

COMPUTER SCIENCE - DOCTOR OF PHILOSOPHY

Doctoral students may specialize in any of the areas in which computer science faculty members have active research interests. Through interdisciplinary arrangements with other doctoral departments at New Mexico State University, doctoral students may also specialize in such areas as computational biology, computer networks and architectures and cognitive science.

Doctoral students are expected to join the program with a preparation equivalent to that required for the Master's degree in computer science at New Mexico State University. The requirements for the degree are as specified in the NMSU graduate catalog, with the following additional considerations:

- Take and pass the Ph.D. Qualifying Exam. It is expected that students will take the qualifying exam within one year of entering the Ph.D. program or one year after finishing their deficiencies. In the qualifying exam, a student is expected to present a written and oral synthesis of a topical literature review. For more details on the qualifying exam, see the departmental document.
- Students who are enrolled in the Computer Science MS program and complete a Master's thesis can use a successful thesis defense as the qualification exam if the Master's thesis advisor is willing to take the student as a PhD student.
- The comprehensive examination evaluates depth of knowledge in the specific research area selected by the candidate with the consent of their graduate committee. It includes: a written part, in the form of an extensive survey paper; an annotated bibliography; and an oral examination.
- The student is required to submit and defend a prospectus, at the same time or after completing the comprehensive examination. The prospectus describes and motivates the specific research problem to be addressed in the doctoral dissertation.
- A PhD student is required to take at least one course each in the following three areas (theories, systems, and applications)

Graduation Requirements

Prefix	Title	Credits
Theories		
Select at least one from the following:		3
C S 510	Automata, Languages, Computability	
C S 570	Analysis of Algorithms	
C S 586	Algorithms in Systems Biology	
Systems		
Select at least one from the following:		3
C S 574	Operating Systems II	
C S 584	Computer Networks II	
C S 582	Database Management Systems II	
Applications		
Select at least one from the following:		3
C S 506	Computer Graphics I	
C S 508	Introduction to Data Mining	
C S 509	Bioinformatics Programming	
C S 513	Computer Security	
C S 514	Introduction to Smart Grids	

C S 515	Human-Centered Computing	
C S 516	Bioinformatics	
C S 517	Digital Game Design	
C S 518	Visual Programming	
C S 519	Applied Machine Learning I	
C S 521	Parallel Programming	
C S 522	Cloud and Edge Computing	
C S 525	Introduction to Cryptography	
C S 532	Modern Web Technologies	
C S 533	Introduction to Deep Learning	
C S 534	Graph Data Mining	
C S 575	Artificial Intelligence II	
C S 581	Advanced Software Engineering	
Other		
Other graduate credit to meet NMSU requirements		21
Dissertation		18
C S 700	Doctoral Dissertation	
Total Credits		48

Only courses from the MS CS program from NMSU can be used to waive this requirement.

Students should contact the department for information on additional graduation requirements, or visit the on-line Graduate Handbook (<https://computerscience.nmsu.edu/>).