UTHealth
The University of Texas Health Science Center at Tyler

HPEM 6392	**Health Operations Management**		Credit Hours: 3
Semester:	Summer - Long	**Year:**	2024
Class Days/Times:	Tues: 6:30 – 9:30 pm when synchronous classes scheduled	**Location:**	Online

Instructor of Record: Michael H. Kennedy, PhD, MHA, FACHE Associate Professor
Office: H241
Office Phone: (903) 877-1402
E-Mail: michael.kennedy@uttyler.edu
Office Hours: Thursday from 1:30 – 4:30 pm: Call first to confirm. Other times by appointment.

Updated July 7, 2024

Course Description: This course examines operational issues in healthcare management. Topics include systems analysis, continuous quality improvement and reengineering, demand forecasting, facility location and design models, decision analysis techniques, linear programming, queuing and waiting models, inventory control models, and statistical quality control. The goal is to instill an understanding of the language, applications, and limitations of quantitative models with regard to decision making and problem solving in healthcare organizations.

Prerequisite: None. **Co-requisite:** None

Student Learning Outcomes (SLO or "course objective"): Upon successfully completing this course, the student will be able to:

1. Describe the historical background and the development of analytics and decision support in health care. [PLOs 1.4 and 3.1; A.2 and A.8]
2. Determine what type of analytic approach should be taken for various health care situations. [PLOs 2.1 and 3.1; A.5, A.8 and A.10]
3. Use external healthcare data sources to examine and improve health care operations. [PLOs 2.1, 3.1, 5.1 and 5.2; A.1, A.2, A.3, A.5, A.8 and A.10]
4. Employ analytics and decision support to examine and improve health care operations. [PLOs 3.1, 5.1 and 5.2; A.1, A.2, A.3, A.5, A.8 and A.10]
5. Evaluate the outputs of analytical and decision support models. [PLOs 3.1 and 6.1; A.5, A.8 and A.10]
6. Review an analytics application in health care. [PLOs 4.1 and 6.1; A.1, A.2, B.1, B.2, B.3]

UTHealth
The University of Texas
Health Science Center at Tyler

Course Assessment/Methods of Evaluation:

Assignments [1]	Points	Percentage
Test Your Knowledge (TYK) Quizzes	25	5%
Final Exam	150	30%
Pivot Table Exercise	20	4%
Chapter 3 Exercise	20	4%
Chapter 2 Exercise	20	4%
Chapter 6 Exercise	20	4%
Chapters 7 & 8 Exercise	20	4%
Chapter 9 Exercise	20	4%
Chapter 10 Exercise	20	4%
Chapter 10 Exercise (Part 2)	20	4%
Chapter 11 Exercise	20	4%
Chapter 14 Exercise	20	4%
Fitting Distributions Case Study	75	15%
Call Center Model Exercise	20	4%
Blood Donor Exercise or Epidemics Model Exercise (20 points)	20	4%
Participation (In class participation, Discussion Board posts, …)	10	2%
Total	**500**	**100%**
Extra Credit		
Systems Dynamics – Stella Architect (Epidemics Model) (25 points) **or**		
Artificial Intelligence Exercise (25 points)		

[1] **Assignments are due on the Monday at 11:00 pm following the week of assignment unless otherwise instructed. Late assignments may be penalized 5%. Assignments not turned in before the Instructor posts grades will receive a zero.**

Course Grade Scale (points): A: 450 to 500, B: 400 to 449, C: 350 to 399, F: < 350 points

Linked MPH Program Learning Outcomes:

The student learning outcomes listed above address the following MPH Program PLOs:

- PLO1 - The student will demonstrate mastery in each of the five core knowledge areas in public health: Biostatistics, Epidemiology, Social & Behavioral Sciences, Health Policy and Management, and Environmental Health Sciences.
- PLO2 - The student will demonstrate proficiency in the four core functions of public health, as well as be able to explain the principles and interrelatedness of the ten essential public health services.
- PLO3 - The student will demonstrate proficiency in using multiple informational resources to gather, analyze, apply and report solutions to public health problems with a special emphasis on rural community health.
- PLO4 - The student will demonstrate proficiency in English communication in both oral (public speaking) and written forms as they pertain to conveying key concepts in public health.
- PLO5 - The student will demonstrate proficiency in using computers and other forms of digital technology and media as they pertain to research, office management and public health issues.
- PLO6 - The student will demonstrate independent and critical thinking skills.

Linked MHA Program Learning Outcomes:
The student learning outcomes listed on pp. 1 and 2 address the following MHA Program PLOs:

- PLO A.1 – The student will identify appropriate sources and gather information, effectively and efficiently.
- PLO A.2 – The student will appraise literature and data critically that enhances community health.
- PLO A.3 – The student will develop, understand and use data from performance, surveillance or monitoring systems.
- PLO A.5 – The student will understand and apply basic statistical methods relevant to public health and health administration practice.
- PLO A.8 – The student will analyze, design, or improve an organizational process, including the use of quality management, process improvement, marketing and information technology principles and tools.
- PLO A.10 – The student will implement a decision-making process that incorporates evidence from a broad analysis that includes uncertainty, risk, stakeholders, and organizational values.
- PLO B.1 – The student will speak and write in a clear, logical, and grammatical manner in formal and informal situations; prepare cogent business presentations; facilitate an effective group process.
- PLO B.2 – The student will receive, process, and respond appropriately to information conveyed by others.
- PLO B.3 – The student will perceive and respond appropriately to the spoken, unspoken, or partly expressed thoughts, feelings, and concerns of others.

Required Textbook:

Ozcan, Yasar A. (2017). *Analytics and decision support in health care operations management: History, diagnosis and empirical foundations*, 3rd ed. San Francisco, CA: Jossey-Bass.
Link to free e-book from Watson W,. Wise Medical Research Library.

Other Required Readings: As assigned.

Course Content:

Schedule	Assigned Readings
Week 1 (Begins Monday, May 13) – Synchronous Delivery ***Zoom Session - Tuesday, May 14 from 6:30 – 9:30 pm*** *Introduction to Analytics and Decision Support in Health Care Operations Management.* ***Pivot Table Exercise Assigned (Due Monday, May 20)***	Chapter 1
Week 2 (Begins Monday, May 20) – Asynchronous Delivery *Decision Making in Health Care* ***Chapter 3 Exercise Assigned (Due Monday, May 27)***	Chapter 3
Week 3 (Begins Monday, May 27) – Synchronous Delivery ***Zoom Session - Tuesday, May 28 from 6:30– 9:30 pm*** *Predictive Analytics* ***Chapter 2 Exercise Assigned (Due Monday, June 3)*** ***TYK 1 Quiz Assigned (Due Monday, July 15)***	Chapter 2

Schedule	Assigned Readings
Week 4 (Begins Monday, June 3) – Asynchronous Delivery *Work Design and Measurement* ***Chapter 6 Exercise Assigned (Due Monday, June 10)***	Chapter 6 (pp. 203 – 223)
Week 5 (Begins Monday, June 10) – Synchronous Delivery ***Zoom Session - Tuesday, June 11 from 6:30– 9:30 pm*** *Staffing and Scheduling* ***Chapters 7 & 8 Exercise Assigned (Due Monday, June 17)*** ***TYK 2 Quiz Assigned (Due Monday, July 15)***	Chapters 7 & 8
Week 6 (Begins Monday, June 17) – Asynchronous Delivery *Productivity and Performance Benchmarking* ***Chapter 9 Exercise Assigned (Due Monday, June 24)***	Chapter 9
Week 7 (Begins Monday, June 24) – Synchronous Delivery ***Zoom Session - Tuesday, June 25 from 6:30– 9:30 pm*** *Resource Allocation* ***Chapter 10 Exercise (Part 1) Assigned &*** ***Chapter 10 (Part 2) Exercise Assigned (Both Due Monday, July 1)***	Chapter 10
Week 8 (Begins Monday, July 1) – Asynchronous Delivery *Supply Chain and Inventory Management* ***Chapter 11 Exercise Assigned (Due Monday, July 8)*** ***TYK 3 Quiz Assigned (Due Monday, July 15)***	Chapter 10
Week 9 (Begins Monday, July 8) – Synchronous Delivery ***Zoom Session - Tuesday, July 9 from 6:30– 9:30*** *pm* *Queuing Models and Capacity Planning* ***Chapter 14 Exercise Assigned (Due Monday, July 15)*** *Introduction to Discrete Event Simulation* ***TYK 4 Quiz Assigned (Due Monday, July 15)*** ***Flipped Classroom*** *Simulation Modeling – Process Simulator (Sim 1 Model)* ***Sim 1 Extra Credit Model Assigned – Due Monday, July 22)*** ***July 12 - Last day to withdraw from one or more courses***	Chapter 11

Schedule	Assigned Readings
Week 10 (Begins Monday, July 15) – Asynchronous Delivery *Post Final Exam Study Guide* ***Final Exam (ProctorU)*** ***Take the exam between 6:30 pm, Tuesday, July 16 and 11:00 pm, Saturday, July 20***	Chapter 14
Week 11 (Begins Monday, July 22) – Synchronous Delivery ***Zoom Session - Tuesday, July 23 from 6:30– 9:30 pm*** *Introduction Fitting Distributions Case Study* ***Fitting Distributions Case Study Assigned (Due Monday, August 5)*** *Simulation Modeling – Process Simulator (Call Center Model)* ***Call Center Model Exercise Assigned (Due Monday, July 29)*** *Simulation Modeling – Process Simulator (Blood Donor Model)* ***Blood Donor Model Exercise Assigned (Due Monday, August 5)***	Chapter 15
Week 12 (Begins Monday, July 29) – Asynchronous Delivery *System Dynamics – Stella Architect (Epidemics Model)* ***Extra Credit Assignment - Epidemics Model Exercise Assigned (Due Thursday, August 8)*** ***Or*** *Introduction to Artificial Intelligence* ***Extra Credit Assignment – Artificial Intelligence Exercise Assigned (Due Thursday, August 8)***	Fisher, D. (2007)
Week 13 (Begins Monday, August 5) – Synchronous Delivery ***Zoom Session - Tuesday, August 6 from 6:30 – 9:30 pm*** *Office Hours*	

Other Class Policies:

Attendance:

Regular or punctual attendance is expected. If a student misses a class or lab, the student is responsible for obtaining any information distributed during those times. Make-ups are possible only under certain instances (labs cannot be made up). Arrangements for any make-ups and/or missed labs should be discussed directly with the instructor for that day's class.

Participation:

Attendance and participation in class is important. Students will be frequently asked to review concepts and online presentations prior to the scheduled class, so that class time can be used for hands-on activities and work on assignments. Students will often be building Excel, Visio and simulation models with the Instructor.

Academic Honesty:

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

Cheating

Dishonesty of any kind involving examinations, assignments, alteration of records, wrongful possession of examinations, and unpermitted submission of duplicate papers for multiple classes or unauthorized use of keys to examinations is considered cheating. Cheating includes but is not limited to:

- Using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class.
- Falsifying or inventing any information, including citations, on an assigned exercise.
- Helping or attempting to help another in an act of cheating or plagiarism.

Plagiarism

Plagiarism is presenting the words or ideas of another person as if they were your own. Materials, even ideas, borrowed from others necessitate full and complete acknowledgment of the original authors. Offering the work of another as one's own is plagiarism and is unacceptable in the academic community. A lack of adequate recognition constitutes plagiarism, whether it utilizes a few sentences, whole paragraphs, articles, books, audio-visual materials, or even the writing of a fellow student. In addition, the presentation of material gathered, assembled or formatted by others as one's own is also plagiarism. Because the university takes such misconduct very seriously, the student is urged to carefully read university policies on Misconduct in Research and Other Scholarly Activity 05.00. Examples of plagiarism are:

- Submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another.
- Submitting a work that has been purchased or otherwise obtained from an Internet source or another source.
- Incorporating the words or ideas of an author into one's paper without giving the author due credit.

Use of Artificial Intelligence (AI)

In this course, we may use AI tools including generative AI tools (such as ChatGPT and Copilot) to examine how these tools may inform our exploration of the class topics. You will be notified as to when and how these tools will be used, along with guidance for attribution. Using AI tools outside of these parameters violates UT Tyler's Honor Code, constitutes cheating or plagiarism, and will be treated as such.

UTHealth
The University of Texas
Health Science Center at Tyler

References:

Austin, C. J., & Boxerman, S. B. (1995). *Quantitative analysis for health services administration.* Ann Arbor, MI: AUPHA Press/Health Administration Press.

Denton, B. T. (2013). Handbook of healthcare operations management: Methods and applications. New York: Springer.

Dutta, A. and Roy, R. (June 2002). System dynamics. *OR/MS Today, 29* (3), 30 – 35.

Fisher, D. (2007). *Modeling dynamic systems: Lessons for first course,* 2nd edition. Hanover, New Hampshire: ISEE.

Gogg, T. J., & Mott, J. R. (1992). *Improving quality and productivity with simulation.* Palos Verdes Estates, CA: JMI Consulting.

Harrell, C. (2011). *Simulation using ProModel*. (3rd ed.). Boston, MA: McGraw-Hill.

Law, A. M. (2014). *Simulation modeling and analysis.* (5th ed.). New York: McGraw-Hill, Inc.

Ragsdale, C. T. (2014). *Spreadsheet modeling and decision analysis: A practical introduction to business analytics* (7th ed.). Stamford, CT: Centgage Learning.

Richmond, B. (2001). *An introduction to systems thinking.* Hanover, New Hampshire: High Performance Systems, Inc.

Schrage, M. (2000). *Serious play.* Boston: Harvard Business School Press.

Sterman, J. D. (2000). *Business dynamics: Systems thinking and modeling for a complex world. Boston: Irwin McGraw-Hill.*

Note: The Instructor retains the right to change this syllabus.