

## **Master of Science Degree in Clinical Nutrition**

### **1. PROGRAMME OBJECTIVE**

A decade of rapid urbanization, a more sedentary life-style and change of food habits, has precipitated multiple health problems, in the Kingdom. Among these problems are obesity (excess weight gain due to excess calories intake), diabetes mellitus and cardiovascular diseases. In addition to implications for adult health, decreased breast feeding and early introduction of artificial feeding has added associated nutritional complications for infants.

Globally, there is a substantial evidence from recent research that the food consumption patterns and individuals life style play a major role in determining the health status.

In the Kingdom, there is a vast expansion and modernization of health services and facilities. To respond to this great expansion, this master degree programme is designed to furnish the student with a combination of basic academic study and practical learning experiences in human nutrition. These extended studies will allow the graduate to function effectively in providing nutritional care to appropriate individuals and provide leadership in communities.

## 2. **PROGRAMME RATIONALE**

The importance of proper nutrition in promoting and maintaining optimal health is beyond dispute. Nutritional care is an essential component of any comprehensive health care system which has as its goal the provision of quality services to those suffering from disease, to those at increased risk to disease and in maintaining those in apparent good health in the community.

Clinical nutrition is often assigned a secondary role in health care, since the effects of malnutrition are generally not dramatic but appear more slowly and are of a long lasting nature. Consequently, the approach to nutrition teaching and research is fragmented and lacks cohesion. Also, the science of nutrition is often lost among different disciplines such as agriculture, health, education or social sciences. Although each of these disciplines has specific interest in some selected aspects of nutrition, none provides an integrated approach to nutritional care in health and disease. In addition, most medical curricula do not accommodate nutritional sciences as a well- defined discipline, instead, selected may be taught in various courses such as biochemistry, physiology, community medicine or pediatrics. The circumstances outlined above leaves a broad gap in the provision of wholistic health care in the Kingdom. Currently, there are no programmes available in the Kingdom that

provide an integrated approach to higher education of clinical nutritionists or provide indepth preparation in clinical nutrition for other health professionals.

The programme in clinical nutrition is designed to provide an integrated approach, where the many different components of nutritional science are interrelated, giving students a comprehensive training in clinical nutrition. More specifically, the programme will develop in students the ability to: expand their knowledge, analyze and interpret data, conceptualize and synthesize ideas and approaches to nutritional problems, and apply nutritional information to programme development. This proposed Master programme in Clinical Nutrition will provide the necessary academic study and practical experiences for training clinical nutritionists and thus help meet the Kingdom's needs.

### **3. MASTER OF SCIENCE DEGREE IN CLINICAL NUTRITION CURRICULUM**

The curriculum is based on a systematic problem-solving approach to provide quality nutritional care. In developing the students' problem-solving ability, it is expected that graduates will be able to identify nutrition problems, codify them into goals and objectives consideration, then choose appropriate methodologies and evaluation strategies to resolve nutritional problems. Emphasis will be placed on the coordination of scientific and academic study, combined with continuous practical experience in the area of clinical nutrition.

Students will become involved in different aspects of clinical and community nutrition and on completion of the programme the should be able to:

- Assess the nutritional status of individuals and groups throughout the life cycle.
- Assess individual's nutritional status in health and disease.
- Construct and coordinate all aspects of nutrition care plans, including identification of short and long-term goals, delineation of treatment modalities and education plans.

- Establish procedures for implementation of the nutrition care plan, ongoing information gathering, and evaluation.
- Monitor the implementation of nutrition care plan by documenting all aspects of care and verify the implementation of the care plan.
- Communicate pertinent information to other health care professionals; discuss the individual/patient nutrition care needs with health team members; educate team members on nutrition-related topics.
- Assume the leadership role as related to the profession in the area of clinical nutrition and community nutrition.
- Plan, review and provide consultation for the implementation of nutrition care on the systems level.
- Develop short- and long-range plans for delivering quality nutrition care services.
- Maintain personnel and training functions for clinical nutrition section.
- Provide interdisciplinary consultation with physicians, dentists, nurses, social workers and other professional personnel concerned with the preventive, therapeutic and continuing care aspects of health services within the Kingdom.
- Advise policy makers and administrators of health care institutes on the implications of nutritional policies.
- Assist health care administrators and policy makers in planning nutritional services.
- Plan and conduct nutrition surveys and identify nutritional problems in the community.

- Participate in nutrition education programmes within the community, in schools, youth development programmes, prenatal care and infant and child care programmes.
- Carry out research in related fields and use the results in improving community and clinical nutrition services.

#### **4. STUDY REQUIREMENTS FOR MASTER OF SCIENCE IN CLINICAL NUTRITION**

The Master of Science Degree in Clinical Nutrition is awarded on successful completion of required courses and a dissertation based on a selected research topic.

Students are expected to complete a minimum of 38 credit hours. Thirty-two hours are required courses and 6 credit hours are elective courses. The student may enroll in not more than 6 credit hours graduate courses offered by other depts. in the College on the consent of the academic advisor or from graduate programmes within the university, subject to the approval of the departmental council. In addition, a dissertation is required.

The minimum time to qualify for the M.Sc. Degree is two years for full-time students but not more than four. The period allowed for part-time students shall not exceed five years.

Students should register for not less than 9 credit hours and not more than 12 credit hours per semester. In exceptional circumstances the students' academic load may be increased up to a maximum of 15 credit hours subject to the approval of the Departmental Council. The minimum and maximum semester load for part-time students are 5 and 9 credit hours respectively. The student should register for at least 30 of the 38 (75%) required credit hours for the M.Sc. Degree, in courses offered by the Nutrition Programme, Department of Community Health Sciences, College of Applied Medical Sciences at King Saud University.

Graduate credit hour equivalence: 1 credit theory is equivalent to 1 clock hour lecture, while 1 credit hour practical is equivalent to 2 clock hours.

The dissertation should be carried out under the supervision of staff members of King Saud University, one of whom should be a member of the nutrition programme, College of Applied Medical Sciences.

**COURSE REQUIREMENT FOR M.Sc. DEGREE**  
**IN CLINICAL NUTRITION**

1.	<b><u>SEMESTER 1</u></b>	<b><u>CREDIT HOURS</u></b>
	CHS 521 Human growth and development And methods of nutritional status Assessment	5
(3 + 2)		
	CHS 531 Research methodology	3 (2 + 1)

CHS 532	Human genetics and metabolic disorders	2
(2 + 0)		
CHS 539	Nutrition during the life cycle	2 (1 + 1)
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2. **SEMESTER 2**

CHS 533	Food habits and values associated with Food offering in Saudi Arabia	2
(2 + 0)		
CHS 522	Program planning in nutrition education	2 (2 + 0)
CHS 523	Drug nutrient interaction	2
(2 + 0)		
CHS 524	Nutritional care of diseases related to Malabsorption, stress and hypermetabolism	3
(2 + 1)		
CHS 591	Nutrition Seminar I	1 (1 + 0)
CHS 537	Community Nutrition	3 (2 + 1)
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		13

3. **SEMESTER 3**

**CREDIT HOURS**

CHS 525	Nutritional care of obese and Diabetic patients and diseases Of the liver, kidney and Cardiovascular system.	5 (3 + 2)
CHS 534	Recent advances in nutrition of micro-nutrients.	2 (2 + 0)
CHS 535	Dietary carcinogens	1 (1 + 0)

CHS 536	Behavioral modification	2 (2 + 0)
CHS 529	Selected topics in clinical nutrition	2 (2 + 0)

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4. **SEMESTER 4**

CHS 592	Nutrition Seminar II	2 (2 + 0)
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CHS 600	Dissertation	6
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**5. ADMISSION**

**5.1 Admission Requirements**

5.1.1 Applicants with an undergraduate degree in Clinical Nutrition or Dietetics with very good grade are invited to join the Master Degree Programme as full-time

graduate students. Other applicants' admission is subject to the conditions of approval as specified in King Saud University statutes for graduate studies.

5.1.2 Because of the wide ranging nature of the nutritional sciences, applications are also invited from candidates having undergraduate degrees in related disciplines. Their conditional admission will depend on the recommendation of the Council of Community Health Sciences and the approval of the Council of the College of Graduate Studies. Previous education and experience determine if a student will be required to take extra non-credit courses to rectify any deficiencies. These remedial courses will be specified by the Departmental Council and subject to approval of the Council of College of Graduate Studies. The Dean of

Admission and Registration must be informed of conditional admission within one week of date of admission.

5.1.3 Applicants must fulfill the English proficiency requirements as determined by the committee of graduate studies in the department.

5.1.4 The applicants' academic record and personal characteristics as revealed by personal interviews will be considered in determining their ability for pursuing graduate studies.

## **5.2 Admission as Part-time Students**

A graduate student in nutrition is expected to be a full-time student. However, exemption may be made for part – time study upon the approval of the Departmental Council within the framework of the rules laid down by the University Council in accordance with the following regulations:

- a. Permission must be given by the student's employer.
- b. The student must be neither a University teaching assistant nor on a University scholarship.

- c. Saudi students are given a book and reference allowance not exceeding that given to full-time students.
- d. The part-time student is not awarded the allowance which a full-time student is given.
- e. Other admission specified in para 5.1 above apply to part-time students alike. The College of Graduate Studies and the Dean of Admission and Registration should be informed by the Department of such part-time admission, within one week.

### **5.3 Admission as a Transfer Student**

5.3.1. A student may be allowed to transfer to King Saud University from another recognized University upon the recommendation of the Community Health Sciences Department Council, the College of Applied Medical Sciences Council as well as the Council of the College of Graduate Studies, subject to the following:

5.3.1.1 That such transfer is governed by the admission requirements set forth for the semester in which the transfer is sought.

5.3.1.2 That such additional requirements as may be set

forth in accordance with para 5.1.1 and 5.1.2 of the regulations governing Graduate Studies are met.

5.3.1.3 No more than six hours may be accepted as

Transfer credit in the program of study, and only if such credits have been taken in subjects that are in consonance with the program requirements that are offered in the University. Furthermore, the student must have attained the grade of "very good" in such course.

5.3.1.4 That such a transfer will not be allowed if the Student has been dismissed from the University for whatever reason. Should it be ascertained after a student has been accepted, that he has been previously dismissed from his University, then his admission shall be nullified.

#### 5.4 **Transfer from within the University**

A student may be allowed to transfer from one specialty to another within the University upon the recommendation of the Community Health

Sciences Department Council and the approval of the Council of the College of Applied Medical Sciences as well as that of the Council of the College of Graduate Studies in accordance with the following:

- 5.4.1 He should meet the admission requirements for the program set forth for the semester in which the transfer is sought.
- 5.4.2 That such additional requirements as may be set forth in accordance with para 5.1.1 and 5.1.2 of the Regulations governing Graduate Studies are met.
- 5.4.3 Credit may be given for any hours previously accumulated at King Saud University provided that they are in subjects that are in consonance with the requirements of the program to which such transfer is made. All graduate credit hours previously accumulated at King Saud University are, however, computed in the overall average.
- 5.4.4 That such a transfer will not be allowed if the enrollment of the student has been previously cancelled.

5.4.5 A transfer student with less than the requisite overall average for admission will be allowed only one semester to raise his overall average to that which is required, otherwise his enrolment will be cancelled.

5.4.6 The period previously spent at the University shall be computed within the maximum allowed for obtaining the degree.

## 6. **Admission and Registration Procedure**

6.1 Applications of candidates must be submitted to the Dean of Admission and Registration at least one month before the beginning of the semester in which the applicant intends to enroll.

The applications will be forwarded to the department of Community Health Sciences to determine the admissibility of the candidate.

6.2 If the student fails to register for the semester in which he originally intends to, his admission will automatically be cancelled. However, he may reapply for admission at future date.

6.3 The Dean of Admission and Registration shall handle the registration of the student and all

related procedures in collaboration with the department of Community Health Sciences.

6.4 The graduate student shall be enrolled as a full-time student. Part-time students are admitted subject to the departmental council approval.

6.5 Withdrawal

The graduate student may withdraw from courses within four weeks of the beginning of the semester subject to the approval of the Community Health Sciences department. The College of graduate studies and the Dean of Admission and Registration should be notified within one week of the date of such approval.

6.6 The graduate student shall be considered as a failure if he withdraws from a course after the period specified above except for strong certified reasons accepted by the Dean of Admission and Registration after consultation with the department of Community Health Sciences. The College of graduate studies shall be informed within one week of the date of such decision. No withdrawal approval will be granted after the final examinations start.

6.7 Leave of Absence

The graduate student is not allowed to discontinue his studies for a period exceeding one semester unless he has an acceptable reason. However, he may be granted a leave of absence for a period of no more than three successive semesters for reasons acceptable to the department of Community Health Sciences Council.

This period shall not be counted within the maximum period required for the completion of the degree. Decisions concerning this will be conveyed to the Dean of the College of Graduate Studies and to the Dean of Admission and Registration within one week from the date of the decision.

## **7 Examination and Dissertation**

7.1 Examination in Nutrition graduate course and recording of grades will follow the University's Examination Regulations, grade C (good) in any single course is considered to be the minimum passing level.

7.2 After successful completion of 50% of the courses prescribed the student could submit a dissertation proposal for approval by the departmental council. If approved, the department will nominate a supervisor to be

approved by the College of Applied Medical Sciences Council. The College of Graduate Studies will be notified within a week of the date of such approval.

7.3 Dissertation could be supervised by one or more members of the faculty of King Saud University and at least one should be from Community Health Sciences, College of Applied Medical Sciences. A supervisor with assistant professor rank should have, as a minimum , two papers in the area of specialty that have been published or accepted for publication.

7.4 The student should be eligible for registration of the title of the dissertation and that the appointment of the supervisor should be made within one semester after successful completion of prescribed courses for the master degree.

7.5 A faculty member whether alone or in collaboration with other faculty members can not at one and at the same time supervise more than five master dissertations or four master dissertations and one Ph.D. Thesis.

7.6 Each students supervisor shall submit to the department a detailed progress report on the

student performance at the end of each academic year.

7.7 The master dissertation should be written in English with a full summary in Arabic.

7.8 The master dissertation must be characterized by originality and creativity.

7.9 The regulatory procedure governing the writing and presentation of the dissertation issued by the Council of the College of Graduate studies should be observed.

7.10 When the dissertation is finalized the supervisor shall submit a detailed report on its merit to the departmental council which will nominate the names of Examiners Committee Members. These names will be forwarded to the Council of Graduate Studies for appropriate action within a month from the date of the supervisors report.

The examination Committee will be formed in accordance with the College of Graduate Studies Regulations.

7.11 The date for the defense of the dissertation shall be set by the departmental council and it shall be no later than three months from the date

the supervisor submitted his report. Summer vacation is not counted as part of the three months period.

7.12 The examiners Committee shall submit its report to the Chairman of the department and to the Dean of the College of Graduate Studies. The Committee report should recommend one of the following:

7.12.1 Acceptance of the dissertation and the award of the degree.

7.12.2 Rewriting part or whole of the dissertation and Resubmission within one year.

7.12.3 Rejection of the dissertation.

7.13 The Dean of the College of Graduate Studies shall recommend to the University Council the award of the degree.

## **8. Cancellation of Enrollment**

8.1 The student's enrollment is cancelled in any of the following cases.

8.1.1 If his grade Point Average is less than " Very Good" over two successive semesters.

8.1.2 If when repeating a course examination students fail to attain a grade of " Good."

8.1.3 If the student absents himself from study without justifiable reasons for a period of one semester or absents himself with justifiable cause for a period of over three consecutive semesters.

8.1.4 If it is established that the student is not serious in his studies based on his supervisor's report which is endorsed by the departmental council.

8.1.5 If the student does not qualify for the master's degree during the period stipulated (minimum

2 years and maximum four years).

8.1.6 Student who create disciplinary problems may be dismissed from the programme per university regulations.

8.2 However, the student may be given an extension of one year depending on a written recommendation of his supervisor and subject to the approval of the departmental council and that of the College of Graduate Studies.

8.3 A student whose enrollment has been cancelled in accordance with the previous cases can not be allowed to register for any graduate programme in the University.

## **COURSE DESCRIPTION**

### **REQUIRED COURSES**

CHS 521 Human Growth and Development and Methods of

Nutritional Status Assessment

Biological, psychological, and cultural interrelationships in human development. Principles and methods in study of human development. Anthropometric and biochemical measures and interpretation of international standards for local use and clinical signs of malnutrition as an indicator of prevalence of nutrients(s) deficiency in a given community.

CHS 531 Research Methodology

Research design, hypothesis testing parametric and non-parametric statistics.

CHS 532 Human Genetics and Metabolic Disorders

Principles of human genetics. Disorders of genetic origin which result in metabolic and nutritional pathology; emphasising some of the common disorders encountered in the Kingdom, e.g. sickle cell anaemia, thalasseмии, glucose-6 phosphatase deficiency, phenylketonuria (PKU). Nutritional care of these diseases.

CHS 533 Food Habits and Values Associated with Food Offering in

Saudi Arabia

Current Saudi food consumption patterns and their historical development. Consideration of major concepts such as body image, cultural role of food, hospitality, religious practices related to food, beliefs and taboos related to food and health status.

CHS 522 Program Planning in Nutrition Education

Skills and techniques of planning and evaluation of nutrition education for patients or groups of patients with emphasis on nutrition education curricula, instructional strategies and evaluation methods in formal and informal community settings.

CHS 523 Drug – Nutrient Interaction

The use of drugs in the treatment of disease states, the mechanisms of action of drugs; effect of drug therapy on nutrient requirements; drug-nutrient interaction in the gastrointestinal tract and in other body systems.

CHS 524 Nutritional Care of Diseases Related to Malabsorption

Stress and Hypermetabolism

Biochemical and physiological changes associated with stress conditions such as surgery, burns, infection and cancer; nutritional care plans and nutrient requirements; catabolic states, enteral and parenteral feeding; diseases of the G.I. tract, gallbladder and exocrine pancreas; nutritional care of these diseases.

CHS 591 Nutrition Seminar I

Presentation of a selected topic in either community or clinical nutrition .

CHS 525 Nutritional Care of the Obese and Diabetic Patient and of the Diseases of the Liver, Kidney and Cardiovascular System

Causes and treatment of obesity and diabetes. Special health needs of obese and diabetic patients. Biochemistry and physiology of the liver and kidney; function of both organs; current theories on the etiology of cardiovascular diseases; dietary modifications for the treatment of diseases affecting the liver, kidney and cardiovascular system.

CHS 534 Recent Advances in Nutrition of Micronutrients

A comprehensive review of the more recent knowledge of the biochemical, physiological and nutritional importance of vitamins and minerals.

CHS 535 Dietary Carcinogens

Naturally occurring carcinogens and those formed during processing, storage or cooking of foods; carcinogenicity of food additives; methods of assessing carcinogenic effects of chemicals and current controversies.

CHS 536 Behavior Modification and Value Clarification

Principles of behavior theory and techniques of application to nutritional counseling.

CHS 592 Nutrition Seminar II

Oral presentation of a selected topic within community or clinical nutrition.

CHS 537 Community Nutrition

Examination of nutritional problems in contemporary communities. Discussion of the intervention models of community organization, taking into consideration the social and economic forces for development, implementation and evaluation of community nutrition programmes, and identifying local available resources.

CHS 539 Nutrition During Life Cycle

Appropriate food consumption patterns and recommended daily allowances for various age groups; infancy, preschool, school age, adolescence, adulthood, pregnancy, lactation, aging and special stress conditions.

CHS 529 Selected Topics in Clinical Nutrition.

Study of current topics in clinical nutrition. The selection of topics is subject to the approval of the departmental council.