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The Department seeks to provide each of its majors with a broad understanding of computer science. This broad understanding serves as a coherent framework in which the student can place his or her developing knowledge and technical skill. Moreover, the Department seeks to provide each student with a solid foundat on in the central ideas and methods of modern computer science. It seeks to produce computer scient sts who know,

Cudahy Hall) to declare a major and to be assigned a departmental advisor. From this t me on the student meets with the advisor to discuss course select ons for the next semester and general academic progress.

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Upon complet on of all required coursework, Computer Science majors will be able to:

- 1. Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions
- 2. Design, implement, and evaluate a comput ng-based solut on to meet a given set of comput ng requirements in the context of the program's discipline.
- 3. Communicate ef ect vely in a variety of professional contexts.
- 4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles
- 5. Funct on effect vely as a member or leader of a team engaged in act vities appropriate to the program's discipline
- 6. Apply computer science theory and sof ware development fundamentals to produce comput ng-based solut ons

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All students must take the following nine courses:

COSC 1010	Introduct on to Sof ware Development	4 sem. hrs.				
COSC 1020	Object-Oriented Sof ware Design	4 sem. hrs.				
COSC 2100	Data Structures	3 sem. hrs.				
COSC 2200	Hardware Systems	4 sem. hrs.				
COSC 3100	Algorithms	3 sem. hrs.				
COSC 3250	Operat ng Systems	4 sem. hrs.				
COSC 3410	Programming Languages	3 sem. hrs.				
COSC 3820	Social, Ethical, and Professional Issues in CS	3 sem. hrs.				
COSC 4920	Principles of Design	3 sem. hrs.				
COSC 4998	Senior Design Project	3 sem. hrs.				
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MATH 1450	Calculus 1	4 sem. hrs.				
MATH 1451 or	Integral Calculus or	4 sem. hrs.				
1455	Calculus 2					
MATH 2100 or	Discrete Mathemat cs or	3 sem. hrs.				
2350	Foundat ons of Mathemat cs					
MATH 3100	Linear Algebra and Matrix Theory	3 sem. hrs.				
MATH 4720	Stat st cal Methods	3 sem. hrs.				

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To complete the major, 6 additional semester hours of Science cognate electives are required, including at least:

one Natural Science elect ve with O	component		
(BIOL, CHEM or PHYS)	3-4 sem. hrs.		
Courses that sat sfy the Laboratory Science requi include CHEM 1001, 1002, 1013, and 1014; PHYS departments may also of er laboratory-only sect	51001, 1002, 1003 and 1004. These	in	the ma

COSC 3550	Programming Computer Games	3 sem. hrs.
COSC 3750	Introduct on to Data Science	3 sem. hrs.
COSC 3810	Sof ware Design and Analysis	3 sem. hrs.
COSC 3870	Pedagogy of Computer Science	1 sem. hrs.
COSC 3977	Problem Solving - Programming	1 sem. hrs.
COSC 4290	Real-Time and Embedded Systems	3 sem. hrs.
COSC 4300	Networks and Internets	3 sem. hrs.
COSC 4360	Computer Security	3 sem. hrs.
COSC 4370	Internet of Things	3 sem. hrs.
COSC 4400	Compiler Construct on	3 sem. hrs.
COSC 4500	Visual Analyt cs	3 sem. hrs.
COSC 4600	Fundamentals of Art ficial Intelligence	3 sem. hrs.
COSC 4610	Data Mining	3 sem. hrs.
COSC 4800	Principles of Database Systems	3 sem. hrs.

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A computer science major must sat sfy the requirements for the major as well as the graduat on requirements of the College of Arts and Sciences and the Marquet e Core

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A student with a major in computer science needs to complete the math requirements for the minor in mathematics. There are seven additional credit hours of MATH courses including: MATH 2450, MATH 2350 (in place of MATH 2100), and one more u

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Katherine Reed Cudahy Hall houses the University's Informat on Technology Service (ITS) central computing facilities on the second foor, and CS Department computing facilities on the first, third and fourth foors.

Marquet e students, faculty and staf are granted accounts on the Emarq and CheckMarq systems maintained by ITS. Authent cat on credent als can be obtained from the ITS Help Desk (room CU 293) and are maintained throughout a student's enrollment at Marquet e. Addit onal informat on regarding University comput ng facilit es can be obtained by calling the ITS Help Desk at 288-7799.

The CS Department maintains its own independent computing facilities for both teaching

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<u>First Term</u>	Sem. Hrs.	Second Term	Sem. Hrs.
COSC 1010	4	COSC 1020	4
MATH 1450	4	MATH 1451	4
ENGL 1001 or ESSV1 (MCC)	3	ENGL 1001 or ESSV1 (MCC)	3
Natural Science with Laboratory ⁹	4	THEO 1001 or PHIL 1001 (MCC)	3
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<u>First Term</u>	Sem. Hrs.	Second Term	Sem. Hrs.
COSC 2100	3	COSC 3xxx/4xxx	3
COSC 2200	4	COSC 3250	4
MATH 2350	3	MATH 3100	3
MATH 2450	4	DSCV (MCC)	3
CORE 1929 (MCC)	3	PHIL 1001 or THEO 1001 (MCC)	3
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<u>First Term</u>	Sem. Hrs.	Second Term	Sem. Hrs.
COSC 3410	3	COSC 3100	3
COSC 3xxx/4xxx	3	MATH Group 3 (stat st cs)	3
MATH Sequence (part 1)	3	MATH Sequence (part 2)	3
Science elect ve ⁹	3	MATH 4720	3
DSCV (MCC)	3	DSCV (MCC)	3
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First Term	Sem. Hrs.	Second Term	Sem. Hrs.
COSC 4920	3	COSC 4998	3
COSC 3xxx/4xxx	3	COSC 3xxx/4xxx ¹⁰	3
MATH Group 1 (pure)	3	MATH Group 2 (applied) ⁹	3
MATH 3xxx/4xxx ⁹	3	MATH 3xxx/4xxx ⁹	3
DSCV (MCC)	3	CORE 4929 (MCC)	3

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⁸ For a single major programs that combines aspects of both Computer Science and Mathemat cs with fewer course requirements, please see the Computat onal Mathemat cs major and Data Science major handbooks.
⁹ Must complete 6 addit onal credit hours of Math/Sciences elect ves, including at least one 3-4 credit hour science course with a laboratory component (BIOL, CHEM or PHYS).

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10 MATH 4550 (Numerical Analysis) may be double-