Operations Research/Decision Sciences

The Operations Research/Decision Sciences Cognate is designed for students interested in specializing in the application and methods of operations research/decision sciences to health. This cognate is designed to provide students with a foundation in the theories and methodology for analyzing health systems and health interventions from an operations research/decision sciences perspective. Operations research includes a variety of quantitative approaches used to identify strategies for the optimal allocation of resources within an organization. Decision sciences are the collection of quantitative techniques that are used for decision-making at the individual and collective level. They include decision analysis, risk analysis, cost-benefit and cost-effectiveness analysis, decision modeling, and behavioral decision theory, as well as parts of operations research, microeconomics, statistical inference, management control, cognitive and social psychology, and computer science. The cognate in operations research/decision sciences prepares students for research and teaching careers that involve the application of these methods to health problems.

Examples of research topics in this field include: cost-effectiveness analysis of public health programs and health interventions; policy simulation modeling of smoking cessation, vaccination, and other public health programs; optimal screening policies for childhood conditions, cancer and other chronic diseases; measurement and evaluation of health outcomes, including quality of life; and optimal resource allocation for health research.