Human Systems Engineering (Health Systems), MS

ESHSEHSMS

Program description

Degree awarded: MS Human Systems Engineering (Health Systems)
The MS program in human systems engineering with a concentration in health systems provides current and future managers with the technical expertise they will need to lead efficient health care systems.

Students learn to identify needs through system modeling, field research and analytics to improve existing health care systems. This concentration program also allows students to perform research and develop innovative approaches to transform health care from reactive to proactive systems, which reflect National Institute of Health initiatives.

At a glance

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

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)

Concentration (6 credit hours)
BMI 605 Health Information Systems and Applications (3)
BMI 613 Workflow Analysis and Redesign in Health Systems Engineering (3)
BMI 616 Clinical Decision Support and Evidence-based Medicine (3)
HCD 502 Foundations of U.S. Health Systems and Design (3)
HCD 570 Process Engineering (3)
HCD 575 Health Care Transformation and Professionalism (3)

Electives and Research (0 or 9 credit hours)

Other Requirements (3 credit hours)
HSE 525 Health and Human Systems Engineering (3)

Culminating Experience (0 or 6 credit hours)
HSE 593 Applied Project (6) or
HSE 599 Thesis (6) or
portfolio (0)

Additional Curriculum Information
For electives and research coursework, enrollment in HSE 592 Research for three credit hours is required for students completing a thesis, and optional for students completing the applied project or portfolio culminating experience. Students in all culminating experience options should contact the academic unit for an approved electives list.

Students completing a portfolio for the culminating experience must complete nine credit hours of electives and research coursework.

Other requirement course HSE 525 is required for all students, but in some situations may be substituted with academic unit approval.

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 engineering, health, nutrition, psychology 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 their first bachelor's degree program or 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 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. curriculum vitae or professional resume
4. professional statement
5. research summary
6. three letters of recommendation
7. 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.

Global Launch at ASU offers an online alternative to standardized testing for international students who are seeking admission to ASU but need proof of English proficiency.

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.

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 appropriate statistical analysis, address violations of assumptions (e.g., sphericity), & conduct analyses using SPSS.
- 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 performance in healthcare systems.

Career opportunities

Health care is a growing sector of the economy, accounting for 17% of the U.S. Gross Domestic Product in 2022 (
https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data/historical
). Recent changes to the health care landscape at the federal level have led to increasing demand for measurable increases in efficiency and effectiveness of care delivery. To that end, technologies are deployed to manage, track and measure treatment effectiveness, patient satisfaction, provider reimbursement and process improvement, all of which require understanding of the human system and the

complex processes involved in this work. Thus, human systems engineering tools and techniques can create efficiencies in all aspects of care delivery in which a human is involved to improve system performance. Related to human systems engineers in health care, employment of industrial engineers is projected to grow 12% between 2022 and 2032, which is also faster than average for all occupations (Bureau of Labor Statistics).

Contact information

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