Department of

HEALTH INFORMATICS
&
INFORMATION MANAGEMENT
[HIIM]

DEPARTMENT OF HEALTH INFORMATICS AND INFORMATION MANAGEMENT

The Bachelor of Science degree program in Health Informatics and Information Management is built on a rich knowledgebase, encompassing three domains: clinical practice, information management principles and informatics concepts. The curriculum includes distinct knowledge clusters categorized into content areas such as: Biomedical Sciences, Health Data, Healthcare Statistics and Research, Quality Management and Performance Improvement, Health Services Organization and Delivery, Applied Health Informatics, Organization and Management, Healthcare Privacy, Confidentiality, Legal and Ethical Aspects, Information Technology and Systems, and others.

The curriculum is distinctive in two ways: First, the specialization to healthcare throughout the curriculum. Second, the combination of studies in the biomedical sciences, management, and information fields. Curriculum delivery incorporates diversified teaching/learning strategies such as didactic lectures, lab simulations and professional practice experience at affiliated clinical sites off-campus. The department strives to reflect best practices in teaching, and latest developments in the field through continuously reviewing and revising curriculum content, delivery methods and evaluation techniques. The program aims at fostering the development of graduates who are academically and professionally prepared to assume the responsibilities of leadership in their chosen organizations and communities. They are unique as they are equipped with a transformational skill set that may be employed in different fields, including health care organizations, government agencies, information technology vendors, insurance companies and pharmaceutical

companies. With the current and emerging trend and push for electronic health records and information exchange networks, health informatics and information management is one of the most relevant fields in health care today.

MISSION AND OBJECTIVES

Mission

The Department of Health Informatics and Information Management is devoted to serve the people of Kuwait and its healthcare system by imparting knowledge through excellent teaching, creating new knowledge through research, supporting the community by providing consultancy services, and fostering creativity and its expression.

The Department shall be a premier provider of graduates who are academically and professionally prepared to assume the responsibilities of leadership in their chosen organizations. It is committed to promote research and creative activities by nurturing the development of globally committed faculty, engaged in transformational and applied research, education and service. The Department also aims to facilitate community partnerships through fostering the advancement of a vibrant and actively engaged alumni body.

Objectives

The key objectives are:

1. To provide innovative and progressive education that meets high standards and reflects recent developments, as well as emerging trends in the profession in particular, health care field in general.

2. To nurture and instill the requisite professional attitudes and values in students who shall adhere to professional ethics and demonstrate concern, responsibility and the ability to interact appropriately with other members of the healthcare team, administrators, patients and the public.

3. To equip students with the necessary intellectual and emotional resources by furnishing a strong support system in terms of guidance, counselling and regular feedback on academic and clinical performance.

4. To diversify curriculum delivery methods in order to accommodate for a variety of learning styles by using alternative learning modes, such as, but not limited to:

- Computer-assisted learning
- Problem-based learning
- Self-instructional units
- Simulated patient information system
- Student presentations
- Audio-video controlled decision-making and problem analysis sessions
- Fieldtrips
- Guest speakers
- Simulated reality activities

5. To complement didactic teaching/learning experiences with quality laboratories experiences, including:

- A Health Informatics and Information Management laboratory to simulate a virtual department of a hospital.
- A Computer laboratory to demonstrate an operational, computerized health information applications.
- An Audio-Visual laboratory for leadership/managerial learning activities.

6. To develop and provide postgraduate program, short courses, lectures, workshops and seminars for Ministry of Health staff that meet the changing health care needs of Kuwait and keep them up-to-date in terms of best practices and evolving professional trends.

7. To recruit and retain well qualified and experienced teaching and support staff who sustain and add value to the mission of the department.

8. To serve the community by cultivating strategically selected collaborations with community partners in the public sector health care delivery system and in the private sector.

PROGRAMME REQUIREMENTS

The total number of credit hours required for graduation is 127. The programme for the B.Sc. Degree in Health Informatics and Information Management is as follows:

1   **UNIVERSITY REQUIREMENTS (19 credits)**

		Credit Hours
0410-115 Finite Mathematics		3
0788-181 English Language		5
0788-182 English Language		5
0788-250 English Language		3
Elective		3

2   **FACULTY REQUIREMENTS (23 credits)**

0490-101 Biology	3
0711-105 Introduction to Health Informatics	3
0700-106 First Aid and Emergency Care	3
0480-107 Statistics for Medical Sciences	3
0420-110 Chemistry	3
0420-111 Chemistry Lab.	1
0430-121 Physics	3
0430-125 Physics Lab.	1
0510-220 Psychology of Medical Care (A.H.)	3

3   **PROFESSIONAL REQUIREMENTS (85 credits)**

0700-155 Anatomy I	3
0530-152 Physiology I	3
0711-232 Application of Computer Technology to AHS	4
0711-253 Methods of Problem Solving	3
0711-254 Financial Management in Health Care Admin.	3
0711-255 Introduction to Health Care Management	3

0580-316 Clinical Medicine and Pathology	3
0711-351 Medical Terminology I	3
0711-352 Medical Terminology II	2
0711-353 Organization and Management I	3
0711-354 Hospital Data: Collection, Interpret. & Present.	3
0711-340 Health Information Administration I	4
0711-341 Health Information Admin. Directed Practice I	2
0711-342 Health Information Administration II	2
0711-343 Health Information Admin. Directed Practice II	4
0712-345 Introduction to Pharmacology	2
0711-366 Application of Information Tech. (IT) to AHS	3
0711-440 Health Information Administration III	2
0711-441 Health Information Admin. Directed Practice III	5
0711-442 Health Information Administration IV	2
0711-443 Health Information Admin. Directed Practice IV	5
0711-450 Seminar	2
0580-451 Clinical Medicine	2
0711-455 Organization and Management II	3
0711-472 Research and Evaluation of Health Care	3
0711-462 In-service Education	3
0711-463 Health Information System	3
0711-466 Organization and Management III	2
0711-471 Quality Assurance and Analysis	3

PROGRAMME TIMETABLE

FIRST YEAR

Semester One		Semester Two	
Course	**CH**	**Course**	**CH**
110/111 Chem. & Chem. Lab. or 121/125 Phys. & Phys. Lab.	4	110/111 Chem. & Chem. Lab. or 121/125 Phys. & Phys. Lab.	4
115 Finite Mathematics	3	182 English Language	5
181 English Language	5	101 Biology	3
Elective	3	106 First Aid & Emergency Care	3
Total	**15**	**Total**	**15**

SECOND YEAR

Semester One		Semester Two	
Course	CH	Course	CH
105 Intro. to Health Informatics	3	152 Physiology I	3
155 Anatomy	3	220 Psych. of Med. Care (AH)	3
107 Stats for Medical Sciences	3	232 Appli. of Comp. Tech. to Allied Health Sciences	4
254 Financial Management in Health Care Admin.	3	253 Methods of Problem Solving	3
250 English Language	3	255 Introduction to Health Care Management	3
Total	**15**	**Total**	**16**

THIRD YEAR

Semester One		Semester Two	
Course	CH	Course	CH
316 Clinical Medicine & Patho.	3	345 Introduction to Pharmacology	2
340 Health Info. Admin. I	4	342 Health Info. Admin. II	2
341 Health Info. Admin. Directed Practice I	2	343 Health Information Admin. Directed Practice II	4
351 Medical Terminology I	3	352 Medical Terminology II	2
354 Hospital Data: Collection, Interpret. & Presentation	3	353 Organization & Manage. I	3
366 Application of Info. Technology (IT) to AHS	3	451 Clinical Medicine	2
Total	**18**	**Total**	**15**

FOURTH YEAR

Semester One		Semester Two	
Course	CH	Course	CH
440 Health Info. Admin. III	2	442 Health Info. Admin. IV	2
441 Health Information Admin. Directed Practice III	5	443 Health Info. Admin. Directed Practice IV	5
455 Organization & Manage. II	3	450 Seminar	2
462 In-service Education	3	472 Research and Evaluation of Health Care	3
463 Health Information System	3		

<table>
<tr><td>466 Organization & Manage. III</td><td>2</td></tr>
<tr><td>471 Quality Assurance & Analysis</td><td>3</td></tr>
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Total 16   Total   17

HEALTH INFORMATICS AND INFORMATION MANAGEMENT

COURSE DESCRIPTIONS

YEAR ONE, SEMESTER ONE

0420-110 CHEMISTRY (Faculty of Science) **(3-0-3)**

Stoichiometry; electronic structure of atoms, periodic table; chemical bonds, introduction to chemistry of elements; chemical thermodynamics, chemical kinetics; chemical equilibria, acids and bases in aqueous solutions.

0420-111 CHEMISTRY LAB (Faculty of Science) **(0-3-1)**
Corequisite: 110 Chemistry

0410-115 FINITE MATHEMATICS (Faculty of Science) **(3-0-3)**

Algebra of sets. Simple coordinate systems and graphs. Geometric approach to linear programming. Basic ideas of simplex method. Probability and applications to medical sciences. Statistics

0788-181 ENGLISH LANGUAGE (10-0-5)

181 English is the first of three required English Language courses offered in the Faculty. It is a reading-based, multi-skills course intended to advance students' abilities to study content area courses in English. The macro-skills of reading, writing, listening, speaking and grammar are broken down into their component parts to give the students the opportunity to acquire fluency and accuracy in the language of the health sciences.

YEAR ONE, SEMESTER TWO

0430-121 PHYSICS (Faculty of Science) **(3-0-3)**

Methods of physics, elementary maths, motion and particle dynamics, mechanics of extended objects, conservation of energy, kinetic theory of gases. Liquids, vibrations and waves, ear and hearing, electricity and conduction in solids, ions and ionic conduction.

125 PHYSICS LAB (Faculty of Science) **(0-3-1)**
Corequisite: 121 Physics
0788-182 ENGLISH LANGUAGE (10-0-5)

182 English expands on the content of the five basic language learning skills introduced in 181 English. Students read and listen to materials of a scientific/medical nature, discuss the topics with their classmates to broaden their comprehension, and then write about the topics they have discussed to show they are able to communicate comprehensibly. Grammar instruction is explicit and includes the grammar of science and medicine.

Prerequisite: 181 English

0490-101 BIOLOGY (Faculty of Science) **(2-3-3)**

Cellular basis of life: differences in size and complexity of cells as illustrated by viruses, bacteria, protozoa and various types of metazoan cells. Structure and metabolic activities of a generalized eukaryotic cell. Chemical composition and functions of the cell membrane; role of mitochondria, structure of GER and SER and their relation to the Golgi apparatus; structure of the nuclear membrane. Central role or enzymes in cells. Structure of DNA and RNA. Genetic code and protein synthesis. Mitosis and meiosis. Mendelian genetics and inherited diseases. Interactions between eukaryotic cells and bacteria and viruses. Cell mediated immunity. Organization of cells into tissues.

0700-106 FIRST AID AND EMERGENCY CARE (2-2-3)

This course is designed to provide students with basic knowledge of first aid and the skills needed to provide early interventions and care in the event of a health emergency. It enables students to plan an assessment for each casualty, using a methodological two-stage system, first to check and treat life-threatening conditions (primary survey), then to call for help. An overall view of the basic fundamentals of first aid is presented with an emphasis on decision making in emergency situations.

Prerequisite: 180 English Language

YEAR TWO, SEMESTER ONE

0711-105 INTRODUCTION TO HEALTH INFORMATICS (2-2-3)

This course is designed to introduce the students to the fundamentals of information technology and systems from the perspective of health informatics. It provides the students with a wide spectrum of computer-related concepts and skills to ensure that they are capable of employing appropriate technologies and tools to manage health information as it relates to their respective discipline. The course covers a variety of topics including: computer concepts, computer technology and information systems, statistical software, communication technology, database design and management, and clinical, business, and specialty clinical systems applications.

Delivery methods employed for this course combine didactic theory supplemented by lab sessions that will provide hands-on applications of learned theory.

0700-155 ANATOMY I (2-3-3)

This course provides an introduction to human morphology at the cell, tissue, and organ system levels of organization. The course is taught through theoretical lectures and practical demonstrations.
Prerequisite: 181 English Language

0480-107 STATISTICS FOR MEDICAL SCIENCES (3-1-3)
(Faculty of Science)

Relevance and principles of Biostatistics with application in Medicine and Biology Descriptive statistics, sampling and sampling distributions. Estimation of parameters, probability and probability distribution, with emphasis on the normal Tests of hypotheses for one or two means and one or two proportions. Measures of association between two continuous variables (correlation and regression) and two discrete variables (chi-square), Non-parametric tests commonly used in medicine.
Prerequisite: 115 Finite Mathematics

0711-254 FINANCIAL MANAGEMENT IN HEALTH CARE ADMINISTRATION (3-0-3)

An introductory level course to the principles, concepts and issues of financial management in the health care organization. Focus is upon financial management from the perspective of the department/unit manager and supervisor. Institutionwide accounting and budgeting systems will be discussed primarily as a framework for

understanding (i) how financial reporting, planning and control are linked to organizational effectiveness, and (ii) how financial management responsibilities of the departmental manager relate to organization level financial goals.
Prerequsite: 181 English Language

0788-250 ENGLISH LANGUAGE (6-0-3)

Language and study skills are perfected using authentic health sciences journal articles relevant to the students' majors. Report writing style, abstract writing, bibliography and referencing techniques are taught.
Prerequisite: 182 English

YEAR TWO, SEMESTER TWO

0530-152 PHYSIOLOGY I (Faculty of Medicine) (2-2-3)

This course provides a basic understanding of the physiology of the cell, body fluids, nerves, muscles, blood, functions of the cardiovascular system, respiratory system, renal system, gastrointestinal system, endocrine system and reproductive system. Emphasis is placed on the interactions of the systems.
Prerequisite: 155 Anatomy I

0711-253 METHODS OF PROBLEM SOLVING (3-0-3)

The purpose of this course will be to explore theoretically and practically the world of creative thinking. Through the use of creative thinking techniques, the intent of the course is to train each individual to think more creatively.
Prerequisite: 181 English Language

0510-220 PSYCHOLOGY OF MEDICAL CARE A.H. (2-2-3)
(Faculty of Medicine)

The first part of the course provides an overview of Psychology as the basic science concerned with individual human behaviour and mental processes. Empirical studies and theoretical models of basic processes such as learning, memory and perception are introduced. Factors that motivate behaviour are considered, as well as contemporary models that describe and seek to explain the major dimensions of temperament and personality variation.

The second part of the course draws on the material taught in the first part to clarify issues relating to patients' compliance and satisfaction with the medical care they receive. Psychological factors which influence the behaviour and expectations of health professionals and the efficacy of the care they provide are also considered. The special needs of certain patients are highlighted. This includes reference to children, the aged, the dying, the physically handicapped and mentally retarded. Current theories linking stress and illness, methods for reducing stress, and research into pain and pain management are presented. The relationship between sociodemographic variables and health will also be considered.
Prerequisite: 182 English Language

0711-232 APPLICATION OF COMPUTER TECHNOLOGY TO ALLIED HEALTH SCIENCES (2-4-4)

Overview of manipulating, organizing, integrating and presenting data using contemporary software packages is the core of this course. Hands-on training is provided in computer applications, document processing and management, spreadsheets and Database Management Systems (DBMS). The course covers various aspects of distributed data processing, networks and the emerging clientserver models that could be used in a functional health care delivery system.
Prerequisite: 105 Introduction to Health Informatics

0711-255 INTRODUCTION TO HEALTH CARE MANAGEMENT   (3-0-3)

A study of basic organizational functions/structure in management of Kuwait's health care system, including coverage of job discrepancies and procedure manuals, work flow and process improvement, with the use of computers in these organizational functions.
Prerequisite: 106 First Aid and Emergency Care

YEAR THREE, SEMESTER ONE

0580-316 CLINICAL MEDICINE & PATHOLOGY (3-0-3)

The study of disease processes affecting the human body in relation to etiology, organ system involvement, pathological changes in the structure and function of tissues and organs, specific physical signs and symptoms, diagnostic procedures, common complications, preferred treatment, forecast of outcome of specific disease processes and pertinent public health aspects of specific disease processes.
Prerequisite: 152 Physiology I

0711-340 HEALTH INFORMATION ADMINISTRATION I (3-2-4)

The study of the Medical Record field as a profession and as a department. Detailed study of the value and uses of records (the ambulatory inpatient), development retention, content, filing methods and basic indexes. The correlated laboratory is for the application and mastery of concepts learned in the course.
Prerequisite: All Year Two courses

0711-341 HEALTH INFORMATION ADMINISTRATION DIRECTED PRACTICE I (0-6-2)

Assignment to various hospitals for practical application of theories learned in health information administration lectures and laboratory. The students work in contact with patients, hospital staff and physicians.
Prerequisite: All Year Two courses
Corequisite: 340 Health Information Administration I

0711-35l MEDICAL TERMINOLOGY I (2-2-3)

The knowledge of terminology necessary to understand and interpret the information contained in the Medical Record. This knowledge is used to guide and supervise staff responsible for medical correspondence, classification of diseases and operations and research. The practical laboratory experience introduces the student to medical transcription.
Prerequisite: All Year Two courses

0711-354 HOSPITAL DATA: COLLECTION, INTERPRETATION AND PRESENTATION (3-0-3)

Introduces the student to the importance of hospital statistics in management, research and epidemiology. Students learn the definition, purpose and relationship of statistics to the patient and general hospital statistical reporting. Methods of collecting, interpreting and presenting the data in an accurate, useful and intelligible manner.
Prerequisite: All Year Two courses

0711-366 APPLICATION OF INFORMATION TECHNOLOGY (IT) TO ALLIED HEALTH SCIENCES (2-3-3)

This course is designed to introduce Health Informatics and Information Management students to the use of computers in the medical records department. In this context the course covers the goals, methods, and expectations of using computer technology as a primary tool in the hospital and especially in the medical records department. The course includes data base management, MPI encoding, abstraction, statistics, chart tracking, deficiencies, management, training of personnel for computer usage, medical-legal issues and confidentiality. The practical laboratory is used for the mastery of learned concepts.
Prerequisite: All Year Two courses

YEAR THREE, SEMESTER TWO

0711-342 HEALTH INFORMATION ADMINISTRATION II (1-2-2)

A continuation of course 340 Health Information Administration I with emphasis on coding, indexing, abstracting, management of content, and cancer registry. The correlated laboratory is for the application and mastery of concepts learned in the course.
Prerequisite: All Year Three, Semester One courses
Corequisite: 343 Health Information Administration Directed Practice II 0711-343 HEALTH INFORMATION ADMINISTRATION DIRECTED PRACTICE II (0-12-4)

Assignment to various hospitals for practical application of theories learned in Health Information Administration lectures and laboratory. The students work in contact with patients, hospital staff and physicians.
Prerequisite: All Year Three, Semester One courses
Co requisite: 342 Health Information Administration II

0712-345 INTRODUCTION TO PHARMACOLOGY (2-0-2)

Introduces the basic concepts of tissue reactions to drugs (absorption, metabolism and excretion). Drug formulations and administration. Major drug classifications with emphasis on the aspects of drug actions relating to the nursing profession. Drug administration in pediatrics, pregnancy and the elderly.

0711-352 MEDICAL TERMINOLOGY II (1-2-2)

A continuation of Medical Terminology I. Designed to enable the student to apply the medical terms necessary in his/her daily role as a Medical Records Administrator. The practical laboratory experience introduces students to the application of medical

terminology in dicta-typing medical reports. **Prerequisite: All Year Three, Semester One courses**

0711-353 ORGANIZATION AND MANAGEMENT I (3-0-3)

A study of management in a Health Information Department, with special emphasis on productivity monitoring, work flow analysis and process improvement (manual and computer). The role of planning in relation to productivity, standards, decision making, staffing and office layout.
Prerequisite: All Year Three, Semester One courses

0580-451 CLINICAL MEDICINE (2-0-2)

This course is a continuation of 316 Clinical Medicine and Pathology. The study of disease processes, etiology, pathological changes, signs and symptoms, diagnostic procedures, complications, preferred treatment, outcome of diseases.
Prerequisite: 316 Clinical Medicine and Pathology

YEAR FOUR, SEMESTER ONE

0711-440 HEALTH INFORMATION ADMINISTRATION III (1-2-2)

Lectures on record procedures for mental health facilities, long-term facilities, hospice and home care. An introduction to the medical-legal aspects of records in Kuwait. The laboratory time is for controlled application of theories learned in Medical Records and other related courses.
Prerequisite: All Year Three, Semester Two courses
Corequisite: 441 Health Information Administration III

0711-441 HEALTH INFORMATION ADMINISTRATION DIRECTED PRACTICE III (0-15-5)

Directed clinical assignment in supervisory practice at assigned hospitals, with emphasis on management using the techniques learned in Health Information System, in-service education and research. The student shall visit specialty hospitals to gain further insight into other health care facilities.
Prerequisite: All Year Three, Semester Two courses
Corequisite: 440 Health Information Administration III

0711-455 ORGANIZATION AND MANAGEMENT II (3-0-3)

Emphasis is on budgeting principles, concepts and issues of financial management in health care settings. Financial management as viewed from the perspective of the department manager. The use of the budget in financial reporting, planning and control, and health insurance in Kuwait and its relationship to the Health Information Department. The role of the computer in budget and financial management.
Prerequisite: All Year Three, Semester Two courses

0711-462 IN-SERVICE EDUCATION (3-0-3)

This course is designed to provide the essential elements of teaching used in both formal and informal education within the medical records profession. The salient topics covered are: principles of learning, conducting in-service sessions, deficiency analysis and development of an in-service programme, design of training curriculum, evaluation, and documentation.

0711-463 HEALTH INFORMATION SYSTEM (HIS) (2-2-3)

The course is designed to impart an understanding of Health Information System and its application to medical records in contemporary settings. Through a combination of lectures and practicals the process and tools and techniques of the following are covered: need assessment, feasibility testing, development, implementation and evaluation.
Prerequisite: All Year Three, Semester Two courses

YEAR FOUR, SEMESTER TWO

0711-442 HEALTH INFORMATION ADMINISTRATION IV (1-2-2)

This course is designed to ensure that the students keep abreast of the latest trends that affect Kuwait, locally and internationally. The course reflects the changes that are taking place within the Ministry of Health, legislature and the community. The laboratory practice shall involve putting the new trends into practice and shall demand self-management projects and extensive use of the computer that is compatible with the health care setting.
Prerequisite: All Year Four, Semester One courses

0711-443 HEALTH INFORMATION ADMINISTRATION DIRECTED PRACTICE IV (0-15-5)

Directed clinical experience as an acting director, with emphasis on applying practices learned in: Organization and Management, In-Service Education, Quality Assurance, Medical Record Science, Health Information System, Data Collection, Research and Evaluation, Clinical Medicine and Computer Courses.
Prerequisite: All Year Four, Semester One courses
Corequisite: 442 Health Information Administration IV

0711-450 SEMINAR (2-0-2)

This is the first course in the Faculty which provides an opportunity for computer assisted learning. The course covers a number of case studies related to administration and health care delivery in general. Emphasis is upon student participation. The course covers principles of problem solving, problems in human relations, ethical-legal problems, problems in organization and management, hospital standards, medical record science problems, professional adjustment.
Prerequisite: All Year Four, Semester One courses

0711-472 RESEARCH AND EVALUATION OF HEALTH CARE (3-0-3)

The course is designed to introduce the student to the process of undertaking research, and to analyze and understand the research of others. The major focus is on appreciating the relationship of research vis-a-vis the overall health care delivery system, and the role of medical records in it.
Prerequisite: All Year Four, Semester One courses
Corequisite: 442 Health Information Administration IV

0711-466 ORGANIZATION AND MANAGEMENT III (2-0-2)

This course relates specifically to the directing and controlling aspects of management, with special emphasis on authority (what is meant by influence), leadership, delegation, motivation, change management, team building, employee performance and selection review, communication and meetings.
Prerequisite: All Year Four, Semester One courses

0711-471 QUALITY ASSURANCE AND ANALYSIS (1-4-3)

The course covers different aspects of Continuous Quality Improvement/Total Quality Management (CQI/TQM) as they relate hospital-wide. The basic functions of CQI/TQM. Quality assessment, utilization and risk management are highlighted. The role of the Health Information Administrator in the Continuous Quality Improvement/Quality Assurance program is also covered.

The laboratory practice consists of assigned laboratory projects in preparation for hospital application.
Prerequisite: All Year Four, Semester One courses