Computer Science (Big Data Systems), MS

Program Description

Degree Awarded: MS Computer Science (Big Data Systems)

The big data systems concentration under the MS degree program in computer science is designed for graduate students who want to pursue a thorough education and research in the area of big data systems.

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

Graduates will be 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. This concentration program will provide a competitive advantage to secure employment as there is a growing need for data scientists and engineers who can architect, implement and manage large data systems.

At a Glance

- **College/School:** Ira A. Fulton Schools of Engineering
- **Location:** Tempe campus

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 and master's degree with:

- Computer Science, BS
- Computer Science (Cybersecurity), BS
- Computer Science (Software Engineering), BS
Acceptance to the graduate program requires a separate application. During their junior year, eligible students will be advised by their academic departments to apply.

**Degree Requirements**

30 credit hours and a portfolio, or
30 credit hours and a thesis

**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 or 12 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 591 Topic: Data Visualization (3)

**Culminating Experience (0 or 6 credit hours)**
- 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. Students in the thesis option take six credit hours of electives and students in the portfolio option take 12 credit hours of electives. The project
portfolio is developed from three 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 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.

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 of a 3.25 cumulative GPA (scale is 4.00 = "A") in the last 60 hours of their first bachelor's degree program, or applicants must have a minimum of a 3.25 cumulative GPA (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. three letters of recommendation
5. statement of purpose
6. proof of English proficiency

Additional Application Information

An applicant whose native language is not English (regardless of current residency) must provide proof of English proficiency. 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. CIDSE requires that TOEFL scores must be above 575 (paper) or 90 (iBT), or that the minimum IELTS is an overall band score of 7.0.

For international students, official GRE General test scores must be taken within the last five years.
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 "B" (scale is 4.00 = "A") or higher within two semesters of admission to the program. Deficiency courses 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
- CSE 355 Introduction to Theoretical Computer Science
- CSE 360 Introduction to Software Engineering

**Application Deadlines**

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**Contact Information**

Computer Science and Engineering Program | CTRPT 105
cidse.advising@asu.edu | 480-965-3199
Admission Deadlines