

Course Details	
Course Code: ISM 600	Professor:
Course Title: Healthcare Data Analytics Management	E-Mail:
Program: Master in Healthcare Management	Term:
Credits: 3	Schedule:
Contact Hours: 48	Delivery:
Prerequisites: HSA565	Campus: AU Sunnybrook Road
Course General Information	

Course Description:

This course provides an advanced and applied examination of healthcare data management and analytics as strategic resources for clinical, administrative, operational, and organizational decision-making. Students analyze the healthcare data ecosystem, including data sources, information flows, data life cycles, electronic health records, interoperability requirements, and the relationships among data quality, patient safety, organizational performance, and healthcare outcomes.

The course addresses healthcare data standards and terminologies, including HL7, FHIR, ICD-10, LOINC, and SNOMED CT. Students examine data governance, stewardship, data quality, privacy, cybersecurity, regulatory compliance, ethical data use, and organizational accountability. Emphasis is placed on developing reliable and secure data environments that support healthcare coordination and evidence-based management.

Students apply descriptive, diagnostic, predictive, and visual analytics to evaluate healthcare performance, identify patterns and risks, and formulate data-informed recommendations. Emerging technologies including artificial intelligence, machine learning, cloud computing, blockchain, and advanced data platforms are evaluated in relation to organizational readiness, strategic value, bias, transparency, health equity, and implementation risk.

Through healthcare datasets, case studies, analytical exercises, dashboards, and decision-making simulations, students develop the competencies required to manage healthcare information, interpret analytical evidence, communicate findings, and lead data improvement initiatives. The course culminates in a strategic healthcare data management and analytics improvement plan.

Course Learning Outcomes (CLOs)

Through competency-based learning activities, students will strengthen the following MSHM competencies: Information Technology Management, Analytical Thinking, Organizational Awareness, Accountability, Performance Measurement, Strategic Orientation, Project Management, Innovation, Communication Skills, and Professional and Social Responsibility.

Upon successful completion of this course, students will be able to:

- **CLO 1.** Analyze healthcare data sources, structures, life cycles, information flows, standards, and interoperability requirements within complex healthcare organizations.
- **CLO 2.** Apply data governance, stewardship, quality, privacy, security, regulatory, and ethical principles to the management of healthcare information.

- **CLO 3.** Apply data preparation, analytical, performance-measurement, and visualization methods to interpret healthcare data and support organizational decision-making.
- **CLO 4.** Evaluate analytical findings, predictive models, and technology alternatives considering validity, quality, bias, transparency, risk, and organizational context.
- **CLO 5.** Communicate healthcare data findings and evidence-based recommendations effectively to clinical, administrative, technical, and executive stakeholders.
- **CLO 6.** Develop strategic and innovative data management and analytics solutions aligned with healthcare organizational goals, regulatory requirements, patient safety, and health equity.

CLO-Competency-PLO Alignment Matrix

The following matrix demonstrates the alignment among the Course Learning Outcomes (CLOs), the MSHM program competencies, and the corresponding Program Learning Outcomes (PLOs). It illustrates how each course outcome contributes to the development of the technological, analytical, strategic, communication, and professional competencies expected of healthcare managers.

Course Learning Outcome	MSHM Competencies	PLO Alignment
CLO 1	Information Technology Management; Organizational Awareness; Analytical Thinking	PLO1, PLO2
CLO 2	Information Technology Management; Accountability; Professional and Social Responsibility; Organizational Awareness	PLO2, PLO4
CLO 3	Analytical Thinking; Performance Measurement; Information Technology Management	PLO1, PLO2, PLO6
CLO 4	Analytical Thinking; Accountability; Performance Measurement; Professional and Social Responsibility	PLO2, PLO4, PLO6
CLO 5	Communication Skills; Analytical Thinking; Organizational Awareness	PLO2, PLO3
CLO 6	Strategic Orientation; Innovation; Project Management; Information Technology Management	PLO1, PLO2, PLO6

Module Alignment

Module	Topic	Primary Assessment Evidence	CLO Alignment
1	Healthcare Data Management	Individual Data Analysis Project; clinical data-error simulation and incident report; healthcare data challenge case analysis	CLO 1, CLO 2, CLO 3, CLO 4
2	Healthcare Data Standards HL7 ICD-10 FHIR	Comparative table of major data standards; HL7 and FHIR video reflection; essay on poor EHR standardization	CLO 1, CLO 2, CLO 6
3	Data Governance and Quality	Research Paper on Healthcare Data Governance Models; compliance-audit simulation and corrective-action report; governance framework group project	CLO 2, CLO 4, CLO 6
4	Data Analytics in Healthcare	Healthcare analytics dashboard group project and report; video reflection on hospital analytics; dashboard presentation	CLO 3, CLO 4, CLO 5, CLO 6
5	Predictive Analytics in Healthcare	Evaluation paper on predictive analytics; AI deployment ethics scenario analysis; predictive-model group activity	CLO 3, CLO 4, CLO 5
6	Data Visualization	Comparative analysis of visualization tools; review of public health dashboards; live dashboard and visual-storytelling exercise	CLO 3, CLO 4, CLO 5
7	Case Studies in Healthcare Data Management	Reflective report on a healthcare data-management failure; research and presentation on innovative hospital data solutions; complex case analysis	CLO 1- CLO 6
8	Emerging Trends in Healthcare Data Management	Emerging Technologies analysis; digital-transformation roadmap proposal; mock health-board panel simulation and defense	CLO 1- CLO 6

In this course, students will develop core competencies essential for managing, analyzing, and communicating healthcare data to support organizational decision-making. Emphasis will be placed on healthcare data management, data standards and interoperability, data governance and quality, healthcare analytics, predictive modeling, and data visualization. Students will examine ethical considerations in artificial intelligence deployment and evaluate emerging technologies that influence healthcare data practices.

Through individual and collaborative projects, simulations, case analyses, dashboard development, and presentations, students will apply analytical thinking and evidence-based problem-solving to healthcare data challenges. Upon completion, students will be equipped to assess data quality, recommend governance and interoperability solutions, interpret analytical findings, and communicate actionable insights through dashboards and visual storytelling. Students will also

develop and defend a digital transformation roadmap that supports responsible innovation and improved organizational performance.

Course materials/learning resources:

• **Main Textbook:** Basic Allied Health Statistics and Analysis by Lorie Darche, Gerda Koch. 5th Edition | Copyright 2020. Cengage

• **Textbook 2:** Big Data Analytics for Healthcare: Datasets, Techniques, Life Cycles, Management, and Applications Kindle Edition. 2022. ISBN: 0323919073

Assessment Classification and CLO Alignment

The following distribution identifies the graded evidence for each assessment category. Foundational components assess accurate explanation and comparison. Higher-level components require data preparation, analysis, interpretation, governance, ethical judgment, visualization, technology evaluation, strategic planning, and justified recommendations. The assigned level must be reflected in the scoring rubric.

Assessment	Weight	CLO	Competency	Level	Classification rationale
Foundational discussions, standards summaries, and video reflections	20%	CLO 1–2, CLO 5	Information Technology Management; Organizational Awareness; Communication Skills	Lower	Verifies accurate explanation and comparison of data sources, standards, governance concepts, analytical terminology, technologies, and observed applications.
Healthcare data analysis and clinical data-quality response	15%	CLO 1–3	Analytical Thinking; Information Technology Management; Performance Measurement	Higher	Requires data preparation, quality assessment, indicator interpretation, root-cause analysis, and a justified corrective response.
Data governance, compliance, privacy, and ethics analysis	15%	CLO 2, CLO 4, CLO 6	Accountability; Professional and Social Responsibility; Information Technology Management	Higher	Requires governance evaluation, compliance auditing, risk analysis, ethical judgment, documentation, and corrective or preventive actions.
Analytics dashboard and visualization project	20%	CLO 3–5	Performance Measurement; Analytical Thinking; Communication Skills; Project Management	Higher	Requires appropriate measures, accurate analysis, accessible visualization, audience-focused interpretation, teamwork, and recommendation development.
Predictive analytics, AI, and emerging technology evaluation	15%	CLO 3–4, CLO 6	Analytical Thinking; Innovation; Strategic Orientation; Professional and Social Responsibility	Higher	Requires interpretation of model evidence, evaluation of validity, bias and risk, comparison of alternatives, and responsible adoption decisions.
Strategic data-management case and digital-transformation roadmap	15%	CLO 1–6	Multiple competencies	Higher	Requires integration of governance, quality, interoperability, analytics, technology, organizational readiness, implementation planning, presentation, and defense.

Grading Scale Policy

Performance Level	Grade	Percentage
Exceeds Expectations	A	90–100%
Meets Expectations	B	80–89%
Minimally Meets Expectations	C	70–79%
Does Not Meet Expectations	D/F	Below 70%

This format is consistent with graduate-level expectations: a grade of C (70–79%) represents the minimum course performance level, while competency achievement is documented at the criterion level using the 80% benchmark.

Assessment Category	Earned Percentage
Foundational discussions, standards summaries, and video reflections	20%
Healthcare data analysis and clinical data-quality response	15%
Data governance, compliance, privacy, and ethics analysis	15%
Analytics dashboard and visualization project	20%
Predictive analytics, AI, and emerging technology evaluation	15%
Strategic data-management case and digital-transformation roadmap	15%
Total	100%

Note: The grade will be released weekly during the academic term and according to the curriculum, the learning pace and the performance of the students in this class.