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
CSCI 5510	Automata, Languages, Computability	
CSCI 5505	Analysis of Algorithms	
CSCI 5860	Algorithms in Systems Biology	
Systems		
Select at least one from the following:		3
CSCI 5605	Operating Systems II	
CSCI 5840	Computer Networks II	
CSCI 5820	Database Management Systems II	
Applications		
Select at least one from the following:		3
CSCI 5410	Computer Graphics I	
CSCI 5415	Introduction to Data Mining	
CSCI 5310	Bioinformatics Programming	
CSCI 5205	Computer Security	
CSCI 5210	Introduction to Smart Grids	
CSCI 5250	Human-Centered Computing	
CSCI 5305	Bioinformatics	
CSCI 5255	Digital Game Design	
CSCI 5260	Visual Programming	
CSCI 5420	Applied Machine Learning I	
CSCI 5215	Parallel Programming	
CSCI 5220	Cloud and Edge Computing	
CSCI 5225	Introduction to Cryptography	
CSCI 5265	Modern Web Technologies	
CSCI 5425	Introduction to Deep Learning	
CSCI 5430	Graph Data Mining	
CSCI 5750	Artificial Intelligence II	
CSCI 5810	Advanced Software Engineering	
Other		
Other computer science graduate credit to meet NMSU requirements [*]		21
Dissertation		18
CSCI 7000	Doctoral Dissertation	
Total Credits		**48**

Only courses from the Master of Science-Computer Science program from NMSU can be used to waive this requirement.

*Graduate credits from other departments could be approved if they are required for the program study of the student. The student needs to get approval prior to taking the courses.

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