Postgraduate Diploma in Health Informatics

PGDipHealInf

Introduction

Health informatics deals with the evaluation and effective use of computer systems, software and electronic information in the healthcare context. It emphasises the appropriate use of computers and telecommunications technology.

Electronic information systems are beginning to revolutionise healthcare practice, research and education. Many healthcare professionals realise that they need skills in finding and using information, and in assessing the information systems.

A large part of clinical practice is concerned with the creation and storage of data about patients and the finding and use of information for decision-making, service planning, budgeting, audit and research. These tasks can no longer be managed efficiently using paper-based methods. Because of the escalating cost, providers are required increasingly to justify treatment decisions, and to audit outcomes. It is important that there is effective integration of information technology into clinical practice to enable timely communication between the provider and the patient.

Informatics provides opportunities to improve the impact of patient education, and assists in the production, peer review and delivery of these resources. Whilst many fear that computer technology may have a dehumanising effect on the interpersonal basis of health care, efficient management of information improves patient satisfaction and makes time available for new aspects of practice, for learning and improvement in the quality of care.

The Diploma of Health Informatics is a distance taught initiative of the Department of Information Science.

Who should take this course?

This postgraduate diploma is intended for healthcare professionals whose primary focus may be in clinical care delivery, education, management, service planning, quality assurance, information systems or research. Admission ad eundem statum may be possible for those with significant healthcare work experience but without an undergraduate qualification.

 Some individual papers from the course may be cross-credited to other postgraduate courses. For details of eligibility, see the course regulations section.

Hardware and software requirements

Minimum system requirements
A personal computer capable of running the following, or later versions of Microsoft Office Professional 2013 (this version has MS Access), under Windows 8, Windows 7 or Vista.

- Internet connection, preferably with broadband.
- Headset – with microphone attached.
- CD-ROM player.

Purpose

The Course will provide the necessary academic background for health professionals and managers to understand the benefits and limitations of information technology in medicine. Graduates from this programme will be better able to take part in the specification, purchase, development and deployment of

health information systems. They will have developed skills in information searching, organisation and analysis that will be of direct and increasing value to their work. Evidence based practice, decision, utility and cost benefit analysis will prepare them to understand and negotiate with health policy makers, and help patients make vital decisions more objectively.

Key objectives

Graduates will, in the context of clinical practice, health education and research:

- Use a personal computer competently.
- Know what electronic health information sources are available and how to find, use and evaluate them.
- Be familiar with information and telecommunication technology, telemedicine, computer assisted learning, and artificial intelligence applications in medicine.
- Understand electronic medical record systems, specification, implementation, and evaluation.
- Understand and apply evidence-based practice.
- Be able to collect, store, transfer, extract and analyse computerised health data for audit and research.
- Know about social and ethical issues related to the use of computers, information and telecommunication technology in healthcare.

Teaching methods

The course material for each paper will be provided on the Otago Health Informatics website and supplement by textbooks and printed reading lists.

Individual tutorial assistance will be provided by online contact, and email. Students will be expected to work cooperatively by seeking help from and contributing solutions to a student workplace, monitored by the teaching staff. Participation in a group project is a mandatory part of some papers.

Cooperative working methods using the Internet

Some papers include projects that will emphasise collaborative working over the Internet. The course provides familiarity with existing methods, new developments and the limitations of the technology.

Time commitment

The course will require up to 20 hours per week. Approximately one hour per week is required for Internet-based group project meetings where applicable.

Each paper is a collection of approximately 10 modules with aims and objectives.
Each module comprises:
      Background reading and references
      Tasks reviewed by tutors for the purpose of providing students with feedback.
      An assignment or competency test

Assessment

The course is fully internally assessed using the results of assignments, competency tests and projects. If a participant cannot achieve competency they will be expected to review the module with the assistance of a staff member and repeat similar tests until competency has been achieved. The group projects are designed to bring together related elements from the competency modules.

Assignments and competency tests are assessed to confirm 'minimal competency', which if not reached, will require further assessment. 'Flair' in competency tests will be identified and used to reward outstanding performance.

Tests must be submitted by the due date, unless there are extenuating circumstances. Unless an extension of time is formally granted, late submission may result in the participant being assessed as not minimally competent. This will mean that another competency test will be required to be satisfactorily completed. .

Security considerations

Ethics and security issues are an important part of the course. Access to the electronic course material will be password protected, and normal network security policies will be enforced. It will not be necessary to use information in a form that could lead to identification of any individual. The University treats security infractions seriously.

Course content – brief syllabus

The course consists of four one-semester papers, two core papers: HEIN701, HEIN702 and any two papers from HEIN703, HEIN705, HEIN706 and HEIN707. Please note that a participant must have satisfactorily completed the HEIN706 (research methods) paper or an approved equivalent, before entering a Master's programme. All papers are taught over one semester, and attract 30 points. Papers HEIN701 and HEIN703 are offered consecutively in the first and second semesters this year. HEIN702 and HEIN706 are offered in the second semester this year. HEIN707 and HEIN705 are no longer offered.

Please note that papers will only be run if there are sufficient numbers of registrants.

HEIN701 Essential information management skills
(First semester) 30 points Pre-requisite: none

This paper provides an introduction to computing and the concepts of information systems. It develops understanding through acquisition of practical skills with applications such as web browser, spreadsheet and database software. The paper emphasises searching and evaluating online information resources including Medline, the Internet, and use of the World Wide Web for collaborative group work. This paper has a project which is designed to demonstrate the participants' competence in the usage of relevant software.

HEIN702 Principles of health informatics
(First semester) 30 points Prerequisite or Co-requisite: HEIN701
A survey of the field including integrated health information system components and architecture, the electronic medical record, telemedicine, artificial intelligence, decision making, social and ethical issues. The focus is on application of information and telecommunication technology to healthcare. This paper includes a group project that is designed to demonstrate the participants' competence in using the principles of informatics to gain worthwhile information and outputs.

HEIN703 Health information systems
(Second semester) 30 points Pre-requisite: HEIN701

This paper teaches the concepts and practical skills required to understand, evaluate, select, implement or design a health information system. Topics addressed include problem definition, user acceptability issues, data modelling, database management systems, systems analysis and physical database design. Health information transfer standards and future trends in health information systems are also considered. Students work on a group project involving system design.

HEIN706 Research methods
(First semester) 30 points Pre-requisite: none

This paper teaches retrieval techniques, database design, data management and analysis for clinical audit or research with practical examples using commonly availably software packages. The participant will learn about the research process including methods for collaboration using the Internet, presentation of results, and bibliographic management.

HEIN707 Ethics and the Internet
(First semester and Second semester) 30 points Pre-requisite: none

The paper introduces the participant to the concepts of ethics and moral behaviour. It deals with ethical issues surrounding e-health, health research and special issues including spam, intellectual property, pirating and plagiarism. The paper is based upon discussion and deliberation on a series of case-scenarios.

[1]HEIN708 Health Data Management
(Second semester) 15 points Pre-requisite: none

Understanding data collection management and information processing principles for clinical research purposes. Issues associated with data capture, external data imports, database design, metadata, data quality and integrity.

Limited to: PGCertHealSc, PGCertHealSc (end.), PGDipHealSc, PGDipHealSc (end.), MHealSc, MHealSc (end.)

Course regulations
1. **Admission to the Course**
   a. Admission to the Course shall be subject to the approval of the Assistant Vice Chancellor (Commerce)

   b. Every candidate for the Diploma shall have fulfilled one of the following conditions:

      i. have been admitted to a medical degree at a university of New Zealand.
      ii. hold a personal qualification in a health-related field or have satisfied the Board of Studies that previous training and experience is appropriate for the candidate to undertake the Course.

2. **Structure of the Course**
   a. The Course shall have four papers:
      i. two core papers: HEIN701, HEIN702
      ii. two papers selected from HEIN703, HEIN705, HEIN706 and HEIN707.
   b. Subject to the approval of the Assistant Vice-Chancellor (Commerce), a candidate may substitute for one of the prescribed papers, an appropriate paper at an equivalent level offered by another university or examining body.

3. **Duration of the Course**
   The duration of the Course shall be the equivalent of one year of full-time study, taken as a part-time course.

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[1] HEIN708 is not part of the PGDipHealInf but is listed here as an optional extra.

Level of the award of the Diploma
> The Diploma may be awarded with distinction or with credit.

4.   Variations
> The Assistant Vice-Chancellor (Commerce) may in exceptional circumstances approve a course of study that does not comply with these regulations.

5.   Masters course
> Candidates completing the Diploma of Health Informatics will be able to apply for entry to the Masters in Health Sciences programme in the field of Health Informatics. Note a passing grade in the Diploma does not of itself qualify the participant for entry to the Masters programme.

Enrolment

For all enquiries relating to enrolment, please visit http://www.otago.ac.nz/study/enrolment/

Teaching Staff

Mr Alec Holt, (Course Coordinator) Lecturer in the Department of Information Science, University of Otago.

Dr. Brendon Woodford,) Lecturer in the Department of Information Science, University of Otago.

Mr. James Irwin, Professional Practice Fellow, Department of Information Science, University of Otago.

General Information

The teaching staff comes from a wide range of backgrounds to reflect the areas of expertise required to teach the Course. Alec Holt is a computer scientist with special interest in geographic information systems (specifically for environment and health applications) and artificial intelligence, especially case-based reasoning. Brendon J. Woodford holds a PhD in Information Science from the University of Otago. His research areas involve improving upon existing machine learning techniques to support decision making and data mining primarily in the horticultural domain but the current focus in now in health data analytics. He is part of the teaching team in the Information Science Department where he has taught information systems development. James Irwin holds bachelor's degrees in electrical engineering, accounting and divinity and has been part of the teaching team in the Information Science Department for more than 20 years.

All members of the Team are excited about the challenges of distance learning and distance teaching, and are continuously active in assessing new software packages to enhance this process.

Coordinator:

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