

Course ID	Course Description	Course Objectives
<p data-bbox="107 230 394 324">HSMG 7710 Quantitative Decision Models</p>	<p data-bbox="403 230 1035 665">This course encompasses a body of knowledge, a set of quantitative skills and an orientation towards managerial situations that provide managers with greater insight and analytic opportunities for improving the managerial process. We will focus on the systematic planning, direction and control of the organizational processes that turn resources (such as labor, equipment and materials) into services and the quantitative analysis that supports these decisions. In this environment, these processes involve allocation, scheduling and procedural decisions that result in the effective and efficient utilization of resources for the delivery of health care services.</p> <p data-bbox="403 706 1035 1408">Quantitative Decision Models (closely related to management science, operations research and operations management) build upon the disciplines of mathematics, engineering, computer science, statistics and economics, along with the scientific method, in an applied manner to bring real benefit to the structuring and analysis of complex managerial problems. The benefit may be derived from the systematic structuring and/or quantifying of a morass of situational variables, or may be from the ability to mathematically model the real-world situation resulting in a specific decision which is optimal for the given conditions. A quantitative analytical approach includes the explicit identification of managerial objectives, alternatives, available resources, system constraints, underlying mathematical relationships, and analysis. We will directly address issues of defining objectives and alternatives, measurement and quantification, uncertainty, risk and the sensitivity of our decisions to assumptions in our analysis.</p>	<ol data-bbox="1043 230 1942 633" style="list-style-type: none"> 1. identify the variety of quantitative methods available and recognize situations in which specific methods and analytical approaches might be beneficial. 2. assess the data requirements, limitations, assumptions, outputs and benefits of applying each of the methods. 3. apply each of the decision making tools (performing quantitative analysis) to make the specific assessments as described in the application objectives below. 4. apply decision making concepts (e.g. role of uncertainty, sensitivity, scenario and "what if" analysis, implicit quantification, trade-off's, break even, etc.). 5. solve example problems using quantitative methods software

This course is intended to provide you with the background and confidence to identify situations in which these approaches and methods might be beneficial and to successfully apply (either directly or through a quantitative specialist) these methods for organizational advantage. This course will be taught through in class lecture and discussions, text reading, quantitative problem solving (using your calculator as well as computer software), real world exploration and case analysis.

Our sessions will include introductory material on each topic, sample problem formulation, problem solution, and insights into the real-world application of these methods. Each session there will be assigned reading in the text (which supports class discussions) along with a series of exercises, or numerical problems for you to complete prior to our next class. Occasionally class sessions will be supplemented by your viewing Tegrity recordings. The exercises have been selected to provide you with an opportunity to apply some of the most basic concepts so that class discussion can continue to build your understanding of these tools, as well as enhance future class discussions.