



HCL-553-01W, AI in Healthcare

COURSE SYLLABUS: FALL 2026

INSTRUCTOR INFORMATION

Instructor: Sam Gherfal, MBA, LSSBB, A-CSM, CSPO

Office Location: Online

Office Hours: Virtual by appointment

Office Phone: TBD

Office Fax: TBD

University Email Address: Wisam.Gherfal@etamu.edu

Preferred Form of Communication: e-mail

Communication Response Time: within 24 hours

COURSE INFORMATION

Materials – Textbooks, Readings

Matheny, M., Israni, S. T., Ahmed, M., & Whicher, D. (Eds.). (2022). ***Artificial intelligence in health care: The hope, the hype, the promise, the peril.*** National Academy of Medicine.

ISBN-13: 978-1-947103-17-7 | ISBN-10: 0-309-70513-4
DOI 10.17226/27111

Free access: <https://www.ncbi.nlm.nih.gov/books/NBK605955>

Course Description

This course examines the applications of artificial intelligence in healthcare settings. Students evaluate the benefits, risks, ethical considerations, and regulatory challenges associated with AI-driven clinical decision support and AI-adoption in healthcare organizations.

The syllabus/schedule are subject to change.

Student Learning Outcomes

1. **Explain** foundational artificial intelligence concepts, including machine learning, natural language processing, generative AI, and large language models, and their applications within healthcare organizations.
2. **Evaluate** current and emerging AI applications used in clinical, administrative, operational, and health informatics settings.
3. **Analyze** the ethical, legal, privacy, security, bias, and health equity implications associated with implementing AI in healthcare.
4. **Assess** healthcare AI solutions based on data quality, reliability, organizational needs, workflow integration, regulatory considerations, risks, and potential value.
5. **Develop** an evidence-based implementation strategy for an AI solution that addresses a healthcare organizational problem while incorporating responsible AI use, governance, and measurable outcomes.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Students enrolled in this online course should possess basic computer and digital literacy skills necessary to successfully participate in a graduate-level online learning environment. Students should be able to navigate the Brightspace Learning Management System (LMS), access and download course materials, upload assignments, participate in online discussions, complete online quizzes and examinations, and communicate effectively through email and other course communication tools. Students should also be comfortable using common productivity applications, such as word-processing, presentation, and spreadsheet software, as well as conducting academic research using online library databases and scholarly resources. Basic skills in web browsing, file management, document formatting, and troubleshooting routine technology issues are also expected. Although prior advanced technical, programming, or health informatics experience is not required, students should be willing to learn and engage with digital health technologies, data analytics, artificial intelligence applications, and other technology-based tools introduced throughout the course. Students are responsible for maintaining reliable access to a computer and internet connection and for developing an appropriate backup plan in the event of technical difficulties, consistent with the course technology requirements.

Instructional Methods

This course is delivered fully online through the Brightspace Learning Management System (LMS). Instruction will include assigned textbook readings, supplemental course materials, PowerPoint presentations, case-based assignments, topic discussions, quizzes, examinations, and other digital learning resources designed to support the course learning outcomes. Recorded video lectures, demonstrations, or other

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instructional media may be provided when appropriate to clarify key concepts or expand upon course content. Students are expected to engage actively with the assigned materials and participate in course activities throughout each module. Questions regarding course content or assignments may be directed to the instructor via university email. Individual virtual meetings and office hours may also be arranged through Zoom as needed to provide additional guidance, clarification, or academic support.

Student Responsibilities or Tips for Success in the Course

As this is an online course, weekly contribution takes the place of attendance and will be monitored closely by the instructor. Students are expected to participate each week. A student who does not participate in the class and completes requirements **on time** will find it difficult to fulfill his/her course obligations. ***Student online activity is monitored. Brightspace automatically maintains a log of when students open documents and when they post to discussion boards. It maintains the full text of all postings***

Late Assignments and Makeups: Late submissions continue to be a serious problem with students. Not fully enforcing deadlines is unfair to those students who sacrifice to meet deadlines. Because unexpected personal emergencies arise, technology fails, and other delays occur, students should make every effort to submit their work well in advance of any deadline. **You will *earn ZERO points for late work*** (unless otherwise approved by the instructor in accordance with university policy or documented exceptional circumstances). All forum postings and assignment submissions must be submitted to the designated area. To reiterate, **late postings and submissions will NOT be accepted**. Computer problems, work issues, last minute illnesses, and other such reasons **do not** qualify as valid excuses.

Exams are delivered online using Brightspace and involve a defined completion/submission window. As such, makeups are not permitted unless the student can document a personal medical emergency incapacitating oneself for the ENTIRE DURATION of the noted completion/submission window. Makeups are not permitted for any other reason.

COURSE COMMUNICATION EXPECTATIONS

Appropriate behavioral conduct requires students to demonstrate the highest level of respect for fellow students, faculty, staff, coaches, and proctors in all communication including but not limited to emails, forum posts, video meetings, chat sessions, and group interactions. Disrespectful or discriminatory comments, lewd behavior, inciting language, profanity, or cyberbullying of anyone in a university context is not allowed. For more information about student conduct please see the syllabus supplement.

Students are responsible for everything presented and discussed online. Therefore, each student should follow these guidelines:

- Pay attention to what is said and how it is said; be courteous and respectful to everyone.

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- Adhere to formal spelling, punctuation, and grammar rules and avoid writing in "text language".
- Utilize complete sentence; avoid the use of all upper-case letters as it indicates "shouting".

GRADING

Final grades in this course will be based on the following scale: 90-100% A; 80-89% B; 70-79% C; 60-69% D; 59% or below F. Grades are based on a total of 1000 points from the following items:

Weights of the assessments in the calculation of the final letter grade.

Healthcare AI case Assignments	30%
Hands-on AI Labs	30%
Discussions/Case Analysis	10%
<u>Weekly Assessments/Exams</u>	<u>30%</u>
TOTAL	100%

Assessments

Module Exams: Timed module exams occur weekly. Module exams may contain multiple-choice and true/false questions; each exam is worth 70 points. These exams assess student knowledge regarding module readings, Powerpoint (PPT) slides (if available), and required videos (if available). Module exams are **independent** student assignments. Outside assistance of any kind and copying/sharing questions in any format are strictly prohibited.

Assignments: Students are required to complete assignments for Modules 1-6 that focus on chapter concepts or assigned topics. For each assignment, students are required to meet the Turnitin threshold of 20% or less. Detailed instructions and grading rubric will be provided on Brightspace. Copying/sharing questions or answers in any format is strictly prohibited.

- **Research:** This graduate course may require you to conduct research with your Assignments. The online library offers numerous electronic databases, permitting students to conduct searches and read journal articles remotely. These databases are available to students, but access requires a user name and password. If you encounter difficulties gaining access or have other questions concerning resources, forward these inquiries directly to the online library or helpdesk.

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Topic Discussions: Students are required to read topics, answer questions based on textbooks information and PPT materials (if available) and respond to a classmate's posts. These topic discussions allow students to participate in peer-to-peer learning by interacting with each other regarding their assessment of Healthcare Informatics issues and topics. More details will be provided on Brightspace.

Hands-on AI Labs: Weekly Hands-on AI Labs provide students with practical experience using artificial intelligence tools within healthcare administration and informatics contexts. Students will engage with platforms such as ChatGPT, Gemini, Claude, and other relevant AI tools to explore real-world healthcare applications. Lab activities may include prompt development, comparing AI-generated responses, analyzing healthcare scenarios, evaluating AI accuracy and limitations, identifying potential bias and ethical concerns, and developing AI-supported solutions to organizational challenges. Emphasis will be placed on critical evaluation, responsible AI use, data privacy, and the importance of human oversight. All activities will use fictional, simulated, or appropriately de-identified information; students should not enter protected health information (PHI) or other confidential organizational data into public AI platforms.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

Zoom Video Conferencing Tool

https://inside.tamuc.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

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Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement

The instructor is committed to maintaining regular and meaningful interaction with students throughout the course. Course announcements, instructional materials, assignment feedback, and other relevant updates will be provided through Brightspace as appropriate. Students are encouraged to contact the instructor using their university email whenever they have questions regarding course content, assignments, grades, or other course-related concerns. The instructor will generally respond to student emails within **24 hours**. Individual virtual meetings or office hours may also be scheduled through **Zoom by appointment** when additional discussion, clarification, or academic support is needed. Students are encouraged to communicate questions or concerns in a timely manner so that appropriate guidance and assistance can be provided.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

The syllabus/schedule are subject to change.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.

<https://inside.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf>.

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:

<https://www.britannica.com/topic/netiquette>

TAMUC Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedures 13.99.99.R0.01](#)

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

[Undergraduate Student Academic Dishonesty Form](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf>

Graduate Students Academic Integrity Policy and Form

[Graduate Student Academic Dishonesty Form](#)

<https://inside.tamuc.edu/aboutus/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10.pdf>

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce
Velma K. Waters Library Rm 162

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Phone (903) 886-5150 or (903) 886-5835
 Fax (903) 468-8148
 Email: studentdisabilityservices@tamuc.edu

Website: [Student Disability Services](#)

<https://www.tamuc.edu/student-disability-services/>

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

A&M-Commerce Supports Students' Mental Health

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.tamuc.edu/counsel

Mental Health and Well-Being

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The university aims to provide students with essential knowledge and tools to understand and support mental health. As part of our commitment to your well-being, we offer access to Telus Health, a service available 24/7/365 via chat, phone, or webinar. Scan the QR code to download the app and explore the resources available to you for guidance and support whenever you need it.



<http://telusproduction.com/app/5108.html>

AI use policy [Draft 2, May 25, 2023]

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

13.99.99.R0.03 Undergraduate Academic Dishonesty

13.99.99.R0.10 Graduate Student Academic Dishonesty

Department or Accrediting Agency Required Content

Not applicable to this course.

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COURSE OUTLINE / CALENDAR

HCL 553 (FALL 2026) COURSE SCHEDULE			
Week/Module	Readings & Topics	What to Learn	Hands-on AI activity
1	AI Fundamentals for Healthcare Leaders	AI, ML, deep learning, NLP, generative AI, LLMs; what AI can/cannot do	Compare ChatGPT, Gemini and Claude responses to the same healthcare management problem
2	Healthcare Data, Informatics & AI	EHR data, claims, interoperability, structured/unstructured data, data quality, training data	Give an AI tool a de-identified healthcare dataset/scenario and ask students to identify useful AI applications
3	Clinical & Administrative Applications of AI	Clinical decision support, imaging, predictive analytics, scheduling, no-shows, revenue cycle, staffing, documentation	Students select a hospital problem and design an AI-supported workflow
4	Generative AI & LLMs in Healthcare	Prompting, RAG, hallucinations, reliability, source verification, AI agents	Prompt-engineering lab: students progressively improve prompts and evaluate output quality
5	Ethics, Bias, Privacy & Health Equity	Algorithmic bias, HIPAA/PHI, fairness, transparency, explainability, human oversight	Give students a problematic AI recommendation and have them identify bias, privacy and ethical risks
6	Evaluating & Selecting Healthcare AI	Vendor evaluation, validation, sensitivity/specificity, ROI, workflow fit, implementation readiness	Students act as a hospital AI-selection committee evaluating competing AI proposals
7	AI Governance, Regulation & Implementation	FDA/regulatory issues, governance committees, policies, accountability, cybersecurity, change management	Build a hospital AI governance framework/policy with AI assistance, then critique the AI-generated policy
8	AI Strategy & Future of Healthcare	Enterprise AI strategy, workforce impact, AI agents, multimodal AI, future health systems	Final project: executive proposal for implementing an AI solution in a healthcare organization

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