

SPPH 302 001 Topics in Health Informatics for Health/Life Sciences Students

SPPH 302

Course General Info

Course Title: Topics in Health Informatics for Health/Life Sciences Students

Course Level: Undergraduate

Credit Value: 3 hours

Course Location & Times:

Room: Woodward 5 (2018)
Woodward IRC
2194 Health Sciences Mall

Some Thursday Afternoons

4PM -7PM AND on-line on Canvas

Note: This course does not meet in-person every week! See Schedule Below.

Instructor Contact Info:

Larry Frisch M.D., M.P.H. - Course Instructor

Clinical Professor, School of Population and Public Health

Seraphine Zeitouny M.P.H. - Course TA (2018)

Ph.D. Candidate, School of Population and Public Health

Communication with Instructor:

Email through the course email (SPPH302@gmail.com) is the best way to communicate with both Larry and the course TA. We will answer emails within 24 hours. In case of an emergency – contact the instructor through lefrisch@gmail.com and please put the course number (SPPH 302) on the message title so that I know the message is from a student. We recommend not sending us emails through Canvas because replies may not reach you. At times we will communicate with groups or (or everyone) via Canvas. If you need to respond, please do so at spph302@gmail.com so we receive your response.

Course Description

Health Informatics is a study at the crossroads of medicine, technology and information science. This course is an introduction to the field, providing a foundation for those interested in further study around computers and information science in the life and health sciences. While we will consider informatics across a broad range of healthcare services, we will look whenever relevant at applications affecting public health practice.

Intended Students

SPPH 302 presupposes little prior computing background. You'll need to be able to load programs on your PC or Mac and access a variety of sites on the Web. The rest should take care of itself! This a course for students with background in biology and/or health who want to learn what informatics tools will likely be adding to their discipline over the coming years (and what's already there!) It is also a course that should be useful for students who already have a solid background in computer science but want an introduction to the special challenges (and vocabulary) of healthcare.

In 2018 the course changed significantly. It is now taught partly on campus, and partly on-line. We have also reinstated a final examination, changing SPPH 302 from a course in which grading was based largely on successful completion of class assignments and projects to one in which more grading marks will derive from objective multiple-choice quizzes and the final exam. Grading details are given below, and full grading rubrics can be found in the Canvas "Assignments" section. 2/3 of your grade will be based on individual activities (including quizzes and the final) and the remaining 1/3 on group activities.

Course Evaluation

Assignment

Marks

Due Date -See Course Calendar for

Definitive Dates & Times

Project on Informatics Topic – Oral Presentation (Group)

Over the course of a month or more your group will complete one of four group projects and deliver a brief oral presentation of the results at one of our last two class meetings. Your project topic will be assigned taking into consideration your preferences to be submitted in Canvas during the 3rd course week.

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End of Course. See course calendar on Canvas for specific date/time.

Data Entry InputHealth Electronic Medical Record (Individual)

You will be given access to InputHealth, an "industrial strength" electronic medical record system used both at UBC student health and the Mayo Clinic. You will carry out a set of designated activities using this system.

10

Midnight, final Sunday module 10 (Sunday)

Debate on Assigned Proposition (Group)

Summary of another debate (Group)

Each course group will conduct a debate for or against a proposition relating to health informatics. Your classmates will judge the winner (but grading will be determined by the strength of your arguments and presentation, not by whether or not you win.)

3 (debate)

5

(summary)

See the debate assignment for a table of schedules of debates and of debate summaries.

Your group will also summarize and analyze the content and effectiveness of another group's debate.

HL7 message decoding (Individual)

HL7 is a messaging structure used to allow disparate healthcare computer systems to "talk" with one another. After studying the structure of HL7, you will decode a short HL7 message that we send you and create a summary in free text.

4

HL7 message: Midnight, final Sunday Module 8 - see course calendar

In-Class and Online Participation (Individual 10 marks, group 5 marks)

During our five on-line sessions (and also during Module 7) you will make postings to the group discussion board as described in the link above. Up to 10 individual marks will be awarded for these postings.

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Unless otherwise directed, on-line discussion contributions must be completed by midnight on the final Sunday of a Module.

Each group will also post on their discussion board the results of an activity assigned to them during one of Modules 2,4,6,8 or 10. These activities are worth five marks.

Four Quizzes- typically about 5 multiple choice questions

12

Modules 3, 5, 9 and 11

Final Examination - multiple choice single answer questions

36

When announced

Detailed descriptions of each type of Assignments and on the examination/quizzes can be found in the Course Assignments section on the SPPH302 CANVAS website.

Detailed descriptions of each quiz can be found in the Quiz section on the SPPH302 CANVAS website.

Grade Assignment and Final Grade will accord with the Faculty of Medicine's Grading Policy outlined at:

www.calendar.ubc.ca/vancouver/?tree=3,42,96,0

More specifically, Grade Assignment and Final Grade will be given on the following Grading Schema:

%Grade	Grade
90-100	A+

85-89	A
80-84	A-
76-79	B+
72-75	B
68-71	B-
64-67	C+
60-63	C
55-59	C-
50-54	D
49 and below	F

Late Submissions Policy

For each or any part of a day that the assignment is late, including weekends and statutory holidays, the student will lose 5% of the maximum possible value of the assignment for the first day or part of a day that the assignment is late and an additional 2% for each subsequent day or part of a day.

Example: A paper worth 10 possible marks that is handed in 1 day late would automatically lose 0.5 points. The same paper handed in 10 days late would lose an additional 1.8 marks for a total mark loss of 2.3 marks.

A student can ask the course TA for an exemption from this deduction for one or more of the days within the late period. This request should - whenever possible - be made at least 48 hours before the assignment due date. When exemptions are requested after an assignment due date, written documentation of extenuating circumstances, such as illness, may be required.

Access and Diversity

Recognizing that the first SPPH302 in-class quiz occurs in week 3, students requiring access and diversity accommodation should present their needs and any required documentation to the instructor and TA as early in the course as possible.

Course Learning Objectives

These are the official learning objectives approved by UBC:

Overall Goal: To acquaint students with a range of topics linking the tools of informatics with specific challenges in health care delivery and the assessment and maintenance of public and population health.

Upon completion of SPPH302 the student will be able to:

1. Outline the origin and history of health informatics and explain associated terms.
2. Describe health informatics, its uses, potential, pros and cons, current issues and impact on practice.
3. Explain various purposes of data in the health context, how data can be stored and queried in health applications and quality assurance methods in data management.
4. Explore a variety of health informatics innovations to assist in providing quality healthcare, for example, to:
 - retrieve information and manage data across various professional fields;
 - assist in clinical decision making;
 - collaborate and communicate, particularly across professions;
 - assist in health services in remote and rural locations.
5. Examine how innovations and issues in health informatics might apply to a specific healthcare scenario and within various healthcare professions.
6. Outline security, privacy and ethical issues pertaining to health informatics in various professional contexts.
7. Describe the characteristics, principles and standards of computer science in health applications.
8. Identify human factors in health informatics, such as workflow, knowledge translation, education and change management,
9. Outline methods and tools that might assist in managing these.
10. Assess the strengths and weaknesses of a variety of HI options as they pertain to a chosen health problem and target population;

11. Provide a rationale for selecting a particular strategy;
12. Explain different approaches for evaluating eHealth technologies and interventions.

Learning Environment

This course uses elements of "blended learning" which means that it will take place both in our course lecture hall and on-line. We will alternate weeks between in-person meetings (odd-numbered modules) and solely on-line activities (even-numbered modules). Course learning will take place both in our 3 hour classroom meetings and here on the Canvas website where you will be able to interact asynchronously with each other and with the instructor and course TA. The majority of your on-line interaction will take place in small groups. You will receive a random group assignment early in the course, and your group will work together on course projects and conduct an in-class debate in addition to participating on the Canvas discussion board. Blended learning allows you to do on-line preparation (reading, exercises, discussions) during one course session and then come to class the following session to share and deepen your knowledge. We will follow that model to the degree possible; however in a class designed around 3 hour blocks we can only rarely spend two sessions on the same general topic. So most of our on-line sessions will combine your preparation (reading, videos, powerpoint presentations) with discussion, analysis, and application activities on your small group discussion site. We will try to include in each on-line module individual and group activities that you will demonstrate and discuss. Some of these activities will involve everyone. Two examples: You will send and receive an HL7 laboratory message using the computer program "HL7Spy," and you will participate in an on-line exercise to "solve" a communicable disease outbreak. Other activities will involve only a few of the groups who will report their findings on their discussion board. Generally, one of these groups will be invited to present its results during the following week's in-class session.

We will hear from a number of engaging guest lecturers in this course. These will include experts in health informatics, public health, clinical medicine, business, public planning, and health law.

There is no course textbook, but there will be a variety of other readings and video presentations that we hope will add to your learning enjoyment and accomplishment. We have tried to minimize your reading in order to let you focus on skill acquisition. This is, whenever possible, a course focused on giving you experience with real informatics tools. Students in the past have consistently reported that this "hands-on" experience is one of the course's strengths. During our time together you will:

- Use an actual electronic medical record currently in use both at the Mayo Clinic and at UBC Student and Employee Health to enter and evaluate clinical data including PROMs (patient reported outcome measures).
- Complete a group project that allows you to 1) do a usability analysis of one or more pieces of health-related software, 2) create an on-line accessible prototype appointment system using a relational database system that does not require learning a programming language, 3) construct a basic clinical decision support system that healthcare providers could use for a common medical problem like ankle sprain, or 4) construct a group social network graph and collect data on network members to determine whether happiness behaves contagiously in your network.
- Acquire elementary skill using the SQL (structured query language) database programming language.
- Demonstrate understanding of Health Language 7 (HL7) structure (and computer networking protocols) sufficient to send and receive an HL7 message over the internet to another member of your group.
- Learn how field epidemiologists approach a communicable disease outbreak by working through one or more instructional video games produced by the U.S. Centers for Disease Control and Prevention.
- Learn the basics of debating and participate in a vigorous debate with another team on a topic related to healthcare informatics. You will also have a (graded) opportunity to write a summary/critique of another group's debate.

We support a student-centred active learning environment to help further develop your capacity for critical thinking and intellectual growth. With this in mind, you will be challenged to:

- Be prepared by having readings and exercises completed before class time
- Actively participate in class and online discussions
- Critically assess information sources
- Work collaboratively with classmates and faculty

This syllabus does not describe class assignments – these are detailed in a separate set of documents on Canvas. Be sure to familiarize yourself with assignment requirements and due dates early in the course. While for your convenience the syllabus indicates when many of the assignments are due, the course calendar is to be the course's “gold standard” for due dates. In the unlikely event there is a discrepancy between the syllabus and the calendar, the calendar will be the correct source.

Since this course has changed some from previous years, we may not yet have caught all discrepancies among Canvas documents. **If you “see something, say something.”** Let us know immediately if you spot information that is discrepant (or confusing,) and we will make needed changes as quickly as possible.

Course Schedule—*If the “Week & Date” column below does not say “This Session will be in Woodward 5” all learning that week will take place on-line in Canvas. Woodward class meetings will be held on weeks specifically indicated below (1, 3,5,7,9,11,12,13). Your attendance is expected, and roll may be taken. In general, the course alternates weeks between on-campus and on-line. Whenever possible the on-line materials will help set the stage for the following week’s topic. Note that there are reading assignments for each class week - whether in-class or virtual.*

[Go Back to Beginning of Syllabus](#)

<u>Week & Date</u>	<u>Topic</u>	<u>In-Class Activities and Links to Readings</u>
	Course Overview	
	debates & debating	
	group assignments,	
	Database Basics: focus on relational models, but also XML.	<u>Activities to complete before class session</u> (It is OK to view these after the class if you haven't been able to access Canvas before our first session)
Module 1 Sept 6		
This Session will be in Woodward 5	Brief intro to SQL	<u>Module PPT</u>
	InputHealth Electronic Medical Record	
<u>Module 2</u>	Health literacy,	<u>Readings & Activities for module 2</u>

history of
Informatics, Canada
Health Infoway,
Infoway and
telemedicine.

Sept 13

ONLINE

Intro to your class
group project: your
four project options
and the multivoting
selection process.

Module3

Readings & Activities for module 3

Sept 20

**This Session will be in
Woodward 5**

Telehealth

DEBATE!

QUIZ covering modules 1 and 2!

Difference between
EHR and EMR
(electronic health
record and
electronic medical
record)

Module4

Sept 27

ONLINE

Introduction to the
concept of “human
factors.”

Readings & Activitiesfor module 4

Governance and
Change
Management in
large-scale project
implementation

Project management

Module 5

Oct 4

**This Session will be in
Woodward**

Privacy and
Security, with a
special focus on
implementation of
large scale EHR
systems

Readings & Activitiesfor module 5

Debate!

Quiz covering modules 3, 4, and readings/videos from 5.

Pharmacy
Informatics and the
EHR

Small Area
Variations in
Healthcare

Module 6

October 11

Evidence-Informed
Care

Readings & Activities for module 6

ONLINE

The roles and
challenges of
challenges of using
Clinical Practice
Guidelines to
potentially reduce
small area variation

Module 7

October 18

The Informatics of
Diagnostic Imaging
– Xrays, CT, MRI,
Ultrasound

Readings & Activities for module 7

Imaging and the
EHR

Debate!

Module 8

October 25

Surgical Informatics

The Diagnostic
Laboratory and
Informatics

Readings & Activities module 8

ONLINE

Module 9

A Global
Perspective on
Healthcare

Readings & Activities module 9

November 1 Informatics Debate!
Quiz covering modules 6, 7, and 8

Module 10

November 8 Public Health
Informatics:
Introduction and
ONLINE Overview

Readings & Activities for module 11(includes two
short videos you should watch before the lecture!)

Module 11

November 15 Public Health
Surveillance: the
Use and Analysis of **Quiz covering modules 9, 10**
Public Health Data

The “Solve the Epidemic” Champion-ship Playoff

\$ Prize \$ Money at Stake!

Module 12

November 22 Project
Presentations

This Session in
Woodward 5

Module 13

November 29 Project
Presentations

This Session in
Woodward 5

Course Wrapup