COMPUTER SCIENCE (PH.D.)

https://ceps.unh.edu/computer-science/program/phd/computer-science

Description

The Ph.D. program is designed to develop a student's ability to carry out advanced research, as well as ensure the breadth and depth of computer science knowledge required to obtain a faculty position in academia or a research position in industry or at a national laboratory. Students first work to obtain breadth knowledge and a faculty research mentor. Then, working with their mentor, they carry out advanced work that results in original research publications and a doctoral dissertation.

Requirements

Code	Title	Credits
Requirements		
CS 900	Graduate Seminar	1
Select six CS graduate courses (of at least 3 credits each) beyond the M.S. or twelve CS graduate courses beyond the B.S. [1]		
Interdisciplinary breadth requirement [2]		
Breadth Requirement [3]		
Depth Requirement [4]		
Dissertation [5]		

[1] The courses must satisfy the following requirements:
- Two courses must be implementation intensive (see list below).
- All students must take CS 845 Formal Specification and Verification of Software Systems or CS 858 Algorithms.
- At most two can be CS 998 Independent Study. If two CS 998 courses are taken, they must be taught by different instructors.

[2] This requirement must be satisfied by taking a non-CS 800-level or 900-level course. The course must be approved by the student's research mentor.

[3] To satisfy this requirement, a Ph.D. student who has previously completed a Masters degree, must take classes from at least three different faculty. All other students must take classes from at least five different faculty.

[4] Under the direction of a depth adviser and a depth committee, the student carries out some preliminary research that is likely to lead to a dissertation topic. The student must produce two written reports (a literature survey and a research report) and make a presentation as part of an oral examination on the material. After the student has successfully completed the depth exam and has satisfied the interdisciplinary breadth requirement, the student is advanced to candidacy.

[5] The student must complete original research and present and defend a dissertation describing that research. The research is carried out under the supervision of a faculty member dissertation adviser and a dissertation committee of at least five members, including one from outside the department.

Code	Title	Credits
Implementation Intensive Courses		
CS 812	Compiler Design	4
CS 820	Systems Programming	4
CS 830	Introduction to Artificial Intelligence	4
CS 835	Introduction to Parallel and Distributed Programming	4
CS 852	Foundations of Neural Networks	4
CS 853	Information Retrieval and Generation Systems	4
CS 870	Computer Graphics	4
CS 881	Data Science for Knowledge Graphs and Text	4

Student Learning Outcomes

Program Learning Outcomes Graduates of the UNH Ph.D. CS program will have an ability to:

- Understand and apply a wide breadth and depth of computer science knowledge.
- Carry out advanced independent computer science research that results in original publications and a doctoral dissertation.
- Obtain a faculty position in academic, or a research position in industry or at a national laboratory.