

UNDERGRADUATE L&S MAJOR IN OPERATIONS RESEARCH AND MANAGEMENT SCIENCE

In the ORMS major, students will develop solid quantitative, model building, and problem solving skills through core courses in mathematics, statistics, and operations research, and will learn how to apply these skills in solving problems in an area of their choice. We outline four possible concentrations below, but many other areas can also benefit from applying an OR perspective. Students may design their own concentrations according to their interests, with guidance from their faculty advisor in IEOR. Such areas might include legal systems (for pre-law students for example), government/political systems, and international economic systems.

Curriculum

Lower-Division Required Courses

Math 1A	Calculus (4 units)
Math 1B	Calculus (4)
Math 53	Multivariable Calculus (4)
Math 54	Linear Algebra and Diff'l Eqns (4)
Engin. 7	Intro. to Computer Programming (4)
Econ 1, 2, or 3	Intro. To Economics (4)
Bus. Admin. 10	Principles of Business (3)

Upper-Division Required Courses

Statistics 134 or IEOR 172	Concepts of Probability (3) Prob. and Risk Analysis (3)
Economics 101A	Economic Theory Micro (4)
IEOR 131	Simulation (3)
IEOR 160	Operations Research I (3)
IEOR 161	Operations Research II (3)
Four clustered electives	See below (12 units)

A Concentration of Four Clustered Electives:

ORMS majors, with the signed advance approval of their faculty advisors, select a minimum of four upper division elective courses to form a coherent cluster, or concentration, in an area where Operations Research is applied. Courses in other departments may count toward this requirement if they have substantial relevant content at an appropriately advanced level. The following are some suggestions for concentration areas.

1. Decision Making in Economic Systems

Econ 101B	Economic Theory Macro (4)	Econ C142	Appl. Econometrics and Pub. Pol. (3)
Econ 104	Advanced Microeconomic Theory (4)	Econ C110	Game Th. in the Soc. Sci. (4)
Econ 141	Economic Statistics and Econometrics (4)	UGBA 143	Game Theory and Bus. Decisions (3)
IEOR 165	Eng. Stats, Quality Control, Forecasting (3)	Math 104	Introduction to Analysis (4)

2. Decision Making in Industrial and Service Systems

IEOR 150	Production Systems Analysis (3)	EOR 166	Decision Analysis (3)
IEOR 151	Service Operations Design and Analysis (3)	IEOR 170	Human Factors for Eng. Des. (3)
IEOR 153	Logistics and Supply Chain Mgt. (3)	BusAd. 102B	Managerial Accounting (3)
IEOR 162	Linear Programming (3)	BusAd. 141	Prod. and Opns. Mgt. (3)
IEOR 165	Eng. Stats, Quality Control, Forecasting (3)	UGBA 143	Game Theory and Bus. Decisions (3)

3. Decision Making in Societal Systems

Soc 101A	Sociological Theory (5)	Soc 119	Society and Info. Theory (4)
Soc 105	Introduction to Sociological Methods (5)	Econ C110	Game Th. in the Soc. Sci. (4)
Soc 106	Intermediate Sociological Methods (4)	Econ 101A	Economic Theory Micro (4)
IEOR 165	Eng. Stats, Quality Control, Forecasting (3)	UGBA 143	Game Theory and Bus. Decisions (3)

4. Algorithmic Decision Making

CS 61B	Data Structures (4)	IEOR 115	Indust. and Comm'l. Data Syst. (3)
CS 170	Efficient Alg. and Intractable Prob. (4)	IEOR 162	Linear Programming (3)
CS 172	Computability and Complexity (4)	IEOR 166	Decision Analysis (3)
CS 174	Combinatorics and Discrete Probability (4)	Math 110	Linear Algebra (4)