

# Requirements for the Master of Science (MS) Degree in Computer Science: A Handbook

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## 1 Introduction

**1.1** This document describes requirements and standards defined by Kansas State University and by the Department of Computer Science for the degree of Master of Science in Computer Science. All students are expected to meet these standards. If any exceptions to the requirements are warranted, the student may petition their Supervisory Committee and the Graduate Studies Committee, who must approve and support those exceptions by signing a written statement that defines alternate requirements.

**1.2** Other University requirements are described in the “Graduate Handbook” which is available on the Graduate School web page.

## 2 Admission

**2.1** A strong background in computer science is normally required for admission. Evidence of this background should include either a Bachelor’s degree in computer science or a closely related field. Exceptional candidates with degrees in other areas will also be considered. The undergraduate grade point average should be at least 3.0, although a 3.5 GPA is recommended.

**2.2** Applicants should have taken the Graduate Record Exam (GRE) and received minimum scores of 146 Verbal, 151 Quantitative, 3.0 Analytical Writing; recommended scores are at least 150 Verbal and 160 Quantitative.

**2.3** International students who received their degree(s) abroad must take the Test of English as a Foreign Language (TOEFL) and achieve a score of at least 79. (This requirement may be waived in certain cases, e.g., for applicants from Canada or Britain.)

**2.4** All qualifications taken as a whole must give evidence of a potential to conduct scholarly research. Besides the qualifications listed above, additional qualifications might include the strength of prior training, a strong score on the Computer Science GRE subject test, and/or published research.

## 3 General Requirements

**3.1** The MS degree requirements include 30-33 credit hours of graduate-level credit. International students may have attendance requirements to maintain their immigration status.

**3.2** Students must maintain a grade point average of at least 3.0 in all coursework.

**3.3** Students must make regular progress toward completion of the MS degree.

**3.4** If a student is employed by the Department of Computer Science, they must enroll for at least 6 hours of graduate-level credit each Fall and Spring term of employment. International students must have a score of 23 or better on the Speaking section of the TOEFL if they hold a GTA position.

**3.5** MS students are expected to participate in the professional activities of the Department of Computer Science. They should attend seminars and research group presentations offered by the department and by the professional societies within the department.

## **4 Specific requirements for the MS Degree**

**4.1** Upon admission to the MS program, the student will be assigned an academic advisor who will remain their advisor until the student selects a research advisor.

**4.2** By the end of the first year of MS studies, the student should select and be accepted by a research advisor or major professor. A student's research advisor must be a member of the Graduate Faculty in the Department of Computer Science (see the "Kansas State University General Catalog" online for further information). Because the research advisor will organize and direct all research, students should choose an advisor carefully. Faculty members are not obligated to accept every student who asks them to be their research advisor. The faculty member may impose further requirements before agreeing to serve as the major professor.

**4.3** In consultation with the research advisor, students must compose a Supervisory Committee. The research advisor is identified as the major professor of the Supervisory Committee. The Supervisory Committee must include three members of the Graduate Faculty in the Department of Computer Science.

**4.4** Students should consult regularly with their research advisor.

### **4.5 The Program of Study**

**4.5.1** The student must meet with the members of their Supervisory Committee and formulate a Program of Study which must be filed with the Graduate School within one year of starting the program. The MS Program of Study form is found on the Graduate School web page under Student Guidelines.

**4.5.2** The Program of Study contains the following information:

1. Name of the major professor
2. Names of all members of the Supervisory Committee
3. Proposed title of the report or thesis
4. List of graduate credits taken and to be taken (totaling at least 30 hours). These must include the following:
  - (a) Graduate Courses taken at other universities which have been transferred. All transfer credit is subject to the approval of the Graduate Studies Committee, the student's Supervisory Committee, and the Graduate School. Up to 10 credit hours of other graduate credit may be transferred.
  - (b) Hours taken at Kansas State University towards the MS degree;

- (c) Hours to be taken at Kansas State University towards the MS degree;
- (d) Any additional requirements imposed by the student’s Supervisory Committee. (An example: English 516, “Written Communication for the Sciences” is sometimes required for additional writing experience.)

**4.5.3** Students should not enroll in CIS 899, MS Research – for a thesis, or CIS 897/CIS 898 – for a Report, until a Program of Study has been approved by the Graduate School.

## 4.6 MS Breadth Requirements

**4.6.1** The Breadth Requirement requires demonstrating proficiency in six courses from different areas, as described below. *NOTE: Although the same course may appear in different areas in the lists below, no one course may be used to satisfy the requirement for more than a single area.*

- One course from the following list, with a deep emphasis on Implementation: CIS 641, CIS 690, CIS 706, CIS 722, CIS 736
- One course from the following list, with a deep emphasis on Languages: CIS 705, CIS 706, CIS 771, CIS 806
- One course from the following list, with a deep emphasis on Systems: CIS 720, CIS 721, CIS 722, CIS 725, CIS 726, CIS 750, CIS 751
- One course from the following list, with a deep emphasis on Applied CS: CIS 655, CIS 730, CIS 740, CIS 744, CIS 761
- One course from the following list, with a deep emphasis on Foundations: CIS 770, CIS 775

**4.6.2** The student must receive a grade of B (3.0) or better in each course used to satisfy the Breadth Requirement.

**4.6.3** Courses taken at KSU as part of B.S. or approved courses from institutions with joint-PhD programs with the CS Department at KSU can be used to satisfy the breadth requirement.

**4.6.4** A single course cannot be used to satisfy the breadth requirement in more than one area.

**4.6.5** In extenuating situations, outside experience or courses transferred from other institutions can be proposed to satisfy Breadth Requirements if approved by the Graduate Studies Committee.

Area	Courses
Implementation	CIS 641, 690, 706, 722, 736
Languages	CIS 705, 706, 771, 806
Systems	CIS 720, 721, 722, 725, 726, 750, 751
Applied CS	CIS 655, 730, 740, 744, 761
Foundations	CIS 770, 775

Table 1: Breadth Requirements, Areas, and Courses for MS Degree.

## **4.7 MS Thesis or Report**

**4.7.1** The student must work closely with their advisor on research and must write a report (3 credit hours) or thesis (6 credit hours). The 33 credit hour course-only option is only recommended for student to fast-track into the PhD Degree Program.

**4.7.2** The MS candidate must successfully defend their thesis or report, subject to the following conditions:

1. The student must obtain an “Approval to Schedule Final Examination” (Approval) form from the Graduate School. Each member of the Examination Committee must have a final draft of the thesis or report, and each member must confirm receipt and acceptance of that copy by signing the Approval form. When the Approval form with all the required signatures has been submitted to the Graduate School, they will send formal notification of the place and time of the final examination to all persons concerned. The final defense must be scheduled during the time when classes are in session.
2. The student must schedule the oral presentation and defense (also called the final examination) with the Graduate School by turning in their Approval form. When the Approval form and the abstract and title page of the thesis or report have been received in the Graduate School, the ballot will be sent to the major professor for the final examination.
3. The student must distribute a copy of the thesis or report to the Examination Committee at least ten working days prior to the defense.
4. The student must arrange with the Graduate Program Coordinator to reserve a room when they file the Approval form so the Department can make public announcement of the time and place of the defense, along with the title and abstract.
5. The candidate must present the material described in their thesis or report to their Examination Committee in an open seminar. After the public part of the presentation, the Examination Committee will dismiss other persons and present further questions to the student. The Examination Committee will vote “pass” or “fail” on the thesis or report and the presentation and defense of the material contained in it. If the Examination Committee votes “fail” the student may make one additional presentation of the defense.
6. After the student has successfully completed the presentation and defense of their thesis or report, they must make any modifications recommended by the Examination Committee in response to their presentation and defense. Once the committee approves the documentation by signing and submitting the Electronic Thesis, Dissertations, and Reports (ETDR) Form, the student must submit an electronic copy of the final version of their thesis or report.

## **4.8 Other Issues and Exceptions**

**4.8.1** Any exceptions or issues not covered in this document will be resolved by the Graduate Studies Committee and by the Graduate Faculty of the Department of Computer Science.

**4.9** On-campus students normally complete the program in two years while taking 6-9 credit hours per semester. On-line students normally take a bit longer. Students should complete the degree program within five years.