Graduate Program
Industrial Engineering

The Graduate Program in Industrial Engineering and Operations Research (IEOR) at the College of Engineering offers both M.S. and Ph.D. degrees. IEOR is part of the Mechanical and Industrial Engineering Department (MIE), which is actively engaged in teaching, research, and service across a wide spectrum of technical areas. Our distinguished industrial engineering faculty conduct research in such areas as human factors, automation, supply chain management, manufacturing, energy economics and technology management, and health care systems. IEOR was ranked 35th in the country by the most recent survey of the National Research Council.

Facilities and Research

Graduate students in IEOR have access to a remarkable complex of research and instructional laboratories, featuring state-of-the-art computers, workstations, driving simulators, and industrial simulation facilities. The following examples are representative of the many laboratories in which graduate students conduct their research:

The Human Performance Lab is equipped with state-of-the-art facilities, worth more than $1 million, that are available to students for their research. The lab features a new state-of-the-art driving simulator, a fully instrumented van for on-the-road studies, a truck simulator with programmable image side-view mirrors, and other equipment such as an advanced eye tracker. Close ties exist between the lab and the Human Factors and Ergonomics Program in MIE, the Transportation Engineering Program in the Department of Civil and Environmental Engineering, and the Cognitive Program in the Department of Psychology. Close links also exist between the Human Performance Lab and private companies such as Amsign, Bose Corporation, Ford Motor Company, Millitech, Motorola, Peter Pan Bus Lines, and Whistler (police radar detectors).

The Health Care Operations Research and Decision-Making Labs focus on improving the safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity of health care delivery systems. The Health Care Operations Research Lab applies operations research approaches to a variety of problems: planning and scheduling surgical suites; designing primary care physician panels; optimizing prostate cancer screening decisions; and improving emergency department operations. The Health Care Decision-Making Lab focuses on designing health informatics interventions to improve consumer and care provider decision-making, in addition to developing methods for presenting complex information to health care consumers, providers, executives, and policy-level decision makers.

The Supply Chain Management Lab takes a holistic approach towards managing the flow of material and information throughout the supply network – including different tiers of suppliers, manufacturers, warehouses, and stores – in order to maximize system-wide profits and create customer value. Within the broad and rapidly evolving field of supply chain management, the laboratory focuses on analyzing and modeling the coordination of production, inventory, distribution, reverse logistics, and pricing policies of the supply network.

The Dynamic Traffic Flow Modeling Laboratory (DYAMS) is a research and teaching laboratory devoted to studying manufacturing and service-oriented industries in order to design, analyze, and optimize the flow of customers and system resources. The laboratory is equipped with state-of-the-art software and computing devices. Queuing network models as well as simulation models are utilized to capture the dynamic congestion in facilities and in vehicular networks. DYAMS provides the technology necessary to integrate the facility layout and configuration of machines and equipment with the dynamic analysis of customers flowing through a system.