UNIVERSITY OF THE PACIFIC

Computer Science

The Bachelor of Science degree in Computer Science is offered by University of the Pacific through the Department of Computer Science (CS). Careers in computing span a wide variety of businesses and industries since computing is integral to nearly all human activities.

CS graduates might work on developing fundamentally new computer systems, adapting existing systems to meet the needs of particular problem domains, or maintaining systems to support the operation of a particular business or enterprise. A successful computer scientist will understand the mathematical and scientific principles that define the operation of all computing systems and will have the engineering design skills to develop reliable software to control computing systems. Graduates of Pacific's CS program will have foundational knowledge to support a career adapting to new technologies as computing continues to evolve or to continue their education through graduate studies.

PROGRAM CONCENTRATIONS

The Computer Science program offers three concentrations, which define focused sets of upper-division elective courses. Choosing a concentration allows students to gain deeper understanding of a specialized area within computer science. The concentrations offered are Software Development, Networking and Computer Security, and Graphics and Simulation.

COOPERATIVE EDUCATION PROGRAM (CO-OP)

All computer science students are encouraged to participate in the CO-OP program, which places students in a paid professional position for three to nine months. In addition to receiving academic credit for the experience, the CO-OP provides real experience that is invaluable in helping to determine a career path and academic concentration. The professional experience is also crucial in giving students a competitive edge in the computing job market after graduation.

COMPUTER SCIENCE PROGRAM OBJECTIVES

Through their careers in computing or a related profession, Pacific graduates are expected to demonstrate the following within a few years of earning their Bachelor of Science degree in Computer Science:

+ Employ design skills and technical knowledge that contribute to building or utilizing computing systems in a variety of professional careers

+ Work effectively in team environments, utilize communication skills, and grow and adapt to a world of evolving technology

For more information, contact:
Dr. Daniel Cliburn, Professor and Chair
dcliburn@pacific.edu | 209.946.2093 | Chambers 124

UNIVERSITY OF THE PACIFIC | School of Engineering and Computer Science

BACHELOR OF SCIENCE IN COMPUTER SCIENCE - PROGRAM CURRICULUM

GENERAL EDUCATION[1] (22-26 UNITS)
CORE 001 [4] PROBLEM SOLVING AND ORAL COMMUNICATION
CORE 002 [3] WRITING AND CRITICAL THINKING
ENGR 030 [3] ENGINEERING AND COMPUTING ETHICS IN SOCIETY
GEN. ED. [3-4] ARTISTIC PROCESS AND CREATION COURSE
GEN. ED. [3-4] CIVIC AND GLOBAL RESPONSIBILITY COURSE
GEN. ED. [3-4] LANGUAGE AND NARRATIVES COURSE
GEN. ED. [3-4] SOCIAL INQUIRY COURSE

[1] THESE REQUIREMENTS APPLY TO STUDENTS ENTERING AS FRESHMAN. GE REQUIREMENTS ARE SOMEWHAT DIFFERENT FOR TRANSFER STUDENTS.

MATHEMATICS & BASIC SCIENCE (24-26 UNITS)
MATH 037 [4] INTRO TO STATISTICS AND PROBABILITY[1]
MATH 051 [4] CALCULUS I[2]
COMP 047 [4] DISCRETE MATHEMATICS[3]
COMP 147 [4] COMPUTING THEORY
[8-10] TWO LABORATORY SCIENCE COURSES[4]

[1] MATH 039 OR ECPE 127 MAY SUBSTITUTE FOR MATH 037
[2] MATH 045 MAY SUBSTITUTE FOR MATH 051
[3] MATH 074 MAY SUBSTITUTE FOR COMP 047
[4] LAB SCIENCE COURSES MUST ALSO BE GE SCIENTIFIC INQUIRY COURSES

COMPUTER SCIENCE CORE (37 UNITS)
COMPUTER SCIENCE
COMP 051 [4] INTRO TO COMPUTER SCIENCE
COMP 053 [4] DATA STRUCTURES
COMP 055 [4] APPLICATION DEVELOPMENT
COMP 141 [4] PROGRAMMING LANGUAGES
COMP 157 [4] DESIGN AND ANALYSIS OF ALGORITHMS
COMP 173 [4] OPERATING SYSTEMS
COMP 195 [4] SENIOR PROJECT

COMPUTER ENGINEERING
ECPE 071 [3] DIGITAL DESIGN
ECPE 170 [4] COMPUTER SYSTEMS AND NETWORKS

GENERAL ENGINEERING
ENGR 010 [1] DEAN'S SEMINAR
ENGR 025 [1] PROFESSIONAL PRACTICE SEMINAR

COMPUTER SCIENCE ELECTIVES (17 UNITS)
STUDENTS MUST COMPLETE 17 UNITS OF UPPER DIVISION COMP COURSES[5]. TO EARN A CONCENTRATION; STUDENTS MUST COMPLETE ALL REQUIRED CONCENTRATION COURSES PLUS ONE ADDITIONAL COMP ELECTIVE[5].

SOFTWARE DEVELOPMENT CONCENTRATION
COMP 129 [4] SOFTWARE ENGINEERING
COMP 135 [3] HUMAN-COMPUTER INTERFACE DESIGN
COMP 137 [3] PARALLEL COMPUTING
COMP 163 [4] DATABASE MANAGEMENT SYSTEMS

NETWORKING AND COMPUTER SECURITY CONCENTRATION
COMP 127 [4] WEB APPLICATIONS
COMP 175 [3] SYSTEM ADMIN. AND SECURITY
COMP 177 [4] COMPUTER NETWORKING
COMP 178 [3] COMPUTER NETWORK SECURITY

GRAPHICS AND SIMULATION CONCENTRATION
COMP 151 [3] ARTIFICIAL INTELLIGENCE
COMP 153 [3] COMPUTER GRAPHICS
COMP 155 [4] COMPUTER SIMULATION
COMP 159 [4] COMPUTER GAME TECHNOLOGIES

[5] UP TO FOUR UNITS OF CO-OP, INTERNSHIP, INDEPENDENT STUDY OR UNDERGRADUATE RESEARCH UNITS MAY BE USED AS COMP ELECTIVE UNITS

THE CS PROGRAM REQUIRES 120 ACADEMIC UNITS TOTAL.