
HPEM 6392 Health Operations Management Credit Hours: 3

Semester: Summer - Long **Year:** 2022
Class Days/Times: Thurs: 6:00 – 9:00 pm **Location:** Online
when synchronous classes
scheduled

Instructor of Record: Michael H. Kennedy, PhD, MHA, FACHE Associate Professor
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Office Hours: By appointment.

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]

Course Assessment/Methods of Evaluation:

Assignments ¹	Points	Percentage
Final Exam	150	30%
Chapter 3 Exercise	25	5%
Chapter 2 Exercise	25	5%
Chapter 6 Exercise	25	5%
Chapters 7 & 8 Exercise	25	5%
Chapter 9 Exercise	25	5%
Chapter 10 Exercise	25	5%
Chapter 10 Exercise (Part 2)	25	5%
Chapter 11 Exercise	25	5%
Chapter 14 Exercise	25	5%
Establishing the Correspondence ... Model Exercise	25	5%
Call Center Model Exercise	25	5%
Fitting Distributions Case Study	75	15%
Total	500	100%
Pivot Table <u>or</u> Blood Center Model <u>or</u> Epidemic Model Exercise (25 points)	25	

¹ Assignments are due on the Wednesday at 8:00 am following the week of assignment unless otherwise instructed. Late assignments will not be accepted.

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.

Course Content:

Schedule	Assigned Readings
<p><u>Week 1 (Begins Monday, June 6) – Zoom Session</u> <i>Synchronous Session - Thursday, June 9 from 6:00 – 9:00 pm</i></p> <p><i>Introduction to Analytics and Decision Support in Health Care Operations Management.</i></p> <p><i>Decision Making in Health Care</i></p> <p>Chapter 3 Exercise Assigned</p>	<p>Chapter 1</p> <p>Chapter 3</p>
<p><u>Week 2 (Begins Monday, June 13) – Online</u></p> <p><i>Predictive Analytics</i></p> <p>Chapter 2 Exercise Assigned</p>	<p>Chapter 2</p>
<p><u>Week 3 (Begins Monday, June 20) – Zoom Session</u> <i>Synchronous Session - Thursday, June 23 from 6:00– 9:00 pm</i></p> <p><i>Work Design and Measurement</i></p> <p>Chapter 6 Exercise Assigned</p>	<p>Chapter 6 (pp. 203 – 223)</p>

Schedule	Assigned Readings
<p><u>Week 4 (Begins Monday, June 27) – Online</u></p> <p><i>Staffing and Scheduling</i></p> <p>Chapters 7 & 8 Exercise Assigned</p> <p><i>Productivity and Performance Benchmarking</i></p> <p>Chapter 9 Exercise Assigned</p>	<p>Chapters 7 & 8</p> <p>Chapter 9</p>
<p><u>Week 5 (Begins Monday, July 4) – Zoom Session</u> <i>Synchronous Session - Thursday, July 7 from 6:00– 9:00 pm</i></p> <p><i>Resource Allocation</i></p> <p>Chapter 10 Exercise Assigned (Parts 1 and 2)</p> <p><i>Supply Chain and Inventory Management</i></p> <p>Chapter 11 Exercise Assigned</p>	<p>Chapter 10</p> <p>Chapter 11</p>
<p><u>Week 6 (Begins Monday, July 11) – Online</u></p> <p><i>Queuing Models and Capacity Planning</i></p> <p>Chapter 14 Exercise Assigned</p> <p>Fitting Distributions Case Study</p>	<p>Chapter 14</p>
<p><u>Week 7 (Begins Monday, July 18) – Zoom Session</u> <i>Synchronous Session - Thursday, July 21 from 6:00– 9:00 pm</i></p> <p><i>Introduction to Discrete Event Simulation</i></p> <p><i>Simulation Modeling – Process Simulator (Sim 1 Model)</i></p> <p><i>Establishing the Correspondence between Queuing and Discrete Event Simulation</i></p> <p>Establishing the Correspondence ... Exercise Assigned</p>	<p>Chapter 15</p>
<p><u>Week 8 (Begins Monday, July 25) – Online</u></p> <p><i>Simulation Modeling – Process Simulator (Call Center Model)</i></p> <p>Call Center Model Exercise Assigned</p> <p><i>Final Exam Review</i></p>	<p>Chapter 15</p>

Schedule	Assigned Readings
Week 9 (Begins Monday, August 1) – Zoom Session	
<i>Final Exam (Online Exam)</i>	
Proctored via ProctorU. Take between 6:00 pm, Monday, August 1 and 11:00 pm, Thursday, August 4, 2021.	
<i>Simulation Modeling – Process Simulator (Blood Donor Model)</i>	
<i>System Dynamics – Stella Architect (Epidemics Model)</i>	
Blood Donor Model Exercise (Extra Credit) Assigned <u>or</u> Epidemics Model (Extra Credit) Exercise Assigned	
A more comprehensive class schedule will be presented in the Learning Management System.	

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.

Adding/Dropping:

The official deadline for adding and dropping courses is as published in the academic calendar and Graduate Bulletin (typically the day before Census Day). However, students are strongly encouraged to meet with their graduate advisor or the Program Coordinator prior to adding/dropping courses. Movement into and out of classes after the 4th class day requires approval of the Program Director. Students can drop until mid-semester without a WP or WF. Drops after mid-semester require approval of the Dean. Each student is responsible for their own enrollment status with the university.

Disability Accommodations:

UTHSCT abides by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, which mandate reasonable accommodations be provided for students with documented disabilities. If you have a disability and may require some type of instructional and/or examination accommodations, please contact me early in the semester so that I can provide or facilitate provision of accommodations you may need. If you have not already done so, you will need to register with the Student Services Office (located on the UT Tyler Campus). You may call 903-566-7079 for more information.

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.