



## Arizona State University (Tempe campus)

### Data Science, Analytics and Engineering (Bayesian Machine Learning), MS

#### Study details

**Course type:** Master's degree

**Degree:** Data Science, Analytics and Engineering (Bayesian Machine Learning), MS ESDSEBMLMS

**Study mode:** Full time

**Duration:** 24 Month

#### Cost of study

**Cost :** 29 880 USD

**Reg. fee :** 115 USD

**Scholarship :**

**Insurance :** 2 765 USD

#### Intake/s

Jan/Aug

#### Requirements

##### 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 in computing, engineering, mathematics, statistics, operations research, information technology or a related field from a regionally accredited institution.
- Applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in the last 60 hours of their first bachelor's degree program, or a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in an applicable master's degree program.

Applicants are required to submit:

1. graduate admission application and application fee
2. official transcripts
3. written statement
4. professional resume
5. two letters of recommendation
6. proof of English proficiency

#### Additional Application Information

An applicant whose native language is not English must provide proof of English

proficiency regardless of current residency. Applicants demonstrate proficiency in the English language by scoring at least 90 on the TOEFL iBT (taken in a testing center), 7 on the IELTS or 115 on the Duolingo English test.

All applicants must demonstrate relevant coursework or experience in the following three areas:

- familiarity with Matlab, Python, SQL, R, or other relevant programming skills (in the professional resume)
- undergraduate linear algebra (e.g., MAT 343 Applied Linear Algebra)
- undergraduate statistics or probability (e.g., IEE 380 Probability and Statistics for Engineering Problem Solving, STP 420 Introductory Applied Statistics, STP 421 Probability, EEE 350 Random Signal Analysis)

In addition, applicants without an undergraduate degree in computer science, computer engineering, software engineering, information technology, industrial engineering, operations research, statistics or a related computing field must show evidence (in the professional resume) of at least one of the following certifications or equivalent experience:

- AWS-certified cloud practitioner
- Google data analytics certificate
- Google IT support certificate

In addition, this concentration requires completion of a three-credit course in linear algebra (equivalent to MAT 343 at ASU), which supersedes the second requirement above.

## Accommodation

Provided by partner agencies;

On-campus housing and meals \$18,933

## Speciality

### STEM-OPT for international students on F-1 visas

This program may be eligible for an Optional Practical Training extension for up to 24 months. This OPT work authorization period may help international students gain skills and experience in the U.S. Those interested in an OPT extension should review ASU degrees that qualify for the STEM-OPT extension at ASU's International Students and Scholars Center website.

The OPT extension only applies to students on an F-1 visa and does not apply to students completing a degree through ASU Online.

## Additional information

## Program description

Degree awarded: MS Data Science, Analytics and Engineering (Bayesian Machine Learning)

This concentration in Bayesian machine learning within the MS program in data science, analytics and engineering is offered in partnership with the School of Mathematical and Statistical Sciences.

With its programs in statistics, applied mathematics and theoretical mathematics, the school is distinctly positioned to enable students to understand the statistical, probability and mathematical bases for the technical tools and emerging concepts in statistical and probabilistic machine learning and data science. The school also supports students' ability to collect, maintain, analyze, model and decide based on heterogeneous, time-dependent, noisy, biased, hierarchical and potentially large data sets.

Bayesian thinking is particularly suited to addressing the difficult issues associated with these high-dimension complex modeling challenges. Bayesian learning, decision-making and computation have made a significant impact on many areas of data science. Hierarchical modeling, time series analysis, ensemble modeling, spatial modeling and causal modeling are among the various areas of expertise covered by this program. Students will be able to apply these tools in a variety of domains such as engineering, physics, biology, social sciences, economics and finance.

Students in this program perform Bayesian data analysis, modeling, remodeling, and decision-making in data-enriched environments. This includes the exploratory analysis of massive and complex data streams, Bayesian modeling and computing, data management, causal modeling, and inference and decision under uncertainty using Bayesian trees, neural networks and text modeling popular in industry and academia.

## 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:

- Data Science, 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.

## Career opportunities

Statisticians and data scientists are consistently ranked among the top jobs in the USA. Applied statisticians with a strong background in Bayesian learning and decision can pursue opportunities in a variety of fields to collect and curate large and complex data related to business plans, model and communicate findings, and support rational decision making. Industries who hire people with data science skills include financial markets, central banks, pharmaceutical, semiconductor, communications, energy and power systems industries, as well as institutions such as the National Institutes of Health, Centers for Disease Control and Prevention, and National Oceanic and Atmospheric Administration.