THE UNIVERSITY OF WINNIPEG

APPLIED COMPUTER SCIENCE

Course Number: ACS-2816-001
Course Name: Health Information Systems
Course Webpage: https://nexus.uwinnipeg.ca/d2l/home/67576

Instructor Information

Instructor: Victor Balogun
E-mail: vi.balogun@uwinnipeg.ca
Office Hours: Tuesday 12:00pm – 1:00 pm **3D18**
Class meeting time: Tue/Thu 10:00 am - 11:15 pm **3D04**

Important Dates

1. First Class: Tuesday, January 7, 2025

2. Reading Week (no classes): February 16 – 22, 2025

3. Midterm Exam: Tuesday, February 25, 2025

4. Final Withdrawal Date w/o academic penalty*: Friday, March 14, 2025

5. Last Class: Thursday, April 3, 2025

6. Final Exam (Comprehensive): Date **TBD**

7. University closures: Louis Riel Day   Monday, February 17, 2025
                        Good Friday   Friday, April 18, 2025

*A minimum of 20% of the work on which the final grade is based will be evaluated and available to the student before the voluntary withdrawal date.

Course Objectives / Learning Outcomes

This course will provide an overview of the important topics in Health Informatics. It will discuss data as the building block for health care information including the basic concepts of data flow, data storage, and health record management within both private and public health care systems.

This course will provide the critical foundation needed by students in the Health Informatics and Information Systems streams to develop essential health information systems knowledge. It is aimed at developing students' understanding of the different types of information systems used in the health care industry, and how these systems work together to ensure safe and secure exchange of personal health information and records. Students will explore important information system

models and techniques used during the information life cycle. The students will also study the relationships between health information stakeholders with respect to the collection, storage, accessibility, sharing, maintenance, standardization, and security of health records within health information systems.

Evaluation Criteria

Note: **The use of any AI tool (e.g., ChatGPT, Bing, Notion AI) is prohibited in this course for completing any of the following assessments*:***

1. **Quizzes** (3 quizzes, to be done in class. Each quiz worths 4%) **12%**

2. **Midterm Exam** (**18%**) – *February 25, 2025*
   - During the regular class time
   - Missed exams will receive a mark of zero, unless a medical certificate is provided, no accommodation is made for missed exams.

3. **Group Discussions and Reflections (10%)**

4. **HIS Project – Development & Presentations: (25%) -** Date **TBD**

   - Students will be randomly organized into Project Teams.
   - The instructor will provide a list of projects in the field of Health Information Systems (HIS) that the students/team will select from.
   - Students, as a team will carry out the project using the Agile methodology that will be described in the class.
   - The Project lifecycle will be divided into three distinct milestones for reviews and assessments as follows: (i) Project Planning Review (PPR), (ii) Mid Project Review (MPR), and (iii) Project Completion Review (PCR).

   Project Deliverables:
   - o **Selection of Project Topic** – 0%
   - o **Submission of Project Proposal** - 3%
   - o **Project Planning Review (PPR) Report –** 5%
   - o **Mid Project Review (MPR) Report –** 5%
   - o **Project Completion Review (PCR) Report -** 5%
   - o **Final Presentations** and Software Product demo - 7% (Group 4%, Individual 3%)

5. **Final Exam (35%) -** Date **TBD**
   - Cumulative
   - Students are responsible for backing up and protecting their assignments.
   - Keep a backup copy of all class work in case there is an error in recording of marks by the instructor.

Test / Exam Requirements
- Photo ID is required for mid-term exam and the final exam. Students must be prepared to present their student ID.
- Midterm and Quizzes might be delivered via Nexus and proctored via Respondus. Students must have video capability and video must be turned on for the duration of the exam for proctoring.
- The final exam will be delivered in-person at an examination venue to be determined.
- Quizzes, Mid-term and Final exams are **Closed** book.

Students should contact the instructor as soon as possible if extenuating circumstances require missing a lab, assignment, test or examination. A medical certificate from a practicing physician may be required before any adjustments are considered.

Students with documented disabilities, temporary or chronic medical conditions, requiring academic accommodations for tests/exams (e.g., private space) or during lectures/laboratories (e.g., note-takers) are encouraged to contact Accessibility Services (AS) at 204-786-9771 or accessibilityservices@uwinnipeg.ca to discuss appropriate options. All information about a student's disability or medical condition remains confidential.
https://www.uwinnipeg.ca/accessibility-services

Students may choose not to attend classes or write examinations on holy days of their religion, but they must notify their instructors at least two weeks in advance. Instructors will then provide opportunity for students to make up work examinations without penalty. A list of religious holidays can be found in the 2024-25 Undergraduate Academic Calendar online at
http://uwinnipeg.ca/academics/calendar/docs/important-notes.pdf

Final Letter Grade Assignment
Historically, numerical percentages have been converted to letter grades using the following scale. However, instructors can deviate from these values based on pedagogical nuances of a particular class, and final grades are subject to approval by the Department Review Committee.

A+	90 – 100%	B+	75 – 79%	C	60 – 64%
A	85 – 89 %	B	70 – 74%	D	50 – 59%
A-	80 – 84%	C+	65 – 69%	F	below 50%

Required Text Book / Reading List
Biomedical Informatics, Computer Applications in Health Care and Biomedicine
Shortliffe, Edward H.; Cimino, James J. (Eds)
Springer 5th Edition 2021
ISBN 9783030587208 (Hardcover)

Digital Health Care: Perspectives, Applications, and Cases
Phillip Olla, PhD; Joseph Tan, PhD
Jones & Bartlett Learning 1st Edition 2023
ISBN: 9781284153859

Prerequisite Information

(This information can be found in the UW Undergraduate Academic Calendar)
- A grade of at least C in ACS-1803(3) or permission of Department Chair.

Regulations, Policies, and Academic Integrity

Students are encouraged to familiarize themselves with the Academic Regulations and Policies found in the University Academic Calendar at:
https://uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf
Particular attention should be given to subsections 8 (Student Discipline), 9 (Senate Appeals) and 10 (Grade Appeals).

Avoiding Academic Misconduct: Academic dishonesty is a very serious offense and will be dealt in accordance with the University's policies.
Detailed information can be found at the following:

- Academic Misconduct Policy and Procedures:
  https://www.uwinnipeg.ca/policies/docs/policies/academic-misconduct-policy.pdf
  and https://www.uwinnipeg.ca/policies/docs/procedures/academic-misconduct-procedures.pdf
- About Academic Integrity and Misconduct, Resources and FAQs:
  https://library.uwinnipeg.ca/use-the-library/help-with-research/academic-integrity.html

Uploading essays and other assignments to essay vendor or trader sites (filesharing sites that are known providers of essays for use by others who submit them to instructors as their own work) involves "aiding and abetting" plagiarism. Students who do this can be charged with Academic Misconduct.

Academic Integrity and AI Text-generating Tools: The use of any AI tool (e.g., ChatGPT, Bing, Notion AI) is prohibited in this course for completing any of the assessments. Students will face an allegation of academic misconduct if using them to do assignments. In rare cases when the professor explicitly permits the use of AI tools, students must cite them. According to the MLA (https://style.mla.org/citing-generative-ai/), writers should

- Cite a generative AI tool whenever you paraphrase, quote, or incorporate into your own work any content (whether text, image, data, or other) that was created by it
- acknowledge all functional uses of the tool (like editing your prose or translating words) in a note, your text, or another suitable location
- take care to vet the secondary sources it cites

Non-academic misconduct: Students are expected to conduct themselves in a respectful manner on campus and in the learning environment irrespective of platform being used. Behaviour, communication, or acts that are inconsistent with a number of UW policies could be considered "non-academic" misconduct. More detailed information can be found here:

- Respectful Working and Learning Environment Policy
  https://www.uwinnipeg.ca/respect/respect-policy.html,
- Acceptable Use of Information Technology Policy
  https://www.uwinnipeg.ca/policies/docs/policies/acceptable-use-of-information-technology-policy.pdf
- Non-Academic Misconduct Policy and Procedures:
  https://www.uwinnipeg.ca/policies/docs/policies/student-non-academic-misconduct-policy.pdf and https://www.uwinnipeg.ca/policies/docs/procedures/student-non-academic-misconduct-procedures.pdf

Copyright and Intellectual Property: Course materials are the property of the instructor who developed them. Examples of such materials are course outlines, assignment descriptions, lecture notes, test questions, and presentation slides—irrespective of format. Students who upload these materials to filesharing sites, or in any other way share these materials with others outside the class without prior permission of the instructor/presenter, are in violation of copyright law and University policy. Students must also seek prior permission of the instructor/presenter before, for example, photographing, recording, or taking screenshots of slides, presentations, lectures, and notes on the board. Students found to be in violation of an instructor's intellectual property rights could face serious consequences pursuant to the Academic Misconduct or Non-Academic Misconduct Policy; such consequences could possibly involve legal sanction under the Copyright Policy:
https://copyright.uwinnipeg.ca/basics/copyright-policy.html

Privacy

Students have rights in relation of the collecting of personal data the University of Winnipeg
- Student Privacy: https://www.uwinnipeg.ca/privacy/admissions-privacy-notice.html
- Zoom Privacy: https://www.uwinnipeg.ca/privacy/zoom-privacy-notice.html

Class Cancellation, Correspondence with Students and Withdrawing from Course

When it is necessary to cancel a class due to exceptional circumstances, the course instructor will make every effort to inform students via UWinnipeg email and Nexus.

Students are reminded that they have a responsibility to regularly check their UWinnipeg e-mail addresses to ensure timely receipt of correspondence from the University and/or the course instructor*.*

Please let the course instructor know if you plan on withdrawing from the course. Note that withdrawing before the VW date does not necessarily result in a fee refund.

Respondus Privacy and Security

The University of Winnipeg Information and Privacy Office has reviewed Respondus' privacy and security information. The Respondus Privacy Notice is posted on the University's website and can be viewed at: https://www.uwinnipeg.ca/privacy/respondus-privacy-notice.html

<u>Topics to be covered (tentative)</u>
- Health Informatics Overview
- Health Informatics Databases
- Digitizing the Medical Record
- Big Data Analytics & Artificial Intelligence in Health Care
- Public Health Informatics: Equity, Ethical, & Privacy Considerations
- Security & Privacy Issues
- Clinical Decision Support Systems
- Consumer Health Informatics
- Consumer Health Informatics Tools
- Compliance and Privacy of Health Information
- Exploring Digital Health Emerging Technologies
- Sensors and Wearable Electronics in Health Care
- Personalized Medicine, 3D Printing, and Digital Therapeutics
- Technology Transforming Health Care

Note: A permitted or necessary change in mode of delivery may require adjustments to important aspects of course outlines, like class schedule and the number, nature, and weighting of assignments and/or exams.