Computer Science

Contact Information

Website: www.uis.edu/csc
Email: csc@uis.edu
Office Phone: (217) 206-6770
Office Location: UHB 3100

The Computer Science Department also offers the Bachelor of Science in Information Systems Security

Assessment

The Computer Science Department assesses all students for communication skills and for knowledge of computer science. Assessment is intended to help students in their academic planning and their development as computer scientists.

The process begins in CSC 305 Entrance Assessment, which must be taken the first semester of enrollment as a Computer Science major. The entrance assessment is an examination of the student's knowledge of the core areas of computer science. The process concludes with CSC 405 Exit Assessment, which must be taken the final semester before graduation. The exit assessment helps students assess their progress and helps the faculty revise the curriculum.

Departmental Goals and Objectives

The Bachelor of Science in Computer Science degree is designed to provide students with a strong foundation in computer science and experience in mastering problem-solving skills relevant to the business, scientific, and public sectors.

Graduates of the Bachelor of Science in Computer Science degree program have been successful in earning advanced degrees and in pursuing careers in research and application-oriented positions in business, industry, government, and education. The diversity of course offerings and rigorous degree requirements ensure that a B.S. in Computer Science graduate acquires the knowledge necessary to support their career goals, including the breadth of knowledge required to pursue advanced computing degrees. Students will become proficient in programming, software testing and analysis; learn about the design principles and implementation of programming languages, elementary computer architecture and organization, reduced instruction set computing, and operating systems; and complete a software engineering project that requires them to participate in all phases of the software life cycle.

Students have access to an outstanding variety of computing systems including a virtual server farm, a parallel processing cluster, and a hands-on network laboratory.

The UIS Computer Science Department is a Cisco Regional Networking Academy, serving as the instruction center for local academies at high schools, career centers, community colleges, and universities in central Illinois.

The Computer Science Department has been designated as a National Center of Academic Excellence in Cyber Defense Education. The National Security Agency (NSA) and the Department of Homeland Security (DHS) jointly sponsor the National Centers of Academic Excellence in Cyber Defense Education Program. The goal of this program is to reduce vulnerability in our national information infrastructure by promoting higher education and research in IA and producing a growing number of professionals with IA expertise in various disciplines.

Computer laboratories are open evenings and weekends; some systems are available 24 hours a day. On-campus students have high-speed, wired and wireless internet access. The virtual server farm hosts over 2,200 virtual machines that our online and on-campus students leverage to gain a better understanding of material presented in classes.

Internships

Students have the opportunity to gain credit toward the degree through Internships and Prior Learning (IPL). This is an excellent opportunity for students to gain practical in-the-field or on-the-job experience. Placements have included state agencies, insurance companies, the SIU School of Medicine, computer companies, and other businesses throughout central Illinois. Online students can arrange for local placements.

The Bachelor's Degree

Advising

On acceptance, students are assigned an academic advisor. Before registering for the first time, students should consult with advisors in the major for specific guidance regarding completion of general education requirements.

Grading Policy

CSC courses must be taken for a letter grade. A cumulative grade point average of 2.00 is required to graduate.

Program Learning Outcomes

1. Given a specific, solvable symbol manipulation task, develop a specification, a design, and tests for an automated solution for that task.
2. Demonstrate programming efficiency in at least one high level modern programming language.
3. Relate high level programming constructs to their low level implementations.
4. Distinguish tractable from intractable problems; those which admit an efficient solution, from those that do not. Whenever feasible, evaluate the efficiency of algorithms both analytically and empirically.
5. Explain the fundamental, circuitry level operation of current computing machinery.
6. Articulate fundamental social responsibilities of computing professionals.
7. Master communication skills, including technical writing, public speaking, and electronic presentation.

Requirements

Foundation Requirements [1]		
CSC 225 & CSC 275	Computer Programming Concepts I and Computer Programming Concepts II [2]	
CSC 302	Discrete Structures	
or MAT 114	Finite Mathematics and Its Applications	
or MAT 302	Discrete Mathematics	
MAT 113	Business Calculus	
or MAT 115	Calculus I	
MAT 121	Applied Statistics	
Core Courses [3]		
CSC 305	Entrance Assessment	0
CSC 376	Computer Organization	4
CSC 385	Data Structures and Algorithms	4
CSC 387	Foundations of Computer Science	4
or CSC 482	Algorithms and Computation	
CSC 388	Programming Languages	4
CSC 389	Introduction to Operating Systems	4
CSC 405	Exit Assessment	0
CSC 478	Software Engineering Capstone	4
Elective Courses [4]		
CSC Computer Science Software Electives		12
Total Hours		**36**

1. Students may take these entrance requirements at UIS.
2. Or the equivalent to two semesters of Java programming.
3. Core courses must be taken at UIS. Exceptions may be requested.
4. Applicable CSC electives are numbered CSC 350 or higher and must be chosen in consultation with a CSC academic advisor. CSC courses that include “ECCE” in the title may not be counted as a CSC Elective.

Transfer Courses

The core curriculum provides a strong foundation in computer science. CSC electives are chosen in consultation with the student's academic advisor, to ensure depth of knowledge in topics of particular interest to the student.

The Computer Science Department limits transfer credits for major requirements. The maximum amount of hours that can be transferred is 12. (Core & Computer Science Electives)

Minors

A minor in Computer Science is designed for students who wish to develop a working knowledge of computing that will allow them to apply effective computing techniques and computational problem-solving skills in a variety of contexts. It is useful for students with virtually any academic major, including accounting, business administration, clinical laboratory science, economics, health care, management, and others.

Requirements

Required Courses		
CSC 225	Computer Programming Concepts I	3
CSC 275	Computer Programming Concepts II	3
CSC 302	Discrete Structures	4
or MAT 114	Finite Mathematics and Its Applications	
or MAT 302	Discrete Mathematics	
CSC Electives [1]		**12**
Total Hours		**22**

1. Prior approval by CSC Advisor or Department Head required. Applicable CSC electives are numbered CSC 350 or higher and must be chosen in consultation with a CSC academic advisor. CSC courses must be taken for a letter grade. CSC courses that include “ECCE” in the title may not be counted toward the minor.

Transfer Courses

Transfer courses for the Computer Science minor are evaluated on a case-by-case basis and approved by a Student Petition.

Online

The Bachelor of Science degree in Computer Science has the same degree requirements and faculty as the on-ground format. Our online program provides students the opportunity to actively participate in a diverse and dynamic learning community, while they complete their degrees in their free time via modern technologies.

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