

# COMPUTER SCIENCE, M.S.

The graduate program in Computer Science is designed to provide theoretical knowledge as well as practical applications in the areas of software architecture, artificial intelligence, cybersecurity, and computer networks. In this program, working professionals are given an opportunity to continue their education on a part-time or full-time basis, and can conduct research under the guidance of a faculty advisor. Upon graduation from the program, students will be conferred the degree of Master of Science (M.S.) in Computer Science.

## Program Educational Objectives

The Computer Science graduate program educational objectives are:

1. The development of in-depth expertise for a successful career and/or a successful undertaking of further graduate level studies in computer science and related fields.
2. The ability to meet the challenges of the future through continuing professional growth.
3. An appreciation of societal and environmental impact surrounding computing-related decisions and applications.

## Student Outcomes

Upon successful completion of the Computer Science graduate program, students will be able to:

1. Demonstrate generalized programming ability and specialized technical skills in at least one area of computer science.
2. Apply system design skills to effectively integrate software systems throughout their life cycle.
3. Apply information literacy and self-learning skills to conduct graduate-level research.
4. Utilize project management skills in complex software development and integration.

## Admission Requirements

Students seeking admission should have completed an undergraduate program in computer science or a closely related field. To be considered for admission, students must submit an application, a statement of intent, and transcripts. Letters of recommendation and the Graduate Record Exam (GRE) are optional.

The undergraduate preparation of all applicants, regardless of their previous degrees, should include the following subject areas:

- CMSI 1010 Computer Programming and Laboratory
- CMSI 2120 Data Structures and Applications

and at least two of the following:

- CMSI 2210 Computer Systems Organization
- CMSI 3510 Operating Systems
- CMSI 3520 Database Systems

Applicants that have not completed an undergraduate program in computer science or other closely-related technical fields may be offered admission with additional coursework required as a condition of admission.

These courses need not be taken at Loyola Marymount University. However, the student should make certain that courses taken elsewhere satisfy the above requirements.

Coursework required as part of terms of admission may not be waived.

**Transfer Credit:** Students may transfer six (6) semester hours for courses completed at another regionally accredited college or university. Credits to be transferred must be taken prior to admission. Each transferred course grade must be at least B (3.0), and the course must not have been used to satisfy degree requirements at another college or university.

## Graduation Requirements

A degree candidate is required to complete, with a cumulative grade point average of at least B (3.0), a program of study comprising a minimum of thirty (30) or more semester hours of graduate-level coursework (i.e., 500-level or 600-level courses), with a cumulative grade point average of at least B (3.0). Additional prerequisite (undergraduate) courses may be required as deemed appropriate by the advisor in consultation with the department. Of the graduate-level coursework, at least fifteen (15) semester hours are to be in 600-level courses. Students must achieve a grade of B (3.0) or better in all 500-level courses. Applicable courses generally include both courses offered by this department, as well as appropriate courses from mathematics, electrical engineering, or other disciplines. At least twenty-four (24) semester hours must be comprised of CMSI courses.

500-level courses taken as an undergraduate may not be repeated for graduate credit. If a 500-level course is cross-listed with a 600-level course, graduate students must enroll in the 600-level course.

The program of study must include the following courses: (1) CMSI 583 Computability and Complexity, (2) CMSI 585 Programming Language Foundations, and (3) either CMSI 694 Graduate Capstone Project or two or three Master's Thesis courses (CMSI 695 Master's Thesis I, CMSI 696 Master's Thesis II, CMSI 697 Master's Thesis III). One or more of the 500-level required courses may be waived if the student demonstrates satisfactory completion of a similar course. Waived courses will be replaced by electives at the 500 or 600 level.

## Curriculum

During the first semester of attendance, the student should prepare a program of study with a faculty advisor. The 30 semester hours of required coursework is allocated as follows:

Code	Title	Semester Hours
CMSI 583	Computability and Complexity	3
CMSI 585	Programming Language Foundations	3
Elective		3
Elective		3
Elective		3
Elective		3
Elective		3
Select one of the following options:		9
Option 1		
Elective		
Elective		
CMSI 694	Graduate Capstone Project	
Option 2		

Elective	
CMSI 695	Master's Thesis I
CMSI 696	Master's Thesis II
Option 3	
CMSI 695	Master's Thesis I
CMSI 696	Master's Thesis II
CMSI 697	Master's Thesis III
<b>Total Semester Hours</b>	
<b>30</b>	

6. Students selecting the thesis option must do so before the fall semester after their senior year with consent from the academic advisor.

## Master's Thesis Option

Preparation of a master's Thesis is optional and can fulfill up to a maximum of nine (9) semester hours of elective course requirements. The student electing the thesis option (option 2 or option 3 above) must obtain a thesis advisor and the thesis must conform to the Frank R. Seaver College of Science and Engineering requirements. With direction from the academic advisor, a thesis committee will be formed. Typically, the thesis committee consists of the student's thesis advisor, a full-time faculty member from the student's department, and a third member from other than the student's department. The thesis is a report on the results of the student investigation of a problem in computer science under the supervision of the thesis committee, which approves the subject and plan of the thesis and reads and approves the complete manuscript.

## Requirements for the Combined B.S./M.S. Degrees, major in Computer Science

This combined B.S./M.S. program is designed for LMU students to continue their studies in the Computer Science M.S. program immediately following their B.S. degree. The program allows students to complete the M.S. degree in one year.

Only LMU students in their senior year of the Computer Science, Computer Engineering, or Electrical Engineering major, with a GPA of 3.0 or greater, are eligible to apply. Students can enter this program any term immediately following completion of their undergraduate degree requirements. The candidate for the combined B.S./M.S. degree in Computer Science must satisfy the following requirements. Application to the program should be made in the fall semester of the student's senior year.

1. One Frank R. Seaver College of Science and Engineering 500-level course taken as an undergraduate may count toward the M.S. degree. This course can be double-counted for the B.S. degree and the M.S. degree.
2. For an admitted student, one additional Frank R. Seaver College of Science and Engineering 500-level course may be taken in their senior year that counts towards the M.S. degree and not the B.S. degree (i.e., this course appears in the student's M.S. degree audit *only*, and is not included in the B.S. degree audit at all). This potentially reduces the total number of additional semester hours after earning the B.S. degree to 24.
3. The student should take two courses at the 500- or 600-level during summer following the senior year.
4. Once the undergraduate degree is awarded and the student is considered a graduate student, if a 500-level course is cross listed with a 600 level course, graduate students must enroll in the 600-level course.
5. 500-level courses already completed for the B.S. degree cannot be retaken.