

Minor in Operations Research

Minor Program in Operations Research (OR)

The Operations Research minor consists of a minimum of 18 credit hours of a logical sequence of courses. Only three of these hours may be taken in the student's degree-granting department. Three of these hours must consist of a deterministic modeling course, three must consist of a stochastic modeling course, and no more than three must draw from a survey course (combining both stochastic and deterministic modeling).

The objectives of the minor are to supplement an engineering or applied science background with a formal approach to mathematical modeling that includes assessing and/or improving the performance of a system. Such a system could be naturally occurring or manmade. Examples of such systems are manufacturing lines, mines, wind farms, mechanical systems, such as turbines and generators (or a collection of such objects), waste water treatment facilities, and chemical processes. The formal approach includes optimization, (e.g., linear programming, nonlinear programming, integer programming), decision analysis, stochastic modeling, and simulation.

primary contact

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Deterministic Modeling (minimum of one)

MATH332	LINEAR ALGEBRA	3.0
CSCI220	DATA STRUCTURES AND ALGORITHMS	3.0
CSCI404	ARTIFICIAL INTELLIGENCE	3.0
CSCI406	ALGORITHMS	3.0
EENG307	INTRODUCTION TO FEEDBACK CONTROL SYSTEMS	3.0
EENG417	MODERN CONTROL DESIGN	3.0
MEGN485	MANUFACTURING OPTIMIZATION WITH NETWORK MODELS	3.0
MEGN486	LINEAR OPTIMIZATION	3.0
MEGN487	NONLINEAR OPTIMIZATION	3.0
MEGN488	INTEGER OPTIMIZATION	3.0

Stochastic Modeling (minimum of one)

CSCI423	COMPUTER SIMULATION *	
MTGN350	STATISTICAL PROCESS CONTROL AND DESIGN OF EXPERIMENTS	3.0
EBGN458	DECISION ANALYTICS	3.0
EBGN461	STOCHASTIC MODELS IN MANAGEMENT SCIENCE	3.0
EBGN528	INDUSTRIAL SYSTEMS SIMULATION *	3.0
MATH324	STATISTICAL MODELING	3.0
MATH438	STOCHASTIC MODELS	3.0
MNGN438	GEOSTATISTICS	3.0
PEGN438	PETROLEUM DATA ANALYTICS	3.0

* Students can take at most one of the following two courses:
CSCI423, EBGN528.

Survey Course (Maximum of one)

EBGN381	PREDICTIVE BUSINESS ANALYTICS	3.0
EBGN382	PRESCRIPTIVE BUSINESS ANALYTICS	3.0
EBGN459	SUPPLY CHAIN ANALYTICS	3.0
MNGN433	MINE SYSTEMS ANALYSIS	3.0