# SPPH 302

# Course Syllabus

**Click here to Go to Course Schedule** below

## 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
> Woodward IRC
> 2194 Health Sciences Mall
> **Some Thursday Afternoons**
>
> **4PM -7PM AND on-line on**
> **Canvas**

**Instructor Info:**

> **Larry Frisch M.D., M.P.H.**
>
> Clinical Professor, School of Population and Public Health

**Communication with Instructor:**

> **Email through the course CANVAS site is the best way to communicate. Emails typically will be answered 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.**
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> **Since Larry lives in Victoria, office hours can be problematic. He will endeavour to be available before or after class during the weens we have on-campus meetings. There is always the option of "virtual office meetings. by phone or Skype**.

## 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

This a course that will appeal especially to 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. As you'll see below, students with an interest in business and entrepreneurship will also find the course of interest. 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!

## What Makes this Course Unique?

SPPH 302 is as much about *doing* healthcare informatics as it is about acquiring information on this important and rapidly evolving field. You will learn a lot about computer systems in healthcare, but you will also be working with real informatics software and addressing real problems in healthcare. You are urged you to scan through the assignments listed below to see the variety of practical experiences 302 offers. Not included there is the course's introduction to Structured Query Language (SQL) for those of you not familiar with this important database tool. 302 is taught using "blended learning" and, for most topics, a "flipped classroom." If you are not familiar with these concepts, please see the notes below on each. Hopefully you will find this format an interesting and fun change from lecture-only courses you may have taken.

But what really makes 302 unique is our extraordinary partnership between academia and industry. The instructor for this course is Larry Frisch. Dr. Frisch. holds an MD degree from the Harvard Medical School and an MPH from the University of Washington. He has a long clinical career in pediatrics, college health, and remote Aboriginal care (in the Alaskan Arctic). He has been active in clinical informatics for many years with a special interest in direct patient entry of information into the clinical record. Among numerous other publications, Larry co-edited the chapter on Canadian Informatics in the current edition of the major text on Healthcare Informatics. Larry has had faculty positions at CUB, UVIC, Northeast Ohio College of Medicine (where he held an endowed chair in Community Health Sciences), the University of

Kansas, and the University of Hawaii (where as Assistant Professor of Pediatrics he directed a child abuse evaluation unit for the city and county of Honolulu.) Since returning to BC he has served as Executive Medical Director for Island Health and as an assistant director at the Vancouver Coastal Health Research Institute. Larry has taught SPPH 302 since its inception in 2016. He is an avid cyclist and photographer and plays upright bass in a small Victoria jazz ensemble.

However, the star attraction of this course is our partnership with Dr. Damon Ramsey who will be joining us on many occasions, both in person and on-line. Damon is a Family Physician and an instructor in UBC's Family Medicine department. He has a background in software engineering and is presently CEO of InputHealth. You can read a little more about InputHealth below, and you will learn a lot about its signature CHR (Collaborative Electronic Healthl Record) product during the course. Damon will bring his extraordinary enthusiasm, expertise, and technical staff to us for workshops, mini-lectures, and small group mentoring. Toward the end of the class he will introduce us to entrepreneurial thinking and practice as exemplified in *The Lean Startup*, a class text. If you have any interest in what goes into making a successful business startup (in healthcare or any other field) you won't want to miss 302 or Damon and his group of colleagues.

## Course Learning Objectives

These are the official learning objectves approved by CUB:

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 e Health technologies and interventions.

# Course Content & Learning Objectives

| Course Content | Module (Ween) | Relevant Course Learning Objectives – by Number Above |
|---|---|---|
| Introduction | 1 | 1,2, 10, 12 |
| Databases and Appointment Systems | 2 & 3 | 6, 10, 11 |
| Interoperability – HL7 & DICOM (Laboratory and Imaging Systems) | 4 & 5 | 1, 4, 11 |
| Pharmacy Systems – Medication Administration and COPE/Closed Loop Drug Delivery | 6 | 8, 9, 11 |
| The Collaborative Health Record | 7 & 8 | 3, 5, 7, 11 |
| Change Management | 9 | 10, 11 |
| Big Data in Healthcare Informatics | 10 & 11 | 3, 4 |
| Business aspects of Healthcare Informatics | 12 & 13 | 2, 5, 8, 9, 11, 12 |

# Learning Environment

This course is based on a "blended learning" approach and makes use of a "flipped classroom" and an approach which we have labelled "LACE."

● Blended Learning

This means that the course will take place both in our 3 hour classroom meetings on our 'face to face sessions" and here on the Canvas website where you will be able to interactive asynchronously with each other and with the instructor. Blended learning allows you to do on-line preparation (reading, exercises, self-quizzes) during one course session and then come to class the following session to share and deepen your knowledge. During the out-of-class weeks you will be interacting with other students and the instructor on Canvas discussion board(s).

● Flipped Classroom

This means that for the most part during our out-of-classroom weeks you will do readings and listen to recorded lectures on-line. Your goal is to prepare for the following week's in-class session. We will use this in-class me to review and deepen

material from the previous week and apply it to practical health informatics applications. There also may be short student and/or faculty presentations.

- "LACE" - This acronym stands for "*L*earning, *A*pplication, *C*onsolidation, and *E*xploration. Whenever possible we will approach topics in health and healthcare *informatics* by first offering you **readings, videos, or lectures** to introduce important information. Next, we will ask you to **apply** what you have learned in a hands-on activity, often as a group activity when we meet as a class in our lecture hall. When we have a two module block for a topic or set of topics, in the second module we will usually give you some additional materials to help **consolidate** what you have learned in the previous week. For some of the class topics you will do a graded assignment in which you **explore** your own application of the material you have learned and consolidated.

## Managing Your Time in SPPH 302

This course is likely different from most or all you've taken in the past since so much of the work in 302 takes place out of the classroom.  So how to budget your time in the course? Expect that you will be spending an average of around 9 hours a week on the class (including tending the sessions in the lecture hall.) You'll want to start by looking at the course calendar for when the various assignments are due. Note that a number of them (for example your m-health paper, your work on InputHealth data, your reading of *The Lean Startup,* your "Solve the Outbreak" work, your SQL zoo study), will require work extending over several modules – or for some of these over nearly all of the course's 13 weeks. Some course modules will require more of your time than others. However, several modules have been left nearly free, to assure that you have time for work on the assignments and on the "Application" and "Exploration." activities.

Look carefully at the structure of the syllabus. Each course week begins on a Thursday. It is expected that prior to each Thursday (except the first) you will have done the work outlined in the previous module's "Required Activities." So begin these as early as you can in each Thursday-to-Thursday week. For example, after the course's first in-class session you'll begin ihome study of the materials for Module 2. You will find a page for each module outlining your work for that week and with links to needed readings, videos, and assignments/activities. You can access these pages either directly in Canvas' "Pages" link, or from the syllabus. Lecture powerpoints will be posted on Canvas as soon as possible, often before the lecture is given.

Your participation in the Canvas group discussion board is especially important. You will interact there with other students and with the course instructors. There are a number of

ungraded "Application" activities that you are to post on the board along with your commentary. While these are *not directly* graded, their completion is part of your discussion board grade.

There is no course textbook per se, , but you will be expected to read *The Lean Startup: How Today's Entrepreneurs use Continuous Innovation to Create radically Successful Businesses* by Eric Ries (not expensive.) There will be a variety of other readings and video presentations that will add to your learning enjoyment and accomplishment. I have tried to minimize the readings in order to let you focus on skill acquisition through projects and activities. Students in the past have reported that this emphasis on "hands-on" experience is one of the course's strengths, and we hope that you too will enjoy and profit from this SPPPH 302 emphasis.

302 supports 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

**Course Resources:**

- InputHealth
- The InputHealth Electronic Collaborative Medical Record has long been a component of
- SPPH 302
- InputHealth is a highly successful Vancouver-based informatics software company. Its medical record system is used world-wide, with installations at the Mayo Clinic AND the CUB Student and Employee Health Service (and of course in many other places as well.)
- If you get healthcare on campus, your medical record is secure on InputHealth's servers.
- As detailed in the preceding "what makes this course unique" sexton, we will be
- working closely with InputHealth's CEO and staff as well as with InputHealth software.
- As we explore topics in health and healthcare informatics you will be learning how these are actually implemented in InputHealth. You will work closely with InputHealth technical staff to understand how this EM works – including some of what is "under the hood."
- For some of our health and healthcare topics you will find that they aren't (yet) implemented in InputHealth. During in-class "flipped" weeks you frequently will meet in small groups with InputHealth technical staff (and its physician CEO, Damon Ramsay, to explore with them the business and technical cases for adding new functionality. Some of this discussion may also take place in the Canvas online group discussion forum which will be moderated by Damon and Larry.

- Our focus on InputHealth will give you an extraordinary opportunity to understand how health and healthcare-related software is developed, implemented, tested, marketed, and used. You will interact with professionals with backgrounds in healthcare, computer science, health informatics, and business. You will learn a lot about a specific product (InputHealth) and about team members who have created InputHealth and have assured its business success.

**Course Learning Tools**
**Text:**
- *The Lean Startup* text – available in Kindle, if you wish.
**Software you will need to download:**
- InputHealth (web-based (no download needed)
     1. InputHealth is accessible from PCs, Macs, and Smart Phones. Other course activities. may require the use of different specialized software not served from the Cloud. Some of this may be PC-only. If you are a Mac user and a class activity or project requires access to a PC computer we will assure that needed programs are available to you at the computer laboratory in the basement of the School of Population and Public Health.

o    Using InputHealth requires an access code which we hope to provide during or soon after week 3 of the course.
- SocNetV
- Program for Network Graph creation and analysis
- Tableau – a free tme-limited trial version is available for download OR by confirming your student status you can have Tableau for a year (PC or Mac).
- Twitter – No download, but you will need a Twitter account for the "Solve the Epidemic" activity.

**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. There is no in-class session. During in-class weeks your attendance is expected, and roll may be taken. There may also be an in-class quiz. In general, the course alternates weeks between on-campus and on-line.**

| Module Topic | Week & Date | Required Activities for the *Following* Week (i.e. for Module 1, from Sept 5 to Sept 12 |
|---|---|---|
| **Mini-lecture Course Overview & Roadmap**<br><br>**LEARNINGS**<br><br>**Module 1 presentations**<br>- InputHealth+ Introduction to the InputHealth staff with whom you will work<br>**Minilectures**<br>- 'Big Systems' vs 'Little Systems'<br>- 'Big system' overview – Electronic Health Record (EHR) HMSS "definitional model"<br>- "Little Systems" - The Electronic Medical Record (EMR) and the "Collaborative Health Record"<br>- Terminology: EHR, EMR, CHR<br>- The healthcare concept of "Medical Home" & the CHR<br><br>**APPLICATION**<br><br>Small group workshops introducing the InputHealth user Interface | **Module 1**<br>**September 5 through 11**<br>**This Session will be in Woodward 5** | **See this link to the module page**<br><br>**LEARNINGS**<br><br>Beginning "*The Lean Startup"*<br><br>**EXPLORATION**<br>**"Solve the Outbreak" project. This isn't due until week 12, but you can start (or add to your score) at any time. See the project instruction in the Canvas assignments section.**<br><br>**LEARNINGS**<br><br>- Relational Databases<br>- Making Appointments Online<br>- Introduction to coding systems used in healthcare<br><br>**APPLICATION**<br><br>You will build your own simple appointment system following instruction on the module page. |
| **Databases and Online Appointment Systems**<br><br>**Coding Systems used in Healthcare Informatics** | **Module 2**<br><br>**September 12 through 18** | **See this link to the module page**<br><br>**LEARNING**<br>- Data entry in the Electronic Record<br>- History of heathcare informatics – brief introduction<br>**CONSOLIDATION**<br>Solidify your knowledge of SNOMED-CT and LOINC by viewing a narrated powerpoint. Post commentary about ICD-10, LOINC, and SNOMED-CT searching<br><br>**EXPLORATION**<br>SQL database language – SQLzoo |

| Module Topic | Week & Date | Required Activities for the *Following* Week (i.e. for Module 1, from Sept 5 to Sept 12 |
|---|---|---|
| | | tutorial – see assignments page in Canvas <br><br> **APPLICATION and EXPLORATION** <br> EMR/CHR – InputHealth |
| **Databases and Appointment Systems** <br> • Quiz on Snomed and LOINC <br> • Minilecture: student access to InputHealth' <br> • Minilecture: making appointments in the CHR <br> ◦ Activity: make an appointments <br> ◦ Analyze how InputHealth stores Appointment data <br> • Appointment System Exercise <br> ◦ Mentored small group review of database systems and structures <br> **APPLICATION** <br> • Small group exercise consturcting a prototype appointment system using Knack | **Module 3** <br> **Sept 19 through 25** <br><br> **This Session will be in Woodward 5** | **See this link to the module page** <br><br> **Interoperability in Healthcare Systems** <br><br> **LEARNINGS** <br><br> • Laboratory and imaging systems <br><br> **APPLICATION** <br><br> • Ungraded exercise to be posted on the Canvas group discussion board this week (see module page) <br><br> **EXPLORATION** <br> • Graded assignment on HL7 due in module 8 – see Canvas Assignments page |
| **Interoperability in Healthcare Systems** <br> • HL7 <br> • DICOM <br> • Structure and interoperability – the clinical laboratory and the diagnostic imaging service <br> ◦ Lab ordering & reporting with HL7 <br> ◦ DICOM metadata in diagnostic imaging | **Module 4** <br><br> **Sept 26 through Oct 2** | **See this link to the module page** <br><br> **CONSOLIDATION** <br><br> • Laboratory Informatics <br> • SQLzoo tutorial continues <br> • Metadata in DICOM and photographic imaging formats (EXIF) <br><br> **APPLICATION** <br><br> • Posting on Canvas discussion board <br> ◦ Ungraded activity on DICOM and EXIF metadata (see module page for instructions) |

| Module Topic | Week & Date | Required Activities for the *Following* Week (i.e. for Module 1, from Sept 5 to Sept 12 |
|---|---|---|
| **Interoperability in health care systems – HL7 & DICOM**<br><br>• Quiz on DICOM, EXIF & SQL<br><br>**CONSOLIDATION**<br><br>• Minilectures:<br> ◦ Intro to the Laboratoy and its informatics structure<br> ◦ Review of the Diagnostic imaging department and its informatics structures<br> ◦ DICOM & 'big data' in Imaging<br> ◦ Sending and parsing HL7<br> ◦ Application Programming Interfaces – API<br><br>• Ungraded quiz on DICOM<br><br>**APPLICATION**<br><br>• Group activity – constructing laboratory HL7 ORM and ORU messages | **Module 5**<br><br>**Oct 3 through Oct 9**<br><br>**This Session will be in Woodward 5** | **See this link to the module page**<br><br>There are only a few outside learning activities this week to help you prepare for next week's session on Lab informatics.<br><br>There are no graded or ungraded discussion board postings, but as always you're welcome to offer comments or pose questions about anything relevant. Perhaps some of you will want to post definitions for the acronyms I suggested you define.<br><br>You should have this week to prepare for the midterm and work on pending assignments. |
| Midterm examination<br><br>**LEARNING**<br><br>**Pharmacy Informatics**<br><br>**Minilectures:**<br>• Adverse Events & Serious Adverse Events<br>• Medication Errors<br>• Drug ordering and administration (hospitals and other facilities)<br>• CPOE (computerized provider order entry)<br>• Closed-Loop drug administration<br>**CONSOLIDATION & APPLICATION**<br>• Small group exercise: Root cause analysis | **Module 6**<br>**Oct 10 through 16**<br><br>**This session will be in Woodward 5** | **See this link to the module page**<br>**N**o required Discussion Board Postings this week. But if you looked at the "meme" video at the end of the module page what did you think? Did it ake you angry?<br><br>**LEARNINGS**<br>• Collaborative records and InputHealth Qnaires<br>• Telehealth<br>• Canada Health Infoway<br>• Patient Portals<br>• Healthcare Literacy and the Digital Divide<br><br>**EXPLORATION**<br>• The Digital Divide – a film<br>• Mhealth – your course paper assignment (not due until the end of the course, |

| Module Topic | Week & Date | Required Activities for the *Following* Week (i.e. for Module 1, from Sept 5 to Sept 12 |
|---|---|---|
| | | but if you haven't started yet now would be a very good time **(See Assignments page in Canvas.)** |
| **Introduction to the Collaborative Health Record**<br><br>**Collaboration in the Collaborative Health Record**<br><br>**APPLICATION**<br>• Minlecture and workshop on InputHealth and the collection of Patient Reported Outcomes (PROMS)<br>• Telehealth<br>  ○ Introduction<br>  ○ Demos | **Module 7**<br><br>**Oct 17 through 23** | <span style="color:red">See this link to the module page</span><br><br>**LEARNING**<br><br>• Privacy and Security in healthcare<br>  ○ Privacy law<br>  ○ Privacy risks<br>  ○ Encryption<br>  ○ Data breaches<br>  ○ Cybersecurity<br>• Health Equity<br>**CONSOLIDATION**<br>• **Graded Discussion Board Posting**<br>  ○ Cybersecurity<br>  ○ Social and economic inequity and mhealth |
| **Privacy and Security in Healthcare**<br><br>**Guest Speaker TBA** | **Module 8**<br><br>**October 24 through 30**<br><br><span style="color:red">**This Session will be in Woodward 5**</span> | <span style="color:red">See this link to the module page</span><br><br>**Change Management**<br><br>**LEARNING**<br><br>• "Human Factors" in change management<br>• Theories and models of change management<br>• Tools for change management |
| **Change Management**<br><br>**LEARNINGS**<br><br>• **Guest Speaker TBA** | **Module 9**<br><br>**October 31(!) through Nov 6**<br><br><span style="color:red">**This Session will be in Woodward 5**</span><br><br><span style="color:red">**(No-one dressed in costume or mask will be turned away.)**</span> | See this link to the module page<br><br>**CONSOLIDATION**<br>**Graded Discussion Board Activity**<br>• Change management<br>**EXPLORATION**<br>**Data Mining Exercise – not required but strongly encouraged.**<br><br>**LEARNING**<br>• 'Big Data' & the EMR/EHR<br>  ○ Data Warehousing<br>  ○ Examples of large |

| Module Topic | Week & Date | Required Activities for the *Following* Week (i.e. for Module 1, from Sept 5 to Sept 12 |
|---|---|---|
| | | <ul><li>health-related databases</li><li>Vancouver's "my health, my community" & the "Human Early Learning Partnership</li></ul> |
| **Big Data and Healthcare Informatics** | **Module 10**<br><br>**Nov 7 through Nov 13** | **See this link to the module page**<br><br>**CONSOLIDATION**<br>• **Graded Discussion Board Activity**<br> ○ **My Health My Community and "HELP"**<br>• Data Warehouses<br>• Tools for analysis<br> ○ Tableau<br> ○ I2B2<br> ○ Artifical Intelligence (AI)<br>**EXPLORATION**<br>• Data in InputHealth<br> ○ Assignment – see Canvas Assignments page<br>**APPLICATION**<br>**Important: download your copy of Tableau before the next session!  See this module's page for instructions.** |
| **Data and the EMR/EHR**<br><br>Quiz<br>• Will cover material in modules 6 through 10 (may also include questions on SQL)<br><br>**LEARNING**<br><br>**Guest Speaker TBA**<br>• Data and the EMR/CHR<br> ○ Minilectures<br>  ▪ Data Analytics in InputHealth<br>  ▪ Big Data Public Health<br>  ▪ Artificial Intelligence and Healthcare Data<br>**APPLICATION**<br>• Workshop on Tableau | **Module 11**<br><br>**Nov 14 through 20**<br><br>**This Session will be in Woodward 5** | **See this link to the module page**<br><br>**LEARNING**<br>• The role of informatics in healthcare innovation and entrepreneurship<br>• Human Factors engineering for safety and efficiency in healthcare<br>• Assessing the usability of healthcare software and record systems<br>• Social entrepreneurship and Social Innovation |

| Module Topic | Week & Date | Required Activities for the *Following* Week (i.e. for Module 1, from Sept 5 to Sept 12 |
|---|---|---|
| **Informatics Potpourri**<br><br>**A conversation with Damon on** *The Lean Startup* | **Module 12**<br><br>**November 21 through 27** | **See this link to the module page**<br><br>**EXPLORATION**<br><br>• Public Health Informatics<br>• You'll have time this week for working on your class paper assignment and for improving your "Solve the Outbreak" score to qualify for nest week's big competition. |
| **The Business Side of Healthcare Informatics & Course Wrap-Up**<br><br>**CONSOLIDATION**<br><br>• The Great Solve the Outbreak Playoff<br> ◦ $100 cash winner-takes-all purse<br> ◦ The Kentucky Derby of Public Health Informatics!<br>• Seminar<br> ◦ Creating and Marketing Health Informatics Systems<br> ◦ Re-imagining Canadian Healthcare<br> ◦ Participants<br> ▪ Damon Ramsey<br> ▪ Stefan Fletcher<br> • CEO of Victoria's RebalanceMD<br> • Master of the four letter word AND radical improvement in public healthcare<br> • John Vincent<br> ◦ Physicist, astronomer, health executive, and entrepreneur extraordinaire<br> ◦ Class Wrap-Up | **Module 13**<br><br>**November 28** | **Course Concludes**<br><br>**Final Examination – as Scheduled** |

## Student Evaluation

Your final grade will be based on the following course components. See Canvas for assignment/ activity details and grading rubrics.

| Assignment | Marks | Due Date |
|---|---|---|
| Paper (1500-2500 words) on m-health (mobile apps and smartphone-linked devices to monitor or improve health) – includes several "contract" components. See instructions. | 23 | End of Course |
| Data Entry InputHealth Collaborative Health Record | 10 | Module 9 |
| Graded Activities<br>• "Solve the Epidemic" (5 marks)<br>• Evaluate HL7 message (5 marks)<br>• Tableau Data Analysis/Display (5 marks)<br>• InputHealth lab data graphical<br>• display (3 marks) | 18 | • "Solve the Outbreak" (any time before module 12)<br>• Send and receive HL7 message (module 8)<br>• Tableau Data Analysis (module 12))<br>• InputHealth lab data graphical display<br>• (module 10) |
| Participation in online Canvas group discussion board<br><br> (2 marks each for participation in five specific modules.) | 10 | Graded participation is expected in modules 2, 4, 7, 9, & 10. You are strongly encouraged to post thoughts and questions at other times as well! Please do comment on others' postings (including  the five required submissions) as we want this board to be an interactive forum. |
| Midterm Exam | 10 | In Class – Module 6 |
| In-Class Quizzes (3) | 9 | Modules 3, 5, and 11 |
| **Final Exam** | **20** | |

Detailed descriptions of each type of Assignments and on the examinations/quizzes can be found on the Course Assignments page on course Connect website under Course Info > Course Assignments.  **Specific due dates and times are in the course calendar.**

Grade Assignment and Final Grade will generally 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 |

# Assignment Policies

### Diversity

*Diversity:* Please contact instructor if you need to coordinate an alternate testing environment or require other special arrangements.

# Academic Integrity

You are expected to complete all work on your own. Plagiarism will be managed as academic misconduct. Assignments suspected of plagiarism will be de-identified and screened through Turnitn. UBC policy on academic misconduct is available at: http://vpacademic.ubc.ca/integrity/ubc-regulaton-on-plagiarism