MSIHE Advising Worksheet *(rev. 6/9/25)*

Focus Areas

Data Science: Provides the student with a background in both theory and application of data science and to engage in the design of artificial intelligence systems and visualization of data, providing a critical understanding of the role that humans play through the data processing pipeline. Areas of interest include artificial intelligence, machine learning applications, healthcare, and retail analytics.

Advising/Co-advising faculty: Dr. Mumtaz Karatas, Dr. Vic Middleton, Dr. Robert Myers, Dr. Hugh Salehi

Human Factors and Ergonomics: Provides the student with a background in product usability, computer interface design, simulations and virtual environments, systems modeling, information retrieval, and human performance. Emphasis is placed on human-computer interaction, cognitive modeling and expermental methods as they relate to the design, development and analysis of systems such as petrochemical industries, military domain, and healthcare.

Advising faculty: Dr. Hugh Salehi

Logistics and Supply Chain: Provides the student with a background in both theory and application of systems-based modeling, manufacturing design, and continuous improvement. Emphasis is placed on inventory theory, forecasting, warehousing, and network design.

Advising/Co-advising faculty: Dr. Mumtaz Karatas, Dr. Robert A. Myers, Dr. Hugh Salehi

Focus Area Required Courses

Data Science

		Sem	Cr Hr
IHE 6150	Probability & Statistics (m)	F	3
IHE 6300 OR	Fundamentals of HFE OR	F	3
IHE 6320 OR	Human-Syst Interaction & Design Thinking OR	S	
IHE 7300	Research Methods in HFE (m)	S	
IHE 6711	Operations Research I (m)	F	3
IHE 6712	Simulation & Stochastic Models (m)	S	4
IHE 7510	Data Mining (m)	F	3
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Human Factors and Ergonomics

		Sem	Cr Hr
IHE 6150	Probability & Statistics (m)	F	3
IHE 6300	Fundamentals of HFE	F	3
IHE 6320	Human System Interaction & Design Thinking	S	3
IHE 7010	Understanding & Aiding Human Dec Making	S	3
IHE 7300	Research Methods in HFE (m)	S	3
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Logistics & Supply Chain

		Sem	Cr Hr
IHE 6150	Probability & Statistics (m)	F	3
IHE 6300 OR	Fundamentals of HFE OR	F	3
IHE 6320 OR	Human-Syst Interaction & Design Thinking OR	S	
IHE 7300	Research Methods in HFE (m)	S	
IHE 6711	Operations Research I (m)	F	3
IHE 6712	Simulation & Stochastic Models (m)	S	4
IHE 6810 OR	Production & Service Systems OR	F	3
IHE 6820	Supply Chain Analysis & Design	S	
IHE 7820	Egr Supply Chain Systems	F	3
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Electives

Math/Statistics Intensive Courses (6 cr required)**

		Sem	Cr Hr
IHE 6150	Probability & Statistics	F	3
IHE 6711	Operations Research I	F	3
IHE 6712	Simulation & Stochastic Models	S	4
IHE 7050	Design & Analysis of Egr Experiments (even years)	S	3
IHE 7300	Research Methods in HFE	S	3
IHE 7510	Data Mining	F	3
IHE 7712	Adv Model-Based Approaches for Systems Analysis	R	3
MTH / STT / CS**	As approved by advisor	F/S	3

Other Electives

		Sem	Cr Hr
IHE 6310	Ergonomics	F	3
IHE 6330	Engineering in Occupational Safety and Health	S	3
IHE 6400	Engineering Economy	F	3
IHE 6510	Computer Applications in IHE	S	3
IHE 6721	Operations Research II	S	3
IHE 6830	Engineering Project Management and Applications	R	3
IHE 6850	Six Sigma for Engineers	F	3
IHE 7010	Understanding & Aiding Human Decision Making	S	3
IHE 7020	Systems Engineering & Analysis (odd years)	S	3
IHE 7340	User Experience Design for Mobile Computing	F	3
IHE 7810	Engineering Health Systems	TBA	3
IHE 7820	Egr Supply Chain Systems	F	3
IHE 7850	Lean Process Improvement for Engineers	S	3
IHE 7980	Special Topics	TBA	3
IHE 6990/7990	Independent Study in IHE	F/S/R	1-4
Or as approved by the advisor			

MSIHE program of study requirements (all focus areas):

30 credit hours (minimum) total:

● **24 credits** IHE specific coursework (6000- or 7000-level) ● **9 credits** 7000-level IHE coursework ● **3 credits** Human Factors course

● **6 credits** math/stat-intensive coursework** ● 4 credits max. independent study; 8 credits max. thesis

NOTES:

(m) = Math or Stats intensive Course

**** Students who are considering a PhD in Engineering should consider fulfilling the MSIHE math requirements with MTH/STT coursework, which is required in the PhD program.**

Students who earn credit for the 4000-level section of a course listed above are ineligible to earn credit for the 6000-level section.

The MSIHE program can be completed entirely online (for eligible students).