College of Public Health
Spring 2026

SYLLABUS

Course Information:

HI 436: Electronic Health Data in Process Improvement (HI-436-DL1)

Instructor: Salman Aljoudi, MSHI.

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Office Hours: by appointment

Course Description:

This course focuses on using electronic health records (EHRs) to improve health care processes. Compares means and rates of clinical & managerial processes. Uses EHRs in risk-adjusted statistical process control. Uses Excel to analyze data on patient satisfaction, wait time, mortality/morbidity, and cost of care.

Course Outcomes:

At the conclusion of the course students will be able to:

- Plan efforts to assess patients' satisfaction or health status.
- Plan efforts to reduce adverse sentinel patient outcomes
- Plan efforts to benchmark providers
- Prepare process and outcome data for analysis, including measures of change in process over time
- Analyze process outcomes using statistical process control charts
- Benchmark clinicians
- Measure patients' risk of adverse outcomes
- Analyze risk adjusted patient outcomes
- Communicate analytical findings using storyboards
- Add consumer's voice to statistical reports

- Conduct a personal improvement project.

Required Textbook(s) and/or Materials:

No textbook is required. Reading materials to be assigned at the professor's discretion.

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Teaching Methods:

- Learn one: online interactive lecture.
- Teach one: Students teach the topic they have learned to one another.
- Do One: Laboratory work. Complete assignments during class time.
- Evaluations: Students evaluate all lectures, not just at end of the course.

Grading

Assignments	% of the final grade	Description
Homework assignments and quizzes	40	Each module has a homework assignment and/ or a quiz associated with it. A quiz has from 5 to 10 questions. You may use your notes to complete the quizzes. Assignments will cover material from the class. Students are required to complete all assignments one week after lecture day
Midterm	20	The midterm will cover the material from the first part of the semester. The exam is timed, open-book, with full to the course web page. Do not rely on open-book access as time limitations typically prohibit learning the content during exam time.
Teach One	10	Each student is expected to not only learn the concepts in the course, and do the assignments, but also teach a portion of the course. Students are expected to teach by preparing a brief video. Students select which topic they wish to teach.
Final Project	30	In the final project, you apply concepts you have learned in the course to improve yourself, e.g. to exercise more. You are expected to make a resolution to change a habit that you have not been able to change for some time. You analyze your lifestyle using tools we provide and implement a system-wide change. In this project, you will also gather data on whether the change you have introduced has helped you succeed and analyze the data using the

		tools provided in the class. Personal improvement projects are due at end of the semester, but you are expected to report progress on it as you go along. The final report is a narrated presentation.
Total	100	

Grading Scale

Grade	Percentage
A	100-93
A-	92-90
B+	89-87
B	86-83
B-	82-80
C+	79-77
C	76-73
C-	72-70
D	69-60
F	59-0

Turnaround time for grading

All activities/assignments completed and received by the due date will have grades posted in this course's Blackboard Grade Center within 14 days of the due date. Late submission penalty is 20% of the grade.

Mason Honor Code:

The complete Honor Code is as follows:

To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of the George Mason University community and with the desire for greater academic and personal achievement, we, the student members of the university community, have set forth this honor code: **Student members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.**

(From the 2018-2019 Catalog – catalog.gmu.edu)

Individuals with Disabilities:

The university is committed to providing equal access to employment and educational

opportunities for people with disabilities.
Mason recognizes that individuals with disabilities may need reasonable accommodations to have equally effective opportunities to participate in or benefit from the university educational programs, services, and activities, and have equal employment opportunities. The university will adhere to all applicable federal and state laws, regulations, and guidelines with respect to providing reasonable accommodations as necessary to afford equal employment opportunity and equal access to programs for qualified people with disabilities.
Applicants for admission and students requesting reasonable accommodations for a disability should call the Office of Disability Services at 703-993-2474. Employees and applicants for employment should call the Office of Equity and Diversity Services at 703-993-8730. Questions regarding reasonable accommodations and discrimination on the basis of disability should be directed to the Americans with Disabilities Act (ADA) coordinator in the Office of Equity and Diversity Services.

(From the 2018-2019 Catalog – catalog.gmu.edu)

Diversity and Inclusion:

The College of Health and Human Services, Department of Health Administration and Policy, an intentionally inclusive community, promotes and maintains an equitable and just work and learning environment. We welcome and value individuals and their differences including race, economic status, gender expression and identity, sex, sexual orientation, ethnicity, national origin, first language, religion, age, and ability status.
• We value our diverse student body and desire to increase the diversity of our faculty and staff.
• We commit to supporting students, faculty and staff who have been the victims of bias and discrimination.
• We promote continuous learning and improvement to create an environment that values diverse points of view and life experiences.
• We believe that faculty, staff and students play a role in creating an environment that engages diverse points of view.
• We believe that by fostering their willingness to hear and learn from a variety of sources and viewpoints, our students will gain competence in communication, critical thinking and global understanding, and become aware of their biases and how they affect their interactions with others and the world.

[This statement was created by the School of Integrative Studies faculty]

Course Logistics:

In a typical week, you will:

- Watch mini-lectures and videos
- Participate in online learning activities such as discussion board postings, and comprehension quizzes.
- Submit all assignments through Blackboard according to the assignment schedule.

Though the delivery method is different, it should take you the same amount of time as a typical undergraduate course. You should **expect to spend an average of 9 hours** each week (this includes the time you would have spent in a classroom)**.**

Course Expectations:

Log-in Frequency: Students must actively check the course Blackboard site and their GMU email for communications from the instructor, class discussions, and/or access to course materials at least 2 times per week.

Participation: Students are expected to actively engage in all course activities throughout the semester, which includes viewing all course materials, completing course activities and assignments, and participating in course discussions and group interactions.

Under no circumstances, may students participate in online class sessions (either by phone or Internet) while operating motor vehicles. Further, as expected in a face-to-face class meeting, such online participation requires undivided attention to course content and communication.

Technical Competence: Students are expected to demonstrate competence in the use of all course technology. Students who are struggling with technical components of the course are expected to seek assistance from the instructor and/or College or University technical services.

Technical Issues: Students should anticipate some technical difficulties during the semester and should, therefore, budget their time accordingly. Late work will not be accepted based on individual technical issues.

Workload: Please be aware that this course is not self-paced. Students are expected to meet specific deadlines and due dates listed in the Course Schedule section of this syllabus. It is the student's responsibility to keep track of the weekly course schedule of topics, readings, activities and assignments due.

Instructor Support: Students may schedule a one-on-one meeting to discuss course requirements, content or other course-related issues. Those unable to come to a Mason campus can meet with the instructor via telephone or web conference. Students should email the instructor to schedule a one-on-one session, including their preferred meeting method and suggested dates/times.

Email Policy:

This course will use an **asynchronous, online-learning** format; the meeting place will be on Blackboard.

Please use the course email/messages system to communicate with the professor. This will allow me to answer your questions more quickly.

With this said, all students are required to activate and use their GMU email accounts.

All correspondence related to the course, with the course faculty, GM advisors and students will utilize GMU email or email of instructor preference. It is the responsibility of the student to maintain their individual email account and check it frequently to read and respond to course and other official university correspondence.

Mason uses electronic mail to provide official information to students. Examples include notices from the library, notices about academic standing, financial aid information, class materials, assignments, questions, and instructor feedback.

Students are responsible for the content of university communication sent to their Mason e-mail account and are required to activate that account and check it regularly. Students are also expected to maintain an active and accurate mailing address in order to receive communications sent through the United States Postal Service.

Late Assignments/Missed Quizzes:

If a graded assignment is late, it will be marked down 20 %; after one week no points will be earned. If there are unplanned extenuating circumstances (death in family, serious illness, traffic accident) and you are unable to complete the assignment on time, please e-mail the instructor as soon as possible to discuss a new deadline for the project. In some cases, the student will need to provide documentation regarding the circumstances that have prevented the assignment from being turned in on time. If unusual circumstances cause you to miss a quiz, please discuss the situations with the instructor; each case will be resolved in an individual manner.

Course Materials and Student Privacy:

Videorecordings of class meetings that are shared only with the instructors and students officially enrolled in a class do not violate FERPA or any other privacy expectation.

Videorecordings that only include the instructor (no student names, images, voices, or identifiable texts) may be shared without violating FERPA (but see below, University Policies: Privacy, for some qualifications and recommendations).

All course materials posted to Blackboard or other course site are private to this class; by federal law, any materials that identify specific students (via their name, voice, or image) must not be shared with anyone not enrolled in this class.

Videorecordings — whether made by instructors or students — of class meetings that include audio, visual, or textual information from other students are private and must not be shared outside the class.

Live video conference meetings (e.g. Collaborate or Zoom) that include audio, textual, or visual information from other students must be viewed privately and not shared with others in your household or recorded and shared outside the class.

Sexual Harassment, Sexual Misconduct, and Interpersonal Violence

George Mason University is committed to providing a learning, living and working environment that is free from discrimination and a campus that is free of sexual misconduct and other acts of interpersonal violence in order to promote community well-being and student success. We encourage students and employees who believe that they have been sexually harassed, sexually assaulted or subjected to sexual or interpersonal misconduct to seek assistance and support. University Policy 1202: Sexual Harassment and Misconduct speaks to the specifics of Mason's process, the resources, and the options available to students and employees.

AI Tools Policy

Artificial intelligence (AI) tools (such as ChatGPT, Gemini, Copilot, etc.) can be powerful resources for learning. In this course, you may use them to support your understanding, but not as a substitute for your own work or critical thinking.

Permitted Uses: You may use AI tools to, brainstorm ideas, clarify concepts, practice explanations or problem-solving steps, review drafts, or get feedback on grammar and structure.

Prohibited Uses: You may not use AI tools to copy and paste generated answers directly into assignments, replace your own analysis, reasoning, or original writing, complete quizzes, midterms, final exams, or any other assessments.

Transparency Requirement: For every assignment, you must clearly indicate if you used AI tools in your work and what purpose. Example statement: "AI tools were used to brainstorm structure and clarify key terms."

Integrity and Trust: There is no reliable way to track AI usage. This policy relies on your honesty, integrity, and the honor code of this university. Misrepresenting AI use or submitting AI-generated content as your own constitutes academic dishonesty and may result in disciplinary action.

Guiding Principle: Use these tools as study partners, not replacements for your own critical thought.

Course Schedule

COURSE SCHEDULE			
Week	Topics	Activities & Assignments	Due Dates
Week 1 **Jan 19 – Jan 25**	**Topic**: Introduction **Learning Objectives:** Discuss if continuous quality improvement is effective and the importance of creating a positive environment for change. Describe how to create an environment that encourages change and the principles of Total Quality Management ***All assignments, exams and due dates are given in the Blackboard course site.*** ***You must submit your works in BB for grading. If your works are not in BB you don't have grade for that work.***	Complete Orientation (Steps 1-7) 1.1 Student Introductions 1.2 Quiz: Syllabus	**Sunday by 11:59pm ET**
Week 2 **Jan 26 – Feb 1**	**Topic**: Healthcare data Learning Objectives: Describe Healthcare data Construct descriptive analysis	Watch the videos and read materials in Module 2. Finish Healthcare Data Assignment.	**Sunday by 11:59pm ET**
Week 3 **Feb 2 – Feb 8**	**Topic**: Plan, Do, Check & Act Cycles Learning Objectives: Describe the TQM implementation process. Describe five strategies for improving the problem definition. Explain how these three TQM tools are used. Discuss the importance of using media to promote TQM initiatives	Watch Videos and read reading materials from Module 3 Finish Assignment Analyze Data Module 3	**Sunday by 11:59pm ET**
Week 4 **Feb 9 – Feb 15**	**Topic**: Time-between charts Constructing Time-between charts Interpret Time-between charts finding	Watch Videos and read reading materials from Module 4 Finish Assignment Module 4	
	Topic: Risk Assessment	Watch Videos and read reading	**Sunday by**

Week 5 **Feb 16 – Feb 22**	Learning Objectives: Discuss the role of risk assessment in the process improvement. Describe the ideas behind different approaches to measurement of severity. Contrast the accuracy of severity indices.	materials from Module 5 Finish Module 5 Assignment Study for the midterm exam	**11:59pm ET**
Week 6 **Feb 23 – Mar 1**	Midterm Review		
Week 7 **Mar 2 – Mar 8**	**MIDTERM EXAM**		
Week 8 **Mar 9 – Mar 15**	**Spring Break**		
Week 9 **Mar 16 – Mar 22**	**Topic**: Probability charts Learning objectives: Create P-charts Create Control chart Create a risk adjust control chart Calculate expected deviations Discuss how quality of hospital care is evaluated through data obtained from electronic health records.	Watch Videos and read reading materials from Module 6 Complete Module 6 Assignment	**Sunday by 11:59pm ET**
Week 10 **Mar 23 – Mar 29**	**Topic**: X-bar Charts Learning objectives: Describe reasons to use X-bar chart Construct an X-bar chart using Excel. Interpret the meaning of findings from X-bar chart	Watch Videos and read reading materials from Module 7 Finish Module 7 Assignment	**Sunday by 11:59pm ET**
Week 11 **Mar 30 – Apr 5**	**Topic**: Benchmarking & Clinician Profiles Learning objectives: Describe factors known to affect physician's practice patterns Describe how to change practice patterns Construct decision trees	Watch Videos and read reading materials from Module 8 Finish Module 8 Assignment	**Sunday by 11:59pm ET**
Week 12 **Apr 6 – Apr 12**	**Topic**: XmR Charts Learning objectives: Understand the concepts behind moving average and moving range charts.	Watch Videos and read reading materials from Module 9 Finish Module Assignment	**Sunday by 11:59pm ET**

	Understand when it is appropriate to use XmR charts. Analyze data and set statistical limits using XmR charts. Interpret output of XmR charts.		
Week 13 **Apr 13 – Apr 19**	**Topic**: Tukey Control Chart Learning objectives: Discuss how to read a control chart Calculate control limits Analyze the data using Tukey charts	Watch Videos and read reading materials from Module 10 Finish Module 10 Assignment	**Sunday by 11:59pm ET**
Week 14 **Apr 20 – Apr 26**	**Topic**: Rapid Improvements Learning objectives: Describe steps of rapid improvement processes Describe Rapid meetings, rapid plans and rapid data collection	Watch Videos and read reading materials from Module 11 Finish Module 11 Assignment	**Sunday by 11:59pm ET**
Week 15 **Apr 27 – May 3**	**Topic**: Evaluating Programs and Course Review Learning objectives: Use statistical process control to evaluate effectiveness of programs Use satisfaction surveys and health status measures to examine impact of care Understand how program evaluations can go wrong	Watch Videos and read reading materials from Module 12 Finish Module 12 Assignment Study for the final exam	**Sunday by 11:59pm ET**
Week 16 **May 4 – May 10**	**FINAL EXAM (take home)**		

*This syllabus, including and especially the course schedule, is subject to change at any time throughout the semester at the discretion of your instructor.