



Course Specifications

Course Title:	Nutrition in Health and Disease
Course Code:	5602241-2
Program:	Bachelors of Nursing
Department:	Community Health Nursing & Healthcare for Mass Gathering
College:	Nursing
Institution:	Umm Al-Qura University, Makkah, Saudi Arabia

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A. Course Identification

1. Credit hours:			
2. Course type			
a.	University <input checked="" type="checkbox"/>	College <input type="checkbox"/>	Department <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>	Others <input type="checkbox"/>
3. Level/year at which this course is offered: 2 nd Year, 2 nd semester			
4. Pre-requisites for this course (if any):			
1- Medical Biochemistry I			
2- Medical Biochemistry II			
3- Physiology			
4- Human Physiology			
5. Co-requisites for this course (if any):			
Biological studies background (Higher secondary schooling)			

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2 hrs /week/ Group	Not Applicable
2	Blended	Not Applicable	2
3	E-learning	Not Applicable	98
4	Distance learning	Not Applicable	Not Applicable
5	Other	Not Applicable	Not Applicable

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	2×15= 30 hrs
2	Laboratory/Studio	Not Applicable
3	Tutorial	Not Applicable
4	Others (specify)	Not Applicable
	Total	30 hrs

B. Course Objectives and Learning Outcomes

1. Course Description

- To create awareness about the role of carbohydrates, fats, minerals, proteins, trace elements and their dietary recommendations
- Anthropometric measurements and their clinical applications
- How biochemical markers help in evaluation of nutritional status
- What clinical signs and symptoms can be observed in case of malnutrition, minerals and vitamins
- How obesity can be controlled in obese patients
- Diet plan for bariatric surgery patients
- Role of diet in different clinical diseases like Diabetes, Gastrointestinal (GI) tract complications,
- How different complications like hypertension and cardiovascular can be overcome using dietary recommendations
- What are common renal and pulmonary diseases and how nutritional therapy overcome these issues
- How anemia is caused and its dietary management
- What are neoplastic diseases and nutrition dietary role in cancer patients
- Different aspects of metabolic stress and nutritional intervention in metabolic stresses

Administration of enteral and parenteral nutrition

2. Course Main Objective

- ✓ To understand and create awareness regarding the various biochemical pathways and cycles involved in Carbohydrates, Lipids and Protein metabolism
- ✓ To understand and elucidate the various clinical metabolic disorders of carbohydrates, lipids and protein

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	At the end of this course, the student will be able to: Recall the comprehensive information about nutrition related terminology, BMR, RMR, energy balance, Food thermic effect, Key role of carbohydrates, proteins, fats and vitamins, minerals & trace elements in nutrition, Role of different food models.	1
1.2	Repeat the nutrition assessment & its various methods in different clinical / health care facilities. How to calculate the BMI, anthropometric measurements. Which markers are used for assessing nutrition.	5
1.3	State what is the malnutrition & its classification, clinical assessment of Marasmus and Kwashiorkor.	2/3
1.4	Tell about the obese & overweight patients. How obesity can be treated	2/3
1.5	Tell about diabetes mellitus & its different types. Relate between diabetes & renal disease & dietary recommendations of diabetes Patients with renal disease.	3
1.6	List the classifications of hypertension, relationship between blood pressure & body weight, DASH (dietary approaches to stop hypertension) for hypertension patients, Underline the recommendations for hypercholesterolemia patients & CHF (congestive heart failure) patients Underline the nutritional aspects for CVA (cerebrovascular accidents) patients & their management.	3

CLOs		Aligned PLOs
1.7	Describe the Upper and lower G.I (gastro-intestinal) system. What are reasons for malnutrition in IBS (irritable bowel syndrome) & IBD (inflammatory bowel disease) & their dietary approaches / requirements.	3
1.8	List key components of nephrotic syndrome & dietary requirements. Recall the nutritional intervention in CKD (chronic kidney disease) patients. Identify the role of Sodium, Phosphorus, Calcium & Potassium & their dietary references in adult CKD patients Illustrate about vitamin & trace element needs of CKD patients Differentiate between the PD (pulmonary disease), COPD (chronic obstructive pulmonary disease), CF (Cystic fibrosis) & their dietary interventions.	3
1.9	Elucidate the anemia & its main causes. Clinical test to evaluate to evaluate anemia & iron status in patients. Explicate the sources of iron & the factors that hinder iron absorption.	4
1.10	Explain and illuminate the cancer cachexia & how it affects nutritional status of the patients. PEM (protein energy malnutrition) & its management in cancer cachexia patients using dietary approaches. What are different enteral nutrition indications for cancer cachexia patients.	5
2	Skills :	
2.1	Discuss the role and deficiency of macro, micro, minerals & trace elements and their clinical signs & symptoms & nutritive role in body respectively.	2
2.2	Interpret the clinical malnutrition, obese and overweight patients and their dietary approaches	3
2.3	Evaluate the signs & symptoms undernourished / malnourished, Diabetic patients, hypertensive, G.I tract, COPD, CF, CV, CKD, gestational diabetic, Cancer cachectic, Anorexia etc. patients & can apply the respective dietary approaches and measures independently.	2
2.4	Apply the clinical diagnostics / tests to analyze anemic, diabetic, CKD, obese, hypertensive, cardiac & renal patients.	2
2.5	Interpret the nutritional approaches / dietary recommendations in all those aspects which have been discussed in CLOs.	3
2.6	Interpret nutrition based deficiencies, their signs & symptoms.	3
2.7	Infer & construe the dietary recommendations for normal (healthy) & patients.	2
3	Values:	
3.1	Communicate with nutritionist (health care professionals), to work on individual basis in nutrition clinics in different health care facilities and work cooperatively as well.	1
3.2	Apply the nutrition based knowledge independently in different health care facilities.	2
3.3	To explore and generate new nutritional based ideas & their implementation in different clinics.	2
3.4	Demonstrate professionalism & high ethical standards in all aspects of nutritional clinical practice specifically competence, honesty, integrity, compassion & respect for other professionals.	3

C. Course Content

No	List of Topics	Contact Hours
1	Principles of Healthy Nutrition <ul style="list-style-type: none"> ✓ Energy balance ✓ Basal metabolic rate ✓ Components of energy expenditure ✓ Thermic effect of food How is energy expressed	2
2	Cont'd Principles of Healthy Nutrition <ul style="list-style-type: none"> ✓ Carbohydrates & fiber, Fats and lipids, Proteins & amino acids, Vitamins, Minerals & trace elements, ✓ Food models 	2
3	Nutritional Assessment <ul style="list-style-type: none"> ✓ What is nutritional assessment? ✓ strengths and the limitations of the dietary history ✓ Recall method & its advantages and disadvantages ✓ Calculation of BMI, Anthropometric measurements ✓ Biochemical markers for nutritional evaluation ✓ Identification of special nutritional requirement 	2
4	Malnutrition <ul style="list-style-type: none"> ✓ Malnutrition and its classification ✓ Causes of malnutrition ✓ Most common clinical signs of vitamin and mineral deficiencies 	2
5	Weight Management and Eating Disorders <ul style="list-style-type: none"> ✓ Overweight and obese patient ✓ Treatment of obesity ✓ Diet and weight control ✓ Dietary management of patients after bariatric surgery ✓ Fad diets ✓ Anorexia nervosa and bulimia nervosa 	2
6	Diabetes <ul style="list-style-type: none"> ✓ Diabetes mellitus ✓ Gestational diabetes ✓ Diabetes and renal disease 	2
7	Hypertension Diseases <ul style="list-style-type: none"> ✓ Definitions and classification of blood pressure levels ✓ Relationship between body weight and blood pressure (Hypertension) ✓ Recommended dietary approach to the prevention and treatment of hypertension ✓ Relationship between physical activity and hypertension 	2
8	Cardiovascular Diseases <ul style="list-style-type: none"> ✓ Dietary recommendations for people with hypercholesterolemia ✓ Dietary & lifestyle modifications for cardiovascular disease (CVD) ✓ Plant sterols/stanols ✓ Nutritional approach for the prevention and treatment of metabolic syndrome ✓ Dietary recommendations for patients with congestive heart failure ✓ Main nutritional aspects of cerebrovascular accidents /stroke management 	2
9	Gastrointestinal Diseases <ul style="list-style-type: none"> ✓ Upper gastrointestinal system ✓ Lower gastrointestinal system ✓ Reasons for malnutrition in patients with inflammatory bowel disease, irritable bowel syndrome, Hepatobiliary diseases & exocrine pancreas 	2

١٠	Renal Disease <ul style="list-style-type: none"> ✓ Main components of nephrotic syndrome ✓ Dietary needs of patients with nephrotic syndrome ✓ Main goals of nutritional care in chronic kidney disease ✓ Recommendations for sodium, phosphorus, calcium & potassium intake in adult Patients with chronic kidney disease (CKD) ✓ Vitamin and trace element needs of patients with chronic kidney disease ✓ Dietary recommendations for patients with recent renal transplantation. 	2
١١	Pulmonary Disease <ul style="list-style-type: none"> ✓ Respiratory quotient and its importance for patients with pulmonary diseases (PD) ✓ Main dietary goals for patients with chronic obstructive pulmonary disease (COPD) and their macronutrient needs ✓ Cystic fibrosis (CF) and what are its main nutritional implications 	2
١٢	Nutrition and Anemia <ul style="list-style-type: none"> ✓ Main causes of iron-deficiency anaemia ✓ Main laboratory tests to evaluate iron-deficiency anaemia and iron status in the body ✓ Main dietary sources of iron, factors interfere with iron absorption ✓ Main components of the dietary advice that to patients with iron-deficiency anaemia, haemochromatosis? ✓ What are the main symptoms and what is the dietary management of iron overload ✓ Main causes of megaloblastic anaemia, factors causing B12 and folic-acid deficiency and Dietary management of these deficiencies 	2
١٣	Neoplastic Diseases <ul style="list-style-type: none"> ✓ In what ways can cancer affect nutritional status, main characteristics of cancer cachexia? ✓ How does it affect the patient's prognosis, energy and protein requirements of cancer patients, ✓ Main nutrition-related side effects of chemotherapy ✓ Enteral nutrition indications for cancer patient 	2
١٤	Metabolic Stress <ul style="list-style-type: none"> ✓ Energy and protein requirements in head injury patients ✓ Methods of nutritional support in the case of head injury ✓ classifications of burns, basic treatment goals for the nutritional care of the burn patient ✓ Role of protein in the treatment of burns, vitamins role in treatment of burns, Role of fluid and electrolyte in burn patient, ✓ Main infectious and non-infectious causes of systemic inflammatory response syndrome, ✓ Most appropriate diet for systemic inflammatory response syndrome ✓ Role of nutritional support in the treatment of multiple organ dysfunction syndrome 	2
١٥	Enteral Nutrition	2
Total		٣٠

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Recall the comprehensive information about nutrition related terminology, BMR, RMR, energy balance, Food thermic effect, Key role of carbohydrates, proteins, fats and vitamins, minerals & trace elements in nutrition, Role of different food models.	<p>The student will attend:</p> <ol style="list-style-type: none"> 1. Regular 2 hour lectures per week 2. An independent study is encouraged and applied by asking the student to write an essay about certain topics related to the lectures (twice per course semester). <p><u>Teaching plan</u></p> <ol style="list-style-type: none"> a. Introductory lecture gives an overview of the content and significance of the course and of its relationship to students' existing knowledge b. Each subsequent lecture begins with a general outline that will be followed by a detailed explaining of each heading to link the particular content of the presentation to the general overview c. Tutorials review the content of each lecture and clarify any issue that has not been understood. d. Individual tasks are prepared by students to ensure the independent study that requires the use of library reference material and web sites to identify information 	<ol style="list-style-type: none"> a. Mid Term exam: 80 minutes multiple choice test (60 MCQs) on studied topics with results carrying 30% of final assessment. b. Activity-I evaluation carrying 10 % of final assessment c. Activity-II evaluation carrying 10 % of final assessment d. Final year exam. 120 minutes multiple choice test (100 MCQs) on studied topics 50% of total marks with results completing to 100% total marks

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		required to complete tasks.	
1.2	Repeat the nutrition assessment & its various methods in different clinical / health care facilities. How to calculate the BMI, anthropometric measurements. Which markers are used for assessing nutrition.	a + b + c + d as prescribed above	
1.3	State what is the malnutrition & its classification, clinical assessment of Marasmus and Kwashiorkor.	a + b + c + d as prescribed above	a + b + c + d as prescribed above
1.4	Tell about the obese & overweight patients. How obesity can be treated	a + b + c + d as prescribed above	a + b + c + d as prescribed above
1.5	Tell about diabetes mellitus & its different types. Relate between diabetes & renal disease & dietary recommendations of diabetes Patients with renal disease.	a + b + c + d as prescribed above	a + b + c + d as prescribed above
1.6	List the classifications of hypertension, relationship between blood pressure & body weight, DASH (dietary approaches to stop hypertension) for hypertension patients, Underline the recommendations for hypercholesterolemia patients & CHF (congestive heart failure) patients Underline the nutritional aspects for CVA (cerebrovascular accidents) patients & their management.	a + b + c + d as prescribed above	a + b + c + d as prescribed above
1.7	Describe the Upper and lower G.I (gastro-intestinal) system. What are reasons for malnutrition in IBS (irritable bowel syndrome) & IBD (inflammatory bowel disease) & their dietary approaches / requirements.	a + b + c + d as prescribed above	a + b + c + d as prescribed above
1.8	List key components of nephrotic syndrome & dietary requirements. Recall the nutritional intervention in CKD (chronic kidney disease) patients. Identify the role of Sodium, Phosphorus, Calcium & Potassium & their dietary references in adult CKD patients Illustrate about vitamin & trace element needs of CKD patients Differentiate between the PD (pulmonary disease), COPD (chronic obstructive pulmonary disease), CF (Cystic fibrosis) & their dietary interventions.	a + b + c + d as prescribed above	a + b + c + d as prescribed above
1.9	Elucidate the anemia & its main causes.	a + b + c + d as prescribed above	a + b + c + d as prescribed above

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	Clinical test to evaluate to evaluate anemia & iron status in patients. Explicate the sources of iron & the factors that hinder iron absorption		
1.10	Explain and illuminate the cancer cachexia & how it affects nutritional status of the patients. PEM (protein energy malnutrition) & its management in cancer cachexia patients using dietary approaches. What are different enteral nutrition indications for cancer cachexia patients.	a + b + c + d as prescribed above	a + b + c + d as prescribed above
2.0	Skills		
2.1	Discuss the role and deficiency of macro, micro, minerals & trace elements and their clinical signs & symptoms & nutritive role in body respectively.	a. Explanations and examples given in lectures with participation of students in group discussion with staff members b. Assignment tasks include some open ended tasks designed to apply predictive, analytical and problem solving skills. C. Practiced under supervision in tutorials and laboratory tasks.	a. Activities carrying 30% mark with each group assigning different topic related to nutritional disorders will enhance the skills to apply them in future in clinical settings b. Group assignments require application of analytical tools in problem solving tasks
2.2	Interpret the clinical malnutrition, obese and overweight patients and their dietary approaches	a+ b + c as prescribed above	a + b as prescribed above
2.3	Evaluate & diagnose the signs & symptoms undernourished / malnourished, Diabetic patients, hypertensive, G.I tract, COPD, CF, CV, CKD, gestational diabetic, Cancer cachectic, Anorexia etc. patients & can apply the respective dietary approaches and measures independently.	One group assignment in which part of assessment is based on individuals contribution to the group task.	Assessment of group assignments with component for individual contribution. Capacity for independent study assessed in individual assignments
2.4	Apply the clinical diagnostics / tests to analyze anemic, diabetic, CKD, obese, hypertensive, cardiac & renal patients.	Individual assignments requiring investigation using internet and library resources as a means of developing self study skills. + a	Same as prescribed above
2.5	Interpret the nutritional approaches / dietary recommendations in all those aspects which have been discussed in CLOs.	Role play exercise on controversial issue relevant to the course based on a case study, with discussion in tutorial of appropriate responses and	---

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		consequences to individuals involved. + a	
3.0	Values		
3.1	Communicate with nutritionist (health care professionals), to work on individual basis in nutrition clinics in different health care facilities and work cooperatively as well.	Implemented as follow: Provide guided practice monitor performance and provide feedback after each step. Inform the students about clinical nutrition related deficiencies and how it can be assessed and role of various diets in disease management	Clinical practice training through the semester in nutrition clinics (As per availability)
3.2	Apply the nutrition-based knowledge independently in different health care facilities.	Same as prescribed above	Same as prescribed above

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid semester exam 80 minutes multiple choice test (60 MCQs/ True False) on studied topics	10	30 % of final assessment.
2	Activity# 1 evaluation	Throughout semester	10%
3	Activity# 2 evaluation	Throughout semester	10%
4	Final year exam. 120 minutes multiple choice test (100 MCQs) on studied topics	20	50 %

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Faculty must arrange specific discussion hours so as the students can discuss freely concerned subject topics with tutors besides classroom learning environment.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<ul style="list-style-type: none"> Nikolaos Katsilambros, Charilaos Dimosthenopoulos, Meropi Kontogianni, Evangelia Manglara, Kalliopi-Anna Poulia, Clinical Nutrition in Practice. Ed Blackwell Publishing Ltd, 2010. Michael J Gibney, Susan A Lanham-New, Aedin Cassidy, Hester H Vorster. Introduction to Human Nutrition. 2nd Blackwell Publishing Ltd, 2009.
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Essential References Materials	<ul style="list-style-type: none"> Janice L.Thompson, Melinda M.Manore, Linda A.Vaughan, The science of Nutrition 2nd ed. Pearson Education, Inc., publishing as Pearson Benjamin Cummings, 2011. (https://is.muni.cz/el/1411/jaro2013/BVAJ0222/um/39181669/39181807/032164316X.pdf)
Electronic Materials	<ul style="list-style-type: none"> The Journal of Nutritional Biochemistry (https://www.journals.elsevier.com/the-journal-of-nutritional-biochemistry) Nutrition and Health (https://journals.sagepub.com/home/nah) Nutrition Journal (https://nutritionj.biomedcentral.com) European Journal of Clinical Nutrition (https://www.nature.com/ejcn/) Nutrition in Clinical Practice (https://onlinelibrary.wiley.com/journal/19412452) Nutrition and Disease management (https://www.omicsonline.org/scholarly/nutrition-and-disease-management-journals-articles-ppts-list.php) Nutrition and Disease (https://www.wur.nl/en/Research-Results/Chair-groups/Agrotechnology-and-Food-Sciences/Division-of-Human-Nutrition-and-Health/Research/Nutrition-and-Disease.htm) Journal of Food and Nutritional Disorders (https://www.scitechnol.com/food-nutritional-disorders.php) Journal of Nutrition and Metabolism (https://www.hindawi.com/journals/jnme/) Annals of Nutritional Disorders and Therapy (http://austinpublishinggroup.com/nutritional-disorders/) Journal of Public Health & Nutrition (http://www.alliedacademies.org/public-health-nutrition/)
Other Learning Materials	Reference web links and recommended books are sufficient for through understanding of students

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> Lecture Theatre: Provided by the Faculty (For female students: 2 Classrooms D2 & D3, Female Medical Science building each with seating capacity of 100-110 students). Provided by the Faculty (For male students: 2 Classrooms 101 & 103, Q6 Building each with seating capacity of 100 students).
Technology Resources (AV, data show, Smart Board, software, etc.)	Multimedia <ul style="list-style-type: none"> Desktop computers are available in the student library.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Not Applicable

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student Evaluation Course Survey.	Students	Checklist format
Annual Evaluation by Course Coordinator.	Course coordinator & teaching staff Dr. Adil Jamal <i>Course Coordinator</i> (Both for male & female students)	Revising content of the course & methods of teaching.

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	