



Course Syllabus: **Health System Engineering-Quant Method**

College of Health Sciences and Human Services

HSAD 5133

Fall 2023 – 8/28/23 – 12/09/23

Contact Information

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Course Description

This course introduces principles and methods employed in health evaluation within health organizations. The primary program objectives pursued in this course are as follows:

- Understanding of the application of statistical, industrial engineering, operations research, and scientific research techniques in planning, managing and evaluating health care programs and organizations.
- Ability to apply selected quantitative techniques in addressing problems or opportunities relating to planning, managing and evaluating health services programs and health delivery organizations.
- Ability to plan and conduct organizational evaluations and management audits and ability to design and implement integrated management and planning systems, and organize and perform reengineering in healthcare organizations.
- Ability to evaluate alternative approaches to corporate planning, ability to evaluate alternative planning methods/techniques, and ability to apply selected planning methodologies in health care organizations.

To successfully complete this course, the student should be able to:

1. Demonstrate how managerial problem solving is enhanced with quantitative analysis.
2. Develop analytical skills in decision making and problem solving by using quantitative and non-quantitative analytical tools and rational models.
3. Demonstrate, through the completion of case studies and problem assignments, how decisions are enhanced with linear programming.
4. Utilize the quantitative tools that will improve health care efficiency.

Textbook & Instructional Materials

Ozcan, Yasar A. Analytics and Decision Support in Health Care Operations Management. 3rd Ed. Jossey-Bass Public Health. ISBN-13: 978-1119219811

Student Handbook

Refer to: Student Handbook 2021-22

Academic Misconduct Policy & Procedures

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct.

[Office of Student Conduct](#)

Grading

Course Grade - List all graded assignments with their point value and or percentage of total grade. Letter Grade Scale indicate the overall points or % to letter grade scale for example 1270 to 1137 = A

Table 1: Points allocated to each assignment

Assignments	Points
Homework	640
Discussions	240
Final Exam	120
Total Points	1000

Table 2: Total points for final grade.

Grade	Points
A	900
B	800 to 899
C	700 to 799
D	600 to 699
F	Less than 600

Homework / Assignments

There will be 8 assignments throughout the semester. All assignments should be completed in Excel or Word depending on the assignment guidelines. You must show your work to earn full points. Each assignment is worth 80 points in total. Assignments will not be accepted late. Requests to turn homework in late must be submitted at least three days prior to the due date and will only be given in extreme circumstances. Each exercise and calculation should be completed in a separate tab within Excel. Please name each tab the appropriate exercise number. Also, create an overview tab that contains only the answers to all of the exercises. Please see example homework posted in Module 1.

Discussions

Each module will have one discussion that may consist of questions or a case study. Whenever possible the professor will try to design cases and questions that will help you explore issues that will help you in your future career. Each module will contain a variety of questions that will be explored during the discussions.

Student responses should be provided in the text window within the discussion area and NOT as an attachment. Students are encouraged to type their responses in Word and copy/paste into the discussion response window.

Your responses must be carefully thought out, and draw upon the readings or other appropriate outside sources. For each discussion, students should post his/her discussion and also respond to others' posts (at least two classmates'). Initial discussion posts should include at least two peer-reviewed sources in addition to your text. Initial discussion posts should be between 250-300 words and responses should be at least 75-150 words. Peer responses should include at least one peer-reviewed source. The points earned depend on your context, the quote of the literature, your response to others, etc. Responses to others' posts should be thoughtful and add to the discussion – a response of “I agree” will not earn any points. Online discussions are meant to replace in-class discussions.

Final Exam

The final exam is cumulative, online and will be timed. Exams in this class must be proctored (most proctors charge a fee for this service) or use Respondus Lockdown Monitor. If we use Respondus Lockdown Monitor, you will be video recorded. **More details in the coming weeks as I determine what method we will use for our final exam.**

Final exam will consist of a case study and require calculations learned earlier in the class. Details on the final will be given to you later in the semester.

Late Work

All work **must** be turned in on time. Late work **will not** be accepted unless you have prior permission to turn it in late. Permission must be requested at least 3 days prior to the due date (e.g., if it's due on the 10th you must request permission to turn it in late by no later than the morning of the 7th). Permission will only be given if very unusual circumstances arise. Computer nor work issues count as unusual circumstances as you have plenty of time to complete each assignment. Don't wait until the last minute to complete your assignments as technical, family, or work-related issues should arise.

Academic Honesty

I assume that the written work you turn in reflects your own ideas and your own words, unless you specifically attribute them to another source. Very limited amount of quotation for written assignments is acceptable. When paraphrasing, appropriate acknowledgement of the ideas, works, writings, or opinions that you borrow must be stated. Academic dishonesty is not acceptable and is a breach of the student code of ethics.

Dishonesty includes, but not limited to:

- 1) Plagiarism
- 2) Submitting work that was not prepared by you (fraud)
- 3) Helping another student with their work when expressly prohibited (cheating).

TurnItIn: MSU takes plagiarism very seriously and the university has provided a multitude of resources to help students avoid intentional and non-intentional plagiarism. TurnItIn is an excellent plagiarism checker and runs a report each time you submit an assignment. You have access to a version of the report through the Assignments area and this report provides a similarity index. I

encourage you to review your TurnItIn report as it highlights areas that need better paraphrasing. Many times it will also highlight resources and headers, so please ignore these as they are not of concern. I review the TurnItIn report for EVERY assignment and if I see concerns, I will contact you and we will discuss the situation. It is good practice to always paraphrase, cite and reference throughout most of your papers. While there are times when students like to provide direct quotes, please note that the majority of your paper needs to be written in your own words (paraphrased) with appropriate citation. Please let me know if you have questions.

AI Statement

Since writing, analytical, and critical thinking skills are part of the learning outcomes of this course, all writing assignments should be prepared by the student. Developing strong competencies in this area will prepare you for a competitive workplace. Therefore, AI-generated submissions are not permitted and will be treated as plagiarism.

Desire-to-Learn (D2L)

Extensive use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding assignments, examination materials, and general course information. You can log into [D2L](#) through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

Online Computer Requirements

Taking an online class requires you to have access to a computer (with Internet access) to complete and upload your assignments. It is your responsibility to have (or have access to) a working computer in this class. ***Assignments and tests are due by the due date, and personal computer technical difficulties will not be considered reason for the instructor to allow students extra time to submit assignments, tests, or discussion postings.*** Computers are available on campus in various areas of the buildings as well as the Academic Success Center. **Your computer being down is not an excuse for missing a deadline!!** There are many places to access your class! Our online classes can be accessed from any computer in the world which is connected to the internet. Contact your instructor immediately upon having computer trouble. If you have technical difficulties in the course, there is also a student helpdesk available to you. The college cannot work directly on student computers due to both liability and resource limitations however they are able to help you get connected to our online services. For help, log into [D2L](#).

Services for Students with Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to [Disability Support Services](#).

College Policies

Campus Carry Rules/Policies

Refer to: [Campus Carry Rules and Policies](#)

Notice

Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor.

Course Schedule:

Module	Task/Assessment	Start Date	Due Date
Module 1 - Introduction to Analytics, Predictive Analytics, Decision-Making	Getting to Know You Discussion	8/28/2023	9/2/2023
	Discussion 1: Initial Discussion Posting		
	Read: Chapter 1 Introduction to Analytics and Decision Support	8/28/2023	9/9/2023
	Read: Chapter 2 Predictive Analytics		
	Read: Chapter 3 Decision-Making in Healthcare		
	Discussion 1: Peer Responses		
	Homework 1: Chapter 1, 2, 3 Exercises		
Module 2 - Facility Location and Facility Layout	Discussion 2: Initial Discussion Posting	9/10/2023	9/16/2023
	Read: Chapter 4 Facility Location	9/10/2023	9/23/2023
	Read: Chapter 5 Facility Layout		
	Discussion 2: Peer Responses		
	Homework 2: Chapter 4 and 5 Exercises		
Module 3 - Flow Processes and Improvement, and Staffing	Discussion 3: Initial Discussion Posting	9/24/2023	9/30/2023
	Read: Chapter 6 Flow Processes and Improvement	9/24/2023	10/7/2023
	Read: Chapter 7 Staffing		
	Discussion 3: Peer Responses		
	Homework 3: Chapter 6 and 7 Exercises		
Module 4 - Scheduling, Productivity, and Performance Benchmarking	Discussion 4: Initial Discussion Posting	10/8/2023	10/14/2023
	Read: Chapter 8 Scheduling	10/8/2023	10/21/2023
	Read: Chapter 9 Productivity and Performance Benchmarking		
	Discussion 4: Peer Responses		
	Homework 4: Chapters 8 and 9 Exercises		
Last Day to Withdraw with a "W"		10/30/2022	
Module 5 - Resource Allocation and Supply Chain and Inventory Mgmt	Discussion 5: Initial Discussion Posting	10/22/2023	10/28/2023
	Read: Chapter 10 Resource Allocation	10/22/2023	11/4/2023
	Read: Chapter 11 Supply Chain and Inventory Management		
	Discussion 5: Peer Responses		
	Homework 5: Chapters 10 and 11 Exercises		
Module 6 - Quality Control and	Discussion 6: Initial Discussion Posting	11/5/2023	11/11/2023
	Read: Chapter 12 Quality Control and Improvement	11/5/2023	11/18/2023
	Read: Chapter 13 Project Management		

Improvement and Project Mgmt	Discussion 6: Peer Responses		
	Homework 6: Chapters 12 and 13 Exercises		
	Thanksgiving Break	11/21/2022 through 11/26/2022	
Module 7 - Queuing Models and Capacity Planning	Discussion 7: Initial Discussion Posting	11/19/2023	12/2/2023
	Read: Chapter 14 Queuing Models and Capacity Planning	11/19/2023	12/2/2023
	Read: Chapter 15 Simulation		
	Discussion 7: Peer Responses		
Homework 7: Chapters 14 and 15 Exercises			
Module 8 - Course Reflection	Discussion 8: Initial Discussion Posting (viewable starting 11/23)	12/3/2023	12/9/2023
	Homework 8: Reflection Paper (viewable starting 11/23)	12/3/2023	12/9/2023
	Discussion 8: Peer Responses		
	Comprehensive Final Exam	12/8/2023	

Course Schedule

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