This course of study covers quantitative analysis tools used to analyze operations management and to make strategic decisions. A case study in MindEdge, called Shuzworld, is used to create a wide variety of realistic operational management situations. The solutions are determined through analysis of the results from the application of tools (e.g., short-term scheduling techniques, linear programming, decision trees, PERT diagrams).

Your competence will be assessed as you complete a performance assessment (JGT2), with three three-level tasks and one five-level task. If you engage in all of the learning activities to develop your competence, this course of study may take up to twelve weeks to complete if you spend about 20 hours on it per week. Depending on your educational background, work experience, and the time that you are able to dedicate to your studies, you may be able to accelerate your progress through this course of study. If you wish to do so, consult with your mentor.

Introduction

Welcome
Welcome to the Decision Analysis course of study. Quantitative analysis can be a challenging subject to learn, but it is an essential skill for managers at all levels. Businesses today rely on data and quantitative measures more than ever to measure and plan effective operations, as well as to predict future success. The textbook for this course of study, along with the associated MyOMLab online resource, is an excellent learning resource and will help you understand the concepts, use the various tools, and interpret the results.

Overview
This course of study covers quantitative analysis used in operations management. In the Shuzworld case study, you will be acting as a new employee in the shoe company and will be asked to help analyze and recommend solutions to everyday operations management processes. You will need to complete three three-level tasks and one five-level task.

This is a difficult assessment; however, this course of study and the MyOMLab provide great tools and explanations for you.

The TaskStream prompts map to the questions in the Shuzworld case study. This course of study provides the mapping information. In addition, each TaskStream prompt is based on a sample problem in the e-text. This course of study provides this information also.

Watch the following introduction video for this course:

Outcomes and Evaluation
At the end of this course of study, you should be able to

- analyze the risks and values and be able to use a variety of decision analysis tools and decision theory to evaluate alternatives during decision-making processes;
• analyze how work is accomplished and apply quality metrics and tools to increase efficiency, effectiveness, and quality;
• combine capacity, process, layout, and location strategies;
• utilize process and methods analyses, measurement techniques, and scheduling concepts to design the work environment and plan labor requirements;
• employ Just-in-Time, Lean systems and constraint management concepts, and scheduling methods to improve operating efficiency;
• analyze risks and values and use a variety of decision analysis tools and decision theory to evaluate alternatives during decision-making processes;
• analyze how work is accomplished and apply quality metrics and tools to increase efficiency, effectiveness, and quality;
• analyzes data from analytical and intelligence systems and knowledge management systems and uses the results to make recommendations to business decision makers.
• apply operations and requirements planning and inventory management concepts to achieve operating objectives; and
• evaluate decision methods and develop strategies for organizational decision processes.

Preparing for Success

This course of study may take up to twelve weeks to complete if you spend about 20 hours on it per week. This is an MBA-level course of study. The performance assessment consists of four individual performance tasks -- three three-level tasks and one five-level task. Ideally, you will read through this course of study first, order your textbooks, and request your performance assessment. You should then look at the tasks in TaskStream and apply the information from the learning resources to the business problem presented and develop an answer, recommendation, or solution.

Obtain Learning Resources

Arrange to obtain the learning resources prior to starting the assessment so that no time is wasted.

Enroll in Learning Resources

You will need to enroll in or subscribe to additional learning resources as a part of this course of study.

You may already have enrolled in these resources for other courses. Please check the "Learning Resources" tab and verify that you have access to the following learning resources. If you do not currently have access, please enroll or renew your enrollment at this time.

Note: For instructions on how to enroll or subscribe through the "Learning Resources" tab, please see the "Acquiring Your Learning Resources" page.

JGT2 MyOMLab - Decision Analysis

MyOMLab includes the following e-textbook:

• Heizer, J., & Render, B. (2010). Operations management (10th ed.). New Jersey:
MyOMLab also provides the link to download either Excel OM or POM QM. These are the tools you will need to solve the task problems. Be sure you download these and read the help documents to become familiar with their use.

**Review Other Learning Tools**

Here are some other tools that may assist you in this course of study:

**Activities at a Glance**
This course of study includes an "Activities at a Glance" outline to help you briefly visualize the elements of this course of study. This will also provide general pacing guidelines for your work through this course of study and can be printed and used as a quick checklist for your progress.

**Learning Community, Message Boards, FAQs, and Study Notes**
The learning community, message boards, and FAQs are an important part of the WGU experience. Message boards, study notes, and FAQs are available in every course of study. Use the "Additional Learning Tools" document to review these tools.

**Study Notebook**
While many students take notes right from the reading materials, it can also be helpful to set up a notebook to record your observations, ideas, and thoughts as you move through the materials included in this course of study. At various points in your study, you will be encouraged to include noteworthy ideas and observations in a study notebook as you begin thinking about these human resources issues.

**Access the Performance Assessment**

Follow these directions to access your performance assessments.

The performance assessment consists of three three-level tasks (RJGT tasks 1, 2, and 3) and one five-level task (JGT2 task 4). You must complete all four performance tasks to pass the JGT2 assessment.

**Show Academic Integrity**

Each student in this course of study is expected to abide by the Western Governors University Academic Authenticity Policy. Any work you submit in this course of study for academic credit will be your own work.

**Automatically Enrolled Learning Resources**

You will be automatically enrolled at the activity level for the following learning resources. Simply click on the links provided in the activities to access the learning materials.

**MindEdge**
You will access the following MindEdge modules within this course of study.

* Shuzworld Decision Analysis Case Study
Note: Because you are automatically enrolled in the preceding resources, if they appear in the "Learning Resources" tab, DO NOT click "Show Sections" or "Enroll Now." If you have already done so, contact your course mentor.

Introduction to Accounting: The Language of Business
The Introduction to Accounting: The Language of Business courseware contains modules with lessons that are instructor-led with on-screen presentation of material. There are numerous helps built into each lesson. You will be directed to specific links to this resource in the activities that follow.

Additional Preparation
There are many different learning tools available to you within your course of study in addition to the learning resources already discussed. Take the time to familiarize yourself with them and determine how best to fit them into your learning process.

Understand the Evaluation Process
You will submit your work in TaskStream for each task. You may work on the tasks in any order, but it is desirable that you work in ascending order. You may work on tasks in parallel order or sequentially.

RJGT Tasks 1, 2 and 3 are three-level tasks. The evaluator will score the tasks as follows:

- 0 = unsatisfactory
- 1 = needs revision
- 2 = satisfactory

You must receive a score of 2 in each rubric aspect to pass the tasks.

JGT Task 4 is a five-level task. It is scored by an evaluator according to the following five-level score:

- 0 = unsatisfactory
- 1 = does not meet standard
- 2 = minimally competent for undergraduate; not competent for graduate
- 3 = competent
- 4 = highly competent

You need a score of at least 3 in each rubric aspect in order to pass the task.

If you do not pass one or more tasks, you will have three opportunities to revise your submission to this assessment. Review your work carefully before submitting it. If you do not understand a concept, reach out to a course mentor for help.

If you have any questions about what is expected of you in a performance task, please refer to the task's instructions and scoring rubric and the "Evaluation Procedures" tab in TaskStream.

Supplemental Math Review
If it has been a while since you took a math class or you simply find that you need additional study material please use these links to access various short videos on math concepts. These videos are not required but are an excellent source of review information:

- **Solving Equations 1**
- **System of Equations**
- **Solving a Quadratic by Factoring**
- **Introduction to the Quadratic Equation**
- **Exponent Rules 1**
- **Solving Inequalities**
- **Solving Systems by Substitution 1**
- **Solving Systems by Elimination 1**
- **Basic Probability**
- **Statistics: The Average**
- **Statistics: Standard Deviation**
- **Normal Distribution Problems: Z-score**
- **Summation Sign**
- **Logarithms**

### Before the Tasks - Accounting Review

Are you competent in accounting or are accounting rules and logic somewhat of a foreign language to you? Do you know how the financial statements interact with each other? During your MBA courses you will have multiple opportunities to use accounting skills. If you are not completely confident in your skills you might want to complete the following steps.

Access the following resource:

- **Introduction to Accounting: The Language of Business**

1. Take the first Sample Test by clicking on “Resources” > “Sample Exams” > “Sample Exam 1.”
2. Sample Exam 1 covers the majority of the accounting cycle concepts. Answer the questions and THEN review the solutions to the questions which are provided at the end of the sample test for immediate feedback.
3. After your review, use the suggested preparatory lessons (Basic Lessons 1-4) for the areas that you need to review.

Introduction to Accounting: The Language of Business has a full complement of lessons for the MBA courses that lead to your degree.

### Designing Operations

An operations manager is responsible first for looking at how job processes are designed and how work flows between workstations and then for designing an optimal path. The manager reviews the process after it has been in production for a specified period of time in order to adjust to efficiencies found by repeating the process over time.
Layout Strategies
Proper job layouts must support a business's competitive priorities: process, flexibility, customer contact, and quality of work life.

At the conclusion of this section, you will be able to

- evaluate the effectiveness of a good, process-oriented facility layout and
- assess the effectiveness of a balanced production flow in a repetitive or product-oriented facility.

Assembly Line Problem

Complete the following chapter in *Operations Management* in MyOMLab:

- chapter 9 ("Layout Strategies")

Complete assignments 1 ("Welcome to Shuzworld") and 2 ("A Visit to Shuzworld's Shanghai Production Facility: Assembly Line Issue") in the Shuzworld case study.

Review problem 9.2 of chapter 9 in MyOMLab for an example of a similar problem and how to solve it.

Which tool should you use to develop a recommendation to improve the work flow? Be sure to include the tool's output with a brief explanation of why you chose that tool.

Learning Curves
Learning curves is a decision analysis tool to help predict the time and cost of future processes based on the processes' initial time and cost. A learning curve analysis works with the understanding that most workers take less time to complete a task over time.

At the conclusion of this section, you will be able to

- analyze a problem using a learning curve analysis and
- estimate how costs will be reduced over time due to workers gaining experience with the mechanics of the job.

Launching a New Product

Complete the following module from *Operations Management* in MyOMLab:

- module E ("Learning Curves")

Complete assignment 3 ("The Maui Sandal Project: Launching a New Product") in the Shuzworld case study.

Review examples E1 and E2 of module E in MyOMLab for an example of a similar problem and how to solve it.
Which tool should you use to forecast the initial and ongoing costs for the new line of sandals? Using the output of the analysis tool you selected, determine the best solution. Use batch 50 for determining the ongoing costs. Provide an explanation of why this is the best solution. Be sure to include the tool's output with a brief explanation of why you chose that tool.

**Short-Term Scheduling**
Businesses today focus on short-term scheduling to ensure the best use of resources to meet customer demand, lower costs, and create dependable delivery.

At the conclusion of this section, you will be able to

- analyze staffing plans to maximize efficiency and
- analyze how short-term scheduling techniques, when used properly, can address issues of moving goods through the work flow processes.

**RJGT Task 1**

Finalize your response to RJGT task 1 and submit it in TaskStream. Allow three to five days for evaluation. If you need to make revisions, review the activities in this section and the evaluation rubric for the task before making revisions, and then resubmit the task.

**Lowering Production Costs**

Complete the following chapter in *Operations Management* in MyOMLab:

- chapter 15 ("Short-Term Scheduling")

Complete assignment 4 ("Meeting Production Challenges: Lowering Production Costs") in the Shuzworld case study.

Review example 4 of chapter 15 in MyOMLab for an example of a similar problem and how to solve it.

Which tool should you use to develop a staffing plan to maximize processing efficiency? Using the output of the analysis tool you selected, determine the best solution. Provide an explanation of why this is the best solution. Be sure to include the tool's output with a brief explanation of why you chose that tool. What scheduling techniques help improve movement of goods through the assembly line process?

**Managing Operations**

Operations management is the study of how people do their jobs with the objective to improve processes, eliminate waste, and strive for continuous quality improvement to enable a company to become a world-class competitor.

**Transportation Model**

"Transportation modeling [is] an iterative procedure for solving problems that involve minimizing the cost of shipping products from a series of sources to a series of destinations" (Heizer & Render, 2010, p. 718).
At the conclusion of this section, you will be able to

- assess an unbalanced transportation problem for unequal supply and demand.

**Transportation Issues**

Select the Decision Analysis course and complete the following module using the *Operations Management* textbook in MyOMLab:

- module C ("Transportation Models")

Complete assignment 4 ("Meeting Production Challenges: Transportation Issues") in the Shuzworld case study.

Review example C5 of module C in MyOMLab for an example of a similar problem and how to solve it.

Which tool should you use to develop a recommendation to lower the costs and improve the shipping times for goods through the supply chain? Using the output of the analysis tool you selected, determine the best solution. Provide an explanation of why this is the best solution. Be sure to include the tool's output with a brief explanation of why you chose that tool.

**Maintenance and Reliability**

Machines need constant monitoring and upkeep to ensure maximum performance and to reduce the risk of breakdowns, which lowers operations throughput. To address the issue of machine reliability, a good operations manager must consider backup units as well as regular maintenance.

At the conclusion of this section, you will be able to

- analyze system reliability,
- develop a solution for system reliability, and
- compare preventive and breakdown maintenance costs.

**Reliability Issues**

Complete the following chapter in *Operations Management* in MyOMLab:

- chapter 17 ("Maintenance and Reliability")

Complete assignment 4 ("Meeting Production Challenges: Reliability Issues") in the Shuzworld case study.

Review examples 1 and 3 of chapter 17 in MyOMLab for an example of a similar problem and how to solve it.

Which tool should you use to improve the reliability of the various machines in Shuzworld's plant? Using the output of the analysis tool you selected, determine the best solution. Provide
an explanation of why this is the best solution. Be sure to include the tool's output with a brief explanation of why you chose that tool.

**Inventory Management**
Managing inventory is a balancing act between having enough inventory on hand to meet demand while lowering the carrying costs of having too much on hand before it is needed. A good operations manager understands this trade-off and uses decision analysis tools to help forecast demand.

At the conclusion of this section, you will be able to

- examine the EOQ (economic order quantity) model for independent inventory demand
- develop a forecast for an appropriate order quantity to meet demand.

**Meeting Inventory Challenges**

Complete the following chapter of *Operations Management* in [MyOMLab](#):

- chapter 12 ("Inventory Management")

Complete assignment 5 ("Meeting Inventory Challenges") in the [Shuzworld case study](#).

Review examples 1 and 3 of chapter 12 in MyOMLab for an example of a similar problem and how to solve it.

Which tool should you use to determine how many shoelaces should be purchased to meet the demands of manufacturing? Using the output of the analysis tool you selected, determine the best solution. Provide an explanation of why this is the best solution. Be sure to include the tool's output with a brief explanation of why you chose that tool.

**Waiting Line Models**
For customers, probably the most disliked aspect of shopping is waiting in lines (i.e., queues). Good retailer will ensure that they review the process for their stores in order to decrease the time customers spend waiting in line, thus improving customer service and ultimately customer satisfaction.

At the conclusion of this section, you will be able to

- analyze the characteristics of arrivals, waiting lines, and service systems;
- apply the single-channel queuing model equations;
- revise queuing methods to develop solutions to improve customer throughput at checkout; and
- revise queuing methods to improve the flow of customers through any service line.

**RJGT Task 2**

Finalize your response to RJGT task 2 and submit it in [TaskStream](#). Allow three to five days for evaluation. If you need to make revisions, review the activities in this section and the evaluation.
rubric for the task before making revisions, and then resubmit the task.

**Customer Service Standards**

Complete the following module from *Operations Management* in MyOMLab:

- module D ("Waiting-Line Models")

Complete assignment 6 ("Customer Service Standards") in the Shuzworld case study.

Review examples D1, D2, and D3 of module D in MyOMLab for an example of a similar problem and how to solve it.

Which tool should you use to develop the optimal design and process for waiting lines in the Shuzworld stores? Using the output of the analysis tool you selected, determine the best solution. Provide an explanation of why this is the best solution. Be sure to include the tool's output with a brief explanation of why you chose that tool.

**Process and Forecasting Strategy**

Operations management involves predicting future events using past history with decision analysis tools. This is called forecasting. An operations manager will also review manufacturing processes to find an optimal method for developing goods.

**Process Strategy**

Consider what a process is in manufacturing: a method of producing goods or services. A good business attempts to reduce the costs of manufacturing while improving the quality of its goods or services. An operations manager will review several strategies to determine the optimal one.

At the conclusion of this section, you will be able to

- analyze crossover points for different processes and
- recommend improvements to processes through the use of process analysis tools.

**Process Strategy**

Complete the following from *Operations Management* in MyOMLab:

- chapter 7 ("Process Strategy")
- chapter 7 supplement ("Capacity and Constraint Management")

Complete assignment 7 ("More Challenges, More Analysis: Samba Sneakers") in the Shuzworld case study.

Review problem 7.6 of chapter 7 in MyOMLab for an example of a similar problem and how to solve it.

Which tool should you use to recommend the best solution for manufacturing a line of sneakers for Shuzworld? Using the output of the analysis tool you selected, determine the best solution.
Provide an explanation of why this is the best solution. Be sure to include the tool's output with a brief explanation of why you chose that tool. What alternatives are available to an operations manager for using process strategy to enhance competitive capability?

**Forecasting**

Forecasting is, as your textbook authors state, "the art and science of predicting future events" (Heizer & Render, 2010, p 104). It sounds like you should have a crystal ball. However, there are decision analysis tools to help a good manager make reasonable predictions based on mathematical models.

At the conclusion of this section, you will be able to

- evaluate forecasts using a regression and correlation analysis and
- propose an optimal reorder strategy for inventory management through the use of a regression analysis decision tool.

**Meeting Inventory Challenges**

Complete the following chapter of *Operations Management* in MyOMLab:

- chapter 4 ("Forecasting")

Complete assignment 8 ("Analyzing Mall Store Sales") in the Shuzworld case study.

Review problem 8.3 of chapter 8 in MyOMLab for an example of a similar problem and how to solve it.

Given the sales volume for a sneaker line in Shuzworld (see the case study), determine what decision analysis tool you would use besides the least squares method to forecast the sales volume for the next two periods. Use both tools and review their individual results. Compare and review the results from each tool.

**Statistical Process Control**

Gathering data and plotting it on a chart clearly shows when a normal process goes out of control limits. By paying attention to this information early, a production manager can make adjustments to avoid costly repairs or errors in production.

At the conclusion of this section, you will be able to

- assess a t-chart to suggest corrective action.

**RJGT Task 3**

Finalize your response to RJGT task 3 and submit it in TaskStream. Allow three to five days for evaluation. If you need to make revisions, review the activities in this section and the evaluation rubric for the task before making revisions, and then resubmit the task.

**Strategic Process Control**

Complete the following from *Operations Management* in MyOMLab:
Complete assignment 9 ("Production Machine Issues") in the Shuzworld case study.

Review example S.1 of supplement 6 in MyOMLab for an example of a similar problem and how to solve it.

Given the two charts on quality control metrics, what pattern can you discern? What do the outlying data signify? What steps should a production manager take, and when, to get production back within quality limits?

**Decision-Making Tools**

You have become familiar with many decision analysis problems and mathematical tools to help operations managers ensure that the most cost-effective processes are used. In this section, you will use several more decision analysis tools as you explore various operations problems in the Shuzworld case study.

**Decision Trees and Location Strategies**

A good decision is based on an analytical review -- looking at each possible outcome of each choice and choosing the optimal solution.

At the conclusion of this section, you will be able to

- analyze a decision through the use of a simple decision tree,
- inspect a decision tree analysis to map out the various choices for solving an operations management problem, and
- investigate the major factors that affect location decisions.

**Decision Trees**

Complete the following from Operations Management in MyOMLab:

- module A ("Decision-Making Tools")
- chapter 8 ("Location Strategies")

Complete assignment 10 ("Shuzworld Retail Stores Analysis") in the Shuzworld case study.

Review example 7 of module A in MyOMLab for an example of a similar problem and how to solve it.

Map out three possible decisions of whether or not to build a new store. Include the most important factors that should be considered as criteria for evaluating location alternatives.

**Project Management Tools**

Managing a project is a science that involves excellent planning, anticipating, and preparing for risks; dealing with issues that are slowing down a project; and communications.

At the conclusion of this section, you will be able to
• analyze project steps to determine which are on the critical path,
• recommend crashing a project when circumstances demand, and
• review progress on a project and make informed decisions on corrective actions through the use of project management tools (e.g., PERT charts, Gantt charts, network diagrams).

**Project Management Tools**

Complete the following chapter of *Operations Management* in MyOMLab:

- chapter 3 ("Project Management")

Complete assignment 12 ("Grand Re-Opening: Expansion Project") in the Shuzworld case study.

Review examples 8-12 of chapter 3 in MyOMLab for an example of a similar problem and how to solve it.

Which tool should the project manager use to get the Shuzworld new store construction project back on track? Using the output of the analysis tool you selected, determine the best solution. Provide an explanation of why this is the best solution. Be sure to include the tool's output with a brief explanation of why you chose that tool.

**Linear Programming**

"Linear programming (LP) is a widely used mathematical technique designed to help operations managers plan and make the decisions necessary to allocate resources" (Heizer & Render, 2010, p. 690).

At the conclusion of this section, you will be able to

- formulate linear programming models, including an objective function and constraints, and
- analyze two solutions through the use of linear programming to determine the better solution.

**Allocation of Resources**

Complete the following module of *Operations Management* in MyOMLab:

- module B ("Linear Programming")

Complete assignment 11 ("Determining Production Mix: Capacity Issues") in the Shuzworld case study.

Review examples B1 and B2 of module B in MyOMLab for an example of a similar problem and how to solve it.

Review the trade-offs of allocating resources on the production line to maximize profit. Which
tool should you use for allocating personnel on a production line? Using the output of the tool with the data from the Shuzworld problem, determine the best solution. Provide an explanation of why this is the best solution.

**Monte Carlo Simulation**

A Monte Carlo simulation is an excellent tool to use to predict outcomes if you have an operations systems problem that has a fairly good deal of chance in its behavior.

At the conclusion of this section, you will be able to

- analyze the advantages and disadvantages of modeling with simulation and
- predict demand of a new project through the use of a Monte Carlo simulation.

**Simulation**

Complete the following module of *Operations Management* in MyOMLab:

- module F ("Simulation")

Complete assignment 10 ("Shuzworld Retail Stores Analysis: Ordering Issues in Baltimore") in the [Shuzworld case study](#).

Review example F.3 of module F in MyOMLab for an example of a similar problem and how to solve it.

Which tool will you use to predict the demand for a new product? Using the output of the tool, determine the best solution. Provide an explanation of why this is the best solution.

**Job Design and HR Strategy**

"The objective of a human resources strategy is to manage labor and design jobs so people are effectively and efficiently utilized" (Heizer & Render, 2010, p. 384). A good manager will review the constraints of the job and ensure that people are efficiently utilized, emphasizing mutual respect and trust.

At the conclusion of this section, you will be able to

- assess the major issues in job design and
- recommend an HR strategy for improved employee efficiency by redesigning a job and re-planning labor.

**HR Strategy**

Complete the following chapter of *Operations Management* in MyOMLab:

- chapter 10 ("Human Resources, Job Design, and Work Measurement")

What resource strategy would you recommend to give Shuzworld a strategic advantage? How does this plan show respect for employees and help build mutual trust?

**Operations Management Philosophies**
The ultimate objective of operations management in today's business is to show continuous improvement, driving out inefficiencies to enable the company to be a world-class competitor.

At the conclusion of this section, you will be able to

- analyze operation management philosophies (i.e., Just-In-Time [JIT] and Lean Operations) to enable continuous improvement.

**JGT2 Task 4**

Finalize your response to JGT2 task 4 and submit it in TaskStream. Allow three to five days for evaluation. If you need to make revisions, review the activities in this section and the evaluation rubric for the task before making revisions, and then resubmit the task.

**Philosophies of Operations Management**

Complete the following chapter in *Operations Management* in MyOMLab:

- chapter 16 ("JIT and Lean Operations")

How should Shuzworld's management use operations management philosophies to drive out waste and improve processes?

**Final Review**

Congratulations! As soon as you have passed JGT2, you have completed this course of study.

**Accessing Performance Assessments**

The activities in this course of study have prepared you to complete the JGT2 performance assessment. If you have not already completed the assessment, you will do so now.

**Accessing Performance Assessments**

You should have completed the tasks as you worked through this course of study. If you have not completed the tasks in TaskStream, do so now.

- JGT2: RJGT Task 1
- JGT2: RJGT Task 2
- JGT2: RJGT Task 3
- JGT2: JGT Task 4

For directions on how to receive access to performance assessments, see the "Accessing Performance Assessments" page.

**References**

**Reference List**


**Feedback**

WGU values your input! If you have comments, concerns, or suggestions for improvement of
this course, please submit your feedback using the following form:

- [Course Feedback](#)

**ADA Requirements**

Please review the [University ADA Policy](#).