

Computer Science (Big Data Systems), MS

ESCSEBDMS

You'll have a competitive advantage in securing employment with this big data concentration. The program meets the growing need for data scientists and engineers who can architect, implement and manage large data systems.

Program description

Degree awarded: MS Computer Science (Big Data Systems)

The big data systems concentration within the MS degree program in computer science is designed for graduate students who want to pursue a thorough education in the area of big data systems. The program has a thesis and nonthesis project portfolio option.

This concentration provides students with knowledge, skills and advanced research expertise in designing scalable systems (parallel, distributed and real-time) for acquiring, storing, processing and accessing large-scale heterogeneous multisource data and in using analytical tools to mine information from the data.

Graduates are able to choose and deploy the appropriate data management processing and analysis systems with a suitable structured or unstructured data model that a particular task and domain application needs.

At a glance

- **College/School:** [Ira A. Fulton Schools of Engineering](#)
- **Location:** [Tempe](#)

Accelerated program options

This program allows students to obtain both a bachelor's and master's degree in as little as five years. It is offered as an [accelerated bachelor's plus master's degree](#) with:

[Computer Science, BS](#)

[Computer Science \(Cybersecurity\), BS](#)

[Computer Science \(Software Engineering\), BS](#)

[Computer Systems Engineering, BSE](#)

[Computer Systems Engineering \(Cybersecurity\), BSE](#)

[Software Engineering, BS](#)

Acceptance to the graduate program requires a separate application. Students typically receive approval to pursue the accelerated master's during the junior year of their bachelor's degree program. Interested students can learn about eligibility requirements and [how to apply](#).

Degree requirements

30 credit hours and a portfolio, or

30 credit hours and a thesis, or

30 credit hours including the required applied project course (CSE 593)

Required Core Areas (9 credit hours)

Applications (3)

Foundations (3)

Systems (3)

Concentration (9 credit hours)

CSE 510 Database Management System Implementation (3)

CSE 512 Distributed Database Systems (3)

CSE 572 Data Mining (3) or IEE 520 Statistical Learning for Data Mining (3)

Restricted Electives (6 credit hours)

CSE 515 Multimedia and Web Databases (3)

CSE 546 Cloud Computing (3)

CSE 573 Semantic Web Mining (3)

CSE 575 Statistical Machine Learning (3)

CSE 578 Data Visualization (3)

Electives (0 or 3 or 6 credit hours)

Culminating Experience (0 or 3 or 6 credit hours)

CSE 593 Applied Project (3) or

CSE 599 Thesis (6) or

portfolio (0)

Additional Curriculum Information

Students should see the academic unit for the list of courses approved for each core area in applications, foundations and systems.

Courses that are used to satisfy the concentration requirement on the plan of study cannot be used to satisfy the core requirement. Additionally, courses selected as part of the core or concentration may not be used as other elective coursework on the same plan of study.

Students complete a thesis or portfolio for the culminating experience. Regardless of the culminating experience chosen, all students in the program must complete six credit hours from the restricted electives list. Students in the portfolio culminating experience option must also take six credit hours of electives. Students in the applied project experience must also take three credit hours of electives.

Portfolio: The project portfolio is developed from two courses in which the student received a "B" grade (3.00) or higher and should have significant content in big data systems. Students should see the academic unit for additional information and requirements. Students who select the applied project as their culminating experience must complete their project at the direction of an approved computer science graduate faculty member and complete the project course with a "B" grade (3.00) or higher.

Students complete a minimum of 30 credit hours for the program. At least 24 of these credit hours must be 500-level CSE courses at ASU. Up to six credit hours of 400-level courses may be applied to the plan of study for the nonthesis track.

Admission requirements

Applicants must fulfill the requirements of both the Graduate College and the Ira A. Fulton Schools of Engineering.

Applicants are eligible to apply to the program if they have earned a bachelor's or master's degree from a regionally accredited institution.

Applicants must have a minimum cumulative GPA of 3.25 (scale is 4.00 = "A") in the last 60 hours of their first bachelor's degree program, or applicants must have a minimum cumulative GPA of 3.25 (scale is 4.00 = "A") in an applicable master's degree program.

All applicants must submit:

1. graduate admission application and application fee
2. official transcripts
3. official GRE test scores
4. statement of purpose
5. proof of English proficiency

Additional Application Information

An applicant whose native language is not English must provide proof of [English proficiency](#) regardless of their current residency. Official TOEFL scores should be submitted from tests that must have been taken within the last two years (only required for those who did not graduate with a baccalaureate degree from an accredited U.S. institution). The TOEFL score must be valid on the first day of class for the term the student is applying for. The department requires a TOEFL iBT score above 90 or a minimum overall IELTS band score of 7.0.

International students must have taken the official GRE General Test within the previous five years and submit those test scores. ASU does not accept the GRE® General Test at home edition.

All international records must be submitted in the original language, accompanied by an official English translation. If the student has attended a U.S. institution, one set of official transcripts from every college and university attended, except ASU, is required.

Students assigned any deficiency coursework upon admission must complete those classes with a grade of "C" or higher (scale is 4.00 = "A") within two semesters of admission to the program. Deficiency courses commonly taken include:

CSE 230 Computer Organization and Assembly Language Programming

CSE 310 Data Structures and Algorithms

CSE 330 Operating Systems

CSE 340 Principles of Programming Languages **or** CSE 355 Introduction to Theoretical Computer Science

Tuition information

When it comes to paying for higher education, everyone's situation is different. Students can learn about [ASU tuition and financial aid](#) options to find out which will work best for them.

Application deadlines

Fall

Spring [expand](#)

[expand](#)

Career opportunities

Graduates are able to analyze and apply key theories, algorithms and software modules used in the field of computer science.

Career examples include:

- computer network architect
- computer system analyst
- computer systems engineer

- data scientist or engineer
- machine learning, AI computer vision engineer
- software developer
- software engineer

Contact information

[Computer Science and Engineering Program](#) | CTRPT 105
SCAI.Grad.Admission@asu.edu | 480-965-3199