
SYLLABUS, SPRING 2012

COP5555 PROGRAMMING LANGUAGE PRINCIPLES

CATALOG DESCRIPTION

History of programming languages, formal models for specifying languages, design goals, run-time structures, and implementation techniques, along with a survey of principal programming language paradigms. (3)

PRE-REQUISITES AND CO-REQUISITES

COP 3530 Data Structures and Algorithms (or equivalent undergraduate course).

COURSE OBJECTIVES

Students will gain both a conceptual understanding of specification and design issues in programming languages and their implementation, and hands-on experience implementing a compiler for a small programming language.

INSTRUCTOR

Dr. Beverly A. Sanders
Office location: CSE 358
Telephone: (352) 505 1563
E-mail address: sanders@cise.ufl.edu
Web site: www.cise.ufl.edu/~sanders
Office Hours: M4 (10:40-11:30am) or by appointment

TEACHING ASSISTANT

TBA

MEETING TIMES

T9 (4:05-4:55pm), R8,9 (3:00-3:50pm, 4:05-4:55pm)

CLASS/LABORATORY SCHEDULE

Three 50-minute class sessions per week, one on T, and two on R.

MEETING LOCATION

CSE E122

TEXTBOOKS AND SOFTWARE REQUIRED

TEXTBOOKS

Title: Programming Language Pragmatics

Author: Michael L. Scott

Publication date and edition: 2009, third edition (including CD supplement)

ISBN 13: 978-0-12-374514-9

Title: Syntax and Semantics of Programming Languages

Author: Ken Slonneger and Barry Kurtz

Publication date: 1995

This book is available at <http://www.cs.uiowa.edu/~slonnegr/plf/Book>

Chapters 1,3,5,8, and 11

SOFTWARE

Java J2 SE 6 (available from <http://www.java.com>)

SML (available from <http://www.smlnj.org>)

ASM (an open source java bytecode manipulation framework available from <http://asm.objectweb.org>)

RECOMMENDED READING

Additional on-line reading material TBA

COURSE OUTLINE (GIVEN TOPICALLY RATHER THAN CHRONOLOGICALLY)

- Specification of programming languages
 - Syntax
 - Semantics
 - Operational Semantics
 - Denotational Semantics
 - Axiomatic Semantics
 - Attribute Grammars
- Issues in language design
 - Names, scope, and binding
 - Types
 - Control Flow
 - Subroutines and Control Abstraction
- Programming language paradigms
 - Data abstraction and object-oriented programming (examples: Java, Smalltalk, C++)
 - Non-imperative paradigms
 - Functional languages (examples: Scheme, ML, Haskell)
 - Logic programming (example: Prolog)
 - Scripting Languages (examples: csh, Python, Ruby, Perl, tcl, etc.)
 - Concurrent Programming (examples: Java, SR, OpenMP)

GRADING – METHODS OF EVALUATION

Exams 60%

Midterm 20%

Final exam 40% (Approximately $\frac{1}{2}$ cumulative, $\frac{1}{2}$ material not yet tested)

Project 30%

Assigned in seven parts. The two lowest scores, excluding project seven will be dropped. The score for project 7 will count double. Each part builds on the previous assignments.

Homework 10%

EXAM SCHEDULE

Midterm

On campus students: Thursday, Feb 23

EDGE students: Must be returned by 5pm, Monday, Feb 27

Final Exam

On campus students: Wed May 2 10am-12pm

EDGE students: Must be returned by 5pm, Friday May 4.

HOMEWORK AND PROJECT DESCRIPTION

The project is the implementation, in Java, of a compiler for a small programming language and will be assigned in parts, approximately every two weeks. The last part of the project is a second, corrected, submission of the complete compiler.

The homework assignments are pencil and paper exercises and/or small self-contained programming assignments unrelated to the compiler project illustrating various programming paradigms that will be assigned concurrently with the project.

No extensions to deadlines will be granted. Late projects and homework will be accepted up to two days late with a penalty of 20% of the maximum grade for each 12 hours it is late. The time of submission will be determined by the submission timestamp and deadlines will be strictly enforced. No late submissions will be accepted for project 7.

EDGE students: Unless otherwise specified, project and homework deadlines for EDGE students are 1 week after the deadline for in-class students. Make sure to pay attention to the exam dates, especially the final, and do not let this extension prevent you from having sufficient time to prepare for the exams.

GRADING SCALE

Grades will be curved

MAKE-UP EXAM POLICY

No makeup exams will be given. Exams will be excused (i.e. the final grade will be computed without that score) for *documented* illness and emergencies only. The final exam will be given to *all* on-campus students on the date scheduled by the registrar.

HONESTY POLICY

All work submitted in this course must be your own and produced exclusively for this course. The use of sources (ideas, quotations, paraphrases, code) must be properly acknowledged and documented. For the copy of the UF Honor Code and consequences of academic dishonesty, please refer to <http://www.dso.ufl.edu/sccr/honorcodes/honorcode.php>. Violations will be taken seriously and are noted on student disciplinary records. Additionally, the following specific requirements will be expected in this class: You may not sharing any part of your project with another student,, or use any part of another students project in yours, even if that part of the project has already been graded. If you are in doubt regarding the requirements, please consult with the instructor before you complete any requirement of the course.

ACCOMMODATION FOR STUDENTS WITH DISABILITIES

Students requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

UF COUNSELING SERVICES

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- University Counseling Center, 301 Peabody Hall, 392-1575, Personal and Career Counseling.
- SHCC mental Health, Student Health Care Center, 392-1171, Personal and Counseling.
- Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling.
- Career Resource Center , Reitz Union, 392-1601, career development assistance and counseling.

SOFTWARE USE

All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.