

Certificate in Decision and Operations Analytics

The Decision and Operations Analytics Certificate equips students with the essential skills to apply prescriptive analytics and decision science techniques to solve complex operational challenges in today's data-driven world. As industries increasingly rely on data to optimize processes and drive strategic decisions, this program provides students with a strong foundation in optimization models, simulation, machine learning integration, and decision-making frameworks. The curriculum combines theoretical knowledge with practical, hands-on learning opportunities, including real-world case studies and projects. Graduates of the certificate will be prepared for roles such as operations research analyst, data scientist, supply chain analyst, business intelligence analyst, logistics coordinator, simulation modeler, and process improvement specialist. These roles span industries like manufacturing, technology, logistics, e-commerce, finance and healthcare, where their skills in optimizing operational efficiency, enhancing productivity, and improving decision-making will be in high demand. Graduates will be equipped to drive innovation, improve resource allocation, and support organizations in achieving greater operational effectiveness and competitiveness.

Requirements

Completion of all required core courses and one course from each elective group totaling 12 credit hours. All courses must be completed in person to ensure hands-on learning and direct interaction with faculty and peers.

Required Courses		6
ISE 4210	Deterministic Models in Operations Research	3
ISE 4410	Data Engineering and Predictive Modeling	3
Elective Course		6
Complete two elective courses from the following groups		
Advanced Analytical and Optimization Techniques		3
ISE 4280	Systems Simulation	3
ISE 4610	Quality Engineering and Analytics	3
ISE 4310	Integrated Production Systems Design	3
ISE 4220	Optimization Modeling and Computational Methods	3
ISE 4230	Stochastic Models in Operations Research	3
Operational and Strategic Decision-Making		3
ISE 4370	Service Systems Engineering and Management	3
ISE 4360	Supply Chain Engineering	3
ISE 4565	Smart Manufacturing Systems	3
ISE 4350	Production and Operations Analysis	3