

Cal Poly Pomona
Department of Computer Science
CS 3310-03 Design and Analysis of Algorithms

Instructor Information

Dr. Salam Salloum

ssalloum@cpp.edu

Office Hours: TTh: 2:15-3:00PM, MW: 2:45-3:00PM, F: 2:00-4:00 PM (via email), and by an appointment.

Lecture Meeting

Time TTh 3:00-4:50 PM via Zoom

Textbook

Richard Neapolitan, Foundations of Algorithms, Jones & Bartlett, 5th Edition, 2015.

www.jblearning.com/catalog/9781284049190.

References

1. E. Horowitz, S. Sahni and S. Rajasekaran, Computer Algorithms, Computer Science Press, 2008.
2. Aho, J. Hopcroft and J. Ullman, The Design and Analysis of Computer Algorithms 1st Edition, PEARSON, 1974.

Course Description

Algorithms for fundamental problems. Efficiency analysis using asymptotic notation. Principal algorithm design techniques and their tradeoffs. NP-theory and approaches used to address intractability.

Pre-requisite(s): CS 2400 and MAT2250 with grades of C or better, or consent of instructor.

Course Requirements and Grading

Mistern Test	25%
Final Test	35%
Homework	10%
Quizzes	15%
Programming assignments	15%

Learning Outcomes

1. Analyze time and space complexity of algorithms using O , Ω , and Θ notation.;
2. Best, worse, and average time complexity.
3. Employ different algorithms for a given problem and be able to compute the solutions;
4. Design algorithms using Divide and Conquer method, and analyze them;
5. Sorting, order statistic and searching algorithms;
6. Design algorithms using Dynamic Programming;
7. Design algorithms using the Greedy method, and analyze them.;
8. Overview of selected graph algorithms;
9. Problem solving using Branch and Bound and Backtracking methods;
10. Understanding the basics of complexity theory.

Attendance

Attendance is expected at all class sessions but not required. Students are responsible for all material presented in the course whether or not they attend the class, including announcements about course procedures. Recorded lectures will be made available.

Programming Assignments

There will be 4 programming assignments and each will be due at the beginning of class on the due date. Your programs should be well documented. You may discuss the assignments with other students but every student must do her/his own coding. Programming is one of those skills that you learn by doing. It is plagiarism to turn in someone else's program as your own. Confirmed plagiarism resulting in an F grade in the course, and other possible disciplinary actions. There will be no substitution work for any programming assignments and will not be accepted after the solution is discussed in the class.

Journal

Participating in the journal activities is expected but not required. I encourage every student to email me weekly to express her or his expectations and thoughts about the course. You may use the journal to ask a question about a specific topic or a concept, inform the instructor about your learning style, or comment on the pace and teaching style. Please be assured that your opinion will in no way affect your course grade.

Letter Grades Scale

	A	≥ 90
86	\leq B+	< 90
80	\leq B	< 86
76	\leq C+	< 80
70	\leq C	< 76
66	\leq D+	< 70
60	\leq D	< 66
	F	< 60

