

# COMPUTER SCIENCE (MS) THESIS

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Degree: Master of Science

Major: Computer Science Thesis

Total Hours: 34

## Graduate Program

The Department of Computer Science offers a program of study leading to the Master of Science degree in Computer Science. Both thesis and non-thesis options are available.

The objective of the master's degree is to produce professional computer scientists capable of contributing technically to the basic core areas of computer science as well as to application areas. A mixture of courses, laboratory, and research work in the program is designed to place graduates at the forefront of technical excellence.

## Research

The department engages in a broad-based research program. Current faculty research interests include artificial intelligence, big data, computer systems, cloud computing, computer vision, cybersecurity, database, data analysis, game development, real-time system, and wireless and sensor networks.

## Admission to the Graduate Program

Students seeking admission to the Master in Computer Science program must meet the following requirements as follows:

- The Graduate Record Examination (GRE) is optional but encouraged. Admission is competitive and based on a comprehensive evaluation of all submitted application materials.
- A resume that includes academic information such as transcripts of undergraduate studies (with GPA/CPGA shown), references for academic publications, work experience and any other relevant scholarly activities.
- For applicants whose native language is not English, an IELTS or TOEFL score is required as indicated at the [Lamar University website \(https://www.lamar.edu/admissions/how-to-apply/international/\)](https://www.lamar.edu/admissions/how-to-apply/international/).
- Demonstrable knowledge of programming in a high-level language and operating systems is required. The two options are either taking equivalency exams or enrolling in leveling courses (COSC 4304 Foundations of Programming and COSC 4302 Operating Systems) and passing with a grade of "B" or higher.

## Background Requirements

Students must be able to demonstrate sufficient undergraduate computer science background before beginning courses towards the M.S. program. The following undergraduate background courses or their equivalents are required: COSC 4304 Foundations of Programming and COSC 4302 Operating Systems. These two prerequisites can be taken at the same time with COSC 5100 Graduate Seminar and COSC 5315 Foundations of Computer Science, but COSC 4302 Operating Systems and COSC 4304 Foundations of Programming do not count toward the graduate degree.

Students must make at least a "B" grade in these two prerequisite courses in order to satisfy the undergraduate background requirements and to take other required graduate courses.

Students may be excused from a prerequisite course if they are able to pass a competency exam given on the content of the associated course. A competency test is given for each prerequisite course by the Computer Science Department for a fee of \$75 per examination. Each examination may be taken only once before the first semester entering the degree. In some cases, students may also be excused from a prerequisite course if they have courses on their transcripts that the Computer Science Department considers equivalent in content to the prerequisite. The content of courses taken in other institutions is not necessarily the same as courses taken with the same title in Lamar University. We are not interested in having students take extra courses, but we do have to ensure the soundness of our graduate-level courses.

In addition to these two prerequisites, our M.S. program requires either 10 graduate courses and a thesis or 12 courses and a one-semester project. In both cases, an oral defense is required in addition to a written report. If you are a full-time student taking 9 credit hours (i.e., three courses) during the fall and spring semesters and one course during each of the two five-week summer sessions, you will finish all work within two years.

## Degree Requirements

Students in the master's program in Computer Science are required to establish competence in several areas considered basic to the field of Computer Science. At least 22 hours of graduate work in computer science and a thesis or 28 hours of graduate work in computer science and a project are required for a master's degree in Computer Science. In order to qualify for the master's degree, the student must have a 3.0 GPA in all computer science courses and must earn a grade of 'B' or better in each of the core courses.

- Core Course Requirement (6 courses; 16 semester hours). COSC 5100 Graduate Seminar, COSC 5313 Analysis of Algorithms, COSC 5302 Advanced Operating Systems, COSC 5328 Computing Networks, COSC 5315 Foundations of Computer Science, CPSC 5360 Software Engineering.
- Option I (Thesis) Completion of the core requirements. Students may take one or two courses outside of computer science with the approval of the department chair. At least a "B" (3.0) grade point average must be maintained in course work. At most three "C" grades are permitted in coursework, and each "C" must be balanced by an "A" in another computer science graduate-level course. Students may not count courses taken in other departments to balance "C" grades made in the Computer Science Department. Completion of COSC 5390 Thesis and COSC 5391 Thesis II and submission of an acceptable thesis. Completion of a total of 34 graduate semester hours including a thesis. Successful oral defense of the thesis. If a failure occurs, the defense may be repeated. A second failure will cause the student to be dropped from the degree program in Computer Science.
- Option II (Non-thesis) Completion of the core requirement. Students may take one or two courses outside of computer science with the approval of the department chair. At least a "B" (3.0) grade point average must be maintained in course work. At most three "C" grades are permitted in coursework, and each "C" must be balanced by an "A" in another computer science graduate-level course. Students may not count courses taken in other departments to balance "C" grades made in the Computer Science Department. All non-thesis students must take and satisfactorily complete COSC 5369 Graduate Project.

This course consists primarily of a significant software project, an oral defense, and the submission of a written professional report. Completion of a total of 37 hours in graduate-level courses, including the final project.

## Alternate Work/Study

An enrolled student may alternate between study and employment as a formal part of her/his training. While working, the student might perform research and collect data for his/her thesis at a facility that offers technology not available at Lamar University. A letter from the student's academic advisor explaining why he or she is unable to conduct research on campus.

Code	Title	Hours
<b>Required Courses</b>		
COSC 5100	Graduate Seminar	1
COSC 5302	Advanced Operating Systems	3
COSC 5313	Analysis of Algorithms	3
COSC 5315	Foundations of Computer Science	3
COSC 5328	Computing Networks	3
CPSC 5360	Software Engineering	3
<b>Thesis</b>		
COSC 5390	Thesis	3
COSC 5391	Thesis II	3
<b>Electives</b>		
12 hours of electives		12
<b>Total Hours</b>		<b>34</b>