

COMPUTER SCIENCE (MS)

Offered at: San Luis Obispo Campus

<https://csc.calpoly.edu/gr/>

The MS program in Computer Science offers students the opportunity to prepare for careers in several areas of emphasis including software engineering, computer architecture, programming languages, theory of computing, operating systems, database systems, distributed computing, computer networks, artificial intelligence, computer graphics, and human computer interaction. The program is designed for maximum flexibility to allow students to concentrate in one or more areas of study.

Requirements for Admission

Students apply via Cal State Apply (<https://www.calstate.edu/apply/>) and must submit a transcript, resume, personal statement, and three letters of recommendation. No GRE scores required.

Eligibility for admission to the program requires a baccalaureate degree from an accredited institution and good standing at the last college attended. At minimum, the applicant must hold a Computer Science minor obtained as part of their undergraduate study, or they must have successfully completed introductory and upper-division Computer Science coursework in the amount equivalent to the Computer Science minor (an equivalent of about 18-22 semester units). Specifically, applicants are expected to have completed the equivalent of 8 semester units of coursework (4-6 courses) from the list below, prior to starting their MS in Computer Science study.

- Professional Responsibilities or Ethics
- Software Engineering
- Algorithms
- Programming Languages
- Operating Systems

Each course must be completed with a grade of "B" or better. These courses do not count toward the graduate degree.

Domestic students can be admitted conditionally classified and complete no more than 8 units of the prerequisite coursework at Cal Poly after admission before the condition is met. Domestic and International students can be admitted classified once all the prerequisite coursework has been completed prior to enrolling at Cal Poly. Please see MS Computer Science website for more information.

Minimum GPA: Applicants with a bachelor's degree in computer science, software engineering, or computer engineering are required to have a minimum 3.0 grade point average, including a minimum 3.0 grade point average in major courses; applicants with a bachelor's degree in a different field must have completed the required preliminary upper-division coursework listed above and have a minimum grade point average of 3.25 for all undergraduate coursework.

Application due date: Applications are accepted for Fall and Spring enrollment. Please see Graduate Student Dates and Deadlines (<https://www.calpoly.edu/admissions/graduate-student/dates-and-deadlines/>) for application deadlines.

Advancement to Candidacy

Conditionally classified students can advance to candidacy once all classification conditions have been met and at least 3 units have been completed with a 3.0 GPA. Classified students can advance to candidacy once at least 3 units have been completed with a 3.0 GPA.

Culminating Experience

The MS CS program is thesis only. For more information, please look at the MS Computer Science website (<https://csc.calpoly.edu/gr/>).

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A blended program provides a potentially accelerated route to a graduate degree, with simultaneous conferring of both Bachelor's and Master's degrees. Students in the blended program are provided with a seamless process whereby they can progress from undergraduate to graduate status. Students are required to complete all requirements for both degrees.

Blended Options

BS Computer Science + MS Computer Science

BS Computer Engineering + MS Computer Science

BS Software Engineering + MS Computer Science

Units Double Counted

The number of units available to double-count depends on your undergraduate major and minor(s). Please see MS Computer Science website for more information.

Requirements for Admission for the Blended Program

Students apply directly to the program and not through Cal State Apply. Please see MS Computer Science website for application instructions.

- Prerequisites: must be a current BS student in an approved blended pairing program. Students must have completed all lower division classes and the GWR prior to transitioning to graduate status.
- Minimum GPA: 3.0
- Timeline for admission: See MS Computer Science website for admissions deadlines.
- Application materials: Resume, statement of purpose, and three letters of recommendation.

Program Learning Objectives

1. Prepared for successful careers in a computing-related field, including careers that involve positions of technical leadership and advanced responsibility.
2. Exposed to a broad range of computer science subjects in coursework that emphasizes technical subject matter.
3. Able to perform, analyze, evaluate and synthesize computer science research, in particular, know how to present research findings in oral and written form.
4. Prepared for life-long learning in the discipline of computer science, including continued formal graduate education.
5. Aware of the impacts of computing technology on society and understand ethics and responsible professional conduct.

The MS degree requires at least 30 units beyond the undergraduate degree. Courses must be chosen according to the following requirements:

Code	Title	Units
REQUIRED COURSES		
CSC 5590	Thesis Preparation	3
CSC 5591	Research in Computer Science ¹	2
CSC 5599	Thesis	4
Research Methodologies		
Select from the following: ¹		6-10
CSC 5201	Computer Security and Privacy	
CSC 5210	Software Security	
CSC 5220	Advanced Network Security and Privacy	
CSC 5281	System Security	
CSC 5550	Research in Operating Systems	
CSC 5710	Computer Graphics	
CSC 5880	Artificial Intelligence	
CSC 5887	Advanced Deep Learning	
CPE 5300	Computer Microarchitecture	
CPE 5420	Advanced High-Performance Embedded Systems	
CPE 5564	Research Topics in Computer Networks	
CPE 5660	Computer Systems	
Graduate Electives		
Select from the following: ²		4-6
CPE 5300	Computer Microarchitecture	
CPE 5350	Digital Systems Design	
CPE 5420	Advanced High-Performance Embedded Systems	
CPE 5564	Research Topics in Computer Networks	
CPE 5660	Computer Systems	
CPE 5669	Distributed Computing	
CSC 5100	Modern Software Engineering	
CSC 5113	Computing Education Research and Practice	
CSC 5170	Special Advanced Topics in Software Engineering	

CSC 5201	Computer Security and Privacy
CSC 5210	Software Security
CSC 5220	Advanced Network Security and Privacy
CSC 5270	Special Advanced Topics in Computer Security
CSC 5281	System Security
CSC 5370	Special Advanced Topics in Programming Languages
CSC 5445	Advanced Theory of Decidability and Reducibility
CSC 5447	Advanced Algorithmic Graph Theory
CSC 5449	Advanced Algorithm Design and Analysis
CSC 5500	Directed Study
CSC 5550	Research in Operating Systems
CSC 5570	Special Advanced Topics
CSC 5571	Special Advanced Laboratory
CSC 5572	Special Advanced Activity
CSC 5595	Cooperative Education Experience
CSC 5660	Advanced Database Management Systems
CSC 5666	Advanced Machine Learning
CSC 5669	Distributed Computing
CSC 5670	Special Advanced Topics in Computer Systems
CSC 5710	Computer Graphics
CSC 5740	Advanced Compute Shaders in Computer Graphics
CSC 5770	Special Advanced Topics in Computer Graphics
CSC 5820	Computational Linguistics
CSC 5870	Special Advanced Topics in Artificial Intelligence
CSC 5880	Artificial Intelligence
CSC 5887	Advanced Deep Learning

Electives

Select any 4000-5000 level CSC or CPE courses ^{2, 3, 4}

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Total Units
30
¹ Students with credit in CSC 4461 may substitute an additional 2 units of a course from Research Methodologies in place of CSC 5591.

² A combined maximum of 6 units may be taken from CPE 4400, CPE 4491, CPE 4492, CPE 4493, CPE 4495, CSC 4091, CSC 4092, CSC 4093, CSC 4191, CSC 4192, CSC 4193, CSC 4291, CSC 4292, CSC 4293, CSC 4400, CSC 4495, CSC 4691, CSC 4692, CSC 4693, CSC 4791, CSC 4792, CSC 4793, CSC 4891, CSC 4892, CSC 4893, CSC 4991, CSC 4992, CSC 4993, CSC 5500 and CSC 5595; of which up to a combined 4 units may be taken from CPE 4400, CPE 4491, CPE 4495, CSC 4091, CSC 4191, CSC 4291, CSC 4400, CSC 4495, CSC 4691, CSC 4791, CSC 4891, CSC 4991, CSC 5500, and CSC 5595.

³ The following courses may not be used to satisfy this requirement: CSC 4460, CSC 4461, CSC 4260, CSC 4261, CPE 4260, and CPE 4261.

⁴ Non-CSC and non-CPE courses can be substituted with approval of the Graduate Committee.