

Graduate Certificate in Decision and Operations Analytics

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The Graduate Certificate in Decision and Operations Analytics equips students with the analytical and decision-making skills needed to address complex operational challenges in data-driven organizations. The program provides a foundation in optimization, simulation, machine learning, and decision analysis, with an emphasis on applying these methods to real-world engineering and management problems. Through coursework and applied projects, students develop skills to analyze operational data, formulate decision models, evaluate alternatives, and support data-informed decisions.

Graduates will be prepared for analytics-oriented roles such as operations research analyst, operations analyst, supply chain analyst, business intelligence analyst, optimization analyst, simulation analyst, and process improvement specialist. These skills are applicable across manufacturing, technology, logistics, e-commerce, finance, healthcare, and other data-intensive sectors.

Requirements

A total of 12 credit hours is required for the certificate. Students must complete both required core courses and two elective courses, with at least one course selected from each elective group.

Required Courses		6
ISE 8210	Linear and Network Optimization	3
ISE 8410	Machine Learning and Prescriptive Analytics for Decision Intelligence	3
Elective Courses		6
Students must complete two elective courses, with at least one course selected from each of the following groups.		
Advanced Analytical and Optimization Techniques		
ISE 7280	Discrete-Event Simulation for Digital Twin Applications	3
ISE 7610	Quality Engineering and Analytics	3
ISE 8310	Advanced Integrated Production Systems	3
ISE 8220	Nonlinear Optimization	3
ISE 8230	Stochastic Processes and Models	3
DATA_SCI 8010	Data Analytics with Applied AI and Machine Learning	3
Operational and Strategic Decision-Making		
ISE 8370	Supply Chain Modeling and Analysis	3
ISE 8560	Advanced Manufacturing Technologies	3
ISE 7565	Smart Manufacturing Systems	3
ISE 7370	Service Systems Engineering and Management	3
DATA_SCI 8140	Advanced Methods in Health Data Science	3
DATA_SCI 8220	Communication Network Analytics	3

Admission Contact Information

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