

## IS4250: IT-enabled Healthcare Solutioning

Year 2022/2023 Semester 2

Thursday 9:00 am -12:00 pm

### Lecturer: Dr. Lim Shi Ying

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### Course objectives:

This module seeks to provide students with hands-on, problem-based experience in Information Technology (IT) design to tackle real-world healthcare challenges. Healthcare systems worldwide are changing their core strategies, financing, and operational care processes. For instance, sick care is replaced by proactive efforts to keep people healthy and out of the hospital. Large-scale healthcare systems are also being redesigned to promote the continuity of care. In this module, students can learn how to provide workable IT solutions to address contemporary healthcare issues and challenges.

Specific learning objectives of this course are as follows:

- Articulate the opportunities and challenges in the healthcare ecosystem within and beyond the hospitals while addressing the technological components needed to deliver patient care.
- Describe and apply the elements of the design, adoption, and implementation process in a healthcare setting.

Note: This is a learning-by-doing course. Often, we will spend the first hour on traditional lecture and the rest of our time in class on case studies, during which we will immerse ourselves in the data and ambiguity of real-world scenarios. Guest speakers will also be invited to share their experiences.

Outside of class, you spend time in the field, collecting data, and developing solutions to real-world problems. Overall, your course grade will reflect your ability to work effectively on difficult, unstructured tasks.

### Reference Materials:

- Wager, K. A., Lee, F. W., & Glaser, J. P. (2017). *Health care information systems: a practical approach for health care management*. John Wiley & Sons. [ebook available on NUS library site]
- Extra compulsory readings posted on Canvas
- **Cases: Please purchase from <https://hbsp.harvard.edu/import/1017723>**

### Course Website and Communications:

Canvas will be the primary medium for course communications and materials distribution. I will post announcements, lecture notes, and other supplementary materials on Canvas.

### Deadlines

To be fair to everyone in the class and to get assignments graded and returned in a timely fashion, we have to have deadlines.

- Deliverables handed in **5 minutes after** the due date/time but **during the next 24 hours** will get points deducted. Deliverables will not be accepted more than 24 hours after the due date.
- PLEASE double-check deliverables submitted through Canvas to make sure your assignment file is attached. If your file is not attached, you will not receive credit for the assignment!
- Re-evaluation of Assignments and Exams: You must do so within ONE WEEK of the day the homework is returned, or grades are posted on Canvas. **After the one-week window, your grade for that assignment is permanent.**

## Course deliverables

The breakdown of the course grade is as follows:

Component	% of the score
Two Case write-ups (individual)	15%
Class Participation (Individual)	10%
In-class exam	30%
Course project (group)	45%
- Initial proposal	
- Midterm update	
- Final report	
- Final presentation (STEPS)	

### **Case write-ups (15%):**

Cases can be purchased from: <https://hbsp.harvard.edu/import/1017723>

Case write-ups are due **the evening before (8:59 pm) the class on Canvas, as indicated on the schedule**. The write-up should begin with an executive summary (brief paragraph) that summarizes the overall structure and content of your analysis. A prompt will be distributed along with specific guidelines for format and submission. It should provide answers to *all* parts of the question. **You must include your name at the top to receive credit.**

The write-ups should not exceed two single-spaced pages, Times New Roman, 12-point font, with 1" margins. Up to two pages of supporting tables or figures will be allowed as an appendices.

### **Class participation (10%):**

Student participation in class discussions and in class activities is strongly encouraged in class. During class, I may call upon students to lead off the discussion, answer questions, and comment on the ongoing discussion. Thus, you should not only be well-prepared with the content of the case and lecture content but should also be listening carefully to what others are saying.

Students are also expected to come to class with questions for the guest speakers and to have read the assigned readings **before** class. However, there is no need to participate in *every* class. The *quality* of comments matters more than the *quantity*.

### **Group Project (45%):**

The deliverables for this project include (1) an initial proposal, (2) a midterm update, (3) a final report, and (4) a STEPS participation. For more details, refer to the project handout distributed on the first day of class.

Students will work in teams of 4-5 to develop solutions to a health/healthcare issue faced by patients, healthcare providers, and/or the general public. The goal is to apply course concepts to gain experience developing a prototype of an IT solution for the healthcare context. This assignment will require students to spend time interviewing users, collecting data and feedback, and iterating their "prototypes". While the instructor will help facilitate some of these interviews with clinicians and practitioners, it is expected that students will source their own interviewees (e.g. elderly relatives, friends in medical/nursing school, etc.).

Note: SingHealth has kindly offered to host a few project teams this year.

- Students will have to sign a non-disclosure agreement to participate in this project. The intellectual property also remains with SingHealth after this.
- Some of these projects may involve the development of prototypes (e.g. android programming). In those cases, a 6th team member may be permitted.
- It is important to note that although the students will have access to SingHealth clinicians, it is expected that the students will be proactive in leading the project. E.g. sourcing interviewees outside of SingHealth, instead of relying solely on the SingHealth staff for insights.

***In-class Exam:***

The exam will focus on the application and synthesis of the materials learned in class, rather than memorization or regurgitation of materials presented. The midterm will include multiple-choice questions and case analysis. The case will be distributed the week prior to the midterm.

***Class Policies and Ground Rules:******Academic integrity and plagiarism:***

Academic integrity is a critical value of the university community. Academic integrity policies and descriptions of unacceptable, prohibited student behaviors in class are listed in: <http://www.comp.nus.edu.sg/cug/plagiarism/>.

Individual and group-level plagiarism of submitted class assignments are strictly not tolerated and will be referred to the university for further disciplinary actions. All assignments and project submissions will be submitted for plagiarism checks using [www.turnitin.com](http://www.turnitin.com). See <http://www.cit.nus.edu.sg/plagiarism-prevention> for more details.

***Missed exams:***

No make-up exams will be given except for medical and university-approved emergencies. If you know you have conflicts in your schedule, you should make arrangements with the instructor in advance (at least four weeks before the scheduled exam date).

***Other Administrative Details***

1. As the course progresses, I will post information on Canvas. Check the website regularly.
2. *Certain lecture materials will be posted, but I will **not** post slides summarizing cases or our discussions.*
3. There will be no recording of the lectures.