MASTER OF SCIENCE IN COMPUTING AND DATA SCIENCE

The Computing and Data Science curriculum utilizes state-of-the-art software, software development methodologies, project management techniques, data science, and systems. Emphasis is placed on preparing students for an environment where change is the norm. Computing and Data Science may be selected as the major for the Master of Science degree.

Additional information: Reference the Program Landing Page (https://www.shsu.edu/programs/graduate/computing-and-data-science/) for additional information, such as cost, delivery format, contact information, or to schedule a visit.

Applicants seeking admission to the graduate program in Computing and Data Science must submit the following directly to the Office of Graduate Admissions (https://www.shsu.edu/dept/graduate-admissions/prospective-students.html):

1. Graduate Application (http://www.shsu.edu/admissions/apply-texas.html)
2. Application fee (http://www.shsu.edu/dept/graduate-studies/application-fee.html)
3. Official transcript(s) of all previous college work
4. Two letters of recommendation that address the applicant's qualifications for graduate study
5. International Applicants Only: TOEFL or IELTS scores. The minimum requirement for TOEFL is 550 paper-based, 213 computer-based, and 79 internet-based. The minimum requirement for IELTS is 6.5

Graduate study in Computing and Data Science is accessible to students who have completed undergraduate computer science majors or minors and to students with baccalaureate degrees in related fields with the equivalent of a computer science minor in formal coursework or professional experience.

At the minimum, candidates are expected to present a background comparable to that provided in the following courses as described in the Undergraduate Catalog of Sam Houston State University.

Background Courses

Code	Title	Hours
Courses		
COSC 1436	Programming Fundamentals I	4
COSC 1437	Programming Fundamentals II	4
COSC 3318	Data Base Management Systems	3
COSC 3319	Data Structures and Algorithms	3
COSC 4318	Advanced Language Concepts	3
COSC 4327	Computer Operating Systems	3
MATH 1420	Calculus I	4
MATH 3379	Statistical Methods in Practice	3

Students **who have not fulfilled** the prerequisites in formal coursework **are required** to take one or more of the graduate stem courses. These courses **do not apply** towards the degree plan.

Graduate Stem Course Requirements

Code	Title	Hours
Graduate Stem Course Requirements		
COSC 5301	Quantitative Foundations of Computer Science	3
COSC 5302	Computer Science Core Topics	3

In general, applicants whose GRE score exceeds 300 will likely be able to complete the master's degree successfully. Admission preference is given to those applicants with an undergraduate GPA in excess of 3.0. However, please note that a holistic review of each student's application file will be completed, and admission will be granted on a competitive basis.

The MS in Computing and Data Science requires a minimum of thirty hours of graduate credit. There are two plans leading to the degree: a thesis and a non-thesis option.

A thesis / MS Project committee will be established either before or during the student's penultimate semester. The committee should consist of a committee chair (supervisor) and a minimum of two additional committee members, all holding the appropriate graduate faculty status. With the approval of the department, academic dean, and Dean of The Graduate School, the committee may include one member who is not employed by SHSU, as per Academic Policy Statement 950601. The selection of the committee chair hinges on the student's preference, faculty availability, and expertise. Once a faculty member agrees to assume the role of chair, the student, under the chair's guidance, will proceed to select the remaining

committee members. Subsequently, the committee's constitution needs approval from both the Graduate Coordinator and the Dean. Any alterations to the committee's composition will similarly require approval through the same process.

All MS students in Non-Thesis Option are obligated to fulfill and achieve a passing grade in written or oral comprehensive exams for core subjects where they obtained a grade of B or lower. Exams are conducted during their terminal semester. Should a student fail one or more examinations, a re-examination shall be permitted per department approval. A third examination may be permitted only with the approval of the appropriate academic dean and the department. Students must be enrolled at SHSU in the semester in which the comprehensive exams are administered.

Once enrolled in COSC 6347 or COSC 6348/COSC 6049 a student must be continually enrolled each semester until graduation.

Plan 1 - MS in Computing and Data Science (Thesis Option)

Code	Title	Hours
Master of Science in Computing and Data Science (Thesis option)		
Specified Courses		
COSC 5318	Database Systems	3
COSC 5319	Algorithm Design and Analysis	3
COSC 5327	Operating Systems	3
COSC 6318	Language and Compiler Design	3
COSC 6319	Software Engineering	3
COSC 6348	Thesis [1]	3
COSC 6049	Thesis [1]	3
Track Electives [2,3]		**9**
Total Hours		**30**

[1]   Once enrolled in a thesis course, the student must enroll in a thesis course until graduation.
[2]   See Computing and Data Science Tracks course listings below.
[3]   COSC 5301 and COSC 5302 do not count towards the degree plan.

Plan 2 - MS in Computing and Data Science (Non-Thesis Option)

Code	Title	Hours
Master of Science in Computing and Data Science (Non-thesis option)		
Specified Courses		
COSC 5318	Database Systems	3
COSC 5319	Algorithm Design and Analysis	3
COSC 5327	Operating Systems	3
COSC 6318	Language and Compiler Design	3
COSC 6319	Software Engineering	3
COSC 5050	Independent Study	3
COSC 6347	Programming Practicum [1]	3
Track Electives [2,3]		**9**
Total Hours		**30**

[1]   Once enrolled in COSC 6347, the student must continue to enroll in this course until graduation.
[2]   See Computing and Data Science Tracks course listings below.
[3]   COSC 5301 and COSC 5302 do not count towards the degree plan.

Computing and Data Science Tracks

Code	Title	Hours
Data Science		
COSC 5313	Artificial Intelligence	3
COSC 6314	Data Mining/Knowledge Discovery	3
COSC 6315	Machine Learning	3

Code	Title	Hours
Systems		
COSC 5322	Real-Time and Embedded Systems	3
COSC 5326	Networks & Data Communications	3
COSC 6321	Distributed Computing	3

Stem Requirement

At the minimum, students are expected to present a background comparable to that provided in the following courses as described in the Undergraduate Catalog of Sam Houston State University:

Prerequisite courses

Code	Title	Hours
Prerequisite Courses		
COSC 1436	Programming Fundamentals I	4
COSC 1437	Programming Fundamentals II	4
COSC 3318	Data Base Management Systems	3
COSC 3319	Data Structures and Algorithms	3
COSC 4318	Advanced Language Concepts	3
COSC 4327	Computer Operating Systems	3
MATH 1420	Calculus I	4
STAT 3379	Statistical Methods in Practice	3

Students **who have not fulfilled** the prerequisites in formal coursework **are required** to take one or more of the graduate stem courses. These courses **do not apply** towards the degree plan.

Graduate Stem Course Requirements

Code	Title	Hours
Graduate Stem Course Requirements		
COSC 5301	Quantitative Foundations of Computer Science	3
COSC 5302	Computer Science Core Topics	3

The Texas Higher Education Coordinating Board (THECB) marketable skills initiative is part of the state's **60x30TX plan** and was designed to help students articulate their skills to employers. Marketable skills are those skills valued by employers and/or graduate programs that can be applied in a variety of work or education settings and may include interpersonal, cognitive, and applied skill areas.

The MS in Computing and Information Science is designed to provide graduates with the following marketable skills:

• Identify and solve complex computing problems in information technology, business, medicine, and other essential industries.

• World-class soft skills in complex problem-solving, communication, and creative thinking.

• Strong technical skills and interpersonal skills to work as a group.

• Superior technical writing skills to document and publish their findings.