



## **Master of Science in Health Informatics**

**Distributed Stream  
Handbook-v2, 2005-2006**

A Collaborative Initiative among:  
University of Victoria, University of Alberta  
University of Calgary, University of British Columbia  
Office of Learning Technologies HRSD  
COACH, Canada's Health Informatics Association  
ShirWin Knowledge & Learning Systems



**University  
of Victoria**

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## **1. Program Overview**

The School of Health Information Science (HINF) now offers a distributed program stream leading to the degree of Master of Science in Health Informatics.

This distributed stream is offered as a collaborative initiative among the Universities of Alberta, Calgary and British Columbia, COACH-Canada's Health Informatics Association, and ShirWin Knowledge & Learning Systems, through special project funding from the Office of Learning Technologies in the Federal Ministry of Human Resource Skills Development.

## **2. Admission Requirements**

Health and information technology (IT) professionals with two or more years of relevant work experience who wish to become health informatics (HI) specialists are eligible to apply for admission into the program. Candidates are required to have a Bachelor's degree and may include such health professionals as physicians, nurses, therapists and laboratory technologists, as well as IT professionals working in the health sector. Those with a Bachelor's degree in a non-health or non-IT related field wishing to enter the program are required to take additional courses from the program or elsewhere depending on prior education and experience.

The submission of GRE scores or equivalent GMAT/MCAT scores is normally required. A TOEFL score of 575 or higher is required of all foreign students whose first language is not English.

## **3. Program Requirements**

This distributed M.Sc. program stream will require a minimum of 17.5 units of course work, including a major project. The stream consists of graduate level online HI courses from the School, as well as online elective courses from our partner institutions at the Universities of British Columbia, Alberta and Calgary. The stream is designed as an intensive 2-year program with 2 courses per term or 6 courses in the first year, followed by 5 courses in the second year including a major project. There will be a 5-day on-campus orientation at the beginning, and a 2-week on-campus workshop each year as capstones for the program. Initially we will enrol up to 25 students as the first cohort.

## **4. Program of Study**

The distributed stream for the M.Sc. degree in HI will require a minimum of 17.5 units of course work, including a major project. The program of study will include the following requirements:

(a) Required Courses – Mandatory 5.5 units from the following courses:

HINF 580 (1.0) Health Informatics Graduate Seminar  
HINF 503 (1.5) Research Methods in Health Informatics  
HINF 598 (3.0) Major Project

(b) Core Electives – Minimum of 7.5 units from the following courses:

- HINF 510 (1.5) Health Information Management
- HINF 515 (1.5) Patient Care Information Systems
- HINF 550 (1.5) Health Information System Design
- HINF 551 (1.5) Electronic Health Record
- HINF 570 (1.5) Epidemiology in Health Services Management
- HINF 590 (1.5) Directed Study in Health Informatics
- HINF 591 (1.5) Topics in Health Informatics
- HINF 591.1 (1.5) Health Systems Data Analysis

(c) Electives – Minimum of 4.5 units from the following courses:

- HINF 590 (1.5) Directed Study in Health Informatics\*\*
- HINF 591 (1.5) Topics in Health Informatics\*\*
- MDSC 755.08 (1.5) e-health Sustainability (UC)\$
- MDSC 755 (1.5) Evaluation in e-health (UC)\$
- PHS 693 (1.5) Critical Appraisal (UA)\$
- HINF560 (1.5) Health Care Quality Improvement
- HINF591.2 (1.5) Topics in HI - Telemedicine in Action (UVic in collaboration with UBC)
- HINF591.3 (1.5) Topics in HI - PDA Use for Clinicians (UVic in collaboration with UBC)
- PHS799 (1.5) Clinical Decision Support Systems (UA)

\*\* HINF 590 and 591 can be taken more than once

\$ MDSC are courses from Community Health Sciences at UC; PHS are courses from Public Health Sciences at UA

(d) The Cohort Model Program

The cohort model program is included to show the course sequencing over a 2-year period. Note that for elective courses the minimum enrolment required will be 10 students, with the maximum to be capped at 15 students.

COURSE	YEAR ONE												YEAR TWO											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Required	HINF503*								HINF580				HINF598+											
Core					HINF510^ HINF550^				HINF591.1								HINF551^ HINF560 or 590^							
Elective	PHS693 or MDSC755.08												MDSC755 or HINF591.2				HINF591.3 or PHS799							

\* HINF503 by 5-day workshop in 2nd wk January year-1, then online sessions until end of January

^ HINF510,550 by 2-wk workshop in 1st week June year-1, then online sessions until end of June; same for HINF551,560/590 in year-2

+ HINF598 major project by weekly virtual class in January year-2, then continue at individual pace until December year-2

## 5. Program Fees

The tuition fee for the program is \$24,000, which includes the accommodation cost for all 3 workshops. The fee does not cover the cost of learning resources and workshop travels or meals. Applicants are encouraged to seek sponsorship from their employer or related organizations to enrol in this program. No financial assistance will be available through the program. Foreign students are charged a fee of \$30,000.

## 6. Faculty

- Dr. Francis Lau, Associate Professor and Director, UVic
- Dr. Malcolm Maclure, Professor and MSFHR Distinguished Scholar, Health Info Science, UVic
- Dr. Jochen Moehr, Professor, Health Information Science, UVic
- Professor Denis Protti, Health Information Science, UVic
- Dr. Nicola Shaw, Assistant Professor, Dept of Pediatrics, UBC
- Dr. Tom Rosenal, Professor, Community Health Sciences, UC
- Dr. Chris Eagle, Professor, Community Health Sciences, UC (also CIO of Calgary Health Region)
- Dr. Marilynne Hebert, Assistant Professor, Community Health Sciences, UC
- Dr. Richard Scott, Associate Professor, Community Health Sciences, UC
- Dr. Robert Hayward, Associate Professor, Faculty of Medicine, UA
- Dr. Ellen Balka, Associate Professor, School of Communications, SFU
- Dr. Andre Kushniruk, Associate Professor, Dept of Mathematics, York University

## 7. Timelines for January 2005 Offering

This program is scheduled to begin in January 2005. *Note that the program will only be launched when all 25 seats are filled.* The important dates are listed below following the model program:

COURSE	YEAR ONE												YEAR TWO											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Required	HINF503*								HINF580				HINF598+											
Core					HINF510^ HINF550^				HINF591.1								HINF551^ HINF560 or 590^							
Elective	PHS693 or MDSC755.08												MDSC755 or HINF591.2				HINF591.3 or PHS799							

\* HINF503 by 5-day workshop in 2nd wk January year-1, then online sessions until end of January

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+ HINF598 major project by weekly virtual class in January year-2, then continue at individual pace until December year-2

### (a) Admission into Program

- Program information to be available by March 31, 2004
- Tentative application deadline is June 30, 2004 pending approval date by Graduate Studies
- Tentative acceptance notifications to be made by September 15, 2004
- Final decision on launch of program by September 30, 2004 when all 25 seats are filled

### (b) Year-1 Program Details

- First 5-day orientation workshop to be held from January 9 to 13, 2005
- HINF503 to run from January 9 to 31, 2005 (major portion of the course being offered at workshop, with online component to complete assignments)
- PHS693 and MDSC755.08 to run from February 4 to May 15, 2005
- Year-1 summer workshop to be held from June 5 to 16, 2005
- HINF 510 and 550 to run from June 5 to June 30, 2005 (major portion of courses being offered at workshop, with online component to complete assignments)
- HINF580 and 591.1 to run from September 5 to December 9, 2005

### (c) Year-2 Program Details

- HINF598 to run from January 5 to Dec 15, 2006 (weekly virtual class to be held in month of January 2006, followed by individual mentor-student interactions)
- MDSC755 and HINF591.2 to run from February 1 to May 19, 2006
- Year-2 summer workshop to be held from June 4 to 15, 2006
- HINF 551 and 560/590 to run from June 4 to June 30, 2005 (major portion of courses being offered at workshop, with online component to complete assignments)
- HINF591.3 and PHS799 to run from September 4 to December 15, 2006
- Completion of graduate program by end of December 2006

## 8. Application Procedures

All applicants are required to submit the standard UVic graduate studies application package according to the guidelines from the Faculty of Graduate Studies, and the HINF application package required by the School. The application procedures are outlined below. Note that the application deadline for the first cohort is June 30, 2004.

### (a) Standard UVic Graduate Studies Application Package

1. Consult the Graduate Admissions and Records webpage (<http://web.uvic.ca/grar/>) for instructions.
2. For Canadian residents follow the instructions outlined under the Domestic Applicants link. For non-Canadian residents please follow the International Applicants link.
3. Download the application package from the appropriate webpage link.
4. Applicants are responsible for obtaining the appropriate transcripts, assessment reports, GRE test scores and other documents outlined in the application package.
5. Submit the completed application package directly by mail to the Graduate Admissions and Records Office at UVic.

### (b) Specific HINF Application Package

1. Applicants are also required to provide the School with a 1-page letter of intent, a personal resume of up to a maximum of 4 pages, and preferred elective courses.
2. Provide the following descriptions in the 1-page letter of intent:
  - Personal details i.e. name, address, phone, email and application date
  - Why should you be considered for enrolment into this program?
  - Do you have support from your employer to enrol in this program? If so, please elaborate the type of support available, e.g. financial support, protected-time or major project.
  - How do you intend to apply the knowledge learned from this program in the workplace?
  - In what ways will this program improve/change your personal career (if any)?
3. Provide a resume with your education background, employment history, professional/academic affiliations and other achievements such as publications or awards, up to a maximum of 5 pages.
4. Submit the completed HINF application package directly by mail to the graduate program coordinator at the School.
5. You will be notified of your acceptance by September 30, 2004. You need to confirm your acceptance within 2 weeks of notification.

## 9. Course Descriptions

**HINF 503 Research Methods in Health Informatics** (1.5 units). This course reviews selected theories and methods used in health informatics (HI) and information systems (IS) research. The two disciplines are related in that both are concerned with the use of information and communication technologies (ICT) in organizational settings. Through this course, students will learn to locate HI as an academic discipline, review different HI and IS research approaches reported, and ways to conduct HI research. Through this course, students will be given the opportunity to practise on writing research proposals and papers, and on critiquing scientific writings. Instructor: Dr. Nicola Shaw.

**HINF 510 Health Information Management** (1.5 units). This course critically examines the application of state-of-the-art information management and technology principles and methods in the private sector and the degree to which they apply to Canadian health care organizations. In doing so, it identifies the issues, which CIO's face in their attempts to provide the right information to the right people, at the right time, and for the right price. Instructor: Professor Denis Protti.

**HINF 515 Patient Care Information Systems** (1.5 units). This course provides a thorough coverage of concepts, methodologies and techniques available to support patient care processes through the use of information technology. It includes a review of factual and patient information systems, signal and pattern processing applications, decision support, simulation, education and training applications. Instructor: Dr. Jochen Moehr.

**HINF 550 Health Information Systems Design** (1.5 units). This course is a study on how to design health information systems. Case studies will be used to discuss how a system is designed and implemented in a complex setting. Students will work in teams with other students to develop a total system solution to a particular health care problem. Instructor: Dr. Francis Lau.

**HINF 551 Electronic Health Record** (1.5 units). This course examines recent efforts in modeling health information and documents. It covers a structured review of the current literature, development of a means for selecting key articles, and development of a structure for findings, including types and classes of health information, methods of health information documentation, and current status of use of XML in health information systems, including a summary of current limits and challenges. Instructor: Professor Denis Protti.

**HINF 560 Health Care Quality Improvement** (1.5 units). This course provides an overview of the methodology for Continuous Quality Improvement, Total Quality Management and Quality Assurance in health care. Students work in teams on a quality improvement project related to their work environments. Instructor: Dr. Jochen Moehr.

**HINF 570 Epidemiology in Health Services Management** (1.5 units). An examination of the principles and methods of epidemiology. The course focuses on the design, implementation and evaluation of epidemiological analyses as applied to management in the health and social services, including the role of epidemiology in health services planning and policy formulation, health status indicators, outcome measurement and utilization analysis. Instructor: Dr. Malcolm Maclure.

**HINF 580 HI Graduate Seminar** (1.0 units). This course is to explore key themes, issues and trends in HI. It consists of presentations by faculty and students on different HI subject areas. Instructor: Dr. Francis Lau.

**HINF 590 Directed Study** (1.5 units). This course allows the student to pursue directed readings or a project under the supervision of a faculty member.

**HINF 591 Topics in HI** (1.5 units). Advanced topics in various areas of health informatics. Topics vary depending on faculty interests and availability. Students may take this course more than once.

**HINF 591.1 Topics in HI: Health Systems Data Analysis** (1.5 units). This course covers the major health system databases and how, with record linkage, they can be analyzed to create pictures of system components for strategic planning, ongoing program management, monitoring and evaluation. By working with real data and real problems, you will learn basic tools and methods of health system data analysis. Instructor: Dr. Malcolm Maclure.

**HINF 591.2 Topics in HI: Telemedicine in Action** (1.5 units). This course takes a case-based approach to telemedicine and its applications in the field. Enrolees will engage in curriculum around the three following contextual cases: clinical; education; administration applications. Students will interact with, experience, and review a range of technology-enabled learning tools, participate in technology demonstrations, and engage in exchanges with various telehealth and informatics personnel and experts. Specific units of this course are also modularized for CME accreditation. Instructor: Dr. Ivan Boyadjov.

**HINF 591.3 Topics in HI: PDA Use for Clinicians** (1.5 units). This course provides an online workshop environment designed to help health professionals especially physicians harness the full potential of the Personal Digital Assistant in medical practice. This offering is designed as an advanced course for those who have completed the face to face digital medicine workshop offered through CME-UBC and would like to learn more, or for graduate students with an interest in health informatics and telehealth/telemedicine applications. Those without such pre-requisites require instructor approval. Instructor: Dr. Ivan Boyadjov.

**HINF 598 Major Project** (3.0 units). The student is required to conduct a major research project in health informatics under the supervision of a faculty member. Preference is given to real-life HI related projects being planned or underway in the workplace where the student is employed. Early selection of the research project topic is strongly recommended. Instructor: Dr. Francis Lau.

**MDSC 755 Evaluation in e-Health** (1.5 units). This course offers practical insights and understanding of an evaluation process for e-health initiatives. This includes assessing the effectiveness of e-health programs, evaluation design, data collection and analysis, as well as recommendations to assist decision-makers. Instructor: Dr. Marilynne Hebert.

**MDSC 755.08 E-Health Sustainability: From Business Case to Policy** (1.5 units). This course focuses on the issue of sustainability and how e-health applications can be planned in a manner that encourages ultimate integration and routine use. Instructor: Dr. Richard Scott.

**PHS 693 Critical Appraisal of the Health Sciences Literature** (1.5 units). The intent of this course is to help students improve their ability to find, appraise and use evidence about health care interventions appearing in the health sciences literature. Using an online virtual classroom format, students will gain knowledge of the criteria used to appraise the validity, importance and applicability of different types of health literature. Instructor: Dr. Robert Hayward.

**PHS 799 Clinical Decision Support Systems** (1.5 units). Tentative instructor: Dr. Robert Hayward.

## 10. Frequently Asked Questions

*Can I get into this program if I have a non-healthcare IT background?*

Each application will be reviewed individually to determine eligibility. Those not meeting the basic requirements may need to take additional courses at UVic or elsewhere prior to being considered for admission.

*Is there financial assistance available?*

No, all students are expected to be self-financed or sponsored by their employer to enrol in this program.

*Can I work full-time while taking this program?*

You do not have to quit your job while taking this program, but you will need to make arrangements with your employer to take time off to attend the on-campus workshops.

*How many hours a week should I expect to spend working on this program?*

You should expect to spend between 8 to 10 hours each week working on this program. This would include attending real-time virtual classes, engaging in online discussion forums, working on assignments and projects.

*Do I have to attend all of the on-campus workshops?*

Yes, all 3 workshops are mandatory as they are critical to getting to know your fellow students and taking part in the face-to-face portions of some of the core courses in the program.

*What happens if I have to drop a course during a term?*

As with standard university regulations, there is a deadline when you can drop a course without incurring a penalty on your tuition fee. After the deadline you will not be able receive a refund.