity Policy, the faculty member determines whether a violation has occurred as well as the punishment for the violation (if any) within certain guidelines. Under the Honor Code, a faculty member will (or a student may) report an alleged violation to the Academic Honor Council. It is the task of the Council to investigate, adjudicate, and assign a punishment within certain guidelines if a violation has been verified.

Students who are under the Honor Code are required to pledge all written work that is submitted for a grade: On my honor, I have neither given nor received any unauthorized assistance on this work and their signature. The pledge may be abbreviated pledged with a signature.

Laboratory problems should be submitted electronically (e-mail to cs2322@leda.cs.trinity.edu) on or before the due date and should contain a problem write-up, source code to any programs and data sets used in solving the problem. The submitted files should be ASCII text files having Unix end-of-line characters (please convert all Windows and Mac text files to Unix format–I have found that Emacs seems to do a reasonable job of such conversions). If several files need to be submitted, put them in a directory having name *your-last-name-problem-set-number* and create a tar archive of this file system and attach it to your e-mail problem submission.

5 Grading

Read biology professor Blystone's thoughts http://www.cs.trinity.edu/~jhowland/blystone-Grades.pdf on grades.

Final semester grades will be determined approximately as:

- Hour exams 35%
- Final exam/project 25%
- Laboratory Problems 30%
- Class discussion/participation 10%

Class discussion and participation is a subjective measure of evaluation. It is the responsibility of the student to participate in course activities. This may include in-class discussion when appropriate or discussion on the class discussion list csci2322@Mail.CS.Trinity.Edu .

6 Topics

- nouns, pronouns
- verbs, proverbs
- noun rank, verb rank
- adverbs
- conjunctions
- word formation
- composition
- hooks, forks and trains
- gerunds
- tacit definition

- explicit definition
- punctuation and word formation
- identity functions
- power
- inverse and obverse functions
- limits
- locales