

ACCELERATED DUAL DEGREES COMPUTER SCIENCE, B.S./ M.S.

Accelerated Dual Degrees in Bachelor of Science and Master of Science in Computer Science

Credits: 152
CIP Code: 110701

Program Description

The Department of Computer and Information Science offers highly motivated undergraduate students with superior record options to earn both the bachelor's and the master's degrees in Computer Science in a five-year period. Students must complete a minimum of 152 credits (122 undergraduate and 30 graduate hours).

At the beginning of the junior year, students may apply and be admitted into the Five-Year Accelerated Dual-Degree Program. Accepted candidates into the program take six (6) credits of approved advanced graduate-level computer science courses during their fourth (senior) year while completing the undergraduate (major and general education) degree requirements. These will apply toward the minimum 30 credits required for the Master of Science in Computer Science. During the fifth year of study, students complete the remaining 24 credits of graduate-level courses; maintain the minimum GPA required in the graduate computer science major courses; complete the master's degree requirements at an accelerated rate of 12 graduate credit hours per semester instead of typical nine (9) credits; and satisfy the graduate residence requirement. Summer research may be required depending on the nature of the students' thesis research project.

Students receive both the undergraduate and the graduate degrees upon successful completion of the prescribed course of study and specified program requirements. Students must apply for candidacy for each degree at the times specified in the University catalogues for awarding of the Bachelor of Science and the Master of Science degrees. Students who do not finish the graduate portion of the degree program, for any reason, will be allowed to earn the bachelor's degree once the undergraduate degree requirements are satisfied.

Admissions Requirements

Applicants to the Bachelor of Science Degree in Computer Science and Master's of Computer Science must meet the General Admissions Requirements as published in this Catalog.

Student Learning Outcomes

Graduates of the Accelerated Dual Degree in Bachelor of Science and Master of Science in Computer Science will be able to:

1. Have communication skills sufficient to gain employment in an industrial environment.
2. Identify and solve problems in computation and show capability in applying integrative algorithmic theories and data structures to solve them.

3. Apply theoretical knowledge of computer science to determine state of the art performance in the areas of networking, information storage in databases, and human-computer-interface.
4. Perform independent research in the field of Computer Science.
5. Assess the hardware and software aspects of computer systems that support application software development.
6. Collaboratively develop software in groups.

Degree Requirements

This program consists of a minimum of 152 credit hours of coursework (a minimum of 122 undergraduate and a minimum of 30 graduate credit hours). Students must satisfy all undergraduate general education, requisite cognate and major courses required (122 credits) for the Bachelor's Degree in Computer Science including three (3) semesters of continuous science classes with laboratory either in Biology, Chemistry, or Physics. Students must maintain a minimum final grade of "C" in all required Computer Science courses and complete the Senior Design Project capstone course leading to submission and presentation of an acceptable technical report. The 30 credit hours of graduate level coursework include completing and successfully presenting an acceptable research project.

The maximum credit hour load for undergraduate study shall be in effect through the fourth year of study during which students begin to pursue advanced graduate coursework and research while completing undergraduate degree requirements. During the fifth year, students are engaged in graduate study exclusively. Summer research opportunities are provided and may be required depending on the nature of the students' research project.

Admission and Continuation

- Academic progress is monitored continuously
- Students must maintain a cumulative "B" or better average
- At the beginning of the second semester of the third (junior) year, students must apply for admission to the graduate program
- Students must be admitted into the accelerated program at the beginning of the fourth (senior) year
- Graduate admission may be provided upon recommendation of the department chair and approval of the School Dean
- During the fifth year, students must satisfy the graduate residence requirement

Clearance for Graduation

- Students must apply for candidacy for each degree at the times specified in the University catalogues
- Upon completion of the prescribed course of study, students receive two degrees – the Bachelor of Science and the Master of Science

Failure to Complete Graduate Requirements

At any point during the students' participation in this program, they may elect, or be required because of academic performance, to pursue the traditional four-year bachelor's degree program. In such cases the bachelor's degree may be awarded once the undergraduate degree requirements are satisfied.

Code	Title	Hours
Required Undergraduate Courses		
CCIS 101	Introduction to Computers	3
CCIS 105	Programming Principles I	3

CCIS 105L	Programming Principles I Lab	1
CCIS 106	Programming Principles II	3
CCIS 106L	Programming Principles II Lab	1
CCIS 121	Introduction to Computer Sys	3
CCIS 223	Data Structures	3
CCIS 223L	Data Structures Lab	1
CCIS 227	Discrete Structures	3
CCIS 321	Software Engineering	3
CCIS 329	Rich Internet Applications	3
CCIS 371	Computer Algorithms	3
CCIS 372	Computer Architecture	3
CCIS 374	Database Systems	3
CCIS 375	Intro to Artificial Intel	3
CCIS 431	Cybersecurity I	3
CCIS 473	Intro to Operating Systems	3
CCIS 476	Programming Langs. & Compilers	3
CCIS 493	Senior Design Project	3
CCIS 400+	CIS Elective	3
Cognate Courses		
CMAT 321	Mathematical Prob & Stat I	3
CMAT 214	Linear Algebra	3
or CMAT 311	Mathematical Logic	
CBBIO/CCHE/CPHY Science I		3
CBBIO/CCHE/CPHY Science I Lab		1
CBBIO/CCHE/CPHY Science II		3
CBBIO/CCHE/CPHY Science II Lab		1
CBBIO/CCHE/CPHY Science III		3
CBBIO/CCHE/CPHY Science III Lab		1
Total Hours		72

General Education Courses

Code	Title	Hours
Area A: Humanities/Fine Arts		
Select one of the following:		3
CPHI 105	Critical Thinking	
CREL 101	The Biblical Heritage	
CREL 103	Afr Amer Religious Experiences	
Select one of the following:		3
CHIS 201	United States, Africa & World	
CHIS 211	History of the United States	
Area B: Social/Behavioral Sciences		
Select one of the following:		3
CPSY 211	General Psychology	
CPSC 219	American Govern & Politics	
CSCJ 215	Intro. to Sociology	
CSCJ 216	Intro. to Anthropology	
CSCJ 218	Contemporary Social Problems	
CSCJ 201	Intro. to Criminal Justice	
Area C: Natural Sciences/Mathematics/Statistics		
CMAT 111	Calculus I	4
CMAT 112	Calculus II	4
Area D: Communications		

CENG 105	College Composition I	3
CENG 106	College Composition II	3
CSTA 101	Fundamentals of Speech	3
Area E: Financial/Technological		
CCIS 253	Intro. to Comp. Sim/Analysis & 253L and Intro. to Comp. Sim/Analy(Lab)	4
CECO 107	Introduction to Economics	3
Total Hours		33

Other University Requirements

Code	Title	Hours
CGED 100	First Year Seminar	1
CGED 101	1st-Year Seminar	1
Total Hours		2

Free Electives: 12 Credits

Note: Free Electives should be chosen in consultation with the advisor depending on the choice of minor or stackable credentials.

Plan of Study for Accelerated Dual Degrees in Bachelor of Science and Master of Science in Computer Science

(Students who are **not** prepared to complete calculus in their first year of study should arrange a revised plan of study in consultation with an advisor.)

The following suggested plan of study is to illustrate how required and elective courses can be arranged for students pursuing the Accelerated Dual Degree in Computer Science.

Course	Title	Hours
First Year		
First Semester		
CCIS 101	Introduction to Computers	3
CENG 105	College Composition I	3
CGED 100	First Year Seminar	1
CMAT 111	Calculus I	4
CCIS 105	Programming Principles I	3
CCIS 105L	Programming Principles I Lab	1
Hours		15
Second Semester		
CENG 106	College Composition II	3
CGED 101	1st-Year Seminar	1
CMAT 112	Calculus II	4
CCIS 106	Programming Principles II	3
CCIS 106L	Programming Principles II Lab	1
CCIS 121	Introduction to Computer Sys	3
Hours		15
Second Year		
First Semester		
CBIO/CCHE/CPHY Science I ¹		3
CBIO/CCHE/CPHY Science I Lab ¹		1
CXXX	Area A, B, C, D	3
CXXX	Area A, B, C, D	3

CCIS 223	Data Structures	3
CCIS 223L	Data Structures Lab	1
CMAT 214 or CMAT 311	Linear Algebra or Mathematical Logic	3
Hours		17
Second Semester		
CBIO/CCHE/CPHY Science II ¹		3
CBIO/CCHE/CPHY Science II Lab ¹		1
CXXX	Area A, B, C, D	3
CCIS 253 & 253L	Intro. to Comp. Sim/Analysis and Intro. to Comp. Sim/Analy(Lab)	4
CCIS 227	Discrete Structures	3
Area A,B,C,D		3
Hours		17

Third Year**First Semester**

CCIS 229	Web Site Design & Development	3
CBIO/CCHE/CPHY Science III ¹		3
CBIO/CCHE/CPHY Science III Lab ¹		1
CCIS 374	Database Systems	3
CCIS 375	Intro to Artificial Intel	3
CCIS 321	Software Engineering	3
Hours		16

Second Semester

CXXX	Area A, B, C, D	3
CCIS 329	Rich Internet Applications	3
CCIS 371	Computer Algorithms	3
CCIS 372	Computer Architecture	3
CMAT 321	Mathematical Prob & Stat I	3
Hours		15

Fourth Year**First Semester**

CCIS 431	Cybersecurity I	3
CCIS 476	Programming Langs. & Compilers	3
CCIS 400	CIS Elective ²	3
CXXX	Free Elective	3
CXXX	Free Elective	3
CCIS 671	Algorithm Design & Analysis	3
Hours		18

Second Semester

CCIS 473	Intro to Operating Systems	3
CCIS 493	Senior Design Project	3
CXXX	Free Elective	3
CXXX	Free Elective	3
CCIS 674	Database Design	3
Hours		15

Fifth Year**First Semester**

CCIS 672	Computer Organization	3
CCIS 673	Operating Systems Design	3
CCIS 500	CIS Elective ³	3

CCIS 500	CIS Elective ³	3
Hours		12
Second Semester		
CCIS 500	CIS Elective ³	3
CCIS 500	CIS Elective ³	3
CCIS 500	CIS Elective ³	3
CCIS 805	Research/Design Proj.Data Base	3
Hours		12
Total Hours		152

¹ Three (3) semesters of continuous science classes with lab either in Biology, Chemistry, or Physics.

² Computer Science Electives must be at the 400 level or higher.

³ Computer Science Electives must be at the 500 level or higher.