

Instructor

Stan Warford

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Office hours

Monday, 11:00 – 11:50

Thursday 1:00 – 1:50

And by appointment

Tuesday, 9:00 – 9:50

Friday, 11:00 – 11:50

Course Web page

The course Web page will be used to post the assignments and late-breaking announcements. You are responsible for checking it regularly.

<https://www.csllab.pepperdine.edu/warford/cosc330/>

Objective

The primary objective of this course is for you to obtain a working knowledge of the lower levels of abstraction of a computer system. In Programming Principles II, you learned the C++ programming language. C++ is at Level 6, the high-order languages level. In this course you will learn Level 5, the assembly level, and Level 3, the instruction set architecture level, as well as Java at Level 6.

Each level of abstraction in a computer system has a language, so learning the lower levels of abstraction is equivalent to learning new languages. The language at Level 5 is assembly language and the language at Level 3 is machine language. Your knowledge will be a working knowledge because you will learn how to program in these languages. Most programming in the industry today is at Level 6 and not at these lower levels. So, why learn these lower level languages? Because an in-depth understanding of how computers work is possible only by considering the design of the levels of abstraction and the relationships between the levels.

One secondary objective of this course is to continue to develop your programming skill at Level 6. Later in the course you will be required to write a large programming project in Java using the object-oriented techniques from the Programming Principles II course. The project is a language translation program known as an assembler.

Another secondary objective is to learn the theory of languages – syntax and semantics. Syntax theory applies to both natural and artificial languages, and will be the basis of your language translation program.

Required text

J. Stanley Warford, *Computer Systems*, Fifth edition, Jones and Bartlett Publishers, 2017.

Text rebate

As the author of our text, if you purchase it new I will personally refund on your request 15% of the retail price you paid.

Final grade

33% Homework

30% Test 1

37% Final - cumulative

Learning outcomes

The program learning outcomes (PLO) for the computer science/mathematics major are the ability to:

1. Implement algorithms
2. Prove computational theorems
3. Analyze computational systems
4. Communicate technical results

The course student learning outcomes (SLO) for CoSc 330, Computer Systems are the ability to:

Translate a program in an high-order language to assembly language. (PLO 3)

Convert data between high-level representation and binary. (PLO 3)

Analyze an artificial language specified by a regular expression, finite state machine, or grammar. (PLO 3)

Implement a translator from assembly language to machine language. (PLO 1)

Class schedule

The course web page has the schedule for the homework assignments, which are due twice weekly. The exam schedule is as follows:

Test 1, Thursday, February 13

Test 2, Cancelled

Final, Wednesday, April 29, 1:30 p.m. – 4:00 p.m.

Late homework policy

Written assignments on paper are due in class on the due date. If you need more time after class, you may hand the assignment in to my office by 5:00 on the due date. Written assignments that are specified to be PDF files are due electronically on Sakai Courses at midnight on the due date. Programming assignments are due electronically on Sakai Courses at midnight on the due date. Half credit for homework one assignment late. No credit thereafter. See the course web page for programming homework policy. Note that your total homework score is equivalent to more than one test.

Revision: No late homework penalties before March 26.

Course evaluations

Course evaluations are required online near the end of the semester and count as a homework assignment. After you complete the evaluation, save your proof of completion for this course as a PDF screenshot document and email it to me.

Attendance policy

Attendance is important and may affect your final grade. You are responsible for making sure that your attendance has been recorded. Please provide written documentation for excused absences. There will be no makeup exams. If you miss an exam due to illness or an unexpected major emergency, the final exam score will be substituted for your missed exam score. Doctor's note required for all missed exams.

Disability notice

Any student with a documented disability (physical, learning, or psychological) needing academic accommodations should contact the Office of Student Accessibility (SAC 105, x6500) as early in the semester as possible. All discussions will remain confidential. Please visit <https://www.pepperdine.edu/student-accessibility/> for additional information.

Academic integrity

See <http://seaver.pepperdine.edu/academicintegrity/> for the academic integrity standards at Seaver College.

Mission support

See <https://www.pepperdine.edu/about/our-story/mission-vision/> for the mission statement of the university and <https://seaver.pepperdine.edu/about/our-story/seaver-mission/> for the mission statement of Seaver College. This course supports these mission statements by investigating the truth of its discipline and by preparing students for lives of service to others in the field of computer science.