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.

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. Official GRE scores
5. Two letters of recommendation that address the applicant's qualifications for graduate study
6. 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 (http://catalog.shsu.edu/archives/2022-2023/undergraduate/) 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 Mthods in Practice	3

Applicants with less preparation will be required to complete additional stem work as part of the graduate program.

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 committee advisor is assigned to each student at the time the student registers for COSC 6347 or COSC 6348. Committee appointments are made by the Chair of the Computer Science department based upon recommendation from the Computer Science Graduate Advisor. The advisory committee consists of graduate faculty from the Computer Science department. Students selecting the non-thesis option will be required to complete a written comprehensive examination in core subjects where they received a grade of B or lower, before graduation. Students may also be required to supplement their written responses in an oral examination. Students must be enrolled the semester in which they take comprehensive examinations. 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

Code	Title	Hours
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 5050	Independent Study	3
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 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/Knowldge Discovery	3
COSC 6315	Machine Learning	3

Code	Title	Hours
Systems		
COSC 5321	Parallel Computing	3
COSC 5322	Real-Time and Embedded Systems	3
COSC 5326	Networks & Data Communications	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.