COMPUTER SCIENCE, BACHELOR OF SCIENCE

The Bachelor of Science in Computer Science provides students with a solid background in the fundamentals of computing and prepares them for employment in a wide variety of positions and for graduate study in computer science. The content of the department's courses is continually monitored to ensure they are consistent with fast-changing developments in the discipline. Courses are offered in the day, evening, and some online sections for the convenience of our students. Appropriate university and departmental computing resources are available to students taking computer science courses.

Student Group

The Association of Computer Machinery (ACM) (https://www.acm.org/) is a major force in advancing the skills of information technology professionals and students worldwide, providing the industry's leading portal to computing literature and more. The College of Information Science & Technology has two student chapters: UNO ACM and UNO ACM-W.

Fast Track

The department of Computer Science has developed a Fast Track program for highly qualified and motivated students providing the opportunity to complete a bachelor's degree and a master's degree in an accelerated time frame. With Fast Track, students may count up to 9 graduate credit hours towards the completion of their undergraduate program as well as the graduate degree program. Students will work with both undergraduate and graduate advisors to ensure graduate classes selected will count toward both programs, should a student wish to earn a graduate degree in a separate College of Information Science & Technology (CIST) area than their undergraduate degree.

Program Specifics:

- This program is available for undergraduate students pursuing any CIST undergraduate degree desiring to pursue an MS in either the same or a related CIST field.
- Students must have completed no less than 60 undergraduate hours.
- Students must have a minimum undergraduate GPA of 3.0.
- Students must complete the Fast Track Approval form and obtain all signatures and submit to the Office of Graduate Studies prior to first enrollment in a graduate course.
- Students will work with their undergraduate advisor to register for the graduate courses.
- A minimum cumulative GPA of 3.0 is required for graduate coursework to remain in good standing.
- Students remain undergraduates until they meet all the requirements for the undergraduate degree and are eligible for all rights and privileges granted undergraduate status including financial aid.
- Near the end of the undergraduate program, formal application to the graduate program is required. All applicants will need to meet any other admission requirements established for the MS in selected CIST program. The application fee will be waived if the applicant contacts the Office of Graduate Studies for a fee waiver code prior to submitting the MS application.
  - Admission to Fast Track does NOT guarantee admission to the graduate program.
  - The admit term must be after the completion term of the undergraduate degree.

Computer Science, Bachelor of Science in Computer Science Requirements

A minimum of 120 credit hours is required for a Bachelor of Science degree in Computer Science. Thirty of the last 36 hours must be University of Nebraska at Omaha courses. Registering for courses without having taken the stated prerequisites could result in administrative withdrawal. Students must have a C or better grade in CIST 1400 and CSCI 1620 to serve as the prerequisite for all subsequent Computer Science (CSCI) courses. For all other courses applied towards the major, a grade of C- or better will meet the prerequisite and degree requirements.

To obtain a computer science degree, a student must fulfill the University General Education, College, and Departmental requirements. Some courses may satisfy requirements in more than one area, but credit is awarded only once, thereby reducing the total number of credit hours for the degree to 120. (This total does not include prerequisites.)

Code	Title	Credits
General Education Requirements - 34 Hours Required		
Minimum of "C-"required		
Fundamental Skills		**15**
Writing – 6 hrs.		
ENGL 1150	ENGLISH COMPOSITION I	
ENGL 1160	COLLEGE RESEARCH AND INFORMATION LITERACY	
Oral Communication – 3 hrs.		
CMST 1110	PUBLIC SPEAKING FUNDS	
or CMST 2120	ARGUMENTATION AND DEBATE	
Quantitative Literacy – 3 hrs.		
MATH 1120	INTRODUCTION TO MATHEMATICAL AND COMPUTATIONAL THINKING	
or MATH 1130	QUANTITATIVE LITERACY	
or MATH 1140	QUANTITATIVE REASONING FOR HEALTHCARE PROFESSIONALS	
or MATH 1300	COLLEGE ALGEBRA WITH SUPPORT	
Data Literacy – 3 hrs.		
Select one from the following:		
STAT 1100	DATA LITERACY AND VISUALIZATION	
STAT 1530	ELEMENTARY STATISTICS	
Until Fall 2028, students can satisfy this requirement with an approved data literacy course, or any approved natural or social science general education course.		
Breadth of Knowledge		**13**
Social Science – 3 hrs.		
Humanities – 3 hrs.		
Natural & Physical Science (must complete a lab) – 4 hrs.		
Arts – 3 hrs.		
Individual and Social Responsibility		**6**
Cultural Knowledge – 3 hrs.		
Civic Knowledge and Engagement – 3 hrs.		
MAJOR REQUIREMENTS - 85 Hours Required		
**Course will satisfy UNO's General Education requirement		
^Course requires pre-requisite(s)		
All of the following:		**42**
CIST 1400	INTRODUCTION TO COMPUTER SCIENCE I (^)	
CSCI 1620	INTRODUCTION TO COMPUTER SCIENCE II (^)	

CSCI 2240	INTRODUCTION TO C PROGRAMMING (^)	
CIST 3000	TECHNICAL WRITING & COMMUNICATION FOR IS&T (^)	
CIST 3110	INFORMATION TECHNOLOGY ETHICS (** ^)	
CSCI 3320	DATA STRUCTURES (^)	
CSCI 3660	THEORY OF COMPUTATION (^)	
CSCI 3720	COMPUTER ORGANIZATION	
CSCI 3550	COMMUNICATION NETWORKS (^)	
or CSCI 4350	COMPUTER ARCHITECTURE	
CSCI 4100	INTRODUCTION TO ALGORITHMS (^)	
CSCI 4220	PRINCIPLES OF PROGRAMMING LANGUAGES (^)	
CSCI 4500	OPERATING SYSTEMS (^)	
CSCI 4830	INTRODUCTION SOFTWARE ENGINEERING (^)	
CSCI 4970	CAPSTONE PROJECT (^)	
CSCI 4000	ASSESSMENT (^)	
Extension Courses – Complete 21 credit hours*		**21**
At least 12 hours of upper-division Computer Science Courses (CSCI 3XXX+) [1]		
Up to 9 hours can be at the lower-division, including MATH 1960, MATH 1970, or any other course from 2XXX to 4XXX level from CSCI, BIOI, CYBR, ISQA, ITIN, ECEN, or MATH [2]		
*18 extension hours can be satisfied by completing an optional concentration.		
Math Courses - All of the following:		**15**
MATH 1950	CALCULUS I (^)	
CSCI 2030	MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE (^)	
CSCI 2040	INTRODUCTION TO MATHEMATICAL PROOFS (^)	
MATH 2050	APPLIED LINEAR ALGEBRA (^)	
CIST 2500	INTRODUCTION TO APPLIED STATISTICS FOR IS&T (^)	
Science Courses - Complete 7 credit hours from the following list, representing at least 2 disciplines with a minimum of 1 laboratory course**		**7**
PHYS 1050	INTRODUCTION TO PHYSICS (**)	
PHYS 1054	INTRODUCTION TO PHYSICS LABORATORY (**)	
PHYS 1110	PHYSICS FOR LIFE SCIENCE I (** ^)	
PHYS 1154	GENERAL PHYSICS LABORATORY I (** ^)	
PHYS 2110	GENERAL PHYSICS I - CALCULUS LEVEL (** ^)	
CHEM 1010	CHEMISTRY IN THE ENVIRONMENT AND SOCIETY (** ^)	
CHEM 1014	CHEMISTRY IN THE ENVIRONMENT AND SOCIETY LABORATORY (** ^)	
CHEM 1140	FUNDAMENTALS OF COLLEGE CHEMISTRY (** ^)	
CHEM 1144	FUNDAMENTALS OF COLLEGE CHEMISTRY LABORATORY (** ^)	
CHEM 1170	GENERAL CHEMISTRY I-II (** ^)	
CHEM 1180	GENERAL CHEMISTRY I (** ^)	
CHEM 1184	GENERAL CHEMISTRY I LABORATORY (** ^)	
BIOL 1450	BIOLOGY I (** ^)	
BMCH 2400	HUMAN PHYSIOLOGY & ANATOMY I (**)	
GEOL 1170	INTRODUCTION TO PHYSICAL GEOLOGY (**)	
GEOL 1100	EARTH SYSTEM SCIENCE (**)	
GEOL 1104	EARTH SYSTEM SCIENCE LAB (**)	
GEOG 1030	OUR DYNAMIC PLANET: INTRODUCTION TO PHYSICAL GEOGRAPHY (**)	
GEOG 1050	HUMAN-ENVIRONMENT GEOGRAPHY (**)	
GEOG 1090	INTRODUCTION TO GEOSPATIAL SCIENCES (**)	
GEOG 3510	METEOROLOGY (**)	
GEOG 3514	INTRODUCTION TO METEOROLOGY LABORATORY (** ^)	
ELECTIVES		
Elective hours as required to reach a total of 120 hours		

1 Upper-level CSCI transfer credits can also be applied towards this requirement.

2 Lower-level and upper-level CSCI transfer credits can also be applied towards this requirement.

Computer Science Elective Concentrations

- Artificial Intelligence Concentration (http://catalog.unomaha.edu/undergraduate/college-information-science-technology/computer-science/computer-science-bs/artificialintelligence-concentraton/)
- Game Programming Concentration (http://catalog.unomaha.edu/undergraduate/college-information-science-technology/computer-science/computer-science-bs/game-programming-concentration/)
- Internet Technologies (iT) Concentration for Computer Science Majors (http://catalog.unomaha.edu/undergraduate/college-information-science-technology/computer-science/computer-science-bs/internet-technologies-it-concentration-computer-science-majors/)
- Information Assurance Concentration (http://catalog.unomaha.edu/undergraduate/college-information-science-technology/computer-science/computer-science-bs/information-assurance-concentration/)
- Software Engineering Concentration (http://catalog.unomaha.edu/undergraduate/college-information-science-technology/computer-science/computer-science-bs/software-engineering-concentration/)

Computer Science, Bachelor of Science in Computer Science Four Year Plan - Start 1300-1200-1280

First Year

Fall		**Credits**
ENGL 1150	ENGLISH COMPOSITION I	3
CMST 1110 or CMST 2120	PUBLIC SPEAKING FUNDS or ARGUMENTATION AND DEBATE	3
CIST 1300 or CSCI 1200 or CSCI 1280	INTRODUCTION TO WEB DEVELOPMENT or COMPUTER SCIENCE PRINCIPLES or INTRODUCTION TO COMPUTATIONAL SCIENCE	3
MATH 1950	CALCULUS I	5
	Credits	**14**

Spring		
ENGL 1160	COLLEGE RESEARCH AND INFORMATION LITERACY	3
CIST 1400	INTRODUCTION TO COMPUTER SCIENCE I	3
Natural/Physical Science Requirement with Lab		4
General Education Course or Elective		3
General Education Course or Elective		2
	Credits	**15**
Second Year		
Fall		
CSCI 1620	INTRODUCTION TO COMPUTER SCIENCE II	3
CSCI 2030	MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE	3
CSCI 2040	INTRODUCTION TO MATHEMATICAL PROOFS	1
CIST 3110	INFORMATION TECHNOLOGY ETHICS	3
Natural/Physical Sciences Requirement		3
General Education Course or Elective		3
	Credits	**16**
Spring		
CIST 2500	INTRODUCTION TO APPLIED STATISTICS FOR IS&T	3
CSCI 2240	INTRODUCTION TO C PROGRAMMING	3
CSCI 3320	DATA STRUCTURES	3
Extension/Concentration Course		3
General Education Course or Elective		3
	Credits	**15**
Third Year		
Fall		
MATH 2050	APPLIED LINEAR ALGEBRA	3
CIST 3000	TECHNICAL WRITING & COMMUNICATION FOR IS&T	3
CSCI 3720	COMPUTER ORGANIZATION	3
Extension/Concentration Course		3
General Education Course or Elective		3
	Credits	**15**
Spring		
CSCI 3550 or CSCI 4350	COMMUNICATION NETWORKS or COMPUTER ARCHITECTURE	3
CSCI 3660	THEORY OF COMPUTATION	3
CSCI 4100	INTRODUCTION TO ALGORITHMS	3
General Education Course or Elective		3
General Education Course or Elective		3
	Credits	**15**
Fourth Year		
Fall		
CSCI 4220	PRINCIPLES OF PROGRAMMING LANGUAGES	3
CSCI 4500	OPERATING SYSTEMS	3
CSCI 4830	INTRODUCTION SOFTWARE ENGINEERING	3
Extension/Concentration Course		3
Extension/Concentration Course		3
	Credits	**15**
Spring		
CSCI 4000	ASSESSMENT	0
CSCI 4970	CAPSTONE PROJECT	3
Extension/Concentration Course		3
Extension/Concentration Course		3
Extension/Concentration Course		3
General Education Course or Elective		3
	Credits	**15**
	Total Credits	**120**

Computer Science, Bachelor of Science in Computer Science Four Year Plan - Start 1400

First Year		
Fall		**Credits**
ENGL 1150	ENGLISH COMPOSITION I	3
CMST 1110 or CMST 2120	PUBLIC SPEAKING FUNDS or ARGUMENTATION AND DEBATE	3
CIST 1400	INTRODUCTION TO COMPUTER SCIENCE I	3
MATH 1950	CALCULUS I	5
	Credits	**14**
Spring		
ENGL 1160	COLLEGE RESEARCH AND INFORMATION LITERACY	3
CSCI 1620	INTRODUCTION TO COMPUTER SCIENCE II	3
Natural/Physical Sciences Requirement with Lab		4
General Education Course or Elective		3
General Education Course or Elective		2
	Credits	**15**
Second Year		
Fall		
CSCI 2240	INTRODUCTION TO C PROGRAMMING	3
CSCI 2030	MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE	3
CSCI 2040	INTRODUCTION TO MATHEMATICAL PROOFS	1
CIST 3110	INFORMATION TECHNOLOGY ETHICS	3
Natural/Physical Sciences Requirement		3
General Education Course or Elective		3
	Credits	**16**
Spring		
MATH 2050	APPLIED LINEAR ALGEBRA	3
CIST 2500	INTRODUCTION TO APPLIED STATISTICS FOR IS&T	3
CSCI 3320	DATA STRUCTURES	3
General Education Course or Elective		3
General Education Course or Elective		3
	Credits	**15**
Third Year		
Fall		
CIST 3000	TECHNICAL WRITING & COMMUNICATION FOR IS&T	3
CSCI 3720	COMPUTER ORGANIZATION	3
Extension/Concentration Course		3
Extension/Concentration Course		3

General Education Course or Elective		3
	Credits	**15**
Spring		
CSCI 3550 or CSCI 4350	COMMUNICATION NETWORKS or COMPUTER ARCHITECTURE	3
CSCI 3660	THEORY OF COMPUTATION	3
CSCI 4100	INTRODUCTION TO ALGORITHMS	3
General Education Course or Elective		3
General Education Course or Elective		3
	Credits	**15**
Fourth Year		
Fall		
CSCI 4220	PRINCIPLES OF PROGRAMMING LANGUAGES	3
CSCI 4500	OPERATING SYSTEMS	3
CSCI 4830	INTRODUCTION SOFTWARE ENGINEERING	3
Extension/Concentration Course		3
Extension/Concentration Course		3
	Credits	**15**
Spring		
CSCI 4000	ASSESSMENT	0
CSCI 4970	CAPSTONE PROJECT	3
Extension/Concentration Course		3
Extension/Concentration Course		3
Extension/Concentration Course		3
General Education Course or Elective		3
	Credits	**15**
	Total Credits	**120**

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

This plan is not a contract and curriculum is subject to change.

Additional Information About this Plan:
University Degree Requirements: The minimum number of hours for a UNO undergraduate degree is 120 credit hours. Please review the requirements for your specific degree program to determine all requirements for the program. In order to graduate on time (four years for an undergraduate degree), you need to take 30 credit hours each year.

Placement Exams: For Math, English, and Foreign Languages, a placement exam may be required. More information on these exams can be found at https://www.unomaha.edu/enrollment-management/testing-center/placement-exams/information.php

Please note that transfer credit or placement exam scores may change a suggested plan of study.