Course Description

Basic concepts of programming languages and principles of translation. Topics include history of programming languages, various programming paradigms, language design issues and criteria, design of compilers for modern programming languages.

Prerequisite

CPSC-301 or EPP. Please note that the CS department takes it very seriously. If it is not met, you may be dropped by the department. If you have any concerns about the prerequisites, please contact the department immediately.

Instructor

Professor Nathan Reed

Email: nreed@fullerton.edu

Office: IRVC-236

Office Hours: Wednesday 16:00-18:00 & by appointment. During final exam week, office hours are by appointment only.

Introduction

This course is an introduction to the principles of Programming languages and compiler design. The course will cover some of the theoretical foundations underpinning Programming Languages, compiler design including the study of regular languages, FSM, context-free languages, and different grammars. Furthermore, the course will cover the actual construction of the parts of a compiler and discuss more advanced features such as optimization.

Meeting Information

Meeting Room: IRVC-217

Meeting times: Tuesday and Thursday 16:00 – 17:15

General

This course will explore aspects related to the development of compilers. This will delve into the theories of finite automata as it relates to lexical analysis, explore structural analysis of grammars, look at intermediate code generation, look at the importance of symbol tables, look at object code generation in light of external object sources, and consider optimization techniques.

Topic Book Readings

Introduction Ch 1

Lexical Analysis Ch 2

Syntax Analysis Ch 3

Bottom-up Parsing Ch 4

Intermediate Code Generation Ch 5

Symbol Table Ch 8

Object Code Generation Ch 7

Lex, Yacc Appendix B

Optimization Ch 6

Other Topics

Textbook and References

Required Textbook: *Introduction to Compiler Construction, Thomas Parsons, W.H. Freeman and Co. 1993*

Recommended Textbook: *Concepts of Program Languages, Robert W. Sebesta, 10 ed. Addison Wesley, 2012*

G.E. Requirements

This class does not meet any General Ed requirements.

Assignment Details

There will be at least 4 assignments due and many will involve programming tasks. There will also be a group programming project due by the end of the semester – more details to follow. This will be to bridge the gap between theoretical constructs and practical application of the theory.

Late Assignments

Late assignments will accepted, however there will be deductions. The first day you are late, there will be a 20% deduction, with a 1% deduction each additional day you are late. For example, if you are late 1 week, the total deduction will be 20% (first day) plus 6% (6 additional days) equaling a 26% deduction. Thus, you can receive 7.4 points for an assignment valued at 10 points.

Titanium

This class will utilize Titanium for dissemination of class materials, the syllabus, calendar information, and homework assignments. Please utilize it for notifications and correspondence that might be late breaking.

Schedule Notes

Monday, September 2nd – Labor day

No Class meetings during the week of September 16th through September 20th (out on business)

* Extra assignment to do

Monday, November 11th – Veterans day

Monday, November 25th to Friday, November 29th – No class, Break

Saturday, December 14th – Final exam week starts

Midterm 1 – Thursday September 25th

Midterm 2 – Thursday November 7th

Team project demonstrations – December 5th, 10th, and 12th.

Final Exam - Tuesday, December 17th, 17:00 pm to 18:50 pm

Grading

|  |  |
| --- | --- |
| Attendance | 5% |
| Homework | 10% |
| Project | 25% |
| Midterm Examinations | 30% (15% each) |
| Final Examination | 30% |
| Total | 100% |

I do give plus or minus grades. I will give the grade dictated by the following scale:

|  |  |
| --- | --- |
| Percent | Grade |
| 90% and above | A -/+ |
| 80% - 89% | B -/+ |
| 70% - 79% | C -/+ |
| 60% - 69% | D -/+ |
| 0% - 59% | F -/+ |

Note about scores in Titanium: The scores you see for assignments, exams, and attendance are raw scores. You cannot add up the scores received and divide by the total score possible. I “weight” the scores based upon the percentages within each category. I invariably have students that email me after the class is finished saying that the score attained divided by the total score indicates that the grade should be such and such. I’ll refer back to this note. Titanium is not completely intuitive during set up, so I will use Excel to calculate final grades using the score weighting methodology.

Exams

There will be 2 midterms and the final exam. There will be no make-ups for a missed exam. However, if there is a compelling (and verifiable) reason for missing a mid-term exam, then the final exam will be weighted more heavily to compensate. Only one mid-term can be missed for any reason.

All examinations are closed book and closed notes. All answers must be written in blue books, which you must bring to each examination.

The final examination is comprehensive; it covers all of the course material, including topics already covered by midterm examinations.

Classroom Environment

You have the right to expect a classroom environment that is conducive to learning, one that is free from distractions and one where everyone is treated respectfully. You have the responsibility to contribute to that environment, by not using your cell phones, pagers, smart phones, and other similar devices and by not having conversations with your neighbors. I encourage free and open discussion, but disruptive activities are not appropriate.

Recording & Transcription of Class Content

Recording class content is governed by UPS 330.230, «​ http://www.fullerton.edu/senate/documents/PDF/300/UPS330-230.pdf​ ». Each instructor must permit class content to be recorded or transcribed by students when mandated to do so by the Americans with Disabilities Act or by other federal or state laws. Any recording of class content is for private use and study and shall not be made publicly accessible without the written consent of the instructor and students in the class.

Instructional Continuity

Due to an event such as an epidemic or a natural disaster that disrupts normal campus operations, students must monitor the course Titanium site and their campus email address for any instructions and assignments that the instructor announces.

Academic Dishonesty

Students are encouraged to assist one another and discuss the course materials with your peers. It is your responsibility to be aware of and follow the spirit of CSU Fullerton's academic honesty policy which can be found at:

[http:/ /www.fullerton.edu/sena.tefPDF/300/UPS300-021.pdf.](http://www.fullerton.edu/sena.tefPDF/300/UPS300-021.pdf)

By submitting work for evaluation, you acknowledge that you have adhered to the spirit of the university's academic honesty policy and that your submission is an original work by you unless otherwise directed to work in groups. Failure to follow the spirit of the academic honesty policy will result in a severely negative evaluation of the work in question and may result in involving the Department Chair and the Judicial Affairs office to seek a disciplinary remedy.

ADA Accommodations

Any student who, because of disability, may require special arrangements in order to meet course requirements must contact the instructor and the Office of Disabled Student Services as soon as possible to make the necessary arrangements. The instructor may request verification of need from the Dean of Students Office. Students are encouraged to contact the Office of Disabled Student Services within the first week of the semester to best ensure that the appropriate accommodations are implemented in a timely fashion. The Office of Disabled Student Services website is:

http://www.fullerton.edu/disabledservices.

They can be reached by phone at 657-278-3117 or TDD at 657-278-2786.

# Emergency Procedures

For your own safety and the safety of others, each student is expected to read and understand the guidelines published at «<http://prepare.fullerton.edu/campuspreparedness/>». Should an emergency occur, follow the instructions given to you by faculty, staff, and public safety officials. An emergency information recording is available by calling the Campus Operation and Emergency Closure line at 657-278-4444.

Administrative Drops

According to department policy, any student who misses the first class meeting, and does not call the Department office to hold their seat, may be dropped from the class. As demand for this class is high, I will enforce this policy. I will call roll in the first class. Any student who is absent, and does not subsequently call the Department office, may be dropped administratively.

Attendance

Attending the lectures is mandatory. You’ll be responsible for missed work if you are absent. Please arrange with a friend to pick up any assignments or handouts.

Make Up Policy

Exams and quizzes cannot be taken after they have been given in class. Due to an act of nature, personal medical emergency, a family crisis, an act of terrorism, severe civil unrest, etc. students have 10 calendar days to petition the instructor to retake any exam/quiz or submit an assignment without late penalty. Exceptions will be made on a case by case basis, provided there is time to evaluate the merits of such an application.

Contacting Me

My office is IRVC-236 and my email address is [nreed@fullerton.edu](mailto:nreed@fullerton.edu).

If you send me e-mail, use a signature block like this one:

Name (as it appears on the class role)

StudentID

CPSC-323

There are over 40 students in this class; it’s hard to handle e-mail messages unless they’re clearly identified. I may reject your message, and its attached assignment, with the reply “Identify yourself with the required signature: name, studentID, and course ID” if you don’t sign it properly.

I will attempt to regularly check e-mail, but don’t expect an instant reply from me.

Other

Scheduled office hours are Wednesdays from 4:00 pm to 6:00 pm. Other times can be arranged by appointment.