

# Master's of Science in Computer Science

## THESIS Option

Revised January 29, 2020

### Overview of Degree

The Master's of Science degree in Computer Science (Thesis Option) at The University of Georgia is a comprehensive program of study intended to give qualified and motivated students a thorough foundation in the theory, methodology, and techniques of Computer Science. Students who successfully complete this program of study will have a grasp of the principles and foundations of Computer Science. They will be prepared to pursue higher academic goals, including the Doctor of Philosophy degree. They will obtain skills and experience in up-to-date approaches to analysis, design, implementation, validation, and documentation of computer software and hardware. With these skills they will be well qualified for technical, professional, or managerial positions in government, business, industry, and education.

Prospective students are advised to consult The University of Georgia Graduate Bulletin for institutional information and requirements.

### Admission Requirements

In addition to the general University of Georgia policies set forth in the Graduate Bulletin, the following departmental policies apply to all applicants:

1. A Bachelor's Degree is required, preferably with a major in Computer Science or an allied discipline. Students with insufficient background in Computer Science must take undergraduate Computer Science courses to remedy any deficiencies (in addition to their graduate program). A sufficient background in Computer Science must include at least the following courses (or their equivalent):

MATH 2250	Calculus I (Differential Calculus)
MATH 2260	Calculus II (Integral Calculus)
CSCI 1301	Introduction to Computing and Programming
CSCI 1302	Software Development
CSCI 1730	Systems Programming
CSCI/MATH 2610	Discrete Mathematics for Computer Science
CSCI 2670	Introduction to Theory of Computing
CSCI 2720	Data Structures

2. Admission to this program is selective; students with a record of academic excellence have a better chance of acceptance. Students with exceptionally strong undergraduate records may apply for admission to the graduate program prior to fulfilling all of the above requirements.
3. Graduate Record Examination (GRE) test scores are required for admission consideration. International applicants also need TOEFL or IELTS official test scores.
4. Three letters of recommendation are required, preferably written by university professors familiar with the student's academic work and potential. If the student has work experience, one letter may be from his/her supervisor. Letters should be sent directly from the letter writer.
5. A one- or two-page personal statement outlining the student's background, achievements, and future goals is required.
6. A student may include a recent copy of his/her resume as part of the application packet; however, this is not required.

### **Graduate School Requirements**

Additional requirements are specified by the Graduate School (application fee, general application forms, all transcripts, etc.). Please see the University of Georgia Bulletin for further information. Detailed admissions information may be found at Graduate School Admissions. Printed information may be obtained by contacting the

University of Georgia Graduate School  
Terrell Hall  
210 S. Jackson St.  
Athens, GA 30602

phone: 706-542-1739  
fax: 706-425-3094  
e-mail: [gradadm@uga.edu](mailto:gradadm@uga.edu)

Applications are processed on a year round basis. Students can be admitted for either semester (Fall or Spring). Please visit the Graduate School for application submission deadlines.

## Curriculum

The curriculum consists of at least **30 credit hours** of resident graduate coursework. This includes the following five items:

1. at least **12 credit hours** of Core CSCI graduate coursework at the 6000-level (see “Core Curriculum” below);
2. at least **8 credit hours** of Advanced CSCI graduate coursework at the 6000/8000-level (see “Advanced Coursework” below); the above (items 1 & 2) must include 12 credit hours of coursework open only to graduate students, exclusive of 6950 and 8990, as per Graduate School Policy;
3. at least **1 credit hour** of CSCI 8990 Research Seminar (see “Research Seminar” below);
4. at least **6 credit hours** of CSCI 7000 Master’s Research (see Master’s Research below);
5. at least **3 credit hours** of CSCI 7300 Master's Thesis (see Master's Thesis below).

Typically, full-time students will take 9 to 15 hours per semester. See the CSCI section of the University of Georgia Bulletin for course descriptions. A program of study should be a coherent and logical whole; it requires the approval of the student's major professor, the student's advisory committee, and the departmental graduate coordinator.

Note: **no course with a grade of C+ or lower may be included on the student’s Program of Study** (see the Graduate Bulletin for other GPA constraints).

### Core Curriculum (Item #1)

At least one course from each of the following three groups must be taken:

#### Group 1: Theory

CSCI 6470 Algorithms  
CSCI 6480 Approximation Algorithms  
CSCI 6610 Automata and Formal Languages

#### Group 2: Software Design

CSCI 6050 Software Engineering  
CSCI 6370 Database Management  
CSCI 6570 Compilers

### Group 3: System Design

CSCI 6720 Computer Systems Architecture

CSCI 6730 Operating Systems

CSCI 6760 Computer Networks: Technology and Application

CSCI 6780 Distributed Computing Systems

The core curriculum consists of a total of **12 credit hours**.

### Core Competency

Foundational computer science knowledge (core competency) in the core areas (Groups 1, 2, and 3, above) must be exhibited by each student and certified by the student's advisory committee. This takes the form of achievement in core curriculum and completion of a short essay in their chosen area of research demonstrating technical writing and organization skills. A grade average of at least 3.30 (e.g., B+, B+, B+) must be achieved for the three core courses. Students below this average may take an additional core course and achieve a grade average of at least 3.15 (e.g., B+, B+, B, B).

Core competency is certified by the unanimous approval of the student's Advisory Committee as well as the approval by the Graduate Coordinator. The student's advisory committee manages the core competency in cooperation with the student. Students are required to meet the core competency requirement within their first two enrolled academic semesters (excluding summer semester). **Core Competency Certification must be completed before approval of the Program of Study.**

Note: a course used to fulfill part of the core requirement (Item #1) may not be used to also fulfill part of the advanced coursework requirement (Item #2).

### Advanced Coursework (Item #2)

Students must take at least **8 credit hours** of advanced CSCI graduate student only coursework. This includes at least **4 credit hours at the 8000-level** (i.e., at least one 8000-level course).

Note: a student may satisfy this 8 hour requirement using only 8000-level courses, or with 4 hours of 8000-level coursework and 4 hours of 6000-level coursework. In the case that a student uses a 6000-level course for advanced coursework, that course must be a graduate student only course. In no case shall a 6000-level course used to fulfill part of the advanced coursework requirement count toward the advanced coursework requirement AND the core curriculum requirement. In addition, neither CSCI 8990 nor CSCI 6950 may be used to fulfill this requirement.

### **Research Seminar (Item #3)**

All students must take **1 credit hour** of CSCI 8990 Research Seminar, in which they must attend weekly meetings of a research seminar and give presentations.

### **Master's Research (Item #4)**

The Master's research involves the student's investigations under the supervision of his/her major professor and requires the approval of the major professor and the advisory committee. The Master's research often includes original research into some area of Computer Science. It must demonstrate mastery of a particular area of Computer Science. The candidate's advisory committee assures that the quality of the research meets the standards of the Department and the Graduate School. The candidate must register for CSCI 7000 Master's Research for at least **6 credit hours** while working on the project.

### **Master's Thesis (Item #5)**

The thesis is a report of the student's investigations under the supervision of his/her major professor and requires the approval of the major professor and the advisory committee. The thesis must demonstrate competent style and organization, and communicate technical knowledge. The thesis often includes original research into some area of Computer Science. It must demonstrate mastery of a particular area of Computer Science. The candidate's advisory committee assures that the quality of the thesis meets the standards of the Department and the Graduate School. The candidate must register for CSCI 7300 Master's Thesis for at least **3 credit hours** while working on the thesis.

### **Advisory Committee**

The advisory committee will consist of one major professor and two additional members. At least two of the three members must be from the Computer Science Department.

### **Non-Departmental Requirements**

Non-departmental requirements are set forth by the Graduate School (see the Graduate Bulletin). They concern residence, time limits, programs of study, acceptance of transfer credits, minimum GPAs, thesis, and thesis defense examination.

## Graduation Requirements

A student admitted to the M.S. degree program will be advised by the graduate coordinator until a major professor is chosen.

Before the end of the second semester in residence, a student must begin submitting to the Graduate School, through the graduate coordinator, the following forms: (i) a Program of Study Form and (ii) an Advisory Committee Form. The Program of Study Form indicates how and when degree requirements will be met and must be formulated in consultation with the student's major professor. An Application for Graduation Form must also be submitted directly to the Graduate School.

Forms and Timing must be submitted as follows:

1. Advisory Committee Form (G130) - end of second semester
2. Core Competency Form (Departmental) - beginning of third semester
3. Program of Study Form (G138) – semester before the student's last semester
4. Application for Graduation Form - beginning of last semester
5. Approval Form for Master's Thesis - last semester
6. ETD Submission Approval Form (G129) - last semester

See "Important Dates and Deadlines" on the Graduate School's website.

## Thesis Defense

After all coursework has been completed and the thesis has been approved by the student's major professor, the thesis is transmitted to the advisory committee at least **two weeks before the thesis defense date**. The thesis defense is an oral examination conducted by the student's advisory committee. All members of the advisory committee must be present at the defense. The advisory committee members including the major professor must vote on whether the student passed the defense and record their votes on the Approval Form for Master's Thesis, Defense. To pass the exam, at least two of the three votes must be passing.