

COMPUTER SCIENCE

TRANSFER

CONTACT PERSON: Karen Arlien • Jack Science Center 101E 224-5501 • Karen.M.Arlien@bsc.nodak.edu

Information Technology jobs are among the fastest growing in North Dakota. Technology is driving business today, especially health care, financial services, public utilities, and sales. The Computer Science program at BSC provides students with highly marketable skills and knowledge to meet the ever-changing technology of business and industry.

BSC's Computer Science graduates receive an Associate in Science degree. Students also receive an extensive education in computer program design practices, a variety of high-level programming languages, such as Java, Visual Basic, and C++, communication skills, technology troubleshooting, and critical thinking skills.

Completion of the program provides a strong foundation in computer program design, allowing a student to enroll in a transfer school at the junior level to pursue a bachelor's degree in computer science topics such as software engineering, computer graphics, game development, multimedia, bioinformatics, artificial intelligence, operating systems, database management systems. The options are continually growing due to advances in technology. Since each school requires a slightly different set of courses to complete the degree, it is important that the student be in contact with the transfer school as early as possible.

Successful computer science students possess these qualities: logical and critical thinking, good organizational skills, ability to work independently and/or as part of a team, strong mathematics background, problem-solving and troubleshooting skills, inquisitive, able to adapt to change, and excellent communication skills.

Career Possibilities: Computer scientists choose jobs in agriculture, energy, business, research, and teaching, just to name a few. Possible career opportunities include Systems Analyst, Management Information Processing, Software Engineer, Computer Scientist, Game Developer, and Database Administrator.

SUGGESTED CURRICULUM FOR ASSOCIATE IN SCIENCE:

FRESHMAN

CREDITS

*Computer Science I (CSCI 160)	4
*Computer Science II (CSCI 161)	4
*Calculus I (MATH 165)	4
*Calculus II (MATH 166)	4
College Composition I (ENGL 110)	3
College Composition II or Intro. to Professional Writing (ENGL 120 or 125)	3
Math/Science/Technology Electives	8
Arts and Humanities Electives	6
Total credits	36

*Students with weak backgrounds in math or computers may have to take some preliminary classes before taking Computer Programming or Calculus.

SOPHOMORE

CREDITS

Assembly Language (CSCI 250)	3
Computer Organization (CSCI 270)	3
Beginning C++ (CSCI 124)	3
Probability and Statistics (MATH 208)	3
Discrete Mathematics (MATH 208)	3
Fundamentals of Public Speaking (COMM 110)	3
Social Science Electives	6
Enrichment	2
Total credits	26

COMPUTER SCIENCE (CSCI)

CSCI 101 Introduction to Computers F&S 3 credits

Introduces students to general computer topics such as input and output devices, the computer's impact on society, programming languages and software. Includes hands-on experience in word processing, spreadsheets, data management and presentations.

CSCI 122 Beginning Visual Basic F&S 3 credits

A course in writing programs using the Visual Basic language for students with no previous experience with a programming language, but some experience with a computer.

CSCI 124 Beginning C++ F&S 3 credits

Introduction to programming in the C++ language for students with some programming experience in another language. Prerequisite: Computer Science 160. Co-requisite: Computer Science 161.

CSCI 125	Beginning Cobol		3 credits
An introduction to computer programming and computer applications. Prerequisite: CSCI 122.			
CSCI 127	Beginning Java		3 credits
An introduction to the Java programming language for students with some programming experience in another language. Covers Java syntax, applets, and applications.			
CSCI 160	Computer Science I	F&S	4 credits
Systematic development of algorithms and programming structure with an emphasis on problem solving and design. The use of good programming style to aid in designing, coding, and debugging programs. Includes use of a structured high level language. Primarily for those who plan to major or minor in Computer Science or Computer Support Specialist. Prerequisite: CSCI 122 or equivalent.			
CSCI 161	Computer Science II	Spring	4 credits
Advanced concepts in computer science, including the Software Life Cycle, data structures, thread processing, hashing, and Graphical User Interfaces. Prerequisite: Computer Science 160.			
CSCI 172	Intermediate Visual Basic	Spring	3 credits
This course is a continuation of Beginning Visual Basic. Topics include arrays, random-access files, graphics, and database management. Prerequisite: CSCI 122.			
CSCI 240	Advanced Cobol		3 credits
A continuation of CSCI 125. Students will work with the advanced features of the COBOL language, including creating, sorting and maintaining indexed files, writing sub-programs and work hexadecimal file dumps. Each student will design, code, test, and document a system consisting of several programs and files with complex formatted output. Prerequisite: CSCI 122 and 125.			
CSCI 250	Assembly Language	Fall	3 credits
This course includes a study of machine and assembly language concepts, programming in assembly language, and assembly subroutines called from a high-level language. Prerequisite: Computer Science 160 or consent of instructor.			
CSCI 270	Computer Organization	Spring	3 credits
The structure and organization of computer hardware, includes creating a simulated digital computer system to illustrate the mechanics of information transfer and control. Prerequisite: Computer Science 160. Co-requisite: Computer Science 161.			
CSCI 294	Independent Study		1-3 credits
Independent or directed study of special topics in computer science. Department chairperson approval is required.			
CSCI 299	Special Topics in Computer Science	BD	1-3 credits
Repeatable up to six semester hours. An examination of special topics in computer science.			
CSCI 195-295	Service Learning		1-3 credits
Maximum of six semester hours. Service learning may be accomplished by one of three methods: Joining a club that has a public service component, doing volunteer work at a non-profit organization, or taking a course that links public service with its curriculum.			
CSCI 197-297	Cooperative Education/Internship	F&S SM	1-3 credit hours each
Repeatable up to a maximum of six hours. Work hours are arranged by employer, adviser and student. Progress is checked by oral and written reports from the employer. Periodic student-adviser conferences are required to discuss progress or problems. Students are required to submit an accounting of their experiences to their instructor. All co-op experiences are based on a satisfactory/unsatisfactory basis. Department chair approval is required.			