

Human Systems Engineering, MS

ECAPSYCHMS

Program description

Degree awarded: MS Human Systems Engineering

The MS program in human systems engineering in the Ira A. Fulton Schools of Engineering provides students with a deep understanding of the science of human performance and experience.

Students learn to use methods and tools that enable them to apply this understanding, to design and problem-solve in a wide variety of domains such as product usability, learning design, sports performance, cyber security, human-robot teaming, and workplace and patient safety.

A broad range of professions needs experts in human factors to work on problems that involve an understanding of human performance. Students gain practical experience by tackling projects that examine contemporary issues such as cell phones as a source of driver distraction, detection of improvised explosive devices, process optimization in health care and even control of unmanned vehicles.

Interest areas include user experience, aviation human factors, cognitive performance, consumer psychology, transportation human factors, patient safety, effective teamwork, human-robot teaming, health psychology, learning optimization, social cognition, threat detection and sports psychology.

At a glance

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

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:

[Human Systems Engineering, BS](#)

Human Systems Engineering (User Experience), BS

Technological Leadership, 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 (HSE 593)

Required Core (12 credit hours)

HSE 520 Methods and Tools in Applied Cognitive Science (3)

HSE 530 Intermediate Statistics for Human Systems Engineering (3)

HSE 531 Data Analytics: Modeling Human Subjects Data (3)

HSE 542 Foundations of Human Systems Engineering (3)

Electives and Research (12--18 credit hours)

Culminating Experience (0--6 credit hours)

HSE 593 Applied Project (6) or

HSE 599 Thesis (6) or

portfolio (0)

Additional Curriculum Information

Students have the option of doing a thesis (with industry guidance), an applied project to develop and demonstrate professional knowledge and skills or a portfolio as the culminating experience.

Students selecting the thesis option work on the thesis, under faculty supervision, for at least one calendar year. The first three thesis credits are devoted to developing an idea and preparing a proposal for approval by a faculty committee. The next three credits allow for preparing the details of research design and data collection for the thesis (materials, computer programs, experimental test beds, questionnaires, etc.). The final six credits are devoted to collecting and analyzing data and writing and revising the thesis under the direction of the student's committee chair. Students defend the thesis in an oral examination.

In cases in which a student is engaged in a project initiated by industry, they may opt for the applied project option. Students carry out the applied project, under faculty supervision and guided by industry, in a calendar year in which the 12 credit hours outside of the core are allocated to a combination of research, applied project and report writing appropriate to the goals of the student and the industry partner. In all cases, the project culminates in a substantial written report followed by a comprehensive oral examination covering the project and other materials from required courses.

The portfolio should demonstrate a high level of mastery of the principles and practice of human systems engineering through a compilation of work that the student has completed through the course of their

graduate study. While the specific details depend on the student's specialization, all portfolios must describe three notable projects or academic accomplishments that the student has completed through the course of graduate study that illustrate the evolution and advancement of the student's technical expertise and mastery of the field of human systems engineering. Submitted with the portfolio is a written document comprised of an overview of graduate experience and descriptions of the projects presented in the portfolio.

Applied project students take 12 elective credit hours, thesis students take nine elective credit hours plus three credit hours of HSE 592 Research and portfolio students take 18 elective credits.

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 psychology or a related field (including engineering, computer science or business) from a regionally accredited institution.

Applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in their first bachelor's degree program or 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 nine semester hours of graduate coursework from a U.S. institution; or a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in an applicable conferred master's degree program from a regionally accredited college or university.

All applicants must submit:

1. graduate admission application and application fee
2. official transcripts
3. statement of purpose describing professional and academic aspirations
4. three letters of recommendation
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.

The letters of recommendation should be from college professors, employers (in a human factors-related field) or a combination of both academic and professional references.

Applicants to this program generally have completed an undergraduate course in statistics.

Unofficial transcripts may be submitted at time of application. If admitted, applicants must then submit official transcripts to ASU Graduate Admission Services.

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](#)

Program learning outcomes

Program learning outcomes identify what a student will learn or be able to do upon completion of their program. This program has the following program outcomes:

- Apply the methods of human systems engineering to test a hypothesis or solve an applied problem
- Conduct independent research to address problems in the space of Human Systems Engineering.
- Apply the appropriate statistical analysis, address violations of assumptions (e.g., sphericity), & run the analysis using SPSS.

Career opportunities

This master's degree program prepares students for industry and government careers in positions such as:

- game designer
- human factors engineer
- human systems integrator
- information systems designer
- interface designer
- military scientist
- usability engineer
- user experience designer

Graduates may work as a member of a design team for a product or system.

Recent graduates are working at places like Intel, Boeing, GoDaddy, Mayo Clinic, PayPal, Motorola, Google and the Air Force Research Lab. Recipients of this master's degree also have gone on to pursue doctorates at ASU and other prestigious institutions.

Contact information

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