Kingdom of Saudi Arabia
Ministry of Higher Education
Umm Al-Qura University

جامعة أم القرى
UMM AL-QURA UNIVERSITY

Faculty of Applied Medical Sciences
Deanship of Academic Affairs
Clinical Nutrition Program

Students' Guide Booklet

For clinical nutrition program students

1442-1443 H

Index

Message from the head of the department

In the name of Allah, and peace and prayers be upon Prophet Muhammad ...

As we are embarking on a comprehensive launching phase in all fields towards a hopeful future in the 2030 vision of the future where science and scientists are better able to contribute to the advancement of the society, and out of the belief in the value of science and achievement and the University's role in serving the community, I declare that we will spare no effort as instructors, administrators and students in adopting the latest methods in scientific research in the field of clinical nutrition, and focus on the good use of this science and turn in into practical skills to help promote health nutrition for individuals and society, as well as reduce health problems caused by errors in nutrition, which could affect the body's organs and vital functions: It was said in the old days that the stomach is where sickness begins, and that a healthy diet is where treatment begins.

We believe in the importance of this specialization. This department was established to make batches of highly-qualified students graduate and work at specialized hospitals and healthcare centers as well as nursing homes and special education centers. It aims to reduce the various pathological complications by providing patients with proper diets, which makes clinical nutritionists an essential part of the medical treatment team. They seeks to make our society healthy and sound, improving our eating habits, because what can be treated with a healthy diet does not require medications.

Head of the Department

Dr. Widad bint Fouad Azhar

Introduction to the Clinical Nutrition Program

The reception of female students in the Clinical Nutrition Department began at the beginning of the academic year 1426/1427 H (2001/2002). In the first academic year, 42 female students were accepted at the department. The number of those enrolled into the program is increasing due to local market trends for Clinical Nutrition specialist. At the same time, the number of faculty members has grown so that all scientific courses are covered efficiently and competently. Faculty members are involved in training students to enrich the practical aspect by their experience.

Vision and Mission for the department

The vision of the department Locally, regionally, and internationally leadership in education, scientific research, and community service in clinical nutrition.

The mission of the department

To be exceptional in providing nutrition education programs to ensure innovation and leadership in scientific research and knowledge economy based on the role of serving the community, pilgrims and Umrah pilgrims.

Mission of the program

Providing a distinguished educational program that qualifies students in the field of clinical nutrition to work in different positions, excel and lead in the development of health, research and economics of society, and provide services to the community and serve nutritional needs for Hajj and Umrah according to Vision 2030.

An introduction to the specialty

Graduate Attributes:

Therapeutic nutritionist or globally qualified dietician (is the professional) who provides nutrition information on a scientific basis objectively with no misleading information that is not based on scientific facts.

There are many specializations in the field of dietetics, just as there are many doctors who specialize in treating specific conditions, so therapeutic dietitians can specialize in some food-related diseases, whether for inpatients or in outpatient clinics, they can also specialize in sports nutrition and health the public or in the field of publications that spread nutritional awareness in the press and various media.

Some of the graduate attributes can be summarize as the following:

1. Professionalism with high ethical and standards held by Islam beliefs.

2. creativity, innovation, and a broad vision to deal with complex problems.

3. Serving the Saudi and international community, particularly pilgrims.

4. Invest to improve the leadership and group or individual work abilities and apply them as necessary.

5. Dealt with academic and scientific nutritional issues on basis of current knowledge and seek solutions and suggests further information to justify decisions.

6. Contribute in providing information based on facts and theories in simple language to the public or scientific community.

Classification of Clinical Nutritionist:

The majority of clinical dietitians specialize in the field of clinical nutrition, in which they prescribe dietary modifications according to the condition, in addition to educating patients and their families through nutritional programs and educational presentations to benefit people of all ages. The clinical nutritionist is also an important member of the medical team and has a key role in the integrated medical care of patients who need different types of feeding methods, whether oral or tube feeding.

Program Learning Outcomes

Upon completion of the clinical nutrition program our graduate will:

1. Acquired a broad basis of clinical nutrition knowledge, understanding and skills, as well as in depth in the areas of specialization.
2. Identify the various components of nutrition and principles of diet planning in health and disease.
3. Apply proper nutritional management of patients suffering from various nutritional related disorders.
4. Apply recent methods and techniques for nutritional assessment of patients.
5. Identify the importance of integrating nutrition/ health components into national and community socioeconomic developments plans.
6. Plan and conduct community field surveys using different qualitative and quantitative methods.
7. Use communication and training skills for effective nutrition and health program purposes.
8. Apply skills in planning and conducting communication.

Knowledge and Understanding:

K1. Describe the board concepts of medical and clinical sciences related to practicing the profession of clinical nutrition.

K2. Categorizes the major and field realities of clinical nutrition.

K3. Summarizes the outlines of theories and comprehensive clinical nutrition applications

K4. Distinguish the skills and attitudes needed to practice clinical nutrition specialty.
K5. Explains complex issues of clinical nutrition.
K6. Describe relevant hypothesis to clinical nutrition and its applicability.
K7. Outline the different qualitative and quantitative research domains and their applicability to clinical nutrition.

Skills:

S1. Implement academic and scientific nutritional issues based on current knowledge and seek solutions self-guided and suggests further resources to justify decisions.
S2. Appraise nutritional techniques, skills, and major theories for solving and dealing with complex challenging cases and community widespread diseases.
S3. Evaluate nutritional dilemma to develop and justify research and economic services in the community especially in Hajj and Umrah according to KSA Vision 2030.
S4. Assess patient needs using suitable clinical nutrition care strategies and techniques.
S5. Operate top of the range mathematical and statistical approaches using different qualitative and quantitative methods.
S6. Execute community, laboratory and clinic surveys and research.
S7. Operate nutritional counseling & education schemes for patients and their families according to their conditions during hospitalization and on discharge.
S8. Calculate and prepare meals and formulas for different age groups being in or outpatients according to requirements.
S9. Illustrate statistical and mathematical analysis abilities for nutritional data and related fields.
S10. Perform effective communication in oral and written formats.
S11. Construct the suitable clinical nutrition care plans and strategies to meet the patient's needs in hospital, community and in Hajj and Umrah seasons using software and digital networks.
S12. Demonstrate effective communication and positive relations with others.

Values:

V1. Exhibit professional, ethical and good manners when dealing with client and his family.
V2. Reconstruct ethical and professional standards in all fields of clinical nutrition.
V3. Expressthe relationship between social responsibility and citizenship.
V4. Implement working ability either alone or with team.
V5. Employ responsibility for own learning and continuing personnel development.
V6. Execute leadership skills if required.

Brief of department activities & achievements

The program of Clinical Nutrition is a modern program of the College of Applied Medical Sciences and will assume the following duties:

1. Holding seminars to draw the community's attention to the Department's specialties, interests and significance.
2. Training the Department's female students at Makkah-based hospitals.
3. Contributing to the solution of community problems in the field of clinical nutrition through relevant specialized research.

Number of Female Students in the Department of Clinical Nutrition year 1442-1443 H:

A-Bachelor's degree student of clinical nutrition department:

School year	Number of students
Second	87
Third	81
Fourth	66

B-Master's degree students of clinical nutrition department: 21 students.

Brief of work fields

- ✓ Hospitals

- ✓ Industry Sector: Food Factories
- ✓ Education Sector: Schools and food supply
- ✓ Food and Drug Authority
- ✓ Tourism Sector: Hotels
- ✓ Subsistence of Hajj and Umrah
- ✓ Sport sector

About faculty organizational structure

كلية العلوم الطبية التطبيقية
Faculty of Applied Medical Sciences

الهيكلة التنظيمية لكلية العلوم الطبية التطبيقية

عميد الكلية
د. راضي طه الصافي

وكيلة الكلية لشطر الطالبات
د.أفنان صلاح سلاكا

وكيل الكلية للشؤون الأكاديمية
د. حمزة محمد حسن السقاف

وكالة الكلية للتطوير و الجودة
د.آلاء حاتم قاضي

مدير إدارة الكليـــــــة
أ. عاطف مرشد قاسم الاحمدي

مساعدة مدير ادارة الكلية
أ. مشاعل محمد مختار

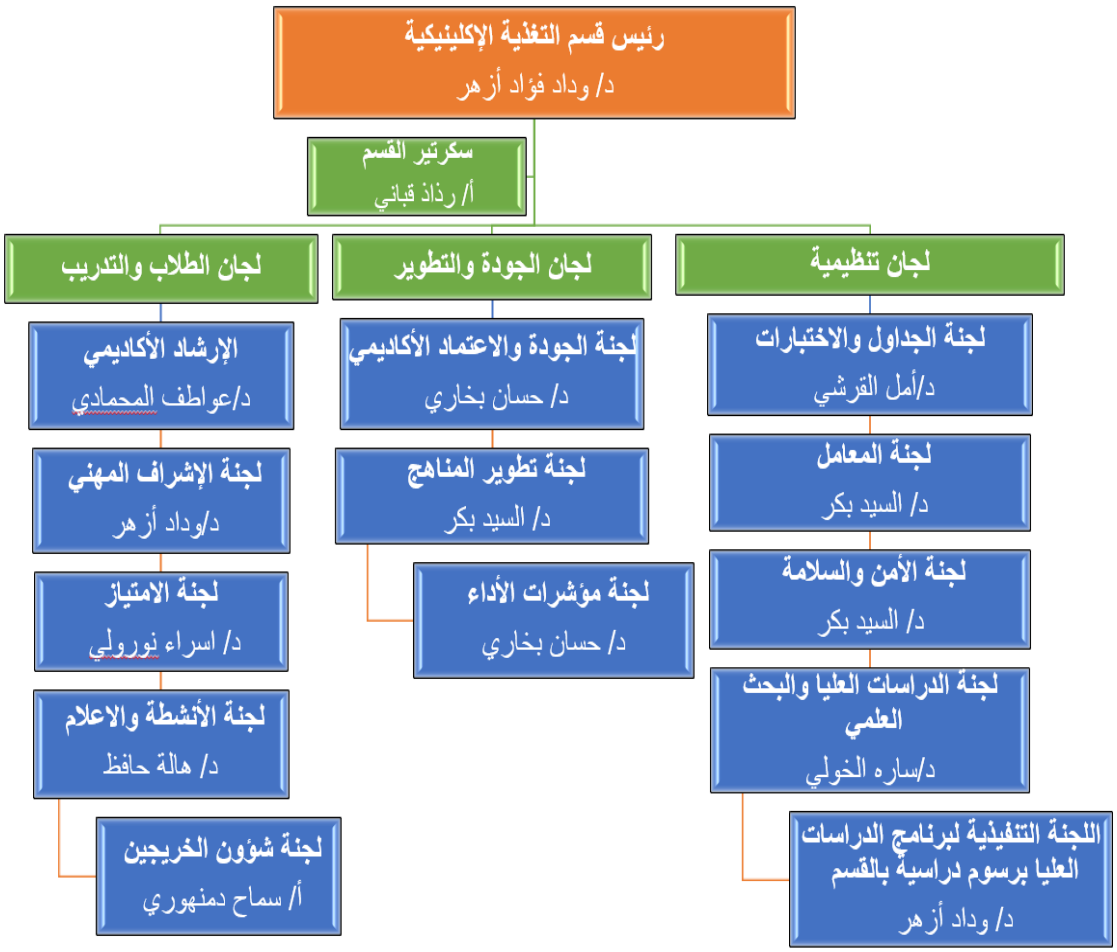
رئيس قسم التقنية السريرية
د. يوسف محمد الشهراني

رئيس قسم طب المختبرات
د. أحمد حسنين قاسم

رئيس قسم التغذية الاكلينيكية
د. وداد فؤاد أزهر

رئيس قسم العلاج الطبيعي
د. محمد سعيد الغامدي

About the administrative structure of the Clinical Nutrition Department



About department structure and qualifications

Department location on the map

University Regulations

Student Handbook (includes the rights and duties of the student)

https://drive.uqu.edu.sa/_/studaff/files/%D9%83%D8%AA%D9%8A%D8%A8%20%D8%AF%D9%84%D9%8A%D9%84%20%D8%A7%D9%84%D8%B7%D8%A7%D9%84%D8%A8%20%D8%A8%D8%AC%D8%A7%D9%85%D8%B9%D8%A9%20%D8%A7%D9%94%D9%85%20%D8%A7%D9%84%D9%82%D8%B1%D9%89.pdf

List of study and exams for the undergraduate level at the College of Applied Medical Sciences

https://drive.uqu.edu.sa/_/fameds/files/regulations/excutive.pdf

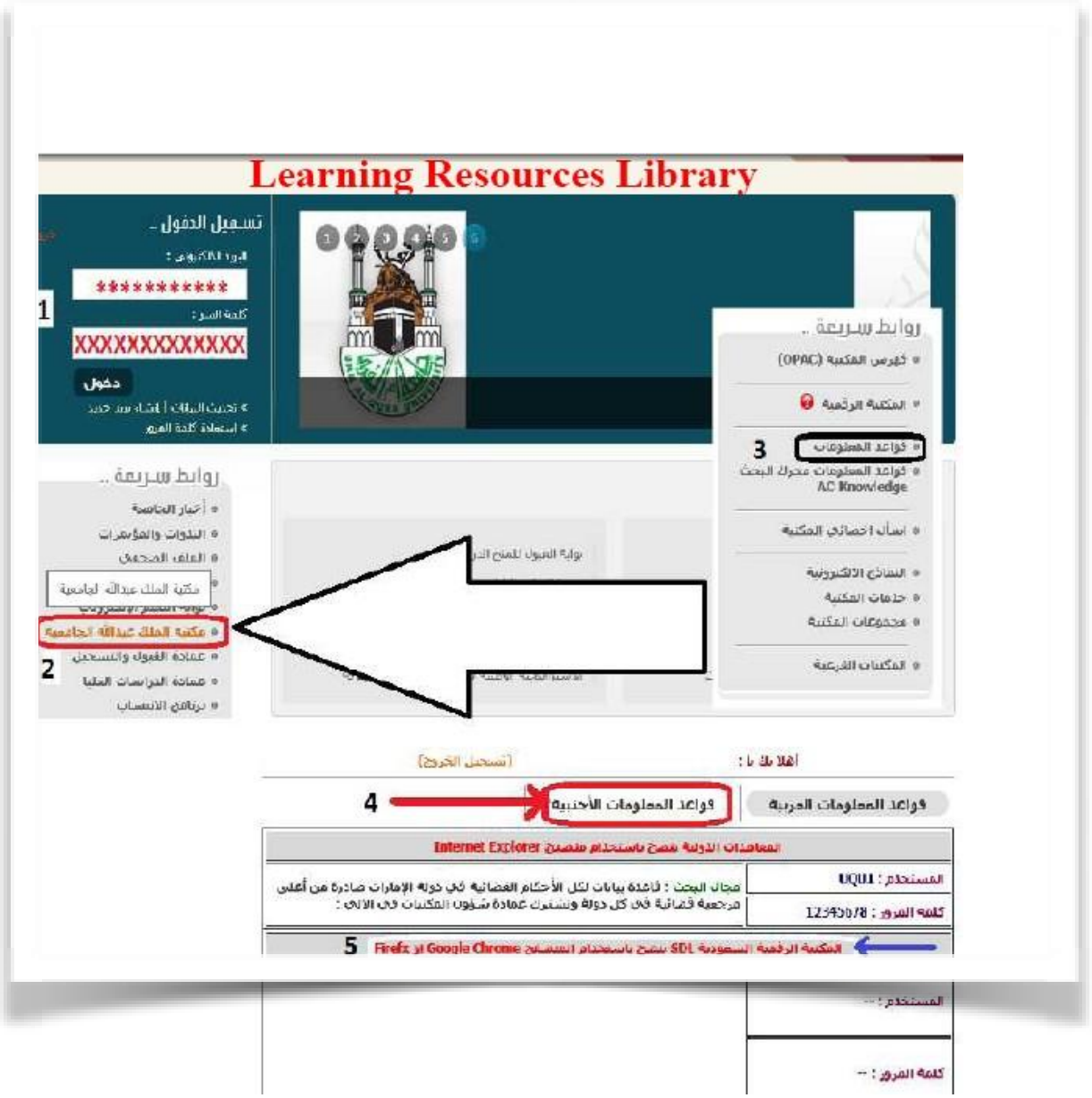
Grievance and complaint mechanism

https://uqu.edu.sa/fameds/76509

Clinical Nutrition Department website

https://uqu.edu.sa/dcn

How to access the digital library



Study Plan

FIRSTYEAR

First Term (Level 1)					***Second Term*** (Level 2)				
Course code	**Course Name**	**P**	**T**	**CU**	**Course code**	**Course Name**	**P**	**T**	**CU**
4810110-2	Principles of Human Genetic	-	2	2	**4810111-3**	Cell Physiology	١	2	3
4810120-2	Basics to Biochemistry I	-	2	٢	**4800173-4**	Medical English Language	٢	2	٤
4800104-3	Learning and Study Skills	-	3	3	**4800153-3**	Computer programming Skills	1	٢	3
4800150-2	Computer Skills I	-	2	2	**4810121-2**	Basics to Biochemistry II	-	٢	٢
4800170-6	English Language	3	3	٦	**4800131-4**	Introduction to Medical Physics	٢	2	٤
TOTAL		**3**	**12**	**15**	**TOTAL**		**6**	**10**	**16**
TOTAL :31									

SECOND YEAR

First Term (Level 3)					***Second Term***(Level 4)				
Course code	**Course Name**	**P**	**T**	**CU**	**Course code**	**Course Name**	**P**	**T**	**CU**
605101-2	The Holy Qur'an I	-	2	2	**605201-2**	The Holy Qur'an II	-	2	2
601101-2	Islamic Culture I	-	2	2	**601201-2**	Islamic Culture II	-	2	2
1702222-2	Nutrition Throughout the Life Cycle I	-	2	2	**1702251-2**	Food Analysis	1	1	2
1702221-3	Foundation of Human Nutrition	-	3	3	**1702241-3**	Nutritional Requirements	1	2	3
102101-2	Biographic of Prophet	-	2	2	**1702261-2**	Food Economics	-	2	2
501101-2	Arabic Language	-	2	2	**1702273-3**	Nutrition and Human Body Structures & Diseases	1	2	3
1702271-3	Food Elements and Human Metabolism	1	٢	٣	**1702274-3**	Principles of Food Microbiology	1	2	3
1702212-3	Nutrition and Body Systems Functions	1	٢	3	**1702223-2**	Nutrition Throughout the Life Cycle II	-	2	2
TOTAL		**2**	**17**	**19**	**TOTAL**		**4**	**15**	**19**
TOTAL :38									

THIRD YEAR

First Term(Level 5)					***Second Term***(Level 6)				
Course code	**Course Name**	**P**	**T**	**CU**	**Course code**	**Course Name**	**P**	**T**	**CU**
605301-2	The Holy Qur'an III	-	2	2	**601301-3**	Islamic Culture III	-	3	3
1702335-3	Food Services & Quality control in Hospitals	1	2	3	**1702362-3**	Community Nutrition	1	2	3
1702342-3	Nutritional Assessment	1	2	3	**1702363-2**	Nutritional Counseling	-	2	2
1702325-3	Food Hygiene & Safety	1	2	3	**1702338-3**	Meal preparation	2	1	3
1702331-4	Principles of Medical Nutrition Therapy (MNT)	2	2	4	**1702324-2**	Nutrition & Immunology	-	2	2
1702337-3	Diets Planning	1	2	3	**1702339-2**	Malnutrition Diseases	-	2	2
					1702332-4	MNT I	2	2	4
TOTAL		**6**	**12**	**18**	**TOTAL**		**5**	**14**	**19**
TOTAL: 37									

FOURTH YEAR

First Term(Level 7)					***Second Term***(Level 8)				
Course code	**Course Name**	**P**	**T**	**CU**	**Course code**	**Course Name**	**P**	**T**	**CU**
1702436-3	Enteral & Parenteral Nutrition	1	2	3	**601401-2**	Islamic Culture IV	-	2	2
1702467-1	Nutrition in Islam	-	1	1	**1702466-3**	Nutrition Education	1	2	3
1702474-1	Basic nutritional Biostatistics	-	1	1	**1702426-2**	Food and Drugs Interactions	-	2	2
1702433-4	MNT II	2	2	4	**1702453-3**	Applied Nutrition	2	1	3
1702471-2	Nutrition and Epidemiology I	-	2	2	**1702434-4**	(MNT) Practice in Hospital	4	-	4
605401-2	The Holy Qur'an IV	-	2	2	**1702427-2**	New Trends in Nutrition	-	2	2
1702452-2	Functional Foods	1	1	2	**1702472-2**	Nutrition and Epidemiology II	-	2	2
1702499-3	Research Project						-	3	3
TOTAL		**4**	**11**	**15**	**TOTAL**		**7**	**14**	**21**
TOTAL: 36									

FIFTH YEAR (Level 9)	
Course code	Course Name
1702500-0	Internship: Hospital and Community Training in Clinical Nutrition -12 Months Continues

* Include additional levels if needed

** Add a table for each track (if any)

Course overview

Second year courses

Course code:	**1702212-3**		
Course title:	**NUTRITION AND BODY SYSTEMS FUNCTIONS**		
Level/semester	2nd Year - semester 1		
Credit hours:	3 CU	**Theoretical:** 2 CU	**Practical:** 1CU
Contact hours	**4 hr**	**Theoretical:** 2 hr	**Practical:** 2 hr
Language:	English		
Course Description:	a. This course aims to introduce students the functions of body systems as e.g (Skeletal, Cardiovascular, Respiratory, Gastro- intestinal, Urinary, Reproductive, Nervous system, Skin and fascia, Endocrine and special sense). b. Relation of these physiological structures with the nutrition and human diet.		
Aims and Goals/Skills of the course:	1. This course is design to introduce the student to the basic of physiological knowledge of various parts of the body and the functions of these organs in the body and how the body act , beside to the role of nutrition in maintain these functions. 2. Due to Covid -19 change many body system functions specially respiratory system we must study that and introduce it in our course objectives and students activities.		
Content of the Course:	- Introduction to human physiology and cell structure - Physiology of cell and tissue - Physiology of nervous system - Physiology of endocrine system including reproductive system - physiology of blood and different type of blood abnormalities - Physiology of cardiovascular system - Physiology of respiratory system - Physiology of renal system - Physiology of renal system - Physiology of neuromuscular system - Physiology of immune system - Revision		

Examination:	• Midterm Exam…… 25% • Course project activity..... ……15% • Final practical exam.....…….20% • Final written exam ..... …...40%

Course code:	**1702221-3**
Course title:	**FOUNDATION OF HUMAN NUTRITION**
Level/ semester:	2nd Year - semester 1
Credit units:	**3 CU**
Contact hours:	3 hours
Language:	English
Course Description:	This course introduce the student to the basic human nutrition, general concepts of nutrition, food component (protein, carbohydrates, fats, energy balance, vitamins, minerals and water) and study the main sources, daily requirements, physiological functions, deficiency symptoms, digestion, absorption and metabolism. for all nutrients.
Aims and Goals/Skills of the course:	**At the end of this course, the student should be able to:** 1. Recognize the basic concepts of clinical nutrition program. 2. Understand the food component and the daily requirements. 3. Distinguish the nutrients according to sources, physiological functions, and deficiency.
Content of the Course:	• **Over all view of the course contents and Introduction:** Course description, objectives, and topics will be covered. • **Concepts of clinical nutrition program:** Nutrition and dietetics - approaches to health - health goals – importance of balanced diet - functions of nutrients in food - energy source- Good nutrition, Optimal nutrition – undernutrition - malnutrition – overnutrition – nutrient and food guides for health promotio, DRI – RDA – EAR - AI – UL – food guide pyramid. • **Carbohydrates:** Classification of carbohydrates (monosaccharide – disaccharides –polysaccharides), physiological functions of carbohydrates, daily need, dietary sources • **Carbohydrates con:** digestion - absorption - regulation of blood sugar - glucose and insulin - hormonal controls of glucose - glycemic indexes - glycemic loads - dietary carbohydrate and disease.

	• **Protein:** Nature of protein - classification of protein - essential amino acids – nonessential amino acids – BCAA - nitrogen balance - protein deficiency - protein toxicity. • **protein cont.:** daily need - dietary sources - deficiency symptoms – digestion – absorption, proteins supplements • **Fats:** Lipid structures - food sources of fat - classification of lipids - chain length - dietary sources of fatty acid - physiological functions of lipids- essential fatty acid - omega-3 & 6 & 9 fatty acid - health effects of lipids - daily needs - digestion – absorption. • **Energy Balance:** Human energy system - energy for fuel - energy balance - energy for storage - components of energy expenditure - bomb calorimeter - total body energy requirements - estimating energy expenditure. • **Vitamins:** Fat-soluble vitamins (vitamin A, vitamin D, vitamin E and vitamin K) study the main sources - daily requirements - physiological functions – deficiency symptoms and toxicity of vitamins. • **Vitamins cont.:** Water soluble vitamins - vitamin C, vitamin B1, vitamin B2, niacin, requirements, physiological functions, deficiency symptoms and toxicity of vitamin. • **Minerals.:** Macro Minerals – calcium - phosphorus, magnesium, potassium – sulfur –sodium and chloride. Study the main sources, daily requirements – physiological functions - deficiency symptoms and toxicity of Minerals. • **Trace Elements:** Trace Elements (iron, zinc, copper, iodine, manganese, fluoride, selenium, chromium, molybdenum and cobalt) study the main sources, daily requirements, physiological functions, deficiency symptoms and toxicity of Minerals. • **Water:** Water intake - daily requirements - body water functions - the human water balance system - hormonal controls of water - deficiency symptoms • **Weight Management:** Overweight and Obesity, Causes of Overweight and Obesity, Problems of Overweight and Obesity, Aggressive Treatments for Obesity, Weight-Loss Strategies, Underweight • **Revision**
Examination:	• Periodical Exams (Quizzes).....……..30% • Semester activity..... ……...20% • Final written exam ..... …….50%

Course code:	**1702271-3**		
Course title:	**FOOD ELEMENTS AND METABOLISM**		
Level/semester:	2nd Year - semester 1		
Credit hours:	3 CU	**Theoretical:** 2 CU	**Practical:** 1**CU**
Contact hours	4hour	**Theoretical:** 2 hr	**Practical:** 2 hr
Language:	English		

Course Description:	This course aims to introduce students to the concepts of the functions of living cells at molecular level including carbohydrates, lipids and proteins and to understand their different metabolic pathways. It also provides knowledge related to hormonal regulation and the role of enzymes in cellular reactions. The course emphasizes the role of vitamins and minerals in maintaining a healthy life. Moreover, this course describes DNA structure, replication and gene mutation.
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** • Understand the principle of major metabolic pathways for macro- and micronutrients • Recognize the hormonal regulation (metabolic regulation) and the role of enzymes in cellular reactions • Understand the energy production from different nutrients and associated problems • Identify the role of vitamins and minerals in maintaining biochemical functions and energy metabolism.
Content of the Course:	• Course overview and introduction to metabolism • Digestion, absorption of carbohydrates; Glycolysis & TCA cycle • Carbohydrates: Gluconeogenesis & Glycogen Metabolism • Carbohydrates metabolic regulation and blood glucose level and its regulation • Proteins: Amino acids structure, digestion, absorption, transport and protein functions • Proteins: Amino acids metabolism and enzymes • Proteins: Nucleotide metabolism: structure, replication and repair; heme and bilirubin • Lipids: Fatty acids, ketone body, and triacylglycerol metabolism • Lipids: Cholesterol and lipoproteins metabolism • Integration of Metabolism: The Feed–Fast Cycle; Metabolic States • Fat-soluble vitamins metabolism: D, E, A, and K • Water-soluble vitamins: B vitamins and vitamin C • Major minerals metabolism: Ca, P, Mg, Na, and K • Trace and ultrea-trace minerals (iron, zinc, and copper, and the ultratrace minerals selenium, iodine, and molybdenum) • Review
Examination:	• Midterm exam..... ……..25% • Semester activity..... ……15% • Final Practical Exam ..... ……20% • Final written exam ..... ……40%

Course code:	**1702273-3**		
Course title:	**NUTRITITION AND HUMAN BODY STRUCTURES AND DISEASES**		
Level/semester:	2nd Year, 2ed semester		
Credit hours:	3 CP	**Lecture hours:** 2 **CP**	**Practical hours: 1CP**
Contact hours:	4hour	**Lecture hours:** 2 hr	**Practical hours 2 hr**
Language:	English		
Course Description:	This course in anatomy and histology aims to introduce students to the anatomical concepts of the functions of body systems as e.g (Skeletal, Cardiovascular, Respiratory, Gastro- intestinal, Urinary, Reproductive, Nervous, Skin and fascia, Endocrine and special sense) Anatomical and Histopathological terminology with emphasis on clinical relevance will be introduced.		
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** 1. Distinguish the structure of human anatomy on both gross and microscopic levels and the structure of different system, organs, tissues and cells. 2. Describe diseases affecting the various organ systems which are relevant to clinical nutrition course 3. Explain the functional anatomy of various organ systems 4. List the gross and microscopic structure of an organ to its function Operate in anatomy models and discussion 5. Illustrate the applied anatomy and clinical anatomy of organ systems 6. Demonstrate the communication skills and the effective use of technology for obtaining credible information. 7. Execute histology slides and microscopic examination 8. Demonstrate effective skills and positive attitude towards others while working in a group.		
Content of the Course:	• Introduction To The Course Specs And Quality. • Introduction to anatomy and histology of cell and tissue. • Anatomy and histology of skeletal system bone • Anatomy and histology of Muscle cartilage and joints. • Anatomy and histology of Cardiovascular system. • Anatomy and histology of Respiratory system. • Anatomy and histology of Gastrointestinal system. • Revision & Midterm Exam. • Anatomy and histology of Gastrointestinal glands. • Anatomy and histology of Urinary system. • Anatomy and histology of Reproductive system. • Anatomy and histology of Nervous system. • Anatomy and histology of Skin and fascia.		

	• Anatomy and histology of Endocrine and special sense. • Histopathological terminology.
Examination:	• Theoretical midterm exam..... 25% • Laboratory semester activity…….15% • Final Practical Exam.....20% • Final written exam.....40%

Course code:	**1702222-2**
Course title:	**NUTRITION THROUGH LIFE CYCLE (1)**
Level/semester:	2nd Year - semester 1
Credit unit:	2 **CU**
Contact hours	**2 hr**
Language:	English
Course Description:	This course provides the students to study dietary recommendations for human from preconceptionto older adults, daily food plan for human throughout the life cycle, physiologic changes in human throughout the life cycle, and factors affect health.
Aims and Goals/Skills of the course:	**At the end of course the students should be able to:** • Describe the relationship between the physiological changes that occur before anddduring pregnancy and the increased nutritional needs of women during pregnancy. • Identify dietary changes appropriate for treating nutrition-related issues during pregnancy,such as gestational diabetes and iron deficiency anemia. • Discuss the benefits and limitations of breastfeeding vs. bottle-feeding for postpartumwomen and their infants. • Describe the progress of the introduction of solid foods for infants, includingdevelopmental clues, types of foods introduced and timing of food introductions • Discuss the relationships between food intake, psychosocial development, andphysiological needs among 1-24 months.
Content of the Course:	• **Introduction/ course overview** • **Pregnancy**: Nutrition prior to pregnancy – growth and development during pregnancy (placental development - fetal growth - the zygote - The embryo - the fetus). • **Pregnancy** cont. :Critical periods of development – folate supplementation and neural tube defects– chronic diseases during the critical period (malnutrition – hypertension).

	• **Maternal weight** :Weight prior to conception (underweight - overweight). Weight gain during pregnancy (recommended weight gains - components of weight gain - weightloss after pregnancy). • **Nutrition during pregnancy** :Energy and nutrient needs during pregnancy (energy . protein. carbohydrate.essential fatty acids - folate. vitamins - minerals). Complication of pregnancy (morning sickness - heartburn - constipation and hemorrhoids - gestationaldiabetes preeclampsia .adolescent pregnancy). • **Lactation** :Definition of lactation – a physiological process – structure development of thebreast – prolactin – oxytocin – colostrum – steps to successful breast feeding. • **Nutrition during lactation** :Mothers nutrients need (energy intake and exercise - protein - fat – vitamins-minerals - water and fluids - nutrients supplements - particular foods. • **Advantages of breast feeding** :Benefits of breastfeeding for infants - benefits for mothers – practices incompatible with lactation (alcohol - medical drugs - smoking - caffeine -environmental contamination). • **Infancy (physical growth from birth to 6 months) :**Growth development from birth to 3 months – growth development from 4 to 6 months - physiologic development (weight - height) – growth charts for girls and boys • **Nutrition in infancy (from birth to 6 months) :**Breast feeding – comparison between breast milk and cow's milk – infant formula – nutrition requirements for infants till 6 months (energy - protein - fat- carbohydrate - vitamins and minerals) – deficiency symptoms of vitamins and minerals. • **Infancy (physical growth from 7 to 12 months)**: Growth development from 7 to 9 months – growth development from 10 to 12 months - physiologic development (weight . height) – measurements on growth chart – total body fat – total body water. • **Nutrition requirements (from 7 to 12 months):** Introducing solid food - nutrition requirements from 7 to 12 months (energy - protein - fat - carbohydrate - vitamins and minerals) – deficiency symptoms of vitamins and minerals. • **Infancy from 1 to 2 years**: Growth development from 1 to 2 years - choice of infant foods - nutrition requirements (energy - protein - fat -carbohydrate - vitamins and minerals). Infancy from 1 to 2 years Composition of human and cow's milk. • **Revision**
Examination:	• Midterm Exam ……...30% • Semester activity ..... 20% • Final written exam.....50%

Course code:	**1702241-3**		
Course title:	**NUTRITIONAL REQURIEMENT**		
Level/semester:	2nd Year - semester 2		
Credit units:	3 CU	**Theoretical:** 1 CU	**Practical:** 1CU
Contact hours	4 hr	**Theoretical:** 2 hr	**Practical:** 2hr
Language:	English		
Course Description:	This course is designed to introduce the students to estimate the total energy requirement, method for calculation of energy requirement, up to date methods for nutritional requirements estimation, uses food composition tables, uses computer programs for food analysis, nutrition requirements estimation according to age.		
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** • Demonstrate advance skills in the estimation of total energy requirement. • Understand the method for calculation of energy requirement. • Know up to date methods for nutritional requirements estimation. • Recognize the daily requirements during life cycle.		
Content of the Course:	1- Overall view of the course contents 2- Daily requirements. 3- Dietary Guidelines for Americans 2015-2020 4- Estimation of total energy requirement. 5- Energy expenditures content. 6- Method for calculation of calories requirements. 7- Measurement of energy expenditure. 8- Up to Date Methods for Nutritional Requirements Estimation. 9- Nutritional Requirements during Sports. 10- Nutrition Requirements Estimation According to Age (infancy, childhood, adolescents, adulthood and elderly). 11- Nutrition requirements estimation for pregnancy and lactation. 12- Daily requirements during overweight & underweight.		
Examination:	• Midterm Exam.....25% • Semester activities ..... 15% • Final Practical Exam.....20% • Final written exam 40%		

Course code:	**1702274-3**
Course title:	**PRINCIPLE OF FOOD MICROBIOLOGY**
Level/semester:	2nd Year - semester 2
Credit hours:	3 hours
Contact hours	4 hours
Language:	English
Course Description:	This course introduces the students to the basics, background and the characteristics of safety, hygiene and hazards effect related to food and water and its importance to society, This course includes the identification of most important food borne microorganisms. it also provides the basics for toxicology that related to food and water contamination including natural and man-made chemical hazard and the combined effect of toxicity in human body. In addition this course deals with food quality and safety systems, types of food spoilage and preservation, sources of food contamination, diseases transmitted to humans through food and factors that affect food safety
Aims and Goals/Skills of the course:	**At the end of this course students must be able to:** • Recognize the basics of food hygiene and safety and the difference between safety and hygiene. • Apprehend the methods and approaches to keep the food safe and clean e.g. general health and personal hygiene. • Discuss generally the toxicology and the toxins in the modern society and how this affects work, home and the environment. • Identify and separate the most common and important food hazards through contamination of foods and water supplies.
Content of the Course:	▪ Over all view of the course contents and Introduction ▪ Introduction of food microbiology, aims, objective, exams, definitions, topics covered, how the course fit in our program ▪ Characteristics, classification and structure of microorganisms in foods ▪ Bacterial Structure, Differences between Prokaryotic and Eukaryotic, Classification of Microorganisms, ▪ Bacterial nutrition, growth and metabolism ▪ Sterilization and disinfection ▪ Food sampling ▪ sampling plan, Factors affecting choosing the sampling plan و Types of samples and Collection of the samples ▪ Sources of Microorganisms in Foods ▪ Intrinsic factors affecting growth and survival of food microorganisms ▪ Extrinsic factors affecting growth and survival of food microorganisms

	▪ Foodborne diseases ▪ bacterial foodborne diseases ▪ Viral foodborne diseases ▪ Parasitic foodborne diseases ▪ Foodborne mycotoxins ▪ Intestinal Beneficial Bacteria
Examination:	• Midterm exam……25% • Semester activity ..... 15% • Final practical exam .....20% • Final written exam..... 40%

Course code:	**1702251-2**		
Course title:	**FOOD ANALYSIS**		
Level/semester:	2nd Year - semester 2		
Credit hours:2	2CU	Theoretical: 1CU	Practical:1 CU
Contact hours:3	3 hour	Theoretical: 1 hr	Practical: 2hr
Language:	English		
Course Description:	This is course is designed to introduce the students to prepare food samples for analysis; this will determine CHO, protein, fat and ash. Chemical and physical characteristics of food such as PH, texture or tender, viscosity and color will be determined in foods using Kjeldahk unite, Soxhlet extraction unite, PH meter, colorimeter and spectrometer as examples.		
Aims and Goals/Skills of the course:	By the end of this course, students should be able to: • Determine food content as Moisture, CHO, protein, fat and ash. • Determine food PH, texture or tender, viscosity and color.		
Content of the Course:	1. Introduction of course and instructors 2. Concepts of food analysis 3. Nutrition Labeling 4. Moisture determination in food samples using drying oven under vacuum or Drying oven 5. Ash determination in food samples using Muffle.. 6.Carbohydrates determination in food samples. 7. Determine protein using Kjeldahl unite (protein digestion and distiller). 8. Protein Quality Tests. 9. Protein character and quality for athletes 10. Fat determination in food samples using Soxhlet extraction unites (fats determination).		

	11.Fat Characterization. 12.Determine food texture or tender using penetrometer. 13.Determine food viscosity 14. Determine food PH using PH meter. 15. Determine food coloring using colorimeter and Spectrometer.
Examination:	• Midterm exam……..25% • Semester activity .....…15% • Final Practical Exam ..... …20% • Final written exam..... …40%

Course code:	**1702261-2**
Course title:	**FOOD ECONOMICS**
Level/semester:	2nd Year - semester 2
Credit hours:	2CU
Contact hours	**2hr**
Language:	English
Course Description:	The course introduces the students to the concepts, background and the dynamics relationship between foods in general term and nutrition in specific level to the economy and agriculture. The economy of any nation is strongly associated with food availability and food security. Thus, the background of economy and basic economic theories at micro and macro levels will be essential to be understood. How this will have an impact on socioeconomic characteristics of the society and the most at risk groups is important to consider such as the effect on income and education level. A broad observation of the important of supply-demand balance at the local, national and international levels is essential to be understood for the food security and better health for all. There is now a large body of evidence demonstrating that food security will have a major impact on food consumption and hence health and general society wellbeing and integrity. On the absence of these balances some sensitive groups will be at risk of inequalities of health, education, income and better life.
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** 1. Recognize basics and principles of economy and understand the relationship between them. 2. Demonstrate the dimensions, magnitude and causes of food security and food availability and to measure both of them at the local and global level.

	3. Outline the consequences of food economy imbalance on health and wellbeing. 4. Assess and set policies and implement projects to improve the situation.
Content of the Course:	1. Overall view of the course contents and first lecture: 2. Historical background of food production: 3. Basics of economics 4. Basics and theories of economy; The Microeconomics: Demand, 5. MACROECONOMICS I 6. MACROECONOMICS II 7. MACROECONOMICS III 8. Economic growth and countries development (Part 1). 9. Economic growth and countries development (Part 2) 10. A link between nutrition and economy: The food security definition and measurement 11. Starvations and Famines.
Examination:	• Midterm exam .....……...30% • Assignments, term paper, and oral presentation……. ….20% • Final written exam..... ……...50%

Course code:	**1702223-2**
Course title:	**NUTRITION THROUGH LIFE CYCLE (2)**
Level/semester:	2nd Year - semester 2
Credit hours:	2 CU
Contact hours	**2 hr**
Language:	English
Course Description:	This course provides the students to study dietary recommendations for human throughout the life cycle, daily food plan for human throughout the life cycle, physiologic changes in human throughout the life cycle, and factors affect health.
Aims and Goals/Skills of the course:	**At the end of this course the student must be able to:** • Identify growth development, dietary recommendations and common nutrition problems for children and adolescents. • Recognize Physiological Changes and Dietary Recommendations during Adulthood • List A Component of Health Objectives and nutrition recommendations for the Older Adult Population.

Content of the Course:	• Preschool children (1 to 5 y): nutritional requirement (carbohydrate – protein – fat) – vitamins and minerals supplementation. • Common nutritional problems in childhood: failure to thrive – anemia – obesity – nutritional modification in nutritional problems. • School age children (6 – 12 years): nutritional requirement (carbohydrate – protein – fat) – vitamins and minerals requirements. • Common nutritional problems: anemia – obesity – nutritional modification in nutritional problems . • Adolescent (13 – 18 years): physical growth. • Eating disorders (anorexia nervosa – bulimia nervosa) - Teenage pregnancy. • Nutrition for adults • Young adult (20 – 44 years) • Middle adult years (45 – 64). • Nutrition in aging. • Old – old (75 – 85 years).
Examination:	• Midterm exam ..... 30% • Semester activity ..... 20% • Final written exam..... 50%

Third year courses

Course code:	**1702331-4**		
Course title:	**PRINCIPLE OF MEDICAL NUTRITION THERAPY**		
Level/semester:	3rd Year - semester 1		
Credit units:	4CU hr	**Theoretical**: 2 CP	**Practical:** 2 CP
Contact hours	6	**Theoretical:** 2hr	**Practical:** 4 hr
Language:	English		
Course Description:	This course is designed to proficient the students to acquire the concepts of the Nutrition Care Process, clinical nutrition, dietician role, study the dietetic etiology, symptoms, diagnosis and risk factors of diseases. In addition, application of the Nutrition Care Process in diseases of upper and lower Gastrointestinal tract, pancreatic, liver, gallbladder and malnutrition diseases.		
Aims and Goals/Skills of the course:	**At the end of this course the student should be able to:** 1. Recognize the pathophysiology of diseases what will be covered. 2. Assess nutritional intake and plan an appropriate course of action regarding dietary and lifestyle modification. This should take into consideration the needs, priorities of the patients and personality aspects. 3. Summaries client information concisely yet thoroughly (including medical history, diet, social information, laboratory analyses, medication) in order to aid continuation or transfer of care. 4. Create a proper NCP plan for the diseases covered in the course.		
Content of the Course:	**Introduction lecture:** Definition and terminology (role of the clinical dietitian, critical thinking) **The Nutrition Care Process** **Diseases of the upper Gastrointestinal tract (GIT)-**oral cavity and esophagus- jaw fracture, gastroesophageal reflux disease (GERD), Hiatal Hernia, dysphagia **Diseases of the upper GIT**-stomach disorders- nausea and vomiting, dyspepsia, gastritis, gastroparesis, peptic ulcer disease **Diseases of the lower GIT**-Diarrhea, constipation and malabsorption **Diseases of the lower GIT**- celiac disease, irritable bowel syndrome, inflammatory bowel disease		

	Diseases of the lower GIT- ileostomy, colostomy, short bowel syndrome, bacterial overgrowth **Pancreatic diseases**- pancreatitis **Liver diseases**-Hepatitis, fatty liver disease **Liver diseases**- portal hypertension, ascites, hepatic encephalopathy, cirrhosis **Gallbladder diseases**- Cholelithiasis (Gallstones), Cholecystitis, **Malnutrition- undernutrition and eating disorders** (anorexia and bulimia nervosa) **Malnutrition- overnutrition and obesity**
Examination:	• Midterm Exam.....25% • Semester assignments.....15% • Final practical exam…….....20% • Final written exam.....40%

Course code:	**1702325-3**
Course title:	**FOOD HYGIENE AND SAFETY**
Level/semester:	3nd Year - semester 1
Credit hours:	3 hours
Contact hours	4 hours
Language:	English
Course Description:	This course introduces the students to the basics, background and the characteristics of safety, hygiene and hazards effect related to food and water and its importance to society, This course includes the identification of most important food borne microorganisms. it also provides the basics for toxicology that related to food and water contamination including natural and man-made chemical hazard and the combined effect of toxicity in human body. In addition this course deals with food quality and safety systems, types of food spoilage and preservation, sources of food contamination, diseases transmitted to humans through food and factors that affect food safety.

Aims and Goals/Skills of the course:	**The student must be able to:** • Recognize the basics of food hygiene and safety and the difference between safety and hygiene. • Apprehend the methods and approaches to keep the food safe and clean e.g. general health and personal hygiene. • Discuss generally the toxicology and the toxins in the modern society and how this affects work, home and the environment. • Identify and separate the most common and important food hazards through contamination of foods and water supplies
Content of the Course:	• Over all view of the course contents and Introduction • Major concepts in food safety and hygiene • Principles of food hygiene • Food hazards • Food spoilage • Food poisoning • Food Preservation • Food additives • Food toxicity • Food Packaging • Genetically Modified Foods • Prerequisite programs to HACCP • Prerequisite programs to HACCP cont. • Hazard Analysis Critical Control Point (HACCP) System.
Examination:	• Midterm Exam ..... 25% • Group project …….20% • Final practical exam……15% • Final written exam …….....40%

Course code:	**1702337-3**		
Course title:	**DIET PLANNING**		
Level/semester:	3nd Year - semester 1		
Credit units:	**3** CU	**Theoretical:** 2 CU	**Practical:**1 CU
Contact hours	**4 hr**	**Theoretical:** 2 hr	**Practical:** 2hr
Language:	English		
Course Description:	This course is designed to allow students to demonstrates and practice when to determine and estimate the daily requirements to diet planning using a guide to healthy eating (basic food groups, diabetic food exchange lists), Myplate and Eatwell plate. By the end of the course students will have the ability to produce a full diet plan including		

	the calculation of nutrients in diet from food composition table (paper and technology), hospital diets and planning restricted diets for numerus health statues.
Aims and Goals/Skills of thecourse:	**By the end of this course, students should be able to:** • Recognize the tools used in diet planning. • Plan diets using a guide to healthy eating including basic food groups and food guide as well as food exchange lists and food composition tables. • Assess the methods used in diets analysis and planning to achieve proper diets for humans. • Outline how to plan regular and therapeutic diets. • Producing diet plans and fact sheets. • Counselling for the prevention of major disabilities: antioxidants, supplements and micronutrients.
Content of theCourse:	1- Basic of diet planning. 2- Food groups. 3- Food exchange system. 4- Food guides. 5- Food labeling. 6- Food composition of dietary planning. 7- Producing diet plans. 8- Vegetarian diets. 9- Therapeutic diets I. 10- Therapeutic diets II. 11- Therapeutic diets III.
Examination:	• Midterm exam .....30% • Semester activity and assignments .....15% • Practical assessments..... 15% • Final written exam..... 40%

Course code:	**1702342- 3**		
Course title:	**NUTRITON ASSESSMENT**		
Level/semester:	3nd Year - semester 1		
Credit units:	3CU	**Theoretical:** 2CU	**Practical:**1 CU
Contact hours	**4**	**Theoretical:** 2 hr	**Practical:** 2 **hr**
Language:	English		

Course Description:	This course is designed to enable students to recognize the various methods that can be used to assess the nutritional status of an individual, specific or vulnerable groups, and population. The course will focus on the ABCD approach which discuss the anthropometric measurements, biochemical and body composition analysis, clinical examinations, and dietary assessment of individuals and population and the practical application of these concepts in the nutritional care of clients in clinical, community, and research settings.
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** · Recognize the basis and importance of nutritional assessment · Identify the proper subjective and objective methods of assessing nutritional status of various target groups or individuals · Acknowledge the skills required for different devices and techniques essential for assessment. · Complete a comprehensive nutrition assessment, including anthropometric measurements, body composition measurements, and biochemical and dietary analyses. · Successfully identify and document malnutrition based on the Subjective Global Assessment tool. · Assess the nutritional status of children by correctly documenting height and weight data on growth charts.
Content of the Course:	1- Introduction to nutritional assessment 2- Anthropometric measurements 3- Weight measurements 4- Height measurements 5- Interpretations of weight and height measurements 6- Determination of body size. 7- Anthropometric assessment of body composition. 8- Biological Assessment. 9- Clinical Examinations. 10- Dietary Assessment 11- Household measurements 12- Individuals Dietary Assessment. 13- New methods for assessing nutritional status.
Examination:	• Midterm Exam .....25% • Semester activity ..... 15% • Final Practical Exam .....20% • Final written exam.....40%

Course code:	**1702338-3**		
Course title:	**MEALS PREAPARATION**		
Level/semester:	3rd Year - semester 2		
Credit hours:	3 hours	**Theoretical:** 1CU	**Practical:**2 CU
Contact hours:	**5hr**	**Theoretical:** 1hr	**Practical:** 4
Language:	English		
Course Description:	This course introduces the student to the practical aspects of food items that consumed in everyday meal to edible portions of various food items. Recognize the effect of various methods of cooking & processing on the weight of many foods & recipes. Preparation and evaluation restricted diet for patient.		
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** • Be familiar with household measurements • Be acquainted with the methods of estimation of edible portions of foods • Recognize the effect of various methods of cooking &Processing on the weight of many foods & recipes. • Preparation and evaluation restricted diet for patient. • Use the suitable methods for receiving food, storage, cooking, serving and cleans of equipments and utensils. • Utilize human resources management techniques to operate a foodservice. • Apply management techniques to monitor, control and evaluate quality in foodservice.		
Content of the Course:	Course description Food preparation Studying of the standard household measurements. Factors affecting of nutritional value Methods of cooking & processing Methods of cooking & processing Cooking & processing of vegetables Cooking & processing of fruits Cooking & processing of meat Cooking & processing of cereals Preparation restricted diet Preparation restricted diet Preparation restricted diet Preparation diet hospital regular		
Examination:	• Semester activities.....15% • Midterm exam .....25% • Final practical exam.....20% • Final written exam.....40%		

Course code:	**2-1702324**
Course title:	**NUTRITION AND IMMUNOLOGY**
Level/semester:	3rd Year - semester 2
Credit hours:	2 CU
Contact hours	**2 hr**
Language:	English
Course Description:	This course will provide an overview of the human immune system and how foods and dietary ingredients interact with the immune system. The effect of malnutrition, some vitamins and minerals, antioxidants, dietary fat and microorganisms on immune function will be discussed. In addition, the students will recognize how diet or supplementation could be used to manage some diseases related to the immune system.
Aims and Goals/Skills of the course:	**At the end of this course, the student should be able to:** • Describe the principles of immunology in human, • Recognize the relationship between food and immunity, and • Explain the role of diet or supplementation in some diseases related to immune system.
Content of the Course:	• Introductory Lecture • Introduction to the Immune System • Organs and Cells of the Immune System • Inflammation and Healing • Dietary Fat and Immunity • Amino Acids and Immunity • Infection, Immunity and Vitamins • Trace Elements/Minerals and Immunity • Antioxidant Nutrition and Immunity • Severe Malnutrition and Immunity • Microorganisms and Immunity • Food Allergy and Food Intolerance • Autoimmune Diseases
Examination:	• Semester activity **.....**20% • Midterm Exam.....30% • Final written exam.....50%

Course code:	**1702362-3**		
Course title:	**NUTRITION IN COMMUNITY**		
Level/semester:	3nd Year - semester 2		
Credit units:	3 CU	**Theoretical:** 2 CU	**Practical:** 1 CU
Contact hours:	4hour	**Theoretical:** 2 hr	**Practical:** 2hr
Language	English		
Course Description:	This course is designed to allow students to demonstrates the role of dietitians in community nutrition at all dimensions, and assessing community resources and population's nutritional status. Moreover, emphasis on nutrition education, food habits survey, methodology and current topics in the area of community nutrition. Accordingly, offers the tools for running surveys for current public health nutrition issues in community which is important particularly for the vulnerable groups.		
Aims and Goals/Skills of the course:	**At the end of this course the student should be able to:** • Recognize the role of dietitians in community nutrition. • Identify food related behavior, organization and delivery of nutrition services. • Design, implement, evaluate strategies and surveys used in community nutrition. • Outline the nutritional dimensions of the community nutritional issues especially chronic diseases.		
Content of the Course:	1- Over all view of the course contents: 2- Opportunities in Community Nutrition 3- Organizations & Agencies associated with community nutrition. 4- Assessing Community Resources 5- Target population's nutritional status. 6- Models and example of community nutrition programs. 7- Nutrition of minorities in community. 8- Mothers and Infants: Nutrition Services, and Programs. 9- Children and Adolescents: Nutrition Issues, and Programs. 10- Growing Older: Nutrition Assessment, Services, and Programs 11- Identification and studying the relationship between sport and nutrition community		
Examination:	• Midterm exam.....……..25% • Semester activity and assignments…….20% • Final Practical Exam..... …….20% • Final written exam ..... ……40%		

Course code:	**3-1702335**		
Course title:	**FOOD SERVICE AND QUALITY CONTROL IN HOSPITAL**		
Level/semester	3rd Year - semester 1		
Credit hours:	3 CU	**Theoretical:** 2 hr	**Practical:** 1
Contact hours	4 hr	**Theoretical:** 2hr	**Practical:** 2 hr
Language:	English		
Course Description:	The course food service and quality control provides an overview of the management practices utilized to direct, operate and control food services. The course focuses on the role and competencies of Dietitian working in these environments. Students will gain an understanding of volume food production, quality management and quality assurance and food service in hospitals and service through a series of problem-based learning activities as well as didactic coursework. Through an emphasis on group work, practical case studies, and an applied field practicum, students will become familiar with the techniques foodservice managers utilize to control human and financial resources required for the operation of a successful foodservice. The topics of sustainable food sourcing, menus of change, waste stream management and kitchen design, specifications of equipments, food purchasing, receiving and storage are essential for dietitians who may manage health care food services. Students must complete all required coursework but must also demonstrate proficiency in applying dietetic management techniques to monitor, control, evaluate and improve quality in a foodservice.		
Aims and Goals/Skills of the course:	**By the end of this course, the student should be able to:** 1. Understand the basic principles of management in food service units. 2. Write and modify menus & recipes to meet individual or group dietary needs. 3. Translate nutrition and sustainable food criteria into menu that meet the needs of diverse cultures and religions. 4. Apply foodservice forecasting techniques. 5. Identify the benefits of different tray delivery systems. 6. Apply procurement techniques for food and equipment purchases. 7. Adjust and modify recipe/formula proportions for volume food production. 8. Determine food, labor and related costs in foodservice operations. 9. Apply principles of sustainability to kitchen design, waste stream management and production. 10. Use the suitable methods for receiving food, storage, cooking, serving and cleans of equipments and utensils 11. Utilize human resources management techniques to operate a foodservice. 12. Apply management techniques to monitor, control and evaluate quality in foodservice.		
Content of the Course:	**Week1:** Over all view of the course contents: Rules and guidelines for the lectures Aim Objectives List of course topics How the course fit in our program **Week1 and 2:** Providing Nutrition Services -		

	Nutritional Risk Screening - Nutritional Status Assessment - Documentation of Nutrition Care - Standards and Regulations Related to Nutrient Care **Week 3: Managing Nutrition Care Services** -Planning, Organizing and Staffing) - Clinical Manager as Leader - Controlling (Measuring Productivity of the Nutrition Staff, designing a Nutrition Services Payment System, Maximizing Reimbursement for Services) **Week 4: Meal Service Systems** - Patient Meal Service - Resident Meal Service - Non-patient Meal Services - Plate-Waste Studies **Week 5:** Facility Design and Equipment Selection - Facility Planning and Design - Composition of the Planning Team (Food Service Director, Food Facilities Design Consultant, - Planning Process - Planning Work Areas **Week 6:** Receiving, Storage, and Inventory Control Invoice Receiving, Record Keeping, Merchandise Receipt, Receiving Record - Storage Procedures (Dry Storage Maintenance, Low-Temperature Storage Maintenance, Inventory Control Procedures) - Issuing of Food and Supplies - Record Keeping - Perpetual Inventory - Physical Inventory **Week 7:** Ordering and Purchasing Control Purchase specification; Supplier selection; Purchasing correct quantities; Evaluation of purchasing process **Week 8+9:** Menu Planning Considerations (Food Preferences, Nutrition Requirements, Availability and Skills of Food Service Workers, Preparation and Scheduling Requirements, Marketplace Conditions, Budget ,locations, Production and Service Systems, Space and Equipment) - Menu Specifications (Meal Plan, Menu Pattern, Types of Menus) - Menu-Planning Process - Menu-Planning Steps, - Menu Planning for - Modified Diets, - Menu Planning for Special Services - Other Types of Service Menus - Non-patient Menus (Employees, Staff, and

	Visitors) - Menu Format (Patient Menus, Non-patient Menus) **Week 10:** Food Production - Food Production Systems - Cook-and-Serve System - Assembly-and-Serve System - Portion Control - Standardized Recipes (Elements of Recipe Standardization, Proportion of Ingredients, Quantity of Ingredients, Form of Ingredients, Order of Ingredients, Procedures **Week 11:** Management of the Food Service Department (Leadership) Leadership Style, Behavior Theories of Effective Leadership, Situational Leadership, Leader as Manager, Leadership Characteristics for Effective Management, Technical Expertise and Knowledge, Interpersonal Skills, Qualities of a Leader, Managers' Role, Levels of Management Basic Functions of Management, Planning, Organizing, Influencing, Controlling Managerial Power, Managers' Responsibilities, Participative Management Creating a Participative Culture, Management Responsibilities in a Participative Culture, Levels of Empowerment, Application of Empowerment to Food Service Image, Roadblocks to Participative Management **Week 12:** Quality Management Development of Quality in Health Care, Quality Definition, Supplier Partnerships, Error-Free Attitude, Management by Fact Versus Management by Result, Employee Empowerment, Training and Retraining, Problem Solving Through Teamwork, Work Process Focus, Innovation and Risk Taking, Reward and Recognition **Week 13:** Quality Management Components of the Food Service Plan, Quality Control, Quality Control of Food Products, Customer Service and Satisfaction, From Customer, Orientation to Customer Satisfaction, From Service Plan to Customer Satisfaction, Clinical Quality Assessment, Role of Consultants **Week 14:** Financial Control and Management Budgets as Tools for Financial Control and Management Preparation of the Operating

	Budget (Labor Cost Budget, Materials Budget, Food Cost Budget, Overhead Budget, Allocated Cost Budget
Examination:	Mid-term exam ……25% Practical activity ..... ……..20% Group visit report and rubrics…….. 15% Final practical exam..... ……..40%

Course code:	**1702339-2**
Course title:	**MALNUTRITION DISEASES**
Level/semester:	3nd Year - semester 2
Credit units	**2 CU**
Contact hours:	2 hours
Language:	English
Course Description:	This course is designed to introduce the students to the basics, background, symptoms and characteristics of malnutrition diseases. As well as prevalence of the malnutrition diseases, individuals at risk for malnutrition, factors increased the risk of malnutrition, malnutrition diagnose, signs and symptoms, common causes, and treatment.
Aims and Goals/Skills of the course:	**At the end of this course, the student should be able to:** 1. Recognize the certain health problems are related to inadequate or excessive nutrients intake. 2. Recognize the basic and symptoms of malnutrition diseases 3. Students will distinguish the role of nutrients in malnutrition diseases.
Content of the Course:	• Malnutrition • Nutritional deficiency diseases (Vitamins deficiency) • Vitamin A deficiency (Xerophthalmia – Night blindness) • Vitamin B1 – Thiamine deficiency. (Beriberi) • Vitamin B12 deficiency (Pernicious anemia). • Vitamin B3 - niacin deficiency (Pellagra) • Vitamin C deficiency (Scurvy) • Iron deficiency (Iron deficiency anemia) • Non-nutritional Anemias: Thalassemias- Sports anemia. • Vitamin D deficiency (Calcium malabsorption – Rickets). • Calcium deficiency (Osteoporosis) • Iodine deficiency (Goiter) • Protein deficiency (Quashiorkor) • Protein – energy malnutrition (PEM) (Marasmus) • Selenium deficiency (Keshan disease).

Examination:	• Midterm.....30% • Assignments and group project .....20% • Final written exam..... 50%

Course code:	**1702332-4**		
Course title:	**MEDICAL NUTRITION THERAPY(MNT) (1)**		
Level/semester:	3rd year Semester 2		
Credit units	**4 CU**	**Theoretical:2**	**Practical hours 2 CU**
Contact hours	**6 hr**	**Theoretical:2**	**Practical hours**4 hr
Language:	English		
Course Description:	This course is designed to proficient the students to acquire the concepts and history of clinical nutrition, dietician role, study the dietetic etiology, symptoms, diagnosis, risk factors and prevalence of diseases. In addition, daily nutritional requirements and daily diet planning in Diseases of cardiovascular system, diabetes, kidney diseases, Diseases of the Respiratory System and Neoplastic Disease.		
Aims and Goals/Skills of the course:	**At the end of this course the student must be able to:** • Recognize the pathophysiology of diseases what will be covered. • Assess nutritional intake and plan an appropriate course of action regarding dietary and lifestyle modification. This should take into consideration the needs, priorities of the patients and personality aspects. • Summaries client information concisely yet thoroughly (including medical history, diet, social information, laboratory analyses, medication) in order to aid continuation or transfer of care. • Create a proper NCP plan for the diseases covered in the course.		
Content of the Course:	• Introduction • Diseases of the Endocrine System: Diabetes Mellitus (Type-1) • Diseases of the Endocrine System: Diabetes Mellitus (Type-2) • Diseases of the Endocrine System: Gestational Diabetes Mellitus, and Hypoglycemia • Diseases of the Cardiovascular System: Hypertension, and Ischemic Heart Disease • Diseases of the Cardiovascular System: Atherosclerosis, and Heart Failure • Diseases of the Renal System: Nephritic and Nephrotic Syndrome • Diseases of the Renal System: Acute renal failure, and end stage renal disease • Diseases of the Renal System: Nephrolithiasis • Diseases of the Respiratory System Part 1: Asthma, Bronchopulmonary Dysplasia, and Cystic Fibrosis • Diseases of the Respiratory System: Part 2: Chronic Obstructive Pulmonary		

	Disease, Pneumonia, and Respiratory Failure • Neoplastic Disease: Cancer • Autoimmune Diseases: Systemic Lupus Erythematosus, gout and Osteoarthritis • Autoimmune Diseases: Rheumatoid arthritis, and Sjogren's Syndrome.
Examination:	• Midterm Exam..... …….25% • Semester activity and assignments…….15% • Final Practical exam ..... …….20% • Final written exam..... ……40%
Course code:	**1702363-2**
Course title:	**NUTRITION COUNSELING**
Level/semester:	3rd year/ 2nd semester
Credit hours:	2 hr
Contact hours	Theoretical: 2 hr
Language:	English
Course Description:	This course introduces the students to the basics, background of nutritional counselling for the application at individual or group level. To develop the skills of communication and interpersonal skills are also important to learn. To be aware of the basics in human psychology will be discuss in this course. This includes discussion and experience in building rapport, data assessment developing goals outcomes and selecting learning activities. Hence the student will be able to assess and plan how to deal with a referred case in some nutrition related disorders and diseases. Identification of counselling and learning theories to guide and coach clients are few of many roles have to be studied. Food choice and food related behaviour at the individual, family and community level are also closely will be discussed.
Aims and Goals/Skills of the course:	**At the end of this course the student must be able to:** 1. Identify the basics of psychology and its theories. 2. Apply theories of counselling for individuals or groups. 3. Run, plan, and evaluate the need of patients or client to arrive to a better diet or health plan in a hospital or private setting. 4. Develop skills for identifying fad diets, including causes and consequences and the influences of food choice and attitudes in food consumption. 5. Differentiate the ethics for counselling and supervision.
Content of the Course:	• Overall view of the course (Course overview) • The basics and general background in medical psychology Basics of counselling to reach client and understand their needs. • Implementing nutrition intervention (FOUNDATION OF NUTRITION COUNSELING). • Implementing nutrition intervention and Counselling ethics and supervision.

	• Application of counselling for individuals or groups. • Nutrition Care Process (NCP). • Nutrition Counselling Development. • Counselling ethics and supervision. • Sliming diet and fad dieting. • Nutrition Counseling Theories to Facilitate Behavior Modification (1). • Nutrition Counseling Theories to Facilitate Behavior Modification (2). • Nutrition Counseling Theories to Facilitate Behavior Modification (3). • Nutrition Counseling Theories to Facilitate Behavior Modification (4).
Examination:	• Midterm exam.....30% • Semester activity.....20% • Final written exam.....50%

Fourth year courses

Course code:	**1702471-2**
Course title:	**NUTRTION AND EPIDEMIOLOGY (1)**
Level/semester:	4th Year - semester 1
Credit units:	2 CU
Contact hours	2 hr
Language:	English
Course Description:	This course is designed for introduces students to key concepts and methods in conducting or better interpreting epidemiological studies relating to diet and nutritional status to disease and health. There is an increasing awareness that various aspects of diet and nutrition may be important contributing factors in chronic disease. There are many important problems, however, in the implementation and interpretation of these studies.
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** 1. Describe strategies that can be used to evaluate or adjust for other dietary and lifestyle factors that may explain or influence relationships of diet and disease. 2. Describe the current state of epidemiological evidence for relationships of diet to the development of selected diseases. 3. Critically evaluate nutritional epidemiology research publications 4. Identify the basics of evidence based practice.
Content of the Course:	1. Over all view of the course contents 2. Overview of epidemiology 3. Epidemiologic concepts 4. Measuring health and disease 5. Causation in epidemiology 6. Epidemiology and prevention: chronic non communicable diseases. 7. Epidemiology of communicable disease with some common health problems. 8. Steps in practical epidemiology. 9. Types of epidemiologic studies. 10. Nutritional epidemiology. 11. Dietary data on the household level. Household based surveys. 12. Debates in some common problems from epidemiological view. 13. Evidence-based practice.
Examination:	• Midterm Exam..... ……...30% • Coursework-active participation, group project…… 20% • Final written exam..... …….50%

Course code:	**1702426-2**
Course title:	**NUTRIENT-DRUGS INTERACTIONS**
Level/semester:	4th Year (Second Semester)
Credit hours:	Lecture hours: 2 hours Practical hours: 0
Language:	English
Course Description:	This course will introduce the basic concepts of pharmacology and the different classes of medicinal compounds that are in use. Effects of nutrient interaction with different types of the immune response. Drug–nutrient interactions by life stage and examples from clinical therapy will be used to illustrate pharmacotherapy. Finally, the interaction between nutrients and drugs will be studied.
Aims and Goals of the course:	**At the end of this course, the student should be able to:** • Recognize the direct effects of various therapeutic categories of drugs on nutritional status and clinical manifestations of these effects. • Identify the effects of foods on drug absorption, distribution, metabolism, and excretion. • Discuss the different adverse and desired effects of drugs on nutritional status. • Discuss the role of the nutrition-pharmacy team in optimizing the benefits of nutrients and for minimizing the possible food-drug interaction. • Describe the beneficial effects of nutrients on the prevention and treatment of diseases.
Content of the course	Overall view of the course contents: course description, objectives, topics to be covered, and assessment methods. Introduction: Drug-nutrient interactions in clinical practice. Drug use and nutritional status Drugs effects on food intake Drugs effect on nutrients absorption Micronutrients effects on pharmacodynamics Effect of specific drugs on nutritional status Dietary effect on medications absorption Dietary effect on medications distribution Dietary effects on medication metabolism Dietary effects on drugs excretion Antibiotics-nutrients interaction Micronutrient interactions with immunity Micronutrients role in the prevention of diseases (Vitamin K) Micronutrients role in the prevention of diseases (Vitamin D)

	Micronutrient interactions with anticancer drugs
Examination:	• Midterm exam.....40% • Student Assignment and activity.....20% • Final written exam ..... …50%

Course code:	**1702453-3**		
Course title:	**APPLIED NUTRITON**		
Level/semester:	4th Year - semester 2		
Credit hours:	3 CU	**Theoretical:** 2 CU	**Practical: 1** CU
Contact hours	4 hr	**Theoretical:** 2 hr	**2**CUhr
Language:	English		
Course Description:	This course is designed to introduce the students to the animals house content, standard diet, experimental diet, preparation of plant extracts, inflicting of rats groups with certain physiological disorders diseases, grouping design and feeding of rats, organs weight analysis, blood sampling, biological evaluation, and chemical analysis of serum.		
Aims and Goals/Skills of the course:	**At the end of this course the student must be able to:** • Recognize the concepts of clinical nutrition program. • Understand The meaning of applied nutrition (Global and Local) • Understanding the functional food and how to Extract the active ingredients from the food. Understand the food component. Study the main sources, daily requirements, physiological functions and deficiency. symptoms for all nutrients. • Understanding how to use the experimental animal in research work • Understanding the methods of administration of the food and other materials		
Content of the Course:	Definition of applied nutrition. Use functional foods to curing some diseases. Basal diet. Preparation of plant extracts. Chemical composition of plants and herbs. Different lab animals and how to use them in lab experiments. Procreation and preparation of different strain rats for experiments. Inflicting rats groups with diabetes mellitus. Inflicting rats groups with hypercholesterolemia. Inflicting rats groups with gastric ulcer. Inflicting rats groups with gastric ulcer using injection with aspirin. Inflicting rats groups with kidney inflammation.		

	Inflicting rats groups with anemia Inflicting rats groups with liver cirrhosis ,induction of tumor ,induction of arthritis (rheumatoid) and induction of lactose intolerants. Biological evaluation.
Examination:	• Midterm exam..... 25% • Course project activity ……..20% • Final practical exam ……..20% • Final written exam 50%

Course code:	**1702434-4**		
Course title:	**MEDICAN NUTRITON THERAPY (MNT) PRACTICE IN HOSPITAL**		
Level/semester:	4th Year - semester 2		
Credit hours:4	**Contact hours:** 8 hours	**Theoretical:** -	**Practical:** 8
	Practical hours: 4		
Language:	English		
Course Description:	This course is designed to allow the students to apply the practical skills of clinical dietitian in different departments of hospital, students will study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in deferent ward of hospital such as (medical – surgery – pediatric – orthopedics – cardio – nutritional care in intensive care unit (ICU) – renal dialysis - gynecology) to manage some chronic disease, malabsorption disease and metabolic disorder disease.		
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** • Acquire the practical skills of clinical dietician in different ward of hospital. Applied practical skills in different ward of hospital including (medical – surgery – pediatric – orthopedics – cardio – ICU – renal dialysis - gynecology).		

Content of the Course:	- Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in (medical) ward of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in (medical) ward of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in (surgery) ward of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in (surgery) ward of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in (pediatric) ward of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in (pediatric) ward of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in (orthopedics)ward of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in (orthopedics)ward of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in (cardio) ward of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in (cardio) ward of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in nutritional care in intensive care unit (ICU) of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in nutritional care in intensive care unit (ICU) of hospital. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in deferent ward of hospital such as renal dialysis. - Study the prevalence of disease, daily nutritional requirements, daily diet planning, nutrition education and diet therapy for patient in (gynecology) ward of hospital.
Examination:	• Logbooks ..... 40% • Evaluation sheets ..... 30% • Final written exam 50%

Course code:	**1702466-3**		
Course title:	**NUTIRION EDUCATION**		
Level/semester:	4nd Year - semester 2		
Credit hours :3	**Contact hours:** 4hours	**Theoretical:** 2 hr	**Practical:**-2
Language:	English		
Course Description:	This course teaches the future nutrition professional the art and science of communicating with individuals, groups and the public and emphasizes the development of strong communications skills while being mindful of cultural differences and health knowledge level. Over the course of the semester, students will practice counseling individuals, participating in social media, engaging the mass media and enhancing cultural awareness.		
Aims and Goals/Skills of the course:	**Upon completion of the course students should be able:** 1. Know the components of effective communication in the practice of dietetics 2. Develop effective nutrition education sessions, including appropriate materials		
Content of the Course:	• Introduction • Scope of Nutrition Education Factors That Influence Food Habits Internal Factors Of Food Choices: • Setting and Institutes That may Benefit from Nutrition Education. Target Groups of Nutrition Education • Nutrition Educator: • Theory of Food Habit Modification • Materials that can be used in nutrition education. • A Frame Work for Planning Nutrition Education Programs Health Belief Model: • Nutrition Education Strategies to Facilitate the Ability to Take Action • Case studies		
Examination:	• Periodical Exams (Quizzes) 30% • Semester activity.....20% • Final written exam.....50%		

Course code:	**1702472-2**
Course title:	**NUTRITION AND EPIDEMIOLOGY (2)**
Level/semester:	4thYear - semester 2
Credit units:	2CU
Contact hours	2 hours
Language:	English
Course Description:	In this course, the students will be introduced to a new branch in nutrition which is still growing, yet important. This is the public health nutrition field of training, specialty, and career with emphasizing in the importance for health of all as one of the goals of milium development goals. The course will cover topics related to epidemiology usage as a tool for measuring main nutritional problem that facing a community. Thus, it includes management and leadership skills, cycle of program to identify problem in a society, put plans to improve situation and follow up and measure success to current non communicable disease related to nutrition like obesity, diabeites-2 and CVDs. The scale will be at individual as mainly as at population level known as ecological one.
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** • Identify the basics of public health nutrition as a division of the nutrition and dietetics science. • Define the practical programs and survey using the epidemiology approaches for the most common diseases such as diabetes obesity etc. • Recognize the steps for designing, implementing and completing an ecological studies at the individual and group levels.
Content of the Course:	1. Over all view of the course contents 2. Overview of the public health nutrition 3. Health promotion 4. Strategies for intervention at the individual level 5. Strategies for intervention at the ecological level 6. Physiology and Introduction to Reproductive and Perinatal Epidemiology 7. Complications of Pregnancy 8. Reproductive Tract Cancers 9. Neural Tube Defects 10. Epidemiology of Low Birth Weight, Preterm Birth, and Intrauterine Growth Retardation.
Examination:	• Midterm exam .....30% • Semester activity .....20% • Final written exam.....50%

Course code:	**1702427-2**
Course title:	**NEW TRENDA IN NUTRTION**
Level/semester:	4th Year - semester 2
Credit units:	**2** CU
Contact hours	2 hours
Language:	English
Course Description:	Students will learn about up-to-date nutrition topics in health and diseases. Recognition available information resources of current topics about food and nutrition in health and diseases. In addition to new trends in the fields of nutrition and food; critical review relevant literature in these fields ranging from popular press to peer-reviewed research; study of original research in understanding nutrition in health and diseases, nutrients, food and its constituents.
Aims and Goals/Skills of the course:	**By the end of this course, the student should be able to:** 1- Know concepts up-to-date nutrition topics in health and diseases. 2- Recognition available information resources of current topics about food and nutrition in health and diseases 3- Distinguish characteristics of credible scientific information and non-credible scientific information 4- Indicates to the issues of nutrition and food by applying elements of reasoning and critical thinking 5- Acquired effective written, presentation and communication skills. 6- Discuss current issues related to food and nutrition in health and diseases. 7- Understand current trends of human nutrition in health and diseases
Content of the Course:	1- Bioavailability of Vitamins 2- Overview of vitamin d, Up To Date. 3- Vitamin d and its relationship with different diseases, up TO DATE discussions. 4- Types of Diets, group work presentations. 5- Nutrition in exercise and sport performance. 6- Up to date Nutrition selective topics, group work presentations.
Examination:	• Midterm exam ..... 30% • Semester activity ..... 20% • Final written exam.....50%

Course code:	**1702499-3**
Course title:	**RESEARCH PROJECT**
Level/semester:	4th Year - semester 1and 2
Credit hours:	**Contact hours:** 3 hours (**Theoretical)**
Contact hours	3
Language:	English
Course Description:	To create experiences that promote critical thinking and to enhance students' ability to retain and apply content included in this course. This will help to facilitate learning and critical thinking. This generally means using a variety of approaches that require your active engagement.
Aims and Goals/Skills of the course:	1. Recognize the base of research and writing a research paper. 2. Understand the different types and methods of research 3. Demonstrate the presentation skills for journals and research 4. Recognize the use of needed professional and academic resources
Content of the Course:	• Introduction to research & evidence-based practice (EBP) Critical Thinking, Critical reading of a research article • Introduction to scientific literature and Using library resources to identify and access scientific literature and evaluating the information • Study design in observational settings • Study design in experimental settings • Asking Clinical Questions-PICOT and Assess outcomes of evidence-based interventions. • Nutrition epidemiology – descriptive and Analytical Biomarkers in nutrition research • Responsible conduct of research - overview (Ethical and Safety Considerations) • Thesis formatting and writing and formulating research question • Referencing and citation • Data collections: design and use of questionnaires and surveys. Methods to determine dietary intake Consideration for including different population groups in nutrition research (NR) • Journal club • Journal club • Presentation skills • How to prepare a poster • Research proposal for publication

Examination:	Journal club.....10% Poster ..... 10% Research Project ……..50% Viva…….....30%

Course code:	**1702467-1**
Course title:	**NUTITION IN ISLAM**
Level/semester:	4th Year - semester 1
Credit hours:	1 CU
Contact hours	**1 hr**
Language:	English
Course Description:	This course is a unique in nature and essential for students graduated from Umm Al-Qura University as it reflects the holiness of Makkah and the Greatness of Islam in advising us in all aspect of our daily life. The students should be aware of the basics, background and the characteristics of nutrition in relation to Islam as a religion. The application of nutritional advise by the beloved prophet peace upon him in terms of how and how much and what to eat at individual or group levels. Food affected by seasons and place of consumption, thus Makkah has a special location and importance to the Muslim all over the world. Many of them came in visit to the holy mosque and stayed in Makkah over generations. They brought their food habits and diets with them. This provides a rich mix and combinations of different food plan and tastes. In the short Islamic practices like Ommra and Hajj, visitors to Makkah have to face many food habits changes and got to use to new foods and frequencies of consumption this affect their nutritional availability and changes their food consumption. One of the essential pillars of Islam is fasting and it applies around the globe by Muslim during Ramadan. This course provides the basics to learn how the Changes in food consumption and requirements for Muslims during Ramadan might be measured and affect health and wellbeing. The advice to be given for Fasting, and what to consume and when, is important to be discussed and understood. Nutrition related disease and illnesses need a special diet therapy, thus in Ramadan the advices and planning of a diet for these groups are essential to be covered. In hadeath and Quran many food and drinks are mentioned some are used as medications and some are forbidden to be used. Thus it is important to cover the background for these issues.
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** • Know the importance of studying nutrition in relation to Islam. • Recognition the food and drink in Quran and Hadeath including justification of forbidden foods in Islam. • Describe foods that have medical properties from the life of our beloved prophet. • Explain how fasting can affect various diseases. • Classify the health and nutritional changes during special Islamic seasons

	e.g. fasting, Umrah and Hajj.
Content of the Course:	1. General introduction of nutrition and Islam 2. Food in Quran 3. Water in Quran (2) 4. Group work in an event named, Prophetic food 'Healing and nourishment' 5. Food and drinks in the prophet life and Hadeath 6. Fasting and nutrition (1) 7. Diseases and body functions improved by Fasting 8. Fasting and Diseases, group work presentations. 9. Health Guidelines for Ramadan Fasting. 10. Hajj and nutritional needs. 11. Prohibited foods mentioned in THE Quran: justification and health problems.
Examination:	• Midterm exam.....…….30% • Course work-active participation, attendance and active listening And Group project……10% • seminar/oral presentation/discussion…… 10% • Final written exam ..... ……50%

Course code:	**1702474-1**
Course title:	**BASIC NUTRIONAL BIOSTATTISTICS**
Level/semester:	4th Year - semester 1
Credit units:	1 CU
Contact hours	1 hr
Language:	English
Course Description:	This course will allow the student to know the basics of medical statistics and how to use this knowledge to analyze the medical research data in particular that is related to clinical nutrition. Also how to present the data using tables, curves and graphs. In addition to the use of statistical software in analyzing medical data.
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** • Recognize the basic statistical terms • Understand the statistical methods that are used to analyze medical research data in general and in particular that is related to clinical nutrition. • Use of statistical software in analyzing medical data.

Content of the Course:	1. Introduction to Biostatistics. 2. Data : Definition, primary data and secondary data, processing of data, sources of data, types of data (quantitative data, qualitative data). 3. Presentation of data. 4. Introduction to SPSS software. 5. Measures of central tendency. 6. Measures of dispersion. 7. Tests of hypothesis. 8. Non parametric analysis. 9. Analysis of variance (ANOVA). 10. Linear relationships between two variables. 11. Multiple relationships between two variables.
Examination:	• Midterm exam ..... 30% • Semester activity ..... 20% • Final written exam.....50%

Course code:	**1702436-3**		
Course title:	**ENTERAL AND PARENTERAL THERAPUTIC NUTRITION**		
Level/semester:	4th Year - semester 1		
Credit hours:	3 CU	**Theoretical:** 2 CU	**Practical:** I CU
Contact hours	**4 hr**	**Theoretical:** 2 hr	**Practical:** 2hr
Language:	English		
Course Description:	This course introduces the students to distinguish between enteral and Parenteral therapeutic nutrition and when to use each of them including oral feeding**,** tube feeding, indications for enteral and parenteral nutrition, nutrient requirements, formulas for enteral and parenteral feeding, techniques of enteral and parenteral nutrition, administering medications through tubes feeding, complications of enteral and parenteral nutrition.		
Aims and Goals/Skills of the course:	In this course, the student will learn enteral and parenteral nutrition, taking into consideration the nutritional requirements of patients and the factors that might affect these requirements. **At the end of the course the students should be able to:** • Recognize the enteral therapeutic nutrition. • Understand the tube feeding. • Understand usage / purpose of different kinds of formulas (adult). • To identify different calculation when dealing with enteral and parenteral feeding.		

	• To apply enteral formula for different conditions. • Know parenteral therapeutic nutrition. • Study techniques of enteral and parenteral nutrition.
Content of the Course:	• Introductory lecture • Nutrition care process (NCP) overview • Nutrition Support • Enteral feeding formula selection • Nutritional Needs of Tube Fed Patients • Methods of enteral feeding administration • Complications of enteral nutrition • Enteral nutrition of specific cases • Acid base balance and body fluid • Parenteral nutrition (PN)
Examination:	• Midterm exam .....25% • Semester activity.....15% • Final Practical Exam..... 20% • Final written exam..... 40%

Course code:	**1702433-4**		
Course title:	**MEDICAL NUTRTION THERAPY 2 (MNT 2)**		
Level/semester:	4nd Year - semester 1		
Credit units:	**4 CU**	**Theoretical: 2 CU**	**Practical hours:** 2 CU
Contact hours	5 hr	**Theoretical:** 2 hr	**Practical hours:**3hr
Language:	English		
Course Description:	This course is designed to proficient the students to study the dietetic etiology, symptoms, diagnosis, risk factors and prevalence of diseases. In addition, daily nutritional requirements and daily diet planning in liver, gallbladder and exocrine pancreas disease, renal disease, neurological disease, neoplastic disease and metabolic stress.		
Aims and Goals/Skills of the course:	**At the end of this course the student should be able to:** • Recognize the pathophysiology of diseases what will be covered. • Assess nutritional intake and plan an appropriate course of action regarding dietary and lifestyle modification. This should take into consideration the needs, priorities of the patients and personality aspects • Summaries client information concisely yet thoroughly (including medical history, diet, social information, laboratory analyses, medication) in order to aid continuation or transfer of care. • Create a proper NCP plan for the diseases covered in the course.		
Content of the Course:	1. Introduction 2. Food allergy in infancy. 3. Human immunodeficiency virus (HIV) disease. 4. Medical Nutrition Therapy for Metabolic Stress: introduction. 5. Medical Nutrition Therapy for Metabolic Stress: burns. 6. Medical Nutrition Therapy for Metabolic Stress: general surgeries. 7. Premature or low birth weight infants. 8. Genetic metabolic disorders: Disorder of organic acids metabolism – Propionic acidemia- Methylmalonic Acidemia (MMA) 9. Genetic metabolic disorders: Disorder of amino acids metabolism – Phenylketonuria (PKU)-maples syrup urine disease. 10. Genetic metabolic disorders: Disorder of urea cycle metabolism-Mitochondrial Disorders. 11. Genetic metabolic disorders: Disorders of Carbohydrate Metabolism-Galactosemia Glycogen Storage Diseases- Glycogen Storage Disease Type 1 (GSD I). 12. Genetic metabolic disorders: Disorder of fatty acids oxidation- Medium Chain Acyl-CoA Dehydrogenase Deficiency (MCADD). 13. Medical Nutrition Therapy for Development Disability Down syndrome. 14. Medical Nutrition Therapy for neurological related disorders; autism. 15. Medical Nutrition Therapy for neurological related disorders; cerebral palsy.		

Examination:	• Midterm.....……..……25% • Semester activity and assignments……..15% • Practical exam……..20% • Final written exam..... …….40%

Course code:	**1702452-2**		
Course title:	**FUNCTIONAL FOODS**		
Level/semester:	4th Year - semester 1		
Credit hours: 2	**Contact hours:** 3 hours	**Theoretical:** 1 hr	**Practical:** 1hr
Language:	English		
Course Description:	This course provides the students to know the role of functional foods in health and disease. Additionally, identifying and understanding the medicinal and nutritional benefits of some most common used herbs, nutraceuticals, phytochemicals, flavonoids, plant rich in vitamin A and carotene, plant rich in vitamin C, plant rich in sulfur, fixed oils (omega 3), probiotics, and dairy products.		
Aims and Goals/Skills of the course:	• Understand the functional foods (definition - Functional food science). • Recognize the chemical composition of some wild plants and herbs of widely spread trees in Arabic countries and KSA. • Clarifying the possible medicinal (and nutritional) benefits of certain functional foods as remedies for certain diseases such as diabetes, kidney disease, anemia, elevated serum triglycerides, hypertension, and peptic ulcer. • Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web-based reference material, changes incontent as a result of new research in the field) • Increased the use of IT or web-based reference material in this course.		
Content of the Course:	1- Functional foods 2- Plants Originated Functional Foods (Tea and coffee) 3- Plants Originated Functional Foods (cinnamon) 4- Plants Originated Functional Foods (mints family and ginger) 5- Plants Originated Functional Foods (Wheat and Oat) 6- Plants Originated Functional Foods (citrus fruits and cranberry). 7- Plants Originated Functional Foods (pomegranate and grapes). 8- Plants Originated from Cruciferous vegetables (cabbage, cauliflowers, broccoli) 9- Plants Originated Functional Foods (tomatoes, garlic and onion) 10- Omega family (Omega-3). 11- Food rich in fixed oils from plants (Olive oil). 12- Microbial originated functional foods (Probiotics)		

	13- Animal originated functional foods (whey protein and dairy products) 14- Revision and discussion of presentations
Examination:	• Semester project-seminar presentations…….15% • Semester project-Assignment (practical)…….20% • Midterm Exam..... ……..25% • Final written exam.....……..40%

Internship year

Course code:	**1702500-0**
Course title:	**INTERNSHIP**
Level/semester:	5th Year – one year (12 month)
Conduct hours:	----------
Contact hours	8 hours
Language:	English
Course Description:	This course will allow students to demonstrates and practice when to determine and estimate the daily requirements to diet planning using a guide to good eating (basic four food groups), food guide pyramid as well as meals descriptions, food exchange, calculation of nutrients in diet from food composition table, diet hospital regular and planning restricted diet.
Aims and Goals/Skills of the course:	**By the end of this course, students should be able to:** · Recognize and analyze basic issues of clinical nutrition interest, hence to suggest the suitable solutions and test them · Ability to take responsibility for their own learning and continuing personnel development. · Ability to perform effective communication and positive relation with others · Ability to work with team · Ability to lead a team · Apply the ethical and professional standards in the clinical settings. · Ability to assess the patient's nutritional needs. · Establish and implement the suitable clinical nutrition care program and strategies to meet the patient's needs. · Provide the nutrition education to patients and their families according to their conditions during hospitalization and on discharge.
Content of the Course:	· Students are required to spend 1 year after completion of all required courses under supervised training in clinical nutrition departments in hospitals. · This will be a fifth year full employment for senior students. The students will be assigned to local hospitals and community projects after agreement with supervisors in the departments. · The training will covers different wards or sections of the establishment that the student will enrolled in to have a wide and in depth training in all the fields of nutritional services. Two supervisors will be assigned to the students, one from the university department and the other in the work place such as Clinical dietician or school nurse… etc. · The structure practical experience in this internship will allow the student to work closely with senior nutrition practitioners. At the end of the year, the student

	should show a satisfaction progress and profession that will be assessed by the two supervisors and by admitting a written report to the clinical nutrition department.