COMPUTER SCIENCES, M.S.

The Department of Computer Sciences offers the Master of Science and a Doctor of Philosophy in Computer Sciences (http://guide.wisc.edu/graduate/computer-sciences/computer-sciences-phd). Research specialty areas include artificial intelligence, computational biology, computer architecture, computer graphics, computer networks, computer security, database systems, human–computer interaction, numerical analysis, optimization, performance analysis, programming languages and compilers, systems research, and theoretical computer sciences. See the department website (https://www.cs.wisc.edu) for faculty interests, research activities, courses, facilities, and degree requirements.

The Department of Computer Sciences also offers a named option for the master of science degree: the Professional Master’s Program (http://guide.wisc.edu/graduate/computer-sciences/computer-sciences-ms/computer-sciences-professional-program-ms).

ADMISSIONS

Students with a strong background in computer sciences or a related field are encouraged to apply for admission. At a minimum, the applicant should have had some programming experience, including courses in data structures and machine organization, and should have had a year of college-level mathematics at the calculus level or above. Applicants are evaluated based on their previous academic record, GRE scores, letters of recommendation, and a personal statement. All applications must be submitted online. Admission is very competitive. For more information on admissions, visit the department website (https://www.cs.wisc.edu/academics/graduate-programs/guidebook/admission).

Contact admissions@cs.wisc.edu with questions about admissions in the traditional M.S. or the Ph.D. programs.

Please see the Professional Master’s Program (http://guide.wisc.edu/graduate/computer-sciences/computer-sciences-ms/computer-sciences-professional-program-ms) admission page for professional program admissions information.

GRADUATE SCHOOL ADMISSIONS

Graduate admissions is a two-step process between academic degree programs and the Graduate School. Applicants must meet requirements of both the program(s) and the Graduate School. Once you have researched the graduate program(s) you are interested in, apply online (https://grad.wisc.edu/admissions).

FUNDING

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding) is available from the Graduate School. Be sure to check with your program for individual policies and processes related to funding.

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PROGRAM RESOURCES

Funding is offered to about half of the students to whom admission is offered. Funding is usually in the form of fellowships, teaching assistantships, or research assistantships. Because computer science skills are in demand, students who are admitted without funding are often able to find graduate assistantships on campus. The department website (https://www.cs.wisc.edu/academics/graduate-programs/guidebook/financial-aid) provides information on funding options and offers suggestions for those who are admitted without department funding.

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

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<th>Mode of Instruction</th>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
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<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
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</table>

Mode of Instruction Definitions

**Evening/Weekend:** These programs are offered in an evening and/or weekend format to accommodate working schedules. Enjoy the advantages of on-campus courses and personal connections, while keeping your day job. For more information about the meeting schedule of a specific program, contact the program.

**Online:** These programs are offered primarily online. Many available online programs can be completed almost entirely online with all online programs offering at least 50 percent or more of the program work online. Some online programs have an on-campus component that is often designed to accommodate working schedules. Take advantage of the convenience of online learning while participating in a rich, interactive learning environment. For more information about the online nature of a specific program, contact the program.

**Hybrid:** These programs have innovative curricula that combine on-campus and online formats. Most hybrid programs are completed on-campus with a partial or completely online semester. For more information about the hybrid schedule of a specific program, contact the program.

**Accelerated:** These on-campus programs are offered in an accelerated format that allows you to complete your program in a condensed time-frame. Enjoy the advantages of on-campus courses with minimal disruption to your career. For more information about the accelerated nature of a specific program, contact the program.

CURRICULAR REQUIREMENTS

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<th>Minimum Requirement</th>
<th>Credit</th>
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<td>Minimum Residence</td>
<td>16</td>
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<td>Credit Requirement</td>
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Minimum Graduate Coursework must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide.

Overall 3.00 GPA required.

Graduate GPA Requirement

Other Grade Requirements No other grade requirements.

Assessments and Examinations None.

Language Requirements No language requirements.

REQUIRED COURSES

24 of the 30 credits must be for Computer Sciences courses (http://guide.wisc.edu/courses/comp_sci) numbered 400 or above, excluding COMP SCI 400 Programming III, such that:

- at least 15 are core credits,¹
- none are for seminar courses,
- none are for individual instruction courses other than COMP SCI 790 Master’s Thesis,³
- the credits for COMP SCI 790 Master’s Thesis are either
  - at most 3, all for a project for which a report has been filed with the department and approved by at least one full-time CS faculty member (http://www.cs.wisc.edu/people/faculty), or else
  - at most 6, all for a master’s thesis that has been submitted as a departmental tech report (http://www.cs.wisc.edu/research/submit-tech-report) and approved by a properly formed thesis committee.

Courses that are cross-listed with Computer Sciences are considered Computer Sciences courses for the purposes of this requirement. Non-Computer Sciences courses cannot be counted towards the credits, even though their syllabus may be similar to those of Computer Sciences courses.

¹ Core credit is assigned for:

- every Computer Sciences course numbered 700 or above, other than seminar courses, individual instruction courses, and topics courses, provided the grade received is on the A-F scale,
- COMP SCI 790 Master’s Thesis, provided the instructor explicitly declares so, and
- one Computer Sciences topics course numbered 700 or above, provided the grade received is on the A-F scale and that particular offering is explicitly designated by the instructor as a core course.

To be designated as core, an offering should have a fairly broad coverage and be lecture-style. The latter excludes individual instruction courses and seminar-style courses.

² The seminar courses offered by the COMP SCI Department are COMP SCI 900 Advanced Seminar in Computer Science and COMP SCI/B M E/B M I/BIOCHEM/CBE/GENETICS 915 Computation and Informatics in Biology and Medicine. Seminar courses can be taken multiple times for credit.

³ These are courses with middle digit 9. Individual instruction courses are intended for directed study, independent study, research, and project or thesis work.

⁴ These are the courses COMP SCI 638, COMP SCI 703, COMP SCI 758, COMP SCI/MATH 837, COMP SCI 838 and COMP SCI 880. In Fall 2017, the new course COMP SCI 839 was created and is approved for core credit. Any COMP SCI 838 course offered beginning in fall 2017 is considered a non-core course. Topics courses have syllabi that may change significantly from one offering to another. In principle, they can be taken multiple times for credit, although their use for the M.S. is limited. In advance of each semester, it is announced which sections of those courses can count towards core credit.

NAMED OPTIONS (SUB-MAJORS)

A named option is a formally documented sub-major within an academic major program. Named options appear on the transcript with degree conferral.

- Computer Sciences: Professional Program, M.S. (http://guide.wisc.edu/graduate/computer-sciences/computer-sciences-ms/computer-sciences-professional-program-ms)

POLICIES

GRADUATE SCHOOL POLICIES

The Graduate School’s Academic Policies and Procedures (https://grad.wisc.edu/acadpolicy) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

MAJOR-SPECIFIC POLICIES

GRADUATE PROGRAM HANDBOOK

The Graduate Program Handbook (http://www.cs.wisc.edu/academics/graduate-programs/guidebook) is the repository for all of the program’s policies and requirements.

PRIOR COURSEWORK

Graduate Work from Other Institutions

No credits taken at other institutions are allowed to satisfy requirements.

UW–Madison Undergraduate

No credits from a UW–Madison undergraduate degree are allowed to satisfy requirements.

UW–Madison University Special

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Of the 15 credits of allowable prior course work a maximum of 6 credits are allowed for 300 level courses and COMP SCI 400. Coursework earned five or more years prior to admission to a master’s degree is not allowed to satisfy requirements.

PROBATION

At the end of any regular (nonsummer) semester, a student is considered to be making satisfactory academic progress (SAP) if the following conditions are all satisfied:

- The student has completed at least 6 (if full load) or 3 (if part load) credits of approved courses during the semester.
The student has removed all Incomplete grades from any previous regular semester or summer session.

The student has passed any required exams and procedures within designated time limits.

Any graduate student who fails to make SAP during two consecutive regular semesters (fall and spring, or spring and fall) will be dismissed from the department at the end of the subsequent summer session. Any graduate student who fails to make SAP due to missed deadlines will be dismissed from the department at the end of the subsequent summer session.

**ADVISOR / COMMITTEE**

Students are advised by the Computer Sciences Graduate Advising Committee. These advisors must formally approve the student’s initial course plan, and the courses taken each semester.

**CREDITS PER TERM ALLOWED**

15 credits

**TIME CONSTRAINTS**

Master’s degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence.

**OTHER**

n/a

**PROFESSIONAL DEVELOPMENT**

**GRADUATE SCHOOL RESOURCES**

Take advantage of the Graduate School's professional development resources (https://grad.wisc.edu/pd) to build skills, thrive academically, and launch your career.

**PROGRAM RESOURCES**

The Department of Computer Sciences hosts many professional development opportunities including: job fairs, workshops, seminars, talks, employer information sessions, mentoring and student socials. The Department of Computer Sciences student organizations, Student-ACM (SACM) and Women's ACM (WACM), are active partners in providing professional development opportunities for computer sciences graduate students.

**LEARNING OUTCOMES**

1. Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.

2. Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.

3. Applies design and development principles in the construction of software systems of varying complexity.

4. Applies foundational principles in practical applications.

5. Independently acquires, synthesizes and applies required information pertaining to challenges in computer science.

6. Communicates clearly in ways appropriate to the field of study.

**PEOPLE**

**Faculty:** Professors Sohi (chair), Akella, A. Arpaci-Dusseau, R. Arpaci-Dusseau, Bach, Banerjee, Barford, Cai, Chawla, Doan, Ferris, Gleicher, Hill, Jha, Livny, van Melkebeek, Miller, Patel, Reps, Ron, Sankaralingam, Sohi, Swift, Wood, Wright, Zhu; Associate Professors Liblit, Mutlu; Assistant Professors Albarghouti, D’Antoni, Gupta, Koutris, Liang, Rekatsinas, Sifakis. See also Faculty (https://www.cs.wisc.edu/people/faculty) on the department website.