الجمهـــورية اليمنيـــــة
جامعـــة السعـــيد

Syllabus of

Therapeutic Nutrition

Bachelor-Bsc

Four Years Academic System

SYLLBUS OF

FIRST SEMESTER-

FIRST YEAR

Course title	**Arabic language**
Course code	**SUR111**
Level/ Semester	L1 /s1
Credit hours	2 hours
Course Description	يتناول المقرر أهمية اللغة العربية كوسيلة اتصال من الضروري تعلمها بشكل صحيح انطلاقا من قواعدها النحوية و الصرفية و الإملائية للوصول إلى قراءة علمية جيدة و صحيحة
Objectives	• يهدف المقرر إلى تنمية المهارات اللغوية لدى طلاب الجامعة. • تدريبهم على استخدام اللغة العربية استخداماً صحيحاً. قراءة وكتابة وتحديثاً.
learning outcomes:	**المخرجات المتوقعة لهذه المادة:** يتوقع أن يلم الطالب لدى انتهائه من دراسة هذه المادة بالمعارف والخبرات الآتية: **أ- معرفية :** - التعرف على أهمية اللغة العربية ودورها العقدي والتاريخي والحضاري. - الاطلاع على مجموعة من النصوص المختارة من القران الكريم والحديث النبوي الشريف والأدب العربي (شعراً ونثراً). - معرفة القواعد الأساسية في علم الصرف. **ب- علمية :** - معرفة القواعد الأساسية في الإملاء والترقيم والمعلومات والتي تمس حاجته إليها. **ت- مهارات شخصية و تحمل المسؤولية:** - اكتساب القدرة على كتابة اللغة العربية بشكل صحيح يساعد على تنمية الثقة بالنفس. - التدرب على الاستخدام الصحيح للغة العربية فرديا و اجتماعيا. – اكتساب القدرة على القراءة الصحيحة لمختلف أنواع النصوص العربية. **ث- مهارات التحليل و الاتصال:**

	- اكتساب القدرة على فهم و تحليل مختلف قواعد اللغة العربية. - التدرب على التحليل العلمي و المنطقي بناء على قواعد مبنية مسبقا. **طرق التقييم للعناصر الرئيسية السابقة :** يتم التقييم من خلال الاختبارات الدورية والنهائية إضافة إلى بعض التكاليف من قبل أستاذ المادة ومناقشة الطلاب فيما يكلفون به . **الكتاب المقرر:** (المهارات اللغوية "المستوى الأول")	
Topics	١- **الوحدات الأولى** : مقدمات. – أهمية تعلم اللغة العربية واستخدامها . - اللغة كوسيلة اتصال : تعريف عملية الاتصال، مفهوم وطبيعتها عناصر الاتصال ، وظائف اللغة . - القراءة: تعريفها ، أهميتها ، أهدافها ، أنواعها. **٢- الوحدات الثانية :** القواعد النحوية الأساسية. - أقسام الكلمة: الاسم،والفعل، والحرف . - الإعراب والبناء: - أنواع الإعراب والبناء، الإعراب الظاهر والمقدر والمحلي. - المبني والمعرب من الأسماء. - المبني والمعرب من الأفعال . - علامات إعراب الأسماء الفرعية (الأسماء الخمسة، المثنى، جمع المذكر السالم ،الممنوع من الصرف). - الجملة الاسمية: المبتدى والخبر ، أنواع الخبر ، الأفعال الناسخة ، الحروف الناسخة . - الجملة الفعلية: الفعل ، الفاعل ، نائب الفاعل ، المفعول به . - العدد. **٣- الوحدات الثالثة :** القواعد الصرفية الأساسية.	

- المجرد والمزيد من الأفعال والأسماء. - كيفية التثنية والجمع . **٤- الوحدات الرابعة :** الرسم الكتابي . - تطبيقات إملائية على أهم الموضوعات التالية: - كتابة الهمزة المتوسطة والمتطرفة. - همزة الوصل وهمزة القطع. - التاء المربوطة والتاء المفتوحة. - علامات الترقيم . **٥- الوحدات الخامسة :** - النصوص. - المعاجم - اللغة العربية في الشبكة العالمية.	

الرقم	طرق التدريس	الرقم	التقييـم
١	المحاضرات	١	اعمال فصل 30%
٢	عرض بوربوينت	٢	اختبار نهائي ٧٠%
٣	التطبيقات العملية	٣	إجمالي ١٠٠%

المراجع:

١- كتاب الشامل في اللغة العربية الطبعة الأولى ٢٠٠٣

د. عبدالله محمد النقراط

٢- المهارات اللغوية "المستوى الأول

Course title	**English I**
Course code	**SUR112**
Level/ Semester	L1 /s1
Credit hours	2
Course Description	This course is design to assist student to gain necessary knowledge and skills in order to use grammar ability to perform his/her duties in English language.
Objectives	By the end of this course the student will be able to:- 1. Recognize grammatically correct words/sentences from wrong once. 2. Write grammatically correct words/sentences.
learning outcomes:	Upon completion of the course, the learners will be able to: A. Knowledge: Have grasped form, meaning and pronunciation of the Target Language (TL). Advance linguistic competence to deal with lexical items in TL. B. Cognitive Skills: Write coherent and correct paragraphs to describe places, express opinions, give reasons and give arguments. Expand and consolidate techniques of manipulating diverse materials. Enhance linguistic competence to deal with more complex functions of language such as, organizing, synthesizing, and

	evaluating information correlate and compare readings. C. Interpersonal skills and responsibilities hold and sustain small conversations, ask for and give explanations, make suggestions and ask for and give examples and arguments.
Topics	*Introduction to the course:-* ● Its aim and objectives, various books required for the purpose. *Grammar (1)Nouns and pronouns):-* ● Definition with examples ● kinds of Nouns, the use of personal ● and possessive nouns. ● Practical to pick out the nouns and ● pronouns from the given sentences. *Verb and Adverb:* ● Definition with examples ● Kind of verbs , the use of linking verbs ● The formation of simple and negative sentences with linking verbs. ● - The use of transitive and intransitive verbs. *Adjective:-* ● Definition with examples ● Kinds of adjectives ● -Significance of adjective in a sentence ● - Practice to pick out adjectives from a given sentence. *Preposition & Conjunction :-* ● Definition with examples ● Their significance in a sentence ● Practice fill the blanks with suitable ● Preposition (i)Voice - Active voice and passive voice ● Rewrite the given sentences in passive voice, Exercises. (ii) Parts of Speech : Different types ● How to use these in Sentences ● Exercises ● Direct and indirect speech

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical

Reference:

- **English language books.**

Course title	**Computer (1)**
Course code	**SUR113**
Level/ Semester	L1 /s1
Credit hours	3 hours
Course Description	هذا المقرر هو مقدمة لمهارات الحاسب الآلي وتطبيقاته. ويغطي المقرر المفاهيم الأساسية لأجهزة الحاسب وبرامج التطبيقات بشرح المبادئ و المفاهيم الأساسية في البرمجيات ثم ينتقل إلى الجانب العملي اللازم لتحقيق الفائدة المرجوة من إستخدام الحاسب. حيث يبدأ الجانب العملي بنظام التشغيل ثم البرمجيات المكتبية مثل محرر النصوص،الجداول الإلكترونية،قواعد البيانات و العروض التقديمية.كما يفرد المقرر جزءا لمعرفة اساسيات الإتصالات و الإنترنت
Objective	١- **إعطاء الطالب فكرة شاملة عن أساسيات تقنية المعلومات و إستخداماتها في الحياة اليومية.** ٢- تعريف الطالب بأهم المكونات المادية و البرمجية للحاسب. ٣- تدريب الطالب بشكل عملي مكثف على أهم البرمجيات المكتبية . ٤- إعطاء الطالب اساسيات حول الإتصالات و الإنترنت بمختلف تطبيقاتهما العملية.
learning outcomes:	

الرمز والرقم	أ-المعرفة و الفهم
١	فهم أساسيات علوم الحاسوب وبنية الحاسوب والشبكات ووظائف أنظمة التشغيل.
٢	التعرف على مفهوم تكنولوجيا المعلومات ومفهوم التجارة الإلكترونية وأنواعها.
٣	التعرف على مكونات وأوامر نظام التشغيل DOSونظام التشغيل Windows .
٤	فهم أدوات وإمكانيات محرر النصوص MS-Word

ب – المهارات الذهنية:

الرمز والرقم	ب – المهارات الذهنية
١	القدرة على التمييز بين مكونات الحاسوب المادية والبرمجية وأقسامها المختلفة.
٢	القدرة على إعداد بيئة عمل جيدة تتوافر فيها عوامل الصحة والأمان.
٣	مادية والبرمجية. تشخيص المشكلات وإيجاد الحلول للمشاكل ا
٤	.MS-Wordالقدرة على التعامل مع محرر النصوص

المهارات المهنية والعملية: – ج

الرمز والرقم	المهارات المهنية والعملية – ج
١	. Windowsحل المشاكل المتعلقة بنظام التشغيل
٢	كتابة الأبحاث وتصميم الصحف والمجلات .
٣	و DOSالقدرة على التعامل مع الحاسوب باستخدام نظام التشغيل Windows
٤	القدرة على التمييز بين مكونات الحاسب .

د – المهارات العامة:

الرمز والرقم	د – المهارات العامة
١	مهارات التعامل مع الحاسب الآلي .
٢	مهارات العمل في السكرتارية .
٣	مهارات تنسيق الأبحاث والصحف والإعلانات .
٤	DOSمهارات التعامل مع إعدادات أنظمة التشغيل &Windows .

Topics	1. أساسيات الحاسوب 2. تكنولوجيا المعلومات 3. Ms Dos 4. أساسيات النظام ويندوز وسطح المكتب وقائمة أبدأ 5. التعامل مع الملفات والمجلدات والأقراص 6. البرامج الملحقة وبرنامج الرسام 7. Ms Wordأساسيات البرنامج وكتابة المستندات في 8. تعديل المستندات وتنقيحها 9. تنسيق الفقرات والنصوص 10. تنسيق الصفحات 11. إدراج الأشكال والجداول والصور 12. اساسيات الإتصالات و الإنترنت بمختلف تطبيقاتهما العملية

الرقم	طرق التدريس	الرقم	التقييم
١	المحاضرات	١	اعمال فصل 20%
٢	عرض بوربوينت	٢	عملي40%
٣	التطبيقات العملية	٣	اختبار نهائي 40%
	ـــــ	٤	إجمالي ١٠٠%

المراجع :

- قائمة بالمراجع الرئيسة المستخدمة للتعليم والتعليم :

١- كتاب مقرر:..الحاسوب (مبادئ – أنظمة – تطبيقات -أنترنت)م/فهد الوصابي

٢- كتب مقترحة:..الحاسوب والبرمجيات الجاهزة- دار وائل...

- Lagrange and Nancy Lang

- Fowth edition , 2000 by hall, Inc, new jersey- Ust
- Windos 2000 for dummices
- Andy Rath bone – 1998 by ID6 books

Won wide, Inc USA

Course title	**Biology**
Course code	**MCR114**
Level/ Semester	L1 / s1
Credit hours	3 hours
Course Description	The course includes concepts of biology; water and the fitness of the environment; the structure and function of macromolecules, cellular organelles and membrane; metabolism "cellular respiration and photosynthesis"; Mendelian genetics; molecular basis of inheritance; from gene to protein "gene expression"; Viruses and biotechnology.
Objectives	The course will provide the students with the basic understanding of the fundamental principles of biology. ***** The topics covered in this course will allow the students to better comprehend other courses during the following academic years. ***** The course will provide the students with the basic understanding of the fundamental principles of practical biology. ***** The topics covered in this course will allow the students to better comprehend other practical courses during the following academic years.
learning outcomes:	**Knowledge and understanding** At the end of this module, students able to: Follow and apply the laboratory safety rules during the laboratory time. * Describe the characteristics and compounds that make up living things

	* Discuss how matter and energy are interrelated in photosynthesis and cell respiration. * Identify key cell organelles and relate their function and structure. * Compare and contrast mitosis and meiosis in term of their goals and outcome. ***** Gain knowledge of the anatomical structure and physiological functions of tissues and organ systems of the human. **Cognitive skills (thinking and analysis).** **-** The Thinking and Meditation about the Great Ability of God in Creation of our body and the biological systems. - The thinking skills will be developed by encouraging students to conclude answers to different questions that the instructor intends to use during the presentation of the scientific material. - The instructor intends to stimulate the student's analytical thinking side via connections with general aspects in daily life or through questions, net searching, and home works. **Communication skills (personal and academic).** - Gain Teamwork skills - The students have the option to share open discussion and to ask questions during the class or any other times. - Students have the opportunity to communicate with others especially professors, while searching answers for home works or through encouraging them to attend different scientific activities that are available in the department.

Topics	**1-** Instructions and Laboratory safety rules. **2-** Macromolecules **a-** Carbohydrates- Benedict's test for reducing sugars- Iodine test (Lugol's test) for starch **b-** Proteins- Ninhydrin test for amino acid- Biuret test for polypeptides. **c-** Lipids- Sudan red test for fats- Lipid solubility test **3-** Types of the microscopes and. Proper use of a compound light microscopes **4-** Preparation of a wet mount: The Letter "e"- Pond water. **5-** Parts of a dissecting Microscope and. Using a dissecting microscope:- An insect- A bread mold **6-** Diffusion within solutions, Diffusion within semi-solid medium, Osmosis in plant cells (*Elodea* leaves) **7-** Enzyme invertase (sucrase), Rennin, catalase **8-** Effect of temperature pretreatment on enzyme activity **9-** Effect of pH changes on enzyme activity **10-** Cellular respiration **11-** Photosynthesis **12-** Mitosis in animal and plant cells **13-** Working with human phenotypes

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

1. Neil A. Campbell and Jane B. Reece Edition: 8th edition (2008) Publisher: Benjamin Cumming's Publishing Company. ISBN:0-8053-7146-x
2. Karp, G. Cell and Molecular Biology, concepts and Experiments. 2002, 3rd edition,John Wiley publishing company, ISBN 0-471-38913-7.
3. Bruce, A., Bray, D., Hopkins, K., Johnson, A., Lewis, J., Raff, M., Roberts, K.,Walter, P. Essential Cell Biology. 2004. Garland Publishing company. ISBN: 0- 8153-3480-X.

Course title	**Medical Plant**
Course code	**MCR115**
Level/ Semester	L1 / s1
Credit hours	3 hours
Course Description	The course will familiarize students with key aromatic and pharmaceutical plants, their biologically active compounds and their main uses in industry and agriculture
Objectives	- To understand the importance of medicinal plants to medicine development - To understand fundamental concepts of medicinal plants - To understand basic knowledge of human body and common disorders - To learn the principle of identifying medicinal plants and understand their medicinal uses - To understand the fundamentals of phytotherapy - To learn nervous system stimulant plants - To understand the relevance between medicines and poisons - To learn natural prescription for natural cures - To understand metabolic engineering of natural products in medicinal plants
learning outcomes:	1- Students will be able to recognize certain aromatic and pharmaceutical plants 2- be able to extract biologically active compounds and have

	knowledge of their applications and have knowledge and experience of cultivation and commercial products with particular reference to Greece.
Topics	• Aromatic plants, pharmaceutical plants. • Greece: climate, species, distribution, endemics, medicinal history • Aroma-Olefactory, essential oils, oil glands, composition, phenols, p-menthane, cineoles- species. • Origanum: example subspecies, distribution, morphological features, yield, commercial plants. • Mint: chemotypes, hybridization • Sage: species, distribution • Essential oils-Terpinenes: Monoterpines, sesqui-, biosynthesis, structures • Extraction- identification methods: steam distillation-small scale, large scale, gas chromatography, GC-MS • Uses: flavours, fragrances, aromatotherapy, herbs, teas * Uses: Therapeutic, pharmaceutical, food preservatives-antioxidants, antibacterial, antifungal, anti-insect. • Uses: Crop storage eg. Potatoes, Apiculture-Honey production, Veterinary dietary supplements • Toxicity • Ecology: plant advantages, allelophy, uv radiation • Molecular biology: DNA, PCR • Cultivation: Field, Propagation: tissue culture, seed,

	cuttings- advantages-disadvantages, Greece, worldwide/Europe, harvesting • Other example plants: Masticha, Dictamnos, Mountain Tea (Sideritis) Biologically active compounds: proteins, alkaloids: digitonin, morphine, conium, atropine, vincristine

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

1. THE HERBAL HANDBOOK: A User's Guide to Medical Herbalism by David Hoffmann Healing Arts Press.
2. Guidelines on the Conservation of Medicinal Plants, Published by The World Health Organization (WHO) IUCN -The World Conservation Union WWF- World Wide Fund for Nature, Gland, Switzerland, 1993. ISBN 2-8317-0136-8

Course title	**General and physics Chemistry**
Course code	**MCR116**
Level/ Semester	L1 / s1
Credit hours	3 hours
Course Description	These courses study the chemistry of carbon compounds and their properties, structures and reactions. It emphasizes the study of the principle classes of aliphatic and aromatic compounds, which in conjunction with selected experiments, gives an understanding of the mechanisms of organic reactions.
Objectives	1. To provide all knowledge about concept of chemistry and how to formed drug formula from individual atoms. 2. To provide the properties of the constituent atoms and how its influence by molecular structure and reactivity. 3. To understanding fundamental concepts of chemical bonds. 4. To gain knowledge about intamolecular active force. 5. To know how to nomenclature each group of organic chemicals
learning outcomes:	1. Describe basic chemical principles including the structure of the atom, chemical bonding and the periodic table, and also apply the concept of orbital hybridization 2. Describe the concept of functional groups and how these groups give rise to characteristic properties 3. Describe the stereoisomer. 4. Describe how the reactivity of organic compounds can be related to Lewis and hybridization models for bonding.

<table>
<tr><td></td><td>5. Describe the classification of organic molecules
6. Explain how to nomenclature of organic compounds.
Intellectual Skills
1. Able to solve problem depend on given in formation
2. Nomenclature the different groups of compounds
Professional and Practical Skills
1. Prepare different types of drugs from organic compounds
2. Modify some compounds to get required group of drugs.
General and Transferable Skills
1- Work in teams in researching groups
2 – Analyze and evaluate different data</td></tr>
<tr><td>Topics</td><td>
<table>
<tr><th>Unit</th><th>Topic</th></tr>
<tr><td>• Introduction to general chemistry</td><td>• Periodic table of elements
• Mendeleev's periodic table
• Modern periodic table.</td></tr>
<tr><td>• Types of chemical bonds
• Electro distribution in atoms
• Intermolecular active force</td><td>• Ionic bonds, covalent bonds, metallic bonds.
• Lewis electron and orbital hybridization .
• Vander Waals force
• Hydrogen bonding force</td></tr>
</table>
</td></tr>
</table>

	• Classification of organic molecules • Stereoisomer	• Types of Hydrocarbons (aliphatic and aromatic), cyclic and uncyclic , saturated and unsaturated. stereoisomer's
	• Nomenclature of organic compounds	• Structure , reaction and nomenclature of aliphatic hydrocarbons, Alkanes, alkenes, alkynes, alcohol, ether, aldehydes, ketones, alky halides, carboxylic acids, amines • Structure , reaction and nomenclature of aromatic hydrocarbons, Benzene, phenol, halogen derivatives of benzene. • Structure , reaction and nomenclature of heterocyclic groups, amino acids and carbohydrates

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

J. Olmsted, G. Williams, R.C. Burk; Chemistry, Canadian Edition. ISBN 9780470939451

Course title	**Life skills**
Course code	**SUR117**
Level/ Semester	L1 /s1
Credit hours	2 hours
Course Description	تعريف الاتصال وطبيعته و مكوناته وأنواعه وعناصره ونماذجه وخصائصه وكفاءة الاتصال ودراسة بعض المفاهيم الخاطئة عن الاتصال، الإدراك الذهني ومفهوم الذات ، العلاقة بين الاتصال الكلامي والاتصال غير الكلامي، وكتابة السيرة الذاتية والمقابلة الشخصية،إعداد وكتابة الرسائل وأنواع التقارير.
Objectives	١- أن يكون الطالب قادرا على فهم العمليات الأساسية في الاتصال الإنساني، ويحفز قدراته ويعبر عن ذاته بشكل جيد وكيف يكون مستمعا جيدا بصفة فعالة. ٢- أن يكتسب الطالب مهارات اتخاذ القرار وأساليب حل المشكلات و العمل مع أناس من مختلف الثقافات. ٣- أن يعرف الطالب طبيعة الاتصال الجماهيري وكتابة السيرة الذاتية وأنواع التقارير
learning outcomes:	أ- معرفية: ١- التعرف على طبيعة الاتصال الجمعي وكيفية التخطيط له. ٢- يحفز قدراته ويجيد التعبير عن ذاته. ٣- التعرف علي مفهوم الاتصال في المجموعات الصغيرة وسبل تطويره. ب- مهارات علمية: ١- جعل الطالب قادرا علي استخدام الطرق الحديثة المتطورة والآليات والتي تمكنه من تطبيق مهارات الاتصال بسهولة. ٢- استخدام أساليب جدية تعتمد على التدريب والتقويم المتنوع والفعال. ج- مهارات شخصية وتحمل المسؤولية: ١- اكتساب مهارات العرض والإلقاء ومهارات التفاوض (الإقناع). ٢- إجادة مهارة الاستماع الفعال.

	٣- اكتساب الطالب اتخاذ القرار وأساليب حل المشكلات. ٤- اكتساب الطالب مهارة المقابلة الشخصية والتحضير لها. د- مهارات التحليل والاتصال: ١- اكتساب مهارة تحديد الأهداف والتخطيط للمستقبل. ٢- اكتساب مهارة اتخاذ القرار وأساليب حل المشكلات
Topics	1- مدخل الاتصال الإنساني: تعريف الاتصال، مكونات عملية الاتصال، أنواع الاتصال، نماذج الاتصال، خصائص وكفاءة الاتصال، و بعض المفاهيم الخاطئة عن الاتصال. ٢ - التواصل مع الذات: كيف يكون الإدراك الذهني ؟ إدراك الذات، مفهوم الذات وطرق تحسينها. ٣- الاتصال الكلامي: الأهداف، عناصر اللغة وطرق تحسين الاتصال الكلامي. ٤- الاتصال غير الكلامي:تعريفه، أنواعه، صفاته والعلاقة بين الاتصال الكلامي وغير الكلامي. ٥- الاستماع والسماع:الفرق بينهما، مراحل عملية الاستماع، الاستماع النشط والاستماع السلبي وكيف تكون مستمعا جيدا؟ ٦- الاتصال الشخصي وبناء العلاقات الإنسانية: تعريفه، فوائده، صفاته الأساسية، مراحل تطور العلاقات الشخصية، الإفصاح عن الذات. ٧- الاتصال في المجموعات الصغيرة: أنواع وأهداف وأخلاقيات العمل في المجموعات الصغيرة وبناء الفريق وحل المشكلة واتخاذ القرار. ٨- الاتصال مع الجمهور: طبيعة الاتصال مع الجمهور. ٩- السيرة الذاتية والمقابلة الشخصية: كتابة السيرة الذاتية و إعداد وكتابة الرسائل وأنواع التقارير

الرقم	طرق التدريس	الرقم	التقييم
١	المحاضرات	١	اعمال فصل 30%
٢	عرض بوربوينت	٢	اختبار نهائي ٧٠%
٣	التطبيقات العملية	٣	إجمالي ١٠٠%

المراجع:

١ - د .أحمد ماهر، كيف ترفع مهاراتك الإدارية في الاتصال، الإسكندرية، الدار الجامعية، ٢٠٠٤ م.

Margaret Lioyd and Robert Bor, "***Communication Skills in Medicine***", **Churchill Livingstone 2004.**

SYLLBUS OF

SECOND SEMESTER

FIRST YEAR

Course title	**Islamic culture**
Course code	**SUR121**
Level/ Semester	L2 /s1
Credit hours	2 hours
Course Description	مقرر الثقافة الإسلامية يشمل مفهوم الثقافة لغة وإصطلاحاً وعلاقة الثقافة الإسلامية بالثقافات الأخرى ويتضمن مفهوم أركان العقيدة الإسلامية خصائص العقيدة وآثارها على الفرد والمجتمع
Objectives	١- تعريف الطالب بمفهوم الثقافة الإسلامية ومصادرها وخصائصها. ٢- توضيح مفهوم العقيدة الإسلامية وخصائصها وقضاياها، وآثارها في الفرد والمجتمع. ٣- بيان معنى العبادة في الإسلام وخصائصها ودوافعها وحكمها. ٤- التعريف بالمفاهيم والممارسات الخاطئة التي تصاحب تطبيقها
learning outcomes:	أ– معرفية: ١- فهم مصطلح الثقافة، ومعرفة مفهوم الثقافة الإسلامية وخصائصها وأهميتها وعلاقاتها بالثقافات الأخرى. ٢- فهم مصلح العقيدة الإسلامية وخصائصها وآثارها في الفرد والمجتمع، ومعرفة مجموعة من مسائل العقيدة المهمة في واقع الحياة. ٣- فهم معنى العبادة في الإسلام، وخصائصها وحكمها ودوافعها ومقاصدها مع استيعاب المفاهيم والممارسات الخاطئة في العبادة. ب – مهارات علمية: ١- القدرة على التعامل مع الثقافات الأخرى من منطلق التميز بثقافته مع الاستفادة من النافع من الثقافات الأخرى. ٢- القدرة على تحقيق الآثار العملية للعقيدة في ذاته وفي واقعه الاجتماعي. ج – مهارات شخصية وتحمل المسؤولية: القدرة على التمييز بين المفاهيم الصحيحة للمسائل الكبرى في العقيدة، والتطبيق

الصحيح لها، وبين المفاهيم الخاطئة وما يترتب عليها من انحرافات سلوكية محرمة. د ـ مهارات التحليل والاتصال القدرة على تحقيق مقاصد العبادة وتجنب المفاهيم والممارسات الخاطئة فيها	
ـ مفهوم الثقافة الإسلامية : المعنى اللغوي للثقافة، المعنى الإصطلاحي للثقافة، مفهوم الثقافة الإسلامية، علاقة الثقافة بالعلم والحضارة. ٢ـ مصادر الثقافة الإسلامية: القرآن الكريم، السنة النبوية، التاريخ الإسلامي، الحضارة الإسلامية، اللغة العربية وآدابها. ٣ـ أهمية الثقافة الإسلامية: التميز في الهوية والمقومات، العمق والارتباط التاريخي، الاعتزاز والانتماء الحضاري، القدرة على التفاعل الواقعي. ٤ـ علاقة الثقافة الإسلامية بالثقافات الأخرى: صور من ضعف فعالية الثقافة الإسلامية، صور من هيمنة الثقافة الغربية، موقف الثقافة الإسلامية من الثقافات الأخرى: [الرفض والمقاطعة – القبول والذوبان – التوفيق والتلفيق – التميز والاستفادة]. ٥ـ مفهوم وأركان العقيدة الإسلامية: تعريف العقيدة لغة، تعريف العقيدة إصطلاحاً، حقيقة العقيدة ومفهومها ومرادفاتها، أركان الإيمان. ٦ـ خصائص العقيدة الإسلامية: عقيدة ثابتة، عقيدة فطرية، عقيدة مبرهنة، عقيدة واضحة، عقيدة وسطية. ٧ـ آثار العقيدة على الفرد:[هداية العقل ، سكينة النفس ، استقامة السلوك ، تقوية الأمل ومواجهة الصعاب ،الثبات في الشدائد ، بناء المسؤولية والرقابة الذاتية ، الفوز في الآخرة]. تحقيق الأخوة الإيمانية ، التعارف الإنساني ، [٨ـ آثار العقيدة على لمجتمع الانضباط السلوكي والأمني ، التكامل والتعاون الاجتماعي ، العدالة في الحكم]والقضاء ٩ـ مسائل في العقيدة الإسلامية: العلاقة بين العقيدة الشريعة، حرية الاعتقاد في	**Topics**

الإسلام، الكبائر وصلتها بالعقيدة، تحكم الشريعة، الاستهزاء بالدين، الولاء والبراء، الغلو في الدين، بين العقل والنقل. ١٠- مفهوم العبادة: تعريف العبادة لغة، تعريف العبادة إصطلاحاً، مفهوم العبادة الشامل وآثاره، عناصر العبادة. ١١- دوافع العبادة: دافع الشعور الفطري، دافع الرغبة والرهبة، دافع المحبة والتعظيم، دافع الشكر والعرفان، دافع الحاجة والافتقار، دافع العادة والتقليد. ١٢- حكم العبادة وشروطها: حكم العبادة، شروط العبادة: [الإخلاص لله – المتابعة للرسول صلى الله علية وسلم]. ١٣- خصائص العبادة: الربانية والتوقيف، التوازن والاعتدال، التنوع والتعدد، العموم والشمول، الاستمرار والدوام، القصد والنية، اليسر ورفع الحرج، المباشرة وعدم الوسطاء. ١٤- حكم العبادة ومقاصدها: الصلاة ، الزكاة ، الصوم، الحج ، التوكل ، الخشية ، التوبة، الذكر، الدعاء. ١٥- مفاهيم وممارسات خاطئة في العبادة: حصر مفهوم العبادة في الشعائر التعبدية، الطاعة والتعلق بغير الله، تفريغ العبادة من جوهرها، البدع في العبادات	

الرقم	طرق التدريس	الرقم	التقييم
١	المحاضرات	١	اعمال فصل 30%
٢	عرض بوربوينت	٢	اختبار نهائي ٧٠%
٣	ـــــــ	٣	إجمالي ١٠٠%

المراجع:

- الثقافة الإسلامية د/حسن الاهدل، د/ عبد الحكيم
- الموسوعة الفقهية الطبية د/ محمد احمد كنعان
- قانون الجرائم والعقوبات اليمني د/ علي حسن الشرفي
- قانون مهنه الطب والصيدلة وزاره الشئون القانوني

Course title	**English (2)**
Course code	**MCR122**
Level/ Semester	L2/s1
Credit hours	2
Course Description	The course is designed to provide the student with basic principles in English language including reading, writing, listening and grammar with some medical terms and to improve the student's reading, extracting and handling the information from some short passages
Objectives	1. Provide the student with basic principles in English language including reading, writing, listening and grammar with some medical terms. 2. To improve the students for reading, extracting and handling the information from some short passages.
learning outcomes	**A**- KNOWLEDGE AND UNDERSTANDING: 1- Correct the mistakes in grammar in some passages. 2- Extract the information from some short passages. 3- Define some medical terms. **B**- INTELLECTUAL SKILLS 1- Use correct verbs and grammar in writing. **C**- PROFESSIONAL AND PRACTICAL SKILLS 1- Write reports and letters use good language and grammars.

D- GENERAL AND TRANSFERABLE SKILLS

1- Interact effectively with patients, the public and health professionals.

2- Reflect on the use of communication skills in counter prescribing.

Topics to be Covered

Unit	**Content**
1.	• Writing Dictation • Retranslation • Comprehension
2.	• Where do you work • Parts of the body • on the wards • Sterile producers • Instruments • Disinfectants and Antiseptics • Admissions • Arranged Admission • Observation of the patient • The Skin • Respiration the cough and sputum • Vomite • Faces • Urine • Temperature • Pulse
3.	***Composition:*** **Letter writing** • The use of grammar in letter writing • The use of simple words keeping in view. • The Scientific letters • Paragraph writing keeping in view, • The sentences structure and writing in clearly and neatly **Translation :-**

		• Translation of simple passages Arabic and English • The necessary rules for translation • The use of tense • The use of verbs etc • Exercises **Punctuation :-** • The use of full stop, comma, semicolon etc in a sentence. • Writing reports

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	1	Lectures
2	Final Exam 70%	2	PPT Slides
3	Total 100%	3	Exercises Practical
	ـــــ	٤	Group projects

Reference:

1. WRITING WITH A THESIS: A RHETORIC AND READER (Eighth Edition). David and Sarah Skwire. Boston, MA: Thomson and Heinle , 2001. (A satisfactory substitute would be 7th edition of the same text.)
2. REFERENCE FOR WRITERS. Lynn Quitman Troyka . Upper Saddle River, NJ: Prentice Hall, and its companion website: www.prenhall.com/troyka.
3. WRITING ABOUT LITERATURE. (Brief Tenth Edition). Edgar V. Roberts. Upper Saddle River, NJ: Prentice Hall, 1999.

Course title	**Computer (2)**
Course code	**SUR123**
Level/ Semester	L1 /s2
Credit hours	3
Course Description	يهتم هذا المقرر الى تزويد الطالب ببرامج اكسل وما يحتوية من برامج ووظائف اساسية للدوال الالكترونية والتعامل مع البيانات وحمايتها كما يتعلم الطالب مهارات واساسيات البحث الالكتروني والتقنيات المستخدمة في مجال الانترنت.
Objectives	يهدف المقرر إلى تزويد الطالب بالمعارف والمهارات التالية : أ. أساسيات برنامج أكسل ومكوناته البرمجية -الطرق المختلفة لإدراج الجداول الالكترونية ب. الوظائف الأساسية للدوال الإلكترونية ببرنامج أكسل والتعامل مع البيانات وحمايتها ت. التقنيات المختلفة لتصميم عروض تقديمية احترافية ببرنامج البوربوينت ث. المبادئ الأساسية للبحث الإلكتروني باستخدام تقنية النت ج. التقنيات المستخدمة في مجال الإنترنت والمراسلة الإلكترونية المبادئ الأساسية لإنشاء بريد إلكتروني في محركات مجانية مختلف
learning outcomes:	بعدالانتهاء من دراسةهذا المقرر يتوقع أن يكون الطالب قادراًعلى : أ. التعرف على وظائف الأدوات المستخدمة ببرنامج اكسل والجداول الحسابية والعروض التقديمية ب. التعرف على المعادلات الحسابية وطرق إنشاء الصيغ الحسابية المختلفة ببرنامج أكسل والتعامل معها ت.إتقان مهارات تصميم الجداول المنسقة والصيغ الحسابية المختلفة ث. تصميم الدروس التعليمية الاحترافية والعروض التقديمية المنسقة باستخدام برنامج العرض التقديمي

ج. التعرف على مفهوم تقنيات الإنترنت والبحث الإلكتروني ح. معرفة خطوات إنشاء البريد الإلكتروني والمراسلة وإتقان مهارات المراسلة الإلكترونية خ. القدرة على إنشاء البريدا لكتروني في مواقع إلكترونية مختلفة د. القدرة على التمييز بين إيجابيات وسلبيات الإنترنت	
٤. التعامل مع الإنترنت والبحث الإلكتروني + التعليم عن بعد واهميته ٥. انشاء البريد الالكتروني في مواقع مختلفة - المراسلة الإلكترونية ٦. التحميل من الانترنت – الاشتراك بموقع ٤- الدردشةFacebook ٥. أساسيات برنامج بورربوينت وتصميم العروض التقدمية ادراج العناصر الى الشرائح- ٦. وتنسيق العرض -إضافة المؤثرات الفنية للعرض ٧. أساسيات برنامج أكسل- وتصميم الجداول الحسابية- ٨.تنسيق الخلايا والجداول الحسابية -إنشاء الصيغ الحسابية تابع الصيغ الحسابية - والدوال وبعض أنواعها ٩. الدوال الشرطية ١٠. التعامل مع البيانات وحمايتها- التعامل مع أوراق المصنف ١١. المخططات البيانية ١٣. إعداد الصفحات للطباعة- الطباعة	**Topics**

الرقم	طرق التدريس	الرقم	التقييم
١	المحاضرات	١	اعمال فصل 20%
٢	عرض بوربوينت	٢	عملي40%
٣	التطبيقات العملية	٣	اختبار نهائي 40%
	ـــــ	٤	إجمالي ١٠٠%

المراجع: كتاب مبادئ انظمة الحاسوب – نطبيقات للمؤلف فهد الوصابي

Course title	**General Physiology**
Course code	**MCR124**
Level/ Semester	L1 /s2
Credit hours	3 hours
Course Description	This course provides the students with a broad knowledge of functions of the human body. Topics which are covered in detail include the organization, regulation and function of the muscular, gastrointestinal, respiratory, cardiovascular, renal, endocrine, nervous and reproductive systems
Objectives	**1**. Acquire an appropriate functional background of cells, tissues, organs& systems. **2**. Integrate physiological data & mechanisms with the ongoing basic sciences: anatomy, histology& biochemistry and clinical applications. **3**. Explore in detail the functions of the autonomic, the neuromuscular, the respiratory and the cardiovascular systems as well as their integration to achieve homeostasis.
learning outcomes	**1.** Describe the cellular functions at the organelle and molecular level. **2**. Describe & explain the function of the nerve cell the nerve & muscle fiber grossly & the molecular level. **3**. Describe & explain function of the autonomic nervous system, different component of blood, the respiratory & cardiovascular system both grossly and molecular level. **4**. Describe some biophysical laws & their relation to physiology.

	5. Interpret the most important physiological laboratory results (blood, respiratory, neuromuscular), to distinguish a physiological from pathological condition. **6**. Comment, on some clinical parameters such as: ABP, ECG, nerve conduction velocity pulmonary functions for a normal individual. **7**. Integrate physiology with other basic and clinical sciences **8**. Work separately or in a team to research and prepare a scientific topic. **9**. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day. **10**. Present physiological data in a graphical form**.**

Topics

	Unit	**Topic**
	Cell	• Brief account on cell structure
	Blood and lymph	• Composition and function of blood • Blood groups • Blood coagulation • Anemia's • White blood cells and immunity • Lymph formation and function • Lymph channels
	Cardiovascular system	• Heart and blood vessels:- • function of heart • Cardiac cycle (blood circulation)

			• Blood pressure and its regulation • ECG: methods of recording, normal record and common abnormalities.
		Respiratory system	• Physiology of respiration. • Control of respiration • Hypoxia, cyanosis and dyspnea • Pulmonary function tests
		Digestive system	
		Nervous system	
		Muscular system	
		Urinary system	
		Endocrine system	
		Physiology of special senses	

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**	٤	Group projects
١	Continuous periodic assessment 20 %		ـــــ
٢	Final examination 20%		ـــــ
	Total 100%		ـــــ

Reference:

1. Fundamental of Physiology, a human perspective by Sherwood, third edition 2006
2. Textbook of medical physiology by Guyton and Hall, eleventh edition 2005

Course title	**Medical Physics**
Course code	**MCR125**
Level/ Semester	L1 /s2
Credit hours	3
Course Description	Introduction to Medical Physics practical introduction to key physical principles as applied to medical imaging and radiation therapy. Topics covered will Include: imaging metrics, ionizing radiation and radiation safety, radioactivity, radiation therapy, Computed tomography, nuclear medicine, ultrasound, and magnetic resonance imaging.
Objectives	• Know the scientific terms, fundamental units and basic principles of physics relatedto medicine and allied sciences. • Be aware of some apparatus and understand the techniques used in the solutionof some of the medical science problems. • Be able to understand and interpret information presented in tables, graphs and mathematical equations. • Be capable of understanding how main facts and generalizations can provide explanations of familiar phenomena in the human body. • Be able to present the results at practical work in the form of complete, understandable and objective reports.
learning outcomes :	1. To understand the physical concepts of ionizing radiation 2. To understand the interactions between ionizing radiation and biological materials

	3. To understand the principles of Health Physics 4. The interpretation of diagnostic images with an understanding of the physical limitations of the technique 5. Have a basic knowledge of the principles of physics and medicine as they pertain to radiation therapy
Topics	1. ATOMICPHYSICS Traditional definition of atom, periodic system of elements, mechanical properties of atom, emission of light and its frequencies. Electromagnetic spectra. Principles of Nuclear Physics – Natural radioactivity, Decay series, type of radiation and their applications, artificially produced isotopes and its application, accelerator principles; Radionuclides used in Medicine and technology. 2. INTERACTION WITH LIVING CELLS Target theory, single hit and multi target theory, cellular effects of radiation, DNA damage, depression of Macro molecular synthesis, Chromosomal damage. 3. SOMATIC EFFECT OF RADIATION Radio sensitivity protocol of different tissues in human, LD 50/30 effect of radiation on skin, blood forming organs, lenses of eye, embryo and Endocrinal glands. 4.GENETIC EFFECT OF RADIATION

	Threshold of linear dose effect, relationship, factors affecting frequency of radiation induced mutation, Gene controlled hereditary diseases, biological effect of microwave and RF wave. Variation in dielectric constant and specific conductivity of tissues. Penetration and propagation of signals effects in various vital organs, Protection standards. 5.PHOTO MEDICINE Synthesis of Vitamin D in early and late cutaneous effects, Phototherapy, Photo hemotherapy, exposure level, hazards and maximum permissible exposures. 6.LASER PHYSICS Characteristics of Laser radiation, Laser speckle, biological effects, laser safety management.

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**	٤	Group projects
١	Continuous periodic assessment 20 %		ـــــ
٢	Final examination 20%		ـــــ
	Total 100%		ـــــ

Reference:

1. Introduction to Radiological Physics and Dosimetry, Frank Herb Attix, Wiley-VCH, Germany, 2004 edition. ISBN-10 = 0-471-01146-0, ISBN-13 = 978-0-471-01146-0
2. Medical Imaging Physics, by W.R. Hendee and E.R. Ritenour, ISBN 0471382264.
3. Physics of Radiology, A.B. Wolbarst, ISBN 0838557694.

Course title	**Basic nutrition**
Course code	**TN126**
Level/ Semester	L1 /s2
Credit hours	3 hour
Course Description	This course will cover basic components of human nutrition and concept of food and nutrition, balance eat and development are affected during the prenatal, infant, and beyond by nutrition. Physiological and cultural aspects will also be covered.
Objectives	The overall goals of the course are to develop students with the following characteristics: 1-Given pertinent information, supported by instructional resources, the student will be capable of performing a variety of related skills. 2- In order to demonstrate mastery of these objectives, the student must respond correctly on instructor.

	3-revised evaluations, achieving a percentage of accuracy that meets 4-Therequirements for academic performance as published in the school catalog.
Learning outcomes	1. Able to understand relationship between nutrition and human health. 2. To identify different role of nutritions 3. Different hate tue different between artificial and natural
Topics	**1. Nutrition standards and guidelines** **A**. Nutrient recommendations and dietary guidelines **B**. The food guide pyramid **2** . Describe sources of calories, including carbohydrates, fats and protein: **A- Carbohydrates:** 1- Definition. 2- Biological functions. 3- Classification and Structures **B- Lipids** 1- Definition. 2- Biological functions. 3- Classification and Structures **B- Amino acids and Proteins**

	1- Definition. 2- Biological functions. 3- Classification and Structures **3**- Different vitamin, kind of nutrition and minerals (macro and micronutrients. 4- The importance of water 5- define natural and synthetic nutrients 6- describe sources of nutrients 7- Food + balance diet. 8- discuss the importance of exercise and good nutrition

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**	**4**	Group projects
١	Continuous periodic assessment 20 %		ــــ
٢	Final examination 20%		ــــ
	Total 100%		ــــ

Reference:

1. Eqbal, D., Halimah, A. S., Aminah, A. 2012. Effect of Different Concentrations of Red Palm Olein and Different Vegetable Oils on Antioxidant enzymes on Normal and Stressed. INTECH. ISBN 980-953-307-108-9. Pages: 303-320

Book title: Antioxidants Enzyme: Edited by Mohammed Amr El-Missiry

2. Grosvenor, Mary B. & Smolin, Lori A. (2009). Visualizing Nutrition: Everyday Choices (2 e). Hoboken, New Jersey: John Wiley & Sons, Inc. "This book provides a unique way for students to learn about nutrition by integrating photography and illustrations into the learning process while maintaining the rigor needed in the study of nutrition."

Course title	**Introduction of Food Science**
Course code	**TN127**
Level/ Semester	L1 / S2
Credit hours	2 hours
Course Description	This course focuses on the basic principles and techniques of food selection, preparation and storage, including the technical analysis of foods, food safety, toxicology, processing, and preservation.
Objectives:	The overall goals of the course are to develop students with the following characteristics: **1**. Understand factors that affect food quality (i.e. the role of microbiology, chemistry, physical properties and nutritional & eating qualities of food) and the impact of food storage and processing. **2**. Discuss the importance of the physical, chemical, biochemical reactions of food constituents to the quality of food. **3**. Differentiate between the principles of food preservation methods. **4**. Explain the importance of food safety and quality control in food industry.
learning Outcomes:	After participating in the course, students would be able to: 1. Understand the major food categories including grains, vegetables and fruits, meats, poultry, eggs, milk and dairy

	products. 2. Acquire knowledge microbiology, chemistry, physical properties and nutritional and eating qualities of food and the impact of food storage and processing. 3. Identify changes occurring during food preparation, and discus the importance of the physical, chemical, biochemical reactions of food constituents to the quality of food. 4. Differentiate between the principles of food preservation methods. 5. Describe food-borne illnesses, their causes, and prevention methods, and explain the importance of food safety and quality control in food industry.
Topics	1. Food Selection (Sensory Criteria, Nutritional Criteria, Cultural Criteria, Religious Criteria, Psychological & Sociological Criteria). 2. Food Evaluation (Sensory Evaluation & Objective Evaluation). 3. Food Chemistry & Analysis (Water, Carbohydrates, Lipids, Proteins, Vitamins, Minerals & Nonnutritive Food Components). 4. Food Safety (Foodborne Illness, Biological Hazards, Bacterial Food Infections & Intoxications, Chemical Hazards & Physical Hazards). 5. Food Preservation and Processing (Heat Preservation, Refrigeration Preservation, Freezing, Dehydration, Concentration, Added Preservatives, Other Preservation

	Techniques & Safety of Preserved Foods). 6. Food Additives (Function of Food Additives, Legislation and Testing for Additives, Major Additives Used in Processing & Nutrient Supplements in Food). 7. Packaging of Food Products (Types of Packaging Containers, Packaging Functions, Packaging Materials, Controlling Packaging Atmosphere).

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical

Reference:

1. "Understanding Food Science & Technology" by Peter S. Murano (Thompson-Wadsworth Publisher).
2. Bell, L.N. 2011. FDSC 1000 Lecture Outlines (custom publishing).
3. Murano, P.S. 2003. Understanding Food Science and Technology. Wadsworth, Belmont, CA.
4. Essentials of Food Science (Vaclavik, 1998, Aspen Publishers, Gaithersburg, MD)

SYLLBUS OF

FIRST SEMESTER-

SECOND YEAR

Course title	**Basic Anatomy**
Course code	**MCR211**
Level/ Semester	L2/s1
Credit hours	3 hours
Course Description	A study of the anatomical structure of the human body. Body structure will be studied by organ systems and will involve a balance between gross anatomical study and histology. Form-function relationships will be emphasized. The laboratory study will involve working with human skeletal collections and dissection of cadavers and preserved specimens.
Objectives:	1. To facilitate students' acquisition of knowledge and understanding of normal structure and function of the human body as the basis of medical practice. 2. To provide students a visual and three-dimensional knowledge and understanding of the human body through the experience of dissection, prosection and models. 3. To utilize clinical correlations to enhance the basic knowledge obtained in Gross Anatomy lectures and laboratory. 4. To foster and reinforce the study and understanding of the transformation undergone by a fertilized egg into a new individual. 5. Describe how human structures develop embryonically. 6. Develop a self-identity of what it means to be "human"

learning Outcomes:	Intended learning outcomes of course (ILOs) **1. Knowledge and understanding:** By the end of the course, student should be able to: a- Understand fundamentals of Anatomy b- Understand bases of anatomy of different body systems including Respiratory System, Cardiovascular System, Lymphatic System and Genital System. **2. Intellectual skills** By the end of the course, student should be able to: a- Make complete differentiation of the anatomy of body organs studied b- Properly use different anatomical terminology **3. Professional and Practical Skills** By the end of the course, student should be able to: a- Differentiate between anatomy of body organs studied b- Identify Common anatomical models used 1. *General and Transferable skills* By the end of the course student should have a great deal of information about fundamentals of Anatomy regarding different body systems including Respiratory System, Cardiovascular System, Lymphatic System and Genital System.
Topics	4. The Human Body: An Orientation 5. Cell and tissues (Cell membrane , cell organelles and epithelial, connective, muscular tissues).

6. Tissues (epithelial, connective, and muscular tissues).
7. Skeletal system and bone structure.
8. Skin (Dermis, epidermis, and nails).
9. Lymphatic system (lymphatic vessels and lymph nodes).
10. Central nervous system (Brain: types of nerve cells, CSF, cerebrum, brain stem, and cerebellum).
11. Central nervous system (Spinal cord and spinal nerves, cranial nerves, and Autonomic nervous system).
12. Cardiovascular system (types of blood vessels and heart structure).
13. Respiratory system (nasal cavity, pharynx, trachea, bronchi, and alveolar structure).
14. Gastro-intestinal system (mouth, esophagus, stomach, small intestine, large intestine). Liver and Pancreas (exocrine part).
15. Endocrine system (Pituitary gland, thyroid gland, adrenal gland, Parathyroid gland, endocrinal part of Pancreas).
16. Male reproductive system (testis, seminal vesicle, urethra and penis).
17. Female reproductive system (vulva, vagina, uterus, Fallopian tube, and ovaries).
18. Renal system (Kidney and renal tubules, ureters, Bladder, and urethra in male and females).

	19. Eye and ear. **Practical Part:** Selected experiments on the above topics.

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		ـــــ
١	Continuous periodic assessment 20 %		ـــــ
٢	Final examination 20%		ـــــ
	Total 100%		ـــــ

Reference:

1. Human Anatomy, Michael McKinley and Valerie Dean O'Loughlin, 3rd Edition, 2012
   (e-text through Courseload in Oncourse)
2. McGraw-Hill Connect with the Human Anatomy textbook
   A215 Laboratory and Study Guide, Fall 2013.

Course title	**Organic Chemistry**
Course code	**MCR212**
Level/ Semester	L2/s1
Credit hours	3 hours
Course Description	Fundamental concepts of nomenclature, formulae, preparation and properties of organic compounds. Modern electronic and molecular orbital theories are introduced. Laboratory experiments illustrate properties and preparation of organic compounds.
Objectives:	By the end of this course students will be able to: • Describe bonding in organic molecules and its effect on reactivity. • Give correct IUPAC names for compounds having the functional groups studied. • Describe and explain conformational analysis in alkanes and cycloalkanes. • Identify chiral molecules and use the (R)-(S) nomenclature correctly. • Discuss S_N1, S_N2, E1, and E2 mechanisms and predict when each might occur. • Give the experimental evidence for these different mechanisms. • Explain the mechanism of free radical chlorination. • Predict products from reactions of alkenes, alkynes, alcohols, and ethers.

	• Explain the physical properties of alkanes, alkenes, alkynes, alcohols, and ethers. • Predict products of Grignard reactions. • Deduce molecular structures of simple unknown compounds from their spectra. • Solve simple synthesis problems of compounds with the functional groups studied. • Solve simple "railroad" problems involving the functional groups studied.
learning Outcomes:	1. To make the students knowledgeable about the fundamentals of carbon chemistry, 2. To understand the consequences (reactivity, properties) of the three-dimensionality of molecules, 3. To be able to interpret patterns of reactivity on the basis of mechanistic reasoning, 4. To be able to design syntheses of organic molecules of moderate complexity **5.** To be able to deduce molecular structures from spectroscopic data.
Topics	**A) Theoretical Part:** 1- **Introduction:** a- Structure of the carbon atom. b- Hybridization concept. c- Electronegativity concept. d- Dipole moment.

	e- Electronic effects: inductive and mesomeric. f- Types of bonds and the hydrogen bond. g- Bond energy. 2- **Paraffinic hydrocarbons (ALKANES):** a- Definition and Nomenclature. b- Alkyl radicals. c- Methods of preparation of Alkanes. **d-** Reactions of Alkanes. 3- **Olifinic hydrocarbons (ALKENES):** a- Definition. Structure and Nomenclature. b- Alkenyl radicals. c- General methods of preparation. d- Reactions of alkenes: free radical and ionic reactions. e- cis and trans Additions. **e-** Markonikoff's and anti-Markonikoff's rule. 4- **Dienes**: a- Commulative dienes: synthesis and reactions. b- Isolated dienes: synthesis and reactions. c- Conjugated dienes: synthesis and reactions. 5- **Alkynes**: a- Definition and Nomenclature. b- General methods of preparation. c- Reactions of Alkynes. 6- **Alkyl halides**: a- Preparation. b- Reactions of alkyl halides

	c- SN2 Reactions and their stereochemistry. d- SN1 Reactions and their stereochemistry. f- Elimination reactions: □- elimination, □- elimination (E1 and E2 types). 7- **Unsaturated halogen compounds:** a- Vinyl types. b- Allylic types. 8- Polyhalogen compounds: a- Chloroform synthesis and reactions. b- Carbon tetrachloride synthesis. 9- **Alcohols:** a- Classification, Definition and Nomenclature. b- General methods of preparation. c- Reactions of alcohols and their rates of reactivities. d- O-H Bond cleavage and acidity of alcohols. e- C-OH Bond cleavage. **10- Ethers:** a- Definition and nomenclature. b- Physical properties and solubility. c- General methods for synthesis of ethers. STEREOCHEMISTRY: 1- Isomerism 2- Constitutional isomerism: chain isomerism, positional isomerism, functional isomerism, dynamic isomerism and its mechanism. 3- **Stereoisomerism: Definition and classification**

	4- Z/E Isomerism: 5- Optical isomerism: a- Introduction. b- Tetrahedral carbon atom. c- Chiral carbon atom (stereogenic atom). d- Polarimeter and optical activity. e- Specific rotation of enantiomers. f- Elements of symmetry. g- Chiral compounds not containing stereogenic atoms. h- Representation of configuration:(flying wedge formulae, Fischer projection formulae). i- D and L configuration (relative configuration). j- R and S configuration (absolute configuration). k- No of stereoisomers. l- Diastereoisomers. m- Meso compounds. n- Newman projection formulae. o- Sawhorse projection formulae. p- Conversion of Fischer, Newman and Sawhorse projection formulae to each other. q- Racemic modifications: (definition and preparation). r- Racemization. s- Resolution of racemic modifications. 6- Conformational isomerism: a- Definition. b- Staggered, eclipsed and gauche conformers.

	7- **Stereochemistry of cycloalkanes:** a- Nomenclature of cycloalkanes (monocyclic and bicyclic). b- Strain energy in cycloalkanes: (torsional , angle and steric strain). c- Conformations of cyclohexane:(boat and chair conformers, energy barrier, axial and equatorial bonds, relative stabilities). 8- **Aliphatic aldehydes and ketones** a- Structure of carbonyl group. b- Nomenclature and Synthesis of aldehydes and ketones. c- Reactions of aldehydes and ketones: including oxidation, reduction (catalytic reduction, reduction with metal hydrides, Clemmensen's reduction, Wolf-Kishner reduction), addition reactions (including addition of HCN, NaHSO3 Grignard reagent, aldol addition reactions, addition of alcohols forming hemiacetals and acetals or ketals), Cannizzaro's reaction. 9- **Aliphatic carboxylic acids:** a- Structure and nomenclature. b- Characters: mainly polarity and b.p. c- General methods of preparation. d- Reactions of carboxylic acids: Acidity and affecting factors, esterification, conversion to acid chlorides and anhydrides, reduction. 10- **Aliphatic nitro compounds:** a- Structure of nitro group b- General methods of preparation of nitro compounds c- Reactions of nitro compounds;(SE reactions - SN reaction

	- reduction under different conditions) 11- **Aliphatic amines:** a- Definition and classification b- Basicity concept c- General methods for preparation of amines d- Reactions of amines: (alkylation - acylation - sulphonylation - salt formation - reaction with aldehydes and ketones - diazotization - SE reactions after protection of the amino group - oxidation) 12- Aromaticity concept 13- Characters of aromatic compounds. 14- Aromatic ions 15- Annulenes. 16- Molecular orbital discription of benzene. **17- Benzene:** a- Application of resonance theory in benzene. b- Synthesis of benzene. 18- Reactions of benzene: oxidation, addition. 19- Aromatic electrophilic substitution (SE aromatic): a- Recent mechanism. b- Reversible SE reactions: Sulphonation and mechanism, Friedel-Craft's alkylation and acylation and the difference between them. c- Irreversible SE reactions: Halogenation and mechanism, nitration and mechanism, structure of the halonium ions and the nitronium ion.

	Practical Part: Selected experiments on the above topics.

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

1. Vollhardt, K. P. C and N. E. Schore. *Organic chemistry: Structure and function*. 6th ed. New York: W. H. Freeman, 2011.
ISBN: 978-1-4292-0494-1 / 1-4292-0494-X
2. Schore, N. E.. *Study guide and solutions manual for Organic chemistry: Structure and function*. 6th ed. New York: W. H. Freeman, 2010.

ISBN: 978-1-4292-3136-7
3. Prentice Hall. *The Prentice Hall Molecular Model Set for Organic Chemistry*. England: Prentice-Hall, Inc, 1991.

Course title	**Microbiology**
Course code	**MCR213**
Level/ Semester	L2/s1
Credit hours	3 hours
Course Description	The course covers the morphology of microorganisms(size, shape, staining reaction and structure), physiology (reproduction, growth, nutrition, cultivation, metabolism, factors affecting growth, control of microbial growth especially in vivo i.e aspects of microbial therapy), host parasite relationship, virulence factors, disease development and host response to microbial invasion or mechanisms of resistance. Relevant groups of microorganisms i.e. bacteria, fungi, viruses and parasites are considered**.**
Objectives:	**By the end of the course, the student should be able to:** **1-** Be familiar with the microbial world and its relation to human lives. **2-** Know the methods and equipment used to investigate the microbial world. **3-** Have a background about structure, metabolic pathways, and genetics of bacterial cells. 1- Understand the growth requirements of bacteria and how to control their growth.

learning Outcomes:	Knowledge and understanding ***By the end of the course the student will be able to*** : Handle the microorganisms, utilize their behavior and capabilities to avoid their harm or manipulate them for human welfare.- understand physical and chemical factors which affect - microorganisms, principles of chemotherapy, microbial genetics, pathogenicity an microbial disease and mechanisms of resistance. **know the basic principles of bacterial culture techniques and general biochemical tests.** **<u>Cognitive skills (thinking and analysis).</u> -** ***By the end of the course the student will be able to*** : Describe the morphological features of bacteria microscopically and on culture. Describe different laboratory diagnosis test used - explain appearance of epidemics and emerging infectious diseases necessity of developing newer chemotherapeutics and limiting development of resistance • **<u>Communication skills (personal and academic).</u>** ***By the end of the course the student will be able to*** : - practice independent thinking and convey their thoughts to their tutors. - They will search or are given problems and asked to find solutions

	- for them • Practical and subject specific skills (Transferable Skills). - Practical evaluation of feasibility of student's proposal to tackle a problem
Topics	The Microbial World • Introduction and brief history of Microbiology. • Microbes in our. • Classification of microorganisms Bacterial Anatomy. • Size, shape, and arrangement of bacterial cells, Structures external to the cell wall (glcocalyx,, flagella, axial filaments, and Pilli), The cell wall, Structures internal to the cell wall (cytoplasm, nuclear, area, ribosomes, inclusions, and endospores). Microbial Growth • Bacterial growth requirements. • Culture media. • Preserving bacterial cultures and growth Control of Microbial Growth • .Physical methods of microbial control • Chemical methods of microbial control Microbial Genetics • Structure and function of the genetic material. • Mutation: change in the genetic material. • Genetic transfer (transformation, conjugation, transduction,

	and recombination). - Genetic engineering - Antibacterial antibiotics and their mode of action. *Epidemiological aspects: Transmission, (sources and mode of infection), Pathogenicity, toxogenicity, invasiveness and virulence. *Normal bacterial flora of human body. Food and milk microbiology **Practical Part:** Laboratory Schedule Grade Distribution Occupational Health and Safety Guidelines Guidelines for Safety Procedures 1 – Introduction to Microscopy 2 – General Laboratory Principles and Biosafety 3 - Bacterial and Yeast Morphology 4 – Bacterial Reproduction 5 – The Ames Test 6 – Biochemical Tests 7 – Virology 8 – Water Quality 9 – The Compound Light Microscope 10 – Preparation of Scientific Drawings 11 – Aseptic Technique 12 – The Cultivation of Bacteria 13 – Bacterial Observation 14 – Laboratory Reports 15 – Use of the Spectrophotometer 16 – Media, Reagents, pH Indicators 17 – Care and Feeding of the Microscopes

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		—
١	Continuous periodic assessment 20 %		—

٢	Final examination 20%		ـــــ
	Total 100%		ـــــ

Reference:

1. Bauman, R. W. Microbiology. With Diseases by Body System. 2nd ed., San Francisco: Pearson Education, Inc., Benjamin Cummings, 2009.
2. Microbiology: A Clinical Approach. Strelkauskas et al., Garland Science. (2010). ISBN 978-0-8153-6514-3

Course title	**Environmental Health**
Course code	**TN214**
Level/ Semester	L2 /s1
Credit hour	2
Course Description	Examines health issues, scientific understanding of causes, and possible future approaches to control of the major environmental health problems in industrialized and developing countries. Topics include how the body reacts to environmental pollutants; physical, chemical, and biological agents of environmental contamination; vectors for dissemination (air, water, soil); solid and hazardous waste; susceptible populations; biomarkers and risk analysis; the scientific basis for policy decisions; and emerging global environmental health problems.
Objectives	Upon completion of this course, you will be able to: **1**- Define the major sources and types of environmental agents . **2**-Discuss the transport and fate of these agents in the environment. **3**-Identify the carriers or vectors that promote the transfer of these agents from the environment to the human. 4-Describe how these agents interact with biological systems, and the mechanisms by which they exert adverse health effects. **5**-identify and use models for prediction of the magnitude of adverse effects in biological systems. **6**-Identify and define the steps in the risk-assessment and risk-

	management processes. **7**-Describe the steps in the regulatory processin terms of risk assessment and risk management and identify current legislation and regulation regarding environmental issues.
learning outcomes:	Upon successful completion of this course, students should be able to: Explain how environmental change can affect human health and well-being; 1. Explain the role of environmental protection in controlling major environmental health problems in industrialized and developing countries; and 2. Apply basic models based on environmental measurement and monitoring to environmental health, and to the design of eco-efficient products and processes.
Topics	- Human impact on the environment - Environment-human interaction - Environmental impact on humans - Exposure, dose, response - Environmental toxicology - Environmental carcinogenesis - Risk assessment and management - Indoor and outdoor air pollution - Environmental health economics and policy - Occupational health - Food and water-borne disease - Municipal, industrial, and hazardous waste

	- Environmental justice and policy - Risk communication

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

1. "Environmental Determinants of Health" by C. Eckhert is available at Course Reader Material, 1080 Broxton Ave, Westwood, CA.
2. Friss, R.L.(2012). Essentials!of!Environmental Health (2nd edition). Jones!and Bartlett. Sudbury, Massachusetts. Pp 419.

Course title	**Analytical Chemistry**
Course code	**MCR215**
Level/ Semester	**L2 /s1**
Credit hour	**3 hours**
Course Description	This course is an introductory to analytical chemistry assess students for understanding the theoretical and practical knowledge concerning quantitative analysis as well as how to manipulate different techniques in volumetric analysis. In addition to provide students with a broad and balanced foundation of analytical knowledge and practical skills in medical laboratories.
Objectives	***By the end of this course, the medical Lab students should be able to***: 1. Apply their analytical knowledge and skills to solve theoretical and practical problems in chemistry. 2. Education in chemistry, a range of transferable skills, of value in chemical and non-chemical employment 3. Provide students with a knowledge and skills base from which they can proceed to further studies in specialized areas of chemistry or multi-disciplinary areas involving chemistry. 4. Ensure that students become conversant with the following main aspects of chemistry: Major aspects of analytical terminology, nomenclature, conventions and units. Ensure that students become conversant with the following main

	aspects of chemistry: Major aspects of analytical terminology, nomenclature, conventions and units 5. Prepare the analytical solutions, and describe the properties of and types of acids base and salts 6. Apply the skills in the safe handling of chemical materials, taking into account their physical and chemical properties, including any specific hazards associated with their use. Apply the skills required for the conduct of standard analytical laboratory procedures involved for both organic and inorganic compounds.
learning outcomes:	• Knowledge and understanding At the end of this module, student will be able to: 1. Have a rigorous background in those chemical principles that are of particular importance to analytical chemistry. 2. Be subjected to traditional techniques of analytical chemistry. 3. Acquire confidence in his/her ability to obtain high quality analytical data. • *Communication skills* 1-Adapt group discussion technique 2-learn the student the principle of team-work 3-Show respect for the students' opinion. • *Practical and subject specific skills (Transferable Skills).* • Learn how to follow general policies and safety precautions in the lab. • Learn handling of glassware in the lab.

	• Learn how to deal with heat sources in the lab. Learn different lab techniques as filtration, Decolorization, Drying and Reflux.
Topics	• **Acid - Base titrations:** ❑ Definition ❑ Theoretical bases of neutralisation reactions ❑ Neutralisation indicators ❑ Colorimetric determination of pH ❑ Neutralisation titration curves • Application of neutralisation reaction • **Concepts of:** ❑ Molarity, normality, molality ❑ Measurements of units • Applications • **Precipitation titration** ❑ Theory preciptimetry ❑ Titration curves and end point detection • Applications • **Complex metric titration** ❑ General considerations ❑ Titration of metal with liqauds ❑ Indicators • Application • **Solutions:** ❑ Definition

	❑ Solvents, solute, and liquids ❑ Preparations of solutions • **Chromatography techniques:** principles, types and applications • **Electrophoresis techniques:** principles and applications **Practical part:** 1- Simple acid radicals (groups I , II-III and mixtures). 2- Acid radical mixtures without interference and with interference. 3- Interfering acid radical mixtures. 4- Organic acid radicals. 5- Basic radicals (silver group, copper-arsenic group, iron group, zinc group, alkaline-earths group, alkali metal group). 6- Interference in cation analysis (oxidizing agents, organic matter, insolubles, phosphate). 7- Preciptimetric titrations: Determination of chloride by Mohr's and Fajan's method, bromide by Volhard's method; Determination of zinc salts; Determination of chloride and iodide mixture; Determination of $HgCl_2$. 8- Complexometric titrations: Determination of Cu^{2+}, of mixture of (Ca^{2+} and Mg^{2+}) and of Zn^{2+} 9- Gravimetric analysis: Determination of Ca^{2+} as oxalate, and Ni^{2+} as dimethylglyoximate

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		ـــــ
١	Continuous periodic assessment 20 %		ـــــ
٢	Final examination 20%		ـــــ
	Total 100%		ـــــ

Reference:

1. Daniel C. Harris, Quantitative Chemical Analysis, 7th Ed., Freeman, New York, 2007.
2. Daniel C. Harris. 2010. Quantitative Chemical Analysis, Edition Number:8th, Publisher: Freeman, W. H. & Company. ISBN913: 9781429218153

Course title	**Nutrition Biochemistry**
Course code	**TN216**
Level/ Semester	L2 /s1
Credit hour	3 hours
Course Description	This course introduces you to the structural and functional characteristics of macronutrients (carbohydrates, lipids, proteins) and micronutrients (vitamins) in food consumed by humans. The students will learn about the biochemical mechanisms associated with the digestion and assimilation of macronutrients. Special topics covered include blood plasma lipoproteins and cardiovascular disease, lactose intolerance, the glycemic index, properties of dietary fibre, tissue-specific metabolism during the fed-fast cycle, and the role of vitamins in metabolic regulation.
Objectives:	By completion of this course ,the students should be able to : 1. Understand the biochemistry of the carbohydrate, lipid and protein metabolism. 2.Discuss the biochemistry of minerals metabolism and body fluids 3. Understand the scientific bases of xenobiotic, oxygen free radicals and hormones. 4. Have suffient knowledge about obesity and starvation. 5. Describe the basic biochemistry of hemoglobin metabolism andbiological oxidation.
learning outcomes	a1-Have the ability to Define the metabolic pathways of of carbohydrates, lipids, proteins, nucleotides and their

	micro-molecules and determine the site of each. a2. Illustrate the steps and regulatory mechanisms of these pathways. a3. Point out the related metabolic disorders and their clinical prints on biochemical and molecular basis. a4. Identify hormones, their biochemical, clinical and laboratory importance and deficiency manifestations of each. a5. Describe the components of some body fluids; viz. blood, urine, milk, Semen,CSF and sweat. A6:Understand the basis of biological oxidation, metabolism of xenobiotics ,macro and micro minerals and Hemoglobin A7: define and describe biochemical basis ofobesity and starvation
Topics	*Introduction to Metabolic pathways. *Oxidation of glucose. *Fructose and galactose metabolism. *Molecular organization and function of mitochondria. *Pyruvate oxidation and TCA cycle. *Shuttles and translocation mechanisms. *Electron transport / Oxidative phosphorylation. *Gluconeogenesis. *Glycogen metabolism. *Pentose phosphate pathway. *Metabolic energy from fatty acids. *Carbohydrate to fat pathway. *Metabolism of membrane lipids. *Lipid transport.

	*Clinical significances of lipoprotein metabolism. *Triglycerides & Cholesterol *Hypercholesterolemia -Atherosclerosis –Hyperlipoproteinemia. *Integration of metabolism; hormones. *Metabolism of amino acids. *Transamination. *Oxidative deamination. *The urea cycle.

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

1. Eqbal, D., Aminah, A. & Halimah, A. S. 2011. Review Article: Natural Antioxidants, Lipid Profile, and Antioxidant Enzyme of vegetable oils. Advance Journal of food science and technology 3(4): 308-316
2. WardlawGordon.M. Perspectives in Nutrition 4th ed. McGraw-Hill companies. pp 75-106.
3. Eqbal, D., Halimah, A. S. & Aminah, A. 2011.Vitamin E and Beta Carotene Composition in Four Different Vegetable Oils. American journal of applied Science 8(5): 407-412

SYLLBUS OF

SECOND SEMESTER-

SECONDYEAR

Course title	**Food Microbiology**
Course code	**TN221**
Level/ Semester	L2 / S2
Credit hours	3 hour
Course Description	This course is designed to extend the student's knowledge and understanding of the attributes of micro-organisms and the applications of different techniques and food safety in the applied science area of food microbiology. It will also develop an advanced understanding of the microbiology of food and food-borne diseases and food spoilage and modern microbial analysis techniques.
Objectives:	The objectives of the course is to: 1. Provide an advanced theoretical education and practical training in the area of Food Microbiology. 2. Determine role of micro-organisms in food production, spoilage and food poisoning. 3. Be able to conduct with current laboratory research practice in Food Microbiology. 4. Acquiredand integrate knowledge from different aspects of Food Microbiology to enable student to formulate appropriate judgments in the relevant field.
learning Outcomes:	After participating in the course, students would be able to: 1. Apply knowledge of microbiology in the food industry.

	2. To detect and identify microbiological contaminants food spoiling present in food using current rapid methods as well as traditional techniques. 4. Determine of microorganisms in water and the methods of assessing microbiological quality of water. 5. Evaluate the importance and principles of food borne disease as well as the mechanisms of microbiological pathology as it relates to food borne disease. 7. Conduct routine microbiological test in food quality control.
Topics	1. Overviews of microorganisms associated with food. 2. Characteristics of predominant microorganisms in food. 3.Normal microbiological quality of foods and its significance. 4. Bacterial foodborne diseases (Important facts in foodborne diseases, Foodborne intoxications, Foodborne infections). 5. Case of food safety issues regarding non-bacterial foodborne pathogens, e.g., mycotoxins, viruses, parasites, etc. 6. Indicator Microorganisms & Microbiological Criteria. 7. Microbiology of Animal Organ Food. 8. Microbiology of Plant Organ Food. **Practical part:** 1. Food Microbiology by Frazier. 2. Food Microbiology by H.A .Modi. (Vol. I&II) 3. Industrial Microbiology by A.H.Patel. 4. Industrial Microbiology by Prescott & Dunn. 5. Soil Microbiology by Subbarao. 6. Agriculture Microbiology by Rangaswamy. 7. Methods in Food and Dairy Microbiolgy by Harrigon. 8. Bio fertilizers –Vyas & Vyas(Ekta Publication). 9. Bacteriological Techniques- F.K. Baker 10. Milk & milk products–Winton & Winton 11. Pharmaceutical Microbiology–Hugo & Russell.

	12. Citric acid Biotechnology–J. Achrekar. 13. Enzyme Biotechnology–G. Tripathi. 14. Bio fertilizers– Arun Sharma. 15. Industrial Microbiology–Agrawal / Parihar 16. Biotechnology–S. S. Purohit. 17. Agriculture Microbiology–G. Rangaswami & D. J. Bagyaraj 18. Text-book of Biotechnology–G. R. Chhatwal. 19. Pharmaceutical Biotechnology–Purohit / Kakrani / Saluja. 20. Practical Microbiology–R. C. Dubey and D. K. Maheshwari 21. Experimental Microbiology–Rakesh J. Patel & Kiran R. Patel. (Vol. I&II) 22. Fertilizer Control Order–1985 amended up to June, 2011 23. Practical Biochemistry by Plummer. 24. Microbial technology by Peppler & Periman.

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

1. John Carter and Venetia Saunders. 2007. Virology: principles and applications. John Wiley and Sons Ltd. England.
2. Food Microbiology; An Introduction; Thomas J. Montville Karl R. Matthews. 2005. 1st ed. ASM Press, Washington DC. ISB 1-55581-308-9.
3. Modi, H.A. (2009). Microbial Spoilage of Foods. Aavishkaar Publishers, Indi

Course title	**Pharmacology 1**
Course code	**TN222**
Level/ Semester	L2 /s2
Credit hour	2 hours
Course Description	This course is a basic study of medications and their safe administration to patients. Aspects of drug administration included are basic pharmacology terminology; dosage calculations; and basic drug classifications, their therapeutic use, common adverse effects, and precautions related to administration.
Objectives	Upon completion of this course, the student will demonstrate ability to safely and accurately calculate and administer enteral, parenteral, and percutaneous medications to patients in various clinical settings. The student will display knowledge of the principals of drug actions, interactions, classifications, correct dosage, calculation of doses, adverse reactions, and nursing intervention in clinical practice and on written examinations, with a final grade of 80% or higher.
learning outcomes:	Theory grade will be determined as follows: Tests & Assignments 85% Final Exam 15% Clinical grade will be satisfactory or unsatisfactory and will be determined by student's demonstrated knowledge of assigned patients' medications and the practice of basic drug administration principles, as taught in the classroom and expected by clinical agencies.
Topics	1-Review of Basic Math 3 2- Temperature & Time Conversions/Abbreviations 3 -3 Metric, Apothecary, & Household Measure Conversions 6 4- Dosage Calculations 3 5- Definitions, Names, Standards, & Information Sources 3 6- Principles of Drug Action & Interaction 3 7- Principles of Medication Administration 3 8- Enteral Medications 3 9 -Parenteral Medications 6 10 -Percutaneous Medications 3 11- Overview of the Autonomic Nervous System 3

	12- Overview of Drugs Affecting the CNS 3 13- Antimicrobial Agents 6 14- Overview of Text

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

Course title	**Body Fluid Analysis**
Course code	**TN223**
Level/ Semester	L2 /s2
Credit hour	3 hours
Course Description	This course provides the students with a broad knowledge about body fluid. The course includes study of normal and abnormal body fluid, their different types, formation, composition, microscopic characteristics, locations, distribution and functions in the human body and of the different organ system and their respective roles and function in the organization of the body.
Objectives	• To provide the student with knowledge of the production, composition, normal and abnormal characteristics and laboratory evaluation techniques of body fluids. • To provide the student with a greater understanding of pathological processes which occur to produce abnormal fluids. • To provide a background for students in Clinical Laboratory Science and other allied health programs who are continuing their clinical training in professional and graduate programs.
learning outcomes:	**3.** Use an understanding of the normal and abnormal constituents of body fluids and their correlation with appropriate pathologic conditions to make appropriate and effective on-the-job professional decisions. **4.** Apply appropriate laboratory techniques, methodologies, instruments and equipment; and accurately calculate, record, and

	tabulate data to improve patient care. **3**. Adapt laboratory techniques and procedures in a corrective manner when errors and discrepancies in results are obtained to affect resolution in a professional and timely manner.
Topics	• Urine: Urine formation and composition of urine, ❑ *Normal composition of urine*, • *Organic components* - Urea, uric acid, creatine, creatinine, amino acids, hippuric acid • *Inorganic components* - Cations – Na^+, K+, Ca^+, Mg^+ and NH_4^+- Anions- Cl^-, SO_4^-, and HPO_4^- ❑ *Abnormal composition of urine* ❑ Describe the definition, causes and clinical applications of the following: • Protein (proteinuria), Sugar (glucosuria), ketone bodies, acetone (ketouria), bile acids, bilirubin, urobilinogen, and nitrite ❑ Renal stones: formation, composition and analysis ❑ Routine examination of urine ❑ *Physical examination (normal & abnormal)* • Urine volume, color, pH, appearance, specific gravity and odor ❑ *Chemical examination* • Urine albumin, Bence-jones protein, glucose, acetone, bilirubin, urobilinogen and nitrite ❑ *Microscopic examination* • White & red blood cells, epithelial cells, casts, crystals (different types), normal and pathogenesis ❑ *Urinalysis report*

	• Interpretation of the results for routine urinalysis • Cerebrospinal fluids (CSF): ❑ Overview of CSF - Sampling, lumber puncture ❑ Description, function & normal composition of CSF ❑ CSF color and appearance (normal & abnormal) ❑ *Microscopic examination*: total cell count, RBCs and WBCs and differential cell count ❑ *Biochemical components*: glucose, LDH, protein and serological tests • Effects of different meningitis on biochemical components of CSF • Normal CSF reference rang and differences from child hood and adult value • Ascetic, pleural and peritoneal: ❑ Description: exudates and transudate effusions ❑ Normal and abnormal composition ❑ *Physical and biochemical studies*: protein content, glucose, amylase and LDH level ❑ *Microscopically examination*: cell content and differential • Seminal fluids: ❑ Definition, formation of semen, hormonal effects on semen formation ❑ Sample collection, analysis of semen – physical, microscopical and chemical examination (fructosamine) Methods of teaching: ➢ Lectures, discussion, board, overhead projector and data show

	➢ Laboratory and laboratory equipments. Practical part ➢ Selected experiments on the above topics

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		ــــ
١	Continuous periodic assessment 20 %		ــــ
٢	Final examination 20%		ــــ
	Total 100%		ــــ

Reference:

1. Brunzel, Nancy A. Fundamentals of Urine and Body Fluid Analysis, 2nd Edition. Saunders, Philadelphia, 2004.

2. Mundt, Lillian A. and Shanahan, Kristy. Graff's Textbook of Routine Urinalysis and Body Fluids, 2nd Edition. Lippincott, Philadelphia, 2011.

3. Strasinger, Susan King and DiLorenzo, Marjorie Schaub. Urinalysis and Body Fluids, 4th Edition. F. A. Davis, Philadelphia, 2001.

Course title	**Human Genetic**
Course code	**TN224**
Level/ Semester	**L2 /s2**
Credit hour	**2 hours**
Course Description	Inheritance in humans, including genetic mechanisms, human populations, medical syndromes, eugenics, and genetic counseling. Does not count toward biology major.
Objectives	1- advances in molecular biology and computer science have created a synergy that is allowing geneticists to investigate fascinating questions that we would not have thought possible just a few decades ago. 2- The ability to sequence entire genomes and to handle this large amount of data rapidly has allowed the scientific community to discover the complete genomic sequences of organisms ranging from bacteria to humans. 2- Determine the function of genes that direct how we as humans develop and function. Moreover, these studies are helping to identify genes that when mutated cause disease. 3- These discoveries are having incredible social, medical, economical, and political impacts that we all will have to consider at some point. 4- Thus- it is an exciting time to become a geneticist – even if only for one semester The objective of this course is to explore the mechanisms of human heredity and how our understanding of them is revealed by scientific experimentation.

	5- The location, transmission, structure and function of genes encoding specific traits are discussed. 6- The effect of mutations, genes implicated in human genetic disease, and population genetics are dealt with, as well as how issues such as recombinant DNA technology, gene therapy, genetically modified foods, AIDS and cancer impact our society.
learning outcomes:	**Knowledge and understanding** -Review the structures and functions of nucleic acids and proteins -Describes the Molecular Mechanisms of DNA replication -Describe the Molecular mechanisms involved in gene transcription and translation -Appreciate the role of protein structure in function **Cognitive skills (thinking and analysis)** - Analyzing, summarizing and integrating information from a variety of media. - Gain Self-management and professional development such as skills necessary for self managed and lifelong learning (working independently, time management, organization). **Communication skills (personal and academic)** -For every lecture the last five minutes will be open for discussion. For further discussion, the students are welcome at the lecturer.s office hour as appeared in first page. -The students have the option to submit their module activities either by email or by hand

	-the students are welcome to share open discussions through the net - Gain interpersonal and Teamwork skills by getting opportunities to work productively with others in the laboratory. **Practical and subject specific skills (Transferable Skills)** 1-This course provides the student with a good background in molecular biology which enables him to practice some molecular biology techniques in the practical part of this course. -In order to provide students with the "life long learning. attitude, the teaching method is essentially based on self learning (coursework and seminars, etc.) and the scientific literature effectively. - Practical related sessions will be taken in other related module. 2-Improve Practical skills such as ability to work with mammalian cell line and tissues and the ability to obtain record, collate and analyze information in the laboratory.
Topics	**1** -System and analytical approaches molecular biology.- Macromolecules (proteins nature of DNA and other nucleic acids). **2 -** Replication of double stranded DNA **3-** DNA repair Mechanisms. **4-**Transcription: prokaryotes: Ribososme binding, initiation, RNA synthesis. **5-** Transcription: Eukaryotes: **6-**RNApolymerase II, promoter, general transcription) Splicing:snRNPs,spliceome) **7-** Translation (RNA ribosomes, prokaryotes initiation, formal methionine, eukaryotic initiation ,elongation, termination).

	9- Control of gene activity in prokaryotes **10-** Control of gene activity in prokaryotes. **11-** Control of gene activity in eukaryotes *Eukaryotes gene structure and function **12-** Recombinant DNA and Genetic Egineering: Molecular Tailoring of Genes.

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical

Reference:

1. Ronnee Yashon and Michael Cummings. 2009. Human Genetics and Society, 1st Edition. Published by Brooks/Cole-Cengage Learning.
2. David A Adler. 2001. Human Genetics. ZymoGenetics, Seattle, Washington, USA

Course title	**Food Analysis**
Course code	**TN225**
Level/ Semester	L2 / S2
Credit hours	3 hour
Course Description	This course introduces the important components of food and how to analyze, focusing on the relationship between their structures and functions, and the interaction of these components in food processing and preservation as well as their effect on food quality.
Objectives:	The aims of the course is to: 1. Familiarize determine the chemical nature of foods (carbohydrates, proteins, lipids, vitamins, mineral elements, and water). 2. Provide hands-on experience to apply the analytical techniques of food chemistry in real context. 3. Understand the effect of processing, storage, and cooking on major components of foods. 4. Identify changes associated with mechanism of browning reactions and lipid oxidation and the effects on food quality.
learning Outcomes:	After participating in the course, students would be able to: 1.Define the major and minors components of foods. 2. Identify the functional properties of major components of foods. 3. Describe the nature and properties of compounds that give color and flavor to food products.

	4. Describe the nature and properties of compounds that give color and flavor to food products. 5. Define the chemical reactions of major components of foods during processing and storage. 6. Clarify how individual food components contributes to the overall quality of foods. 7. Identify the chemical reactions of major components of foods during processing and storage. 8. Analyze the gross chemical composition of food, and perform laboratory procedures to determine food components and to obtain reliable results. 9. Apply various techniques in analyzing food samples.
Topics	1. Definition of analytical food chemistry. 2. Introduction to proximate analysis and energy value calculation. 3. Water in Foods and its analytical techniques (Physical Properties of Water, Structure of the Water Molecule, Types of Water, Water Activity and Food Spoilage, Water Activity and Food Processing& the techniques of determine water content in food sample). 4. Chemistry of food Carbohydrates and its analytical techniques (Monosaccharaides, Oligosaccharides, Polysaccharides, Dietary Fiber, rule fiber). 5. Chemistry of food Lipids and its analytical techniques (Fatty Acids and Glycerides Description, Phospholipids, Fat oxidation, Hydrogenation, Fractionation, Emulsions and Emulsifiers,

	&Novel Oils and Fats). 6. Chemistry of food proteins and its analytical techniques (Amino Acid Composition, Protein Classification, and Structure, Denaturation, Functional Properties, Animal & Plant Proteins). 7. Chemistry of mineral elements and its analytical techniques (Major Minerals, Trace Elements). 8. Chemistry of vitamins and its analytical techniques (Fat and Water-Soluble Vitamins, Vitamins as Food Ingredients). Practical part Selected experiments on the above topics

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		ــــ
١	Continuous periodic assessment 20 %		ــــ
٢	Final examination 20%		ــــ
	Total 100%		ــــ

Reference:

1. Nielsen, S. Suzanne 2010, Food Analysis, 4th ed., SpringerLink (Online service) ISBN 1441914781 (prior hard copy editions would be fine) http://www.springerlink.com.proxy2.lib.umanitoba.ca/content/mr44w0/#section=722059&page=1&locus=0
2. Nollet, L. M.L. (ed) 2004. Handbook of food analysis. v. 3. Methods and instruments in applied food analysis. Marcel Dekker, New York. c2004.

Course title	**Food Hygiene**
Course code	**TN226**
Level/ Semester	L2 / S2
Credit hours	3 hours
Course Description	This course is designed to foster students' understanding and appreciation of food hygiene and safety management. Emphasis is focused on food hygiene and safety standards required for licensed food premises in Yemen (especially for BMG ,cleaning, sanitation, and pest control operations) as well as the internationally recognized food safety management system namely hazard analysis and critical control points (HACCP).
Objectives:	The objectives of the course is to: 1. Provide basic food hygiene principles and the importance of food hygiene and sanitation in food premise. 2. Provide food handlers with the knowledge and the skillsto ensure production of safe food for the consumer. 3. To explain the benefit of HACCP in food industry.
learning Outcomes:	After participating in the course, students would be able to: 1. Understand food hygiene & safety standards required for licensed food premises. 2. Applyfundamentals of food hygiene management in food processing and manufacturing industry. 3. Apply HACCP criteria in different food production settings.

	4. To acquire skills ofcritical thinking and problem solutions.
Topics	1. Role of Food Hygiene & Safety Management in food industry. 2. Design an infrastructure neededfor Food Premises. 3. Cleaningequipment, material and CIP cleaning technology. 4. Sanitizationand sanitizer. 5. Pest Controlof major concern in food industries. 6. Safe Food Handling and Training of Food Handlers. 7. Good manufactory practice in food industries 8. Hazard analysis and Critical Control Point. Practical part 1. INTRODUCTION 3 2. SCOPE AND USE OF THIS CODE 3 4. GENERAL PRINCIPLES OF MEAT HYGIENE 5. PRIMARY PRODUCTION 5.1 Principles of meat hygiene applying to primary production 5.2 Hygiene of slaughter animals 5.3 Hygiene of killed wild game 5.4 Hygiene of feed and feed ingredients 5.5 Hygiene of the primary production environment 5.6 Transport 5.6.1 Transport of slaughter animals 5.6.2 Transport of killed wild game 6. PRESENTATION OF ANIMALS FOR SLAUGHTER 6.1 Principles of meat hygiene applying to animals presented for slaughter 6.2 Conditions of lairage 6.3 Ante-mortem inspection 6.3.1 Design of ante-mortem inspection systems 6.3.2 Implementation of ante-mortem inspection 6.3.3 Ante-mortem judgement categories 6.4 Information on animals presented for slaughter 7. PRESENTATION OF KILLED WILD GAME FOR DRESSING 7.1 Principles of meat hygiene applying to inspection of killed wild game presented for dressing 7.2 Inspection of killed wild game presented for dressing 8. ESTABLISHMENTS: DESIGN, FACILITIES AND EQUIPMENT 8.1 Principles of meat hygiene applying to establishments, facilities and equipment 8.2 Design and construction of lair ages 8.3 Design and construction of slaughter areas 8.4 Design and construction of areas where bodies of animals are dressed or

	meat may otherwise be present 8.5 Design and construction of equipment where bodies of animals are dressed or meat may be present

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

1. Ronald H. Schmidt and Gary E. Rodrick. 2002. Food Safety Handbook. Wiley; 1st edition.
2. Motarjemi Yasmine and Adams, Martin (ed). 2006. Emerging Foodborne Pathogens. Woodhead Publishing
3. Norman G. Marriott and Robert B. Gravani. 2006. Principles of Food Sanitation. Springer; 5th edition

SYLLBUS OF

FIRST SEMESTER-

THIRD YEAR

Course title	**Advanced Human Nutrition**
Course code	**TN311**
Level/ Semester	L3/S1
Credit hours	2 Hours
Course Description	This course explores the role of nutrition in development, health and disease. It places an emphasis on acknowledging heterogeneity in nutritional needs and on evaluating evidence regarding issues pertaining to nutrition
Objectives:	- To reinforce and apply basic concepts in nutrition - To highlight the heterogeneity in individual and group nutritional needs, practices and tolerances - To foster development of an ability to critically evaluate information related to nutrition
learning Outcomes:	1) Ability to acquire knowledge of the principles of human physiology, biochemistry and nutrition 2) Ability to plan a healthy diet 3) Ability to explain the functions, requirements and food sources of the nutrients 4) Ability to describe impairment of health that results from either toxicity or deficiency of nutrients 5) Ability to understand the concept of balance relative to adequate nutrient intake and optimal health 6) Ability to comprehend the relation between nutrition and the most epidemic chronic diseases.

Topics	1) An overview of nutrition 2) Planning a healthy diet 3) Digestion, Absorption, and Transport 4) Energy Balance and body composition 5) Weight management: Overweight and Underweight 6) The water-Soluble Vitamins: B Vitamins and Vitamin C 7) The Fat-Soluble Vitamins: A, D, E, and K 8) Water and Major Minerals 9) Nutrition Care and Assessment 10) Nutrition Intervention 11) Diet, Medications, and Dietary Supplements 12) Enteral Nutrition Support 13) Parenteral Nutrition Support 14) Nutrition in Metabolic and Respiratory Stress 15) Nutrition and Disorders of the Upper Gastrointestinal Tract 16) Nutrition and Lower Gastrointestinal Disorders 17) Nutrition, Liver Disease, and Gallstones 18) Nutrition and Diabetes Mellitus 19) Nutrition and Cardiovascular Diseases 20) Nutrition and Renal Diseases Nutrition, Cancer, and HIV Infection.

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical

Reference:

1. Advanced Nutrition and Human Metabolism, 5th Edition. 2009. Sareen S. Gropper and Jack L. Smith. Wadsworth Cengage Learning. ISBN-10: 0495116572 ISBN-13: 9780495116578.

2. Advanced Nutrition and Human Metabolism

J.L. Groff, J.L. Smith & S.S. Gropper (5th ed.) OR (4th ed.) OR (3rd ed.).

Course title	**Sport Nutrition**
Course code	**TN312**
Level/ Semester	L3/S1
Credit hours	3 Hours
Course Description	Describes in summary what the learner will achieve on successfully completing the module and in what learning and vocational contexts the module has been developed. Where relevant, it lists what certification will be awarded by other certification agencies.
Objectives:	Learners who successfully complete this module will: 1 -be familiar with the concepts of nutrition and digestion 2 Outline common terminology associated with nutrition and the nutritional requirements of active people 3- Understand the role of the macro-nutrients as energy sources in exercise and sport. 4- Describe optimal food and fluid intake before, during and after exercise. 5- Utilise and evaluate common methods for assessing energy intake and energy expenditure 6-Design appropriate nutrition programmes for different sporting and weight management needs 8- Understand the concepts involved in mineral and vitamin supplementation

	9- Investigate the potential versus actual benefits of taking nutritional ergogenic aids for exercis
learning Outcomes:	Learners should be able to: 1- Identify the macro nutrients in the diet and their functions 2- Outline the components of a healthy balanced diet 3- List the energy values of the different food types 4- Identify the contribution of each of the macronutrients as sources of energy for exercise and sport 5- Outline the relative importance of carbohydrate, fat and protein metabolism during physical activity of various intensities and durations 6- Explain the importance of carbohydrates during high intensity exercise 7- Indicate the benefits of classifying foods according to their glycemic index and the resulting effect on energy release 8- Identify how diet affects muscle glycogen levels and endurance performance 9- Discuss the effects of aerobic training on carbohydrate and fat utilization. 10- Rationalise situations where an increased intake of protein above the RDA (recommended daily allowance) may be advisable 11- Compare and analyse a balanced diet for a sedentary individual with that of an active person in terms of energy intake and energy requirements

	12- Explain the function of water in the diet and its effects 13- List the causes and effects of dehydration 14- Establish links between dehydration and fatigue during and after exercise 15- Indicate optimal fluid intake before, during and after exercise 16- Explain any value/benefit of the different sports drinks (Isotonic, hypotonic, hypertonic) and energy bars for a person involved in exercise 17- Identify the goals of the pre-exercise and post-exercise meal and food intake during training or competition 18- Compare the recommended dietary guidelines with the demands of different athletes during training and /or competition 19- Outline the factors that would influence the type of food and drink taken before, during and after exercise 20 Explain the term carbohydrate loading and how it is achieved 21- Compare the classic versus modified methods used in carbohydrate loading for endurance events 22- Outline the role of the glycemic index in pre-exercise and post-exercise replenishment 23- Indicate factors that influence glycogen resynthesis and rehydration in relation to timing and composition of the post exercise meal 24- Develop a pre-event and post-event meal considering an

	athletes requirement for training/competition.
Topics	1: Introduction to Sports Nutrition (Emily) • Assess current level of sport nutrition • Sport Nutrition as compared to Healthy Nutrition- Food as Fuel • Dietary Guidelines • Food Pyramid for Athletes • The Nutrition Professional- Exercise and Nutrition Certifications 2: Energy for Human Nutrition (Emily) • Energy Systems 3: Macro Nutrients (Monica) • Carbs, fats, and proteins 4: Vitamins and Minerals (Emily) • Vitamins and "energy" • Antioxidants • Critical Minerals in Sport 5: Hydration (Monica) • Dehydration • Hyper-hydration • Heat Illness

- Oral Rehydration Solutions
- Alcohol and performance

6: Nutrient Timing (Emily)

- Nutrition prior to exercise, during exercise, post exercise

7: Weight Management and Body Composition in Sport (Emily)

- Safe, effective weight loss
- Weight gain
- Intuitive/Mindful Eating
- Body Composition Methods
- Application of body composition in nutrition practice
- How nutrient timing effects body composition

8: Current Ergogenic Aids (Emily)

- Research methods
- Popular sport-enhancing agents
- Select and Evaluate an Ergogenic Aid, Research Project

9: Latest Trends in Sport Nutrition (Monica)

- Facts vs Fads in labeling claims and advertisements
- Functional Foods
- Inflammation
- Gluten Sensitivity and Intolerance
- Nutrition for Healing

10: Disordered Eating (Monica)

- Prevention and Detection of AN, BN, and BED
- Risk Factors
- Sociocultural issues
- Female Athlete Triad
- Body Image

Practical part:

Introduction and overview of the unit.
1: Digestion and Absorption.
- Tutor introduces the assignment brief.
-The digestive system – structure and functions: digestion, absorption and excretion.
-Tutor-led delivery and small group research.
-Nutritional terminology and food sources: learner research in pairs and group feedback.
Balanced diet – how diets may differ. Tutor-led session designing a food plan pyramid. Small group research:
- balance of good health and group feedback.
2: Balancing Energy – Intake and Expenditure
-Tutor introduces the assignment brief.
-Investigating different sources of energy for fuel and how this can be measured.
-Tutor-led session. Research in pairs and presentation of findings to the group.
- Laboratory testing of practical measures (anthropometric) of energy intake and expenditure – work in pairs.
- Feedback to the group comparing different methods and accuracy of results.
3: Hydration and the Sports Performer
- Tutor introduces the assignment brief.
-The effects of hydration on the body – signs and symptoms. Tutor-led discussion and individual learner research
activity.
- Exercise types and fluid balance: tutor-led discussion and learner research in pairs. Group discussion of findings.
- Sports drinks research: small group research – presentation to group of different drinks. Production of a poster on hydration and sports activities.

: A Balanced Diet
-Tutor introduces the assignment brief.
-Balanced diets for athletes and sports performers. Small group research – devising a food diary log.
Individual completion of a food log, analysis of completed food logs.

	5: The Diet Plan. -Tutor introduces the assignment brief. -Nutrition for different sporting activities – small group work researching energy intake and expenditure, comparing two different performers. - Feedback and presentation to the group. -Planning diets – small group work devising breakfast, lunches, dinners, refuelling snacks and hydration requirements. Producing a sample two-week diet plan and menu linked to a selected sports performer. - Review of unit and assessment.

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

1. Jeukendrup, A & Gleeson, M. 2010. Sport Nutrition, 2nd Ed. Publisher by: Human Kinetics.
2. SPORTS NUTRITION: Understanding Dietary and Physiological Effect on the Human Body Robert S. Tyzbir, Ph.D. ISBN 978-1-62131-147-8 (First Edition) published by Cognella Academic Publishing and distributed by University Readers, Inc.

Course Title	**Nutritional Assessment**
Course code	**TN313**
Credit Hours	3hour
Study Level	3rd year – 1st term
Course discretion	This module will introduce students to the main techniques used to measure body composition and energy expenditure in clinical and community settings. One of the objectives will be to use simple experimental techniques to explore the relationship between lifestyle and body composition and between activity and energy expenditure.
Objectives:	At the end of the course, the students will be able to: 1. Understand the principles and practicalities of the variety of methods used in assessing food /nutrient intake and nutritional status. 2. Evaluate these methods in terms of strengths, limitations and appropriateness for particular populations, individuals, clinical situations and study designs. 3. Complete exercises to practice doing nutritional screening, dietary and nutritional assessment of individuals in different situations. 4. Develop practical skills, critical thinking, team work and communication skills.
learning outcomes	By the End of this Course Students should have a good knowledge about: 1) Concepts of human body composition. 2) Anthropometrics - scaling the human frame in health and disease.

	3) Body density and body fat measurements - skinfolds, bioelectric impedance, body-line scanning and plethysmography. 4) Indirect calorimetry practical. 5) Anthropometry practical and data analysis. 6) Applying anthropometric and energy expenditure measurements in clinical settings.
Topics	1) Introduction to Nutritional Assessment 2) Standards for Nutrient Intake 3) Measuring Diet 4) National Dietary and Nutrition Surveys 5) Computerized Dietary Analysis Systems 6) Anthropometry 7) Nutritional Assessment in Disease Prevention 8) Biochemical Assessment of Nutritional Status 9) Clinical Assessment of Nutritional Status 10) Counseling Theory and Technique 11) Assessment of the Hospitalized Patient

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical

Reference:

1. Lee, R.D and Neiman D.C. 2010. Nutritional assessment. McGraw Hill.

2. Webb, P. et. al. 2006. Measuring Household Food Insecurity: Why It's So Important and Yet So Difficult to Do. Journal of Nutrition. 136: S1404-08.

3. Wiesmann, D. et. al. 2006. Review and Validation of Dietary Diversity, Food Frequency and Other Proxy Indicators of Household Food Security. Report prepared for the World Food Programme, Washington, D.C.: IFPRI. [read Exectuive Summary and Chapter 2

Course title	**Meal planning**
Course Code	**TN314**
Level/ Semester	L3 /s١
Credit hours	2
Course Description	This course will enable the student to appraise the basic principles of food production and menu planning for the hospitality industry. The student will employ the basics of food production including quality food planning, quantity food production, and quantity food management. Students will appraise different types of menus objectively and subjectively and develop skills in writing, layout, design, and costing of menus used in various types of food service operations.
Objectives	1- Study of principles of producing food and planning menus for various types of food and beverage operations. 2-Courses in food production and menu planning help students develop critical thinking ands kills in understanding.3-the relevant managerial techniques of operating food service organizations.
learning outcomes:	The intention is for the student to be able to: 1. Identify of types, content, costs and profitability. 2. Demonstrate an understanding of quantity and quality food planning and preparation. 3. Identify and solve food management issues.
Topics	Key recurring concepts that run throughout the course:

	A. Menu needs analysis. B. Food production need analysis C. Production management D. Training for preparation of foods II. Issues – Key issues that will be addressed in this course: areas of conflict that must be understood in order to achieve the intended outcome: A. Correctly evaluating and identifying the cost of different menus and their production needs B. Production skills to achieve the best outcome for food preparation. C. Identifying different styles of menu and its effectiveness to that food service operation. B. Effective training for satisfactory job performance. III. Concepts – Key concepts that must be understood to address the issues: A. Adequately staffing and skill levels for the different levels of production. B. Understanding of different menus with regard to production needs. . C. Efficient methods of retrieving the pertinent information to make food production run legally and efficiently. IV. Skills / Competencies: A. Comprehend the relationships between target customers, menu creation, production, food costs, and profitability B. Explain principles of quantity food planning and management

	C. Explain principle of quality food planning and production

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	1	Lectures
2	Final Exam 70%	2	PPT Slides
3	Total 100%	3	Exercises Practical
	ـــــ	٤	Group projects

Reference:

1. Bennion, Marion. Introductory Foods. Upper Saddle River, New Jersey. Merrill/Prentice Hall. 1995.
2. Kowtaluk, Helen. Discovering Food and Nutrition. New York, New York. Glencoe/McGraw Hill. 1997.
3. Kowtaluk, Helen. Food For Today. New York, New York. Glencoe/McGraw Hill. 1997.
4. Largen/Bence. Guide to Good Food. Tinley Park, Illinois. Goodheart-Wilcox Company, Inc. 1997.

Course title	**Pharmacology2**
Course Code	**TN315**
Level/ Semester	L3 /s1
Credit hours	2
Course Description	The course aims to provide the nursing students the essentials of pharmacology, with the emphasis on the application of the nursing process, drug actions, uses, routs of administration, dosages, adverse reactions, contraindications, nursing implications, and patient and family teaching about specific drugs information. Antidotes of some commonly known risky drugs and drug reactions are going to be tackled during the course period
Objectives	**On completion of this course the student will be able to:** 1. Accurately perform mathematical calculations when they are necessary to calculate drug dosages. 2. Demonstrate awareness of various nursing responsibilities before, during, and after drug administration. 3. Apply the nursing process to drug administration. 4. Express knowledge of various significant drugs in regard to classifications, routs, doses, and adverse effects. 5. Follow proper nursing implications when administering medications to patients. 6. Offer the necessary teaching about drug therapy for both patients and their families. 7. Recognize the dangers of medications and handling them with great caution.
learning outcomes:	1. Students are expected to attend all lectures, unless if there is an excused absence. 2. Turning in medication cards one week prior to the final exam. 3. Passing successfully all tests and quizzes.
Topics	1. Introduction. 2. Anti-infective agents. 3. Antineoplastic agents.

	4. Drugs affecting blood formation and coagulation. 5. Cardiovascular drugs. 6. Drugs affecting the central nervous system. 7. Narcotic analgesics and antagonists. 8. Non-narcotic analgesics and antipyretics. 9. Antirheumatics and nonsteroidal anti-inflammatory agents. 10. Antigout agents. 11. Drugs affecting the autonomic nervous system. 12. Antiasthmatic drugs. 13. Antitussives, expectorants, and mucolytics. 14. Antihistamines. 15. Drugs affecting the G.I.T. 16. Hormones and hormones antagonists. 17. Diuretics.

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		ــــ
١	Continuous periodic assessment 20 %		ــــ
٢	Final examination 20%		ــــ
	Total 100%		ــــ

Reference:

1. Loebl S., et. Al. (1991). The Nurse's Drug Handbook, sixth edition, Wiley Medical Publications, New York.
2. Scherer, C. (1988). Introductory Clinical Pharmacology, third edition ، Philadelphia, Lippincott.
3. Skidmore, L (1993). Mosby's Nursing Drug Reference, St. Louis C.V., Mosby.
4. Palestinian Ministry of Health: Palestinian Drug Formulary (2002). General Directory of pharmacy, First edition. Ramallah.

Course Tile	**Nutrition Through the Life Cycle**
Course Code	**TN316**
Credit Hours	2 hours
Study Level	3rd year – 1st term
Objectives	1. Determine nutrient requirements/needs of individuals at different stages of the life cycle. 2. Describe the major nutrition-related concerns at each stage of the life cycle. 3. Discuss the impact of socioeconomic, cultural, and psychological factors on food and nutrition behavior. 4. Become acquainted with resources for delivery of nutrition care in community programs. 5. Gain experience with using computers for nutrient analysis and literature searching. 6. Apply the elements of reasoning and critical thinking techniques to in-class examples, assignments, and exams.
learning outcomes	By the end of the class, students will be able to □ Describe the basis for changes in dietary and nutritional needs to promote optimal health across the life cycle ، using the most recent research as possible . □ Evaluate research studies in relevant areas that is published in recent peer-reviewed journals. □ Use information from sources, including peer-reviewed research

	studies (journal articles), to solve problems and provide recommendations about nutrition and diet for individuals and groups through the life cycle. □ Function as a consistently contributing member of a team for the Readiness Assurance Process (RAP) and discussions during the semester and as a self-directed learner throughout the class. □ Communicate effectively verbally and in writing.
Topics	1) Nutrition Basics 2) Preconception Nutrition 3) Nutrition during Pregnancy 4) Nutrition during Lactation 5) Infant Nutrition 6) Toddler and Preschooler Nutrition 7) Child and Preadolescent Nutrition 8) Adolescent Nutrition 9) Adult Nutrition 10) Nutrition and Older Adults.

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical

Reference:

1. Nutrition Through the Life Cycle, J.E. Brown and Langkamp-Henken, Course Pack wrapped with Diet Analysis Plus, ISBN: 9781285550640. Additional readings/resources on: https://lss.at.ufl.edu.

2. Brown, J. E. Nutrition Through the Life Cycle (4th ed.). Wadsworth Group, CA, 2010. ISBN: 9780538733410.

3. Nutrition Through the Life Cycle developed by Cindy Baranoski MS, RD, LDN, Benedictine University, Lisle, Illinois

Course title	**Biostatistics and Experimental design**
Course Code	**TN317**
Level/ Semester	L3 / S1
Crated hours	2
Course Description	Description+ inferential statistics experimental design and statistical analysis of biological data from manipulated experiments. This course provides experience in designing and analyzing experiments using t-tests, 1- and 2-way ANOVA, Regressions, and Tests of Independence and introduction to software application.
Objectives:	The Objectives of this course are to : 1. Understand data collection, analyze and interpretation 2. Introduce several up-to-date statistical software.
learning Outcomes:	After participating in the course, students would be able to: 1. Understand the fundamentals and principles of Biostatistics. 2. Analyze statistically and interpret data obtained from nutritional experiments in different forms. 3. Improve experimental design of nutritional experiments.
Topics to be Covered	1. General Principle of biostatistics. 2. Presentation of data. 3. Descriptive statistics. 4. One Sample Hypothesis and Two Sample Hypothesis. 5. Paired and Multi Sample Hypothesis. 6. Analysis of Variance. 7. Factorial Experiments.

	8. Two Level Factorial Designs. 9. Confounding Factors. 10. Regression and correlation analysis. 11. Complex analysis. 12. Criteria of good experimental design. 13. Introduction to statistical (spss , muntab) **Practical part:** Selected experiments on the above topics**.**

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

1. Crawley, M.J. 2005. Statistics: An Introduction using R. 1st Edition. John Wiley & Sons, Ltd. 327 pp. ISBN: 9780470022986.
2. Fowler, J., Cohen, L., and Jarvis, P. 1998. Practical Statistics for Field Biology. 2nd Edition. John Wiley & Sons, Ltd. 259pp. ISBN: 9780471982968

SYLLBUS OF

SECOND SEMESTER-

THIRD YEAR

Course title	**Special Topics in Nutrition**
Course Code	**TN321**
Level/ Semester	L3 / S2
Crated hour	2 hours
Course Description	This course examines a range of topics on human nutrition, including macronutrients, micronutrients, the effects of diet on health, and claims and evidence for use of megadoses of vitamins, minerals and amino acids for treating specific health conditions. Special topics include breastfeeding, exercise nutrition and sports supplements, the nutrition of beverages, genetically modified foods, prebiotics & probiotics, the science of dieting, the evolutionary origins of the human diet, and the endocrinology of adipose tissue and obesity.
Objectives:	1· Extend understanding of nutritional science in relation to contemporary issues in health science 2· Gather intelligence on current and topical issues in the broad field of nutrition ranging from nutrition pharmacology, nutrigenomics, psychophysiology and metabolomics to food production and special diets 3· Examining current issues in nutrition students will integrate their understanding of nutritional science gained from earlier studies in the course and apply them to real life problems
learning Outcomes:	After completing this unit, students are expected to understand how to: 1. Gather reliable intelligence to inform evidence-based practice

	2. Critically evaluate new findings and published information on food and nutrition. 3. Participate in informed, scholarly discussion about food and nutrition.
Topics	1· Discussions on specialised, current topics in nutrition. 2· Gathering intelligence on specialised topics in nutrition, presentation of findings and participation in peer-review. 3· Student seminar presentations to support and guide evidence-based practice in future nutrition workforce.

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical
	ـــــ	٤	Group projects

Reference:

Course title	**Dairy Technology**
Course Code	**TN322**
Level/ Semester	L3 / S2
Crated hour	3 hours
Course Description	This course is designed togive the students insight and knowledge in the composition, the structure and the properties of milk and also in all aspects of milk processing by means of the unit operations commonly used for the production of dairy products. In addition the knowledge of food technology, -chemistry and -microbiology is applied to acquire insight in the conversion of raw milk to its dairy products.
Objectives:	The objectives of this course are to: 1. Understand unit of dairy operation in product processing to determine physiochemical properties of milk and selected dairy 2. Integrate concepts in chemistry, engineering, withdairyprocessingoperationsandunderstand their role inprocessingofdairyproducts. 3. Identify problem associated with milk product spotless.
learning Outcomes:	After participating in this course, students would be able to: 1. Define milk and their nutritive value. 2. Identify different factors affecting milk and milk products composition.

	3. Determinedhazardous substances that may gain access to milk and milk products. 4. Compare between raw milk and manufactured milk and other dairy products. 5. Familiarize with standard associated with milk and diary products.
Topics	1. Physiochemical properties of Milk and dairy product. 2. Isoelectric point of milk. 3. Microorganisms in Milk beneficial and spoiling. 4. Clean Milk Production. 5. Dairy Processing Unit Operations. 6. Heat Treatments of Raw Milk (Thermization, Pasteurization, Sterilization, Ultra high temperature). 7. Evaporated milk, Concentrated Milk, and Sweetened Condensed Milk Production. 8. Dried, recombined and reconstitution of Milk Production. 9. Cream, Butter& Ghee Production. 10. Ice-Cream Production. 11. Fermented dairy productsCheese, yogurt Production. 12. Milk and dairy standard. 13. Hygiene and Sanitation in Dairy Industry. **Practical part:** • Introduction to microscopy; • study of different types of microscopes; • wet mount and hanging drop preparations; • sterilization by different methods, filteration, dry heat, moist • heat, chemical use etc.

	• staining techniques – simple, differential, structural and • microchemical techniques; • distribution of micro-organisms in nature; isolation, pure culture and preservation methods; • enumeration of micro-organisms, environmental influences on micro-organisms; biochemical tests; • observation of fungi, blue-green algae, bacteria and protozoans. • Study and enumeration of coliform, iron, and sulphur bacteria, viable • nonculturable bacteria. • Microbiological water quality management in aquaculture, bioremediators and probiotics. • Pathogens of aquatic animals • their isolation and identifications; detection of toxic organisms in aquatic system.

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Reference:

1. Geoffrey, C. (2009). Food Science and Technology. 1st Edition. Blackwell Publishing Limited, United Kingdom, 403pp.
2. Bylund, G. 1995. Tetra-Pak Dairy Processing Handbook. Tetra-Pak Processing Systems

Course title	**Human pathology**
Course Code	**TN323**
Level/ Semester	L3 /s2
Credit hours	3
Course Description	This course will provide the students with the general concept of Pathophysiology. That will be discussed with appropriate reference to the general pathologic process due to cellular stress. An organized system review of the commonest diseases with adequate insight into causes, clinical manifestations, and diagnosis will be covered
Objectives	1. To develop an understanding of the causes and mechanisms of disease and the associated alterations of structure and function. 2. To develop skills of observation, interpretation, and integration needed to analyze human disease. When provided with the anatomical lesions, and the laboratory data of a patient, to determine the most likely diagnosis and explain the pathogenesis of the disease.
learning outcomes:	The main purposes of lectures are: 1. To provide up-to-date information that is not yet present in the textbooks, 2. To help separate essential material from non-essential, and 3. To add breadth to the course by presenting material and insights not found in the textbook, and color photographs to supplement the text. After each lecture, the lecturer will be available to answer questions.

	4. PowerPoint slides to accompany each lecture will be posted in advance of the lecture on the course Web Site. All students are required to regularly attend the lectures. The relatively small number of students allows for interactive type of lectures, where the students are allowed and encouraged to participate by asking and answering questions. All lectures are in Power Point format, illustrated and sometimes animated and contain explanatory diagrams. By the end of the lectures, the students are given the word format of the lectures.
Topics	Introduction, Disease management 1 - Cell and tissue injury, heat injury, degeneration, necrosis, apoptosis 2- Acute inflammation; causes, types 3- Chronic inflammation; causes and types 4- Granulation tissue 5- Bacterial infection - Fungal infection 6 - Parasitic infection - Viral infection 7- Tissue repair 8- Circulatory disorders: ischemia, congestion, gangrene, edema. 9- Immune disorders; hypersensitivity reactions, auto-immune diseases 10- Genetic disorders

	11- Growth Disorders 12- Genetic basis and tests for tumors 13- Neoplasia; Causes and types of tumors 14- Malignant tumors. **Practical Part:** Selected experiments on the above topics

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		**—**
١	Continuous periodic assessment 20 %		**—**
٢	Final examination 20%		**—**
	Total 100%		**—**

Course Title:	**Diet Therapy**
Course Code	**TN324**
Credit Hours:	3 Hour
Study Level:	3rd year – 2nd term
Objectives:	1- To study the role of nutrition therapy in health care system 2- To familiarize with nutrition care process 3- To provide understanding of pathophysiology and nutrition therapy.
learning outcomes:	Successful completion of Nutrition and Diet Therapy I should… 1- Introduce the student to diet planning throughout the human lifecycle. 2- Enable the student to discuss the structures of carbohydrates, lipids, and proteins as well as their sources in the diet. The student should further be able to discuss the roles of these nutrients in the body. 3- Give the student an understanding of the major fat and water soluble vitamins. This understanding will include dietary sources of the vitamins, their uses in the body, and the consequences of deficiencies. 4- Promote an awareness of how nutritional principles apply to weight control, eating disorders, and pregnancy. 5- Introduce the student to proper food safety practices.
Topics	**A) THE ROLE OF NUTRITON THERAPY IN HEALTH CARE:** 1) Health Care Systems and Reimbursement 2) The Role of the Dietitian in the Healthcare System **B) THE NUTRITION CARE PROCESS:** 3) The Nutrition Care Process 4) Complementary and Alternative Medicine

	5) Assessment of Nutrition Status and Risk 6) Documentation of Nutrition Care 7) Methods of Nutrition Support **C) INTRODUCTION TO PATHOPHYSIOLOGY:** 8) Fluid and Electrolyte Balance 9) Acid-Base Balance 10) Cellular and Physiological Response to Injury 11) Genomics 12) Immunology 13) Pharmacology **D) NUTRITION THERAPY:** 14) Energy Balance and Body Weight 15) Diseases of the Cardiovascular System 16) Diseases of the Upper Gastrointestinal Tract 17) Diseases of the Lower Gastrointestinal Tract 18) Diseases of the Hepatobiliary System: Liver, Gallbladder, Exocrine Pancreas 19) Diseases of the Endocrine System 20) Diseases of the Renal System 21) Diseases of Hematological System 22) Diseases of the Neurological System 23) Diseases of the Respiratory System 24) Neoplastic Disease 25) Metabolic Stress 26) HIV and AIDS 27) Diseases of the Musculoskeletal System

	28) Metabolic Disorders **Practical Part:** 1- **Definition of dietetics** 2- **Origin of dietetics and diet therapy** 3- **Development of dietary studies and dietary standards.** - **Diseases of dietary origin.** - **The first dietary studies.** - **Development of food composition tables.** - **Food enrichment and fortification.** - **Dietary standards and recommendations.** - **Evidence-based medical nutrition therapy.** 4- **The evolution of dietetics as a profession** - **Rise of the dietetic profession** 5- **International dietetics** 6- **Dietetics in the USA** 7- **Dietetics in Asia** 8- **Dietetics in Africa** 9- **The future of dietetics**

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		ــــ
١	Continuous periodic assessment 20 %		ــــ
٢	Final examination 20%		ــــ
	Total 100%		ــــ

Reference:

1. Wardlaw, Gordon and Anne M. Smith. Contemporary Nutrition. 9th Edition. 2013. McGraw-Hill Publishers, Dubuque, Iowa.
2. Essentials of Nutrition and Diet Therapy, 9th Ed., Williams/Schlenker. Mosby, 2007. ISBN: 978-0-323-03764-8.
3. Beginning Fall 2012: Essentials of Nutrition and Diet Therapy, 10th Ed.

Course title	**Food Technology**
Course Code	**TN325**
Level/ Semester	L3 / S2
Credit hours	3 Hours
Course Description	This course is designed tointroduce the principles of the manufacturing processes and technologies used in the production of food products and the preservation issues associated with food quality and safety in food production.
Objectives:	The objectives of this course are to: 1. Understand the different methods of food preservation 2. Provide the knowledge about principles of food technology, and its applications.
learning Outcomes:	At the end of this course the student would be able to: 1. Acquire in depth understanding of the principles underlying the food processing methods and technologies used. 2. Understand the emerging technologies of food processing, packaging and preservation. 3. Evaluate and solve problems regarding food processing operations that affect the quality of food 4. Acquire technical knowledge and skills required for successful food production. 5. Apply scientific principles in solving food processing problems. 6.

Topics	1. Basic considerations in Food Technology. 2. Preservation of foods by low temperatures. 3. Preservation of foods by high temperatures. 4. Preservation by water removal, irradiation&food additives. 5. Meat, Poultry and Fish Technology. 6. Cereals and Baking Technology. 7. Fruits and Vegetables Technology. 8. Oil & Fat Technology. **Practical Part:** Selected experiments on the above topics

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		ـــــ
١	Continuous periodic assessment 20 %		ـــــ
٢	Final examination 20%		ـــــ
	Total 100%		ـــــ

Reference:

1. IheKoronye A. I. and Ngoddy P.O. (1985).Intergrated Food Science for the Tropics.Macmillan Education LTD., London and OxfordUK.
2. NPCS Board (2012).Modern Technology on Food Preservation (2nd Edition). Asia Pacific Business Press Inc. 528p

Course title	**Food Toxicology**
Course Code	**TN326**
Level/ Semester	L3 / S2
Credit hours	2 Hours
Course Description	Food toxicology is the study of the nature, properties, effects, and detection of toxic substances in food or food animal feed and their disease manifestation in humans. This course will provide a general review of toxicology related to food and the human food chain.
Objectives:	Fundamental concepts will be covered including: -dose-response relationships, absorption of toxicants, -distribution and storage of toxicants, biotransformation and -elimination of toxicants, target organ toxicity, teratogenesis, -mutagenesis, carcinogenesis, food allergy, and risk -assessment. The course will examine chemicals of food -interest, such as food additives, natural products, mycotoxins, and pesticides, and how they are tested and regulated. -We will critically review case studies and special topics
learning Outcomes:	Upon successful completion of this course, students will 1. be able to demonstrate a fundamental knowledge of processes and endpoints in the human body associated with exposure to toxic agents in the human food chain; 2. be able to demonstrate a fundamental knowledge of risk assessment and food safety as it is applied to toxic agents in the

	human food chain; 3. acquire mastery with the major issues, concepts, and subject areas in food toxicology; 4. acquire mastery of sourcing and synthesizing information in aspects of Food Chemistry, Toxicology and Microbiology as it applies to chemical food safety and food toxicology; 5. be able to demonstrate sufficient knowledge about the occurrence and significance of major food-borne toxicants and be able to apply that knowledge for advanced analysis in the context of the food system, regulatory science, and public communication.
Topics to be Covered	1-Introduction to Food Toxicology 2-History of US Food Regulation 3-Concepts of Toxicology 4-Pesticide Residues in Food 5-Dose-Response Relationships 6-Absorption of Toxicants 7-Distribution and Storage of Toxicants 8-Biotransformation and Elimination of Toxicants 9-Target Organ Toxicity 10Teratogenesis, Mutagenesis, and Carcinogenesis 11-Food Allergy 12-Food Intolerance and Metabolic Disorders Midterm Exam I

	13-Food Additive Safety Assessment 14-Toxicology of Selected Food Additives 15-Genetically Modified Organisms in Food 16-Food Irradiation 17-Natural Toxins in Plants and Fungi: The Ecological Biochemistry of Food 18-Toxic Mold and Mycotoxins 19-Marine Toxins in Food 20-Naturally Occurring Toxicants as Etiologic Agents of Food-borne Disease 21-Bacterial Toxigenesis 22-Animal Drug Residues in Food 23-Toxicants Formed During Food Processing Midterm Exam II 24-Dioxin and Related Compounds in the Human Food Chain *25-Thanksgiving break (no class)* *26-Thanksgiving break (no class)* 27-Human Health Risk Assessment of Lead and Arsenic 28-Mercury in the Human Food Chain 29-Frontiers of Food Toxicology

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical

Reference:

1. Liener, I.E. (1980). Toxic constituents of Plant Foodstuffs. 2nd edition. Academic Press, New York.
2. Duffus, J.H. and Worth, H.G.J. (2006). Fundamental Toxicology. RSC Publishing.
3. Shibamoto, T. and Bjeldanes, L.F. (1993). Introduction to Food Toxicology. Academic Press Inc., California.

Course title	**Sensory evaluation**
Course Code	**TN327**
Level/ Semester	**L3 / S2**
Crated hour	**3 hours**
Course Description	Sensory Evaluation of Food Principles and procedures for sensory evaluation of food. Appropriate uses of specific tests are discussed, along with physiological, psychological, and environmental factors affecting sensory verdicts
Objectives:	This course is designed for seniors and graduate students from food science, animal science, poultry science and biological engineering to learn principles, methods and application of sensory evaluation techniques to testing the quality of food products. Upon completion of the course, students are expected to be able to formulate test objectives, recommend an appropriate test methodology for addressing the test objectives, statistically analyze test results, draw conclusions and make recommendations
learning Outcomes:	Students will be assigned readings in the text, homework problems and laboratory exercises reports. All written assignments are to be submitted **on paper**. Students are encouraged to consult their peers. However, the assignments submitted should consist of their own work
Topics to be Covered	20. Introduction to sensory evaluation 21. History of sensory analysis and defining a sensory problem 22. Perception of sensory modalities

	23. Discriminative testing 24. Overall difference testing 25. Attribute difference testing 26. Threshold determination 27. Developing a sensory evaluation program 28. Descriptive analysis 29. Consumer testing: Quantitative and Qualitative methods 30. Sensory evaluation in quality control 31. Relating instrumental to sensory data 32. Statistical analysis of data 33. Statistical Designs **Laboratories** Lab 1: Application of paired comparison for evaluation of milk samples Lab 2: Triangle Tests Lab 3: Use of sequential testing in selecting judges Lab 4: Order of combining tea and milk Lab 5: Determination of odor thresholds by force-choice ascending concentration series Lab 6: Inversions in ranking Lab 7: Magnitude Estimation Lab 8: Descriptive analysis of cola beverages 1 Lab 9: Descriptive analysis of cola beverages 2 Lab 10: Consumer testing ballot design

	Lab 11: Consumer testing: Test and Analysis

No	EVALUATION	No	TEACHING METHODS
A	**Theoretical examination: 60%**	**1**	Lectures
1	Continuous periodic assessment 20 %	**2**	PPT Slides
2	Final examination 40%	**3**	Exercises Practical
B	**Practical examination 40%**		ــــ
١	Continuous periodic assessment 20 %		ــــ
٢	Final examination 20%		ــــ
	Total 100%		ــــ

Reference:

1. Meilgaard, Civille, and Carr. 2007. Sensory Evaluation Techniques, 4th Edition CRC Press, Boca Raton, FL
2. Lawless, H.T. and Heymann, H. 1998. Sensory Evaluation of Food: Principles and Practices, Chapman & Hall, NY
3. Resurreccion, A.V.A. 1998. Consumer Sensory Testing for Product Development, Chapman & Hall, NY

SYLLBUS OF

FIRST SEMESTER-

Fourth YEAR

Course Title:	**Therapeutic Aspects of Clinical Nutrition**
Course Code	**TN411**
Credit Hours:	4 hours
Study Level:	4^{th} year – 1^{st} term
Course description:	This module will introduce students to the evidence on hospital and community malnutrition and the ways in which nutrition support can improve outcome. This course is designed to facilitate an understanding of the processes which underlie methods of nutrition support in the hospital or community setting.
Objectives:	1. To discuss the key elements of nutritional assessment and diet therapy, describe their alterations during various disease states and relate this information to support nutrition intervention strategies in individuals during altered pathological states. 2. Interpret information from medical, social and nutritional histories, combined with biochemical and anthropometrical indices during different pathophysiological states to assess nutritional status, develop nutrition care plans, and problem solve. 3. Accurately define, both in writing and orally, how pathophysiology of a selected disease state impacts nutritional status and what nutrition interventions are indicated.
learning outcomes:	By the End of this Course Students should be able to: 1) Digestive physiology and pathophysiology and nutrition status.

	2) Formulation of enteral diets. 3) Metabolism of parenteral nutrients. 4) Formulation of parenteral formulae. 5) Routes of feeding patients - parenteral or enteral - access and complications. 6) Nutrition support in hospital and community care settings and organisation of nutrition support teams. 7) Malnutrition in hospitals and the community and nutrition screening and assessment. 8) Paediatric and neonatal enteral and parenteral nutrition. 9) Approaches to measuring energy metabolism in clinical and community settings. 10) Treatments for therapeutic weight reduction - dietary, cognitive, exercise, pharmaceutical and surgical approaches.
Topics may include:	1) Metabolic response to starvation, injury and sepsis 2) Protein and amino acid metabolism in the whole body and in the tissues 3) The Liver and Nutrient Metabolism 4) Cytokines and Nutrition 5) Physiology of Nutrient Absorption and Patterns of Intestinal Metabolism 6) The Immune System and Nutrition Support 7) Malnutrition in hospitalized patients 8) Pediatric Nutrition Requirements 9) Nutrition, Appetite Control and Disease

	10) The Role of a Nutrition Support Team 11) Hospital Food as Treatment 12) Oral Diet Administration and Supplementation 13) Enteral Nutrition: Tubes and Techniques of Delivery 14) Enteral Diets: Clinical Uses and Formulation 15) Complications of Enteral Nutrition 16) Pediatric Enteral Nutrition 17) Home Enteral Tube Feeding 18) Venous Access for Parenteral Nutrition 19) Parenteral Nutrition Substrates 20) Parenteral Nutrition Formulation 21) Metabolic Complications of Parenteral Nutrition 22) Pediatric Parenteral Nutrition 23) Home Parenteral Nutrition 24) Nutrition and Liver Disease 25) Nutrition Support in Trauma and Sepsis 26) Nutrition Support in Renal Disease 27) Nutrition Support in Respiratory Disease 28) Nutrition and Inflammatory Bowel Disease 29) Nutrition Support during the Acute Care of Moderately or Severely Burned Patients 30) Nutrition Support for the Intensive Care Unit 31) Nutrition Support for the Surgical Patient 32) Nutrition Support in Human Immunodeficiency Virus Infection

	33) Nutrition Support in Patients with Cancer 34) Nutrition Support in the Elderly 35) Management of Patients with a Short Bowel 36) Nutrition Support for Pancreatitis 37) The Cost-effectiveness of Nutrition Support 38) The Role of Enteral and Parenteral Nutrition: Enteral vs Parenteral?

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical
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Reference:

1. Nutrition Therapy and Pathophysiology, 2nd edition: Nelms, Sucher, Lacey, and Roth. Thomson Wadsworth, 2011.
2. Nutrition Therapy and Pathophysiology, 2nd edition: Nelms, Sucher, Lacey, and Roth. Thomson Wadsworth, 2011.
3. Pediatric Nutrition Handbook, 6th edition: Kleinman, R. American Academy of Pediatrics, 2009.

Course title	**Pathophysiology**
Course Code	**TN412**
Level/ Semester	L4 / S1
Credit hours	2 Houre
Course Description	Pathophysiology is the study of functional changes in cells, tissues, and organs as a result of disease and/or injury. In this course we will build upon the knowledge base acquired in undergraduate human physiology and/or comparative physiology courses to examine the underlying mechanisms of various disorders in the organs and systems of the body including the nervous, endocrine, skeletal-muscle, cardiovascular, respiratory, digestive, excretory, and reproductive systems. Examples of specific disorders to be addressed in lecture may include Parkinson's disease, muscular dystrophy, hyper- and hypothyroidism, diabetes mellitus, hypertension, coronary artery disease, myocardial infarction, cerebral vascular accident, concussion, asthma, respiratory distress syndrome, sudden infant death syndrome, gastritis, hepatitis, pancreatitis, dysentery, as well as shock, and other multi-organ conditions arising from environmental stress (e.g. high altitude sickness, thermoregulatory challenges, dehydration, acid-base and electrolyte imbalances).
Objectives:	Students will also complete a major project in which they present a seminar and submit an accompanying paper on the pathophysiology of a disease. The seminar will be 10 minutes in length plus 5 minutes for questions, and will be presented the last 3 weeks of term during the lecture period.
learning Outcomes:	
Topics	1-Introduction to Pathophysiology ---- 2-Cellular Function, Death and Injury 3-The Blood – Function & Pathophysiology 4-Cardiovascular Function & Disease 5- Respiratory Function & Disorders

	7-Urinary Function & Kidney Disease 8- Gastrointestinal Conditions 9- Endocrine Disorders 10 & 12 - Diseases of the Nervous & 13-Skeletal-Muscle Systems Review & Study Session Practical part: 1. Catching narcotizing and restraining a frog. 2. Preparating preparations of tongue, mesentery and webbing of a frog. 3. Measuring and recording of blood pressure. 4. Recording of breathing, Recording of electrocardiogram. 5. Venous hyperemia of the frog tongue and Neuromioparalytic hyperemia of a rabbit ear with xylene. 6. Thrombus formation in the vessels of a frog mesenterium. 7. Compressive ischemia of a frog tongue. 8. Ischemia of a rabbit ear, Dynamics of vascular changes in inflammation, occurred under the influence of AgN03. 9. Phagocytosis of chicken erythrocytes , Anaphylactic shock in guinea pig. 10. Capilyarotoksic edema in the lungs of a rat. 11. Experimental hyperkalaemia. 12. Acute metabolic acidosis. 13. Acute metabolic alkalosis. 14. Analysis of ABB (clinical cases). 15. Electrotrauma of a cat, Electrocution of a rat. 16. Experimental hyperthermia, Experimental hypothermia of a guinea pig. 17. Experimental model of hypoxic hypoxia in a chamber or a glass diving bell 18. Hypoxic hypoxia, occurring in breathing in a confined space, CO poisoning. 19. Respiratory system - clinical case (pathophysiological interpretation). 20. Acute increasing of the intraalveolaric pressure. 21. Stenosis of the trachea and mechanical asphyxia. 22. Experimental hydrothorax. 23. Clinical case - respiratory system. 24. Stenosis of the pulmonary artery. 25. Stenosis of the Aorta. 26. Experimental model of hydropericardium. 27. Myocardial infarction after ligature of the left coronary artery. - - 28. Clinical case - hypertension. 29. Experimental model of hypertension. 30. Experimental model of hypotension following acute blood loss. 31. Identification of leukocytosis and levkopenia on blood smears. 32. Experimental model of diabetic glycosuria and polyuria. 33. Experimental model of painful reflex anuria. 34. Clinical case - digestive system. 35. Effect of intravenous imported pancreatic enzymes on the body. 36. Experimental modi of flatulence. 37. Clinical case - endocrine system.

	38. Violation of the reflex arc. Blocking the receptors. 39. Influence of bile on the speed of motor reflex. 40. Influence of bile on the rhythm of the frog's heart.

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	1	Lectures
2	Final Exam 70%	2	PPT Slides
3	Total 100%	3	Exercises Practical
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Reference:

Course title	**Food Properties**
Course Code	**TN413**
Level/ Semester	L4 / S1
Credit hours	2 Hours
Course Description	In this course the knowledge from different disciplines of food science will be combined to study the effect of processing on product quality, in relation to innovation of food products. The product quality will be described by physical properties and consumer perception. Examples are: consistency, colour, flavour and appearance of the food. An introduction to sensory analysis will be given, explaining the use of statistical computer programs to handle data sets from sensory analyses. In addition, the process of product innovation will be analysed in its society context, with emphasis on ethical issues.
Objectives:	2) Understand terminology and definitions of food properties used in the food industry. 2) Find information on properties. 3) Estimate values of properties. 4) Understand and perform techniques to measure food properties. 5) Analyze and solve diverse problems through application of property data. 6) Research and report on a journal article related to the properties of food materials. 7) Create, develop, execute, and report a laboratory experiment on engineering properties of foods.

	8) Think critically and apply problem solving techniques.
learning Outcomes:	At the end of this course a student is expected to be able to: - integrate theoretical and practical knowledge from various food science disciplines; - understand the implications of changes in food product ingredients or processing on the final product properties; - understand the effect of chosen processing on food properties and -quality; - understand how food quality can be determined with appropriate sensorial and instrumental approaches; - understand the methodology and use of modern analytical techniques; - understand the ethical issues involved in innovation of food products and to apply this knowledge in practical situations; - work in small groups and to plan, carry out and evaluate experiments to make an innovated food product and to present the results orally.
Topics	3. Sensory properties of foods 4. The senses - sensory perception and physiology 5. Chemical senses and nutrition 6. Sensory evaluation techniques - analytical and consumer tests 7. Food flavors - Natural biogenesis 8. Texture and flavors as functionality 9. Food colors 10. Functional ingredients and intentional food additives Food safety 11. Principles of chemical food safety

	12.Microbial food safety 13.Food preservation and preservatives 14.Nutritional properties of foods 15.Nutrient content of foods 16.Protein, carbohydrate, lipid and vitamin stability 17.General mechanisms of nutrient loss; kinetics & optimization 18.Improvements in nutrient content 19.Nutrition guidelines & regulation of nutrient substitutes 20.Non-essential nutrients & disease prevention

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical
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Reference:

1. Ann Brown. 2011. Understanding food: Principles and preparation 4th ed. Wadsworth, Cengage Learning

2. Coultate, T. P. (2009). Food - The Chemistry of its Components (5th Edition). Royal Society of Chemistry. Online version available at:

3. Frederick F (ed). 1999. Wiley Encyclopedia of Food Science & Technology. 2nd ed. Vol 1-4.

http://myaccess.library.utoronto.ca/login?url=http://www.knovel.com/web/portal/browse/display?_EXT_KNOVEL_DISPLAY_bookid=681

Course title	**Research Methodology**
Level/ Semester	**L4 / S1**
Credit hours	**2 Hours**
Course Description	This course focuses on the framework of the research process and to the use of basic statistics in the health field and the interpretation of results for improvement of levels of care an evaluation of action taken**.**
Objectives:	At the end of the course the student will be able: • To develop understanding of the basic framework of research process. • To develop an understanding of various research designs and techniques. • To identify various sources of information for literature review and data collection. • To develop an understanding of the ethical dimensions of conducting applied research. • Appreciate the components of scholarly writing and evaluate its quality.
learning Outcomes:	**Knowledge and understanding** - Develop awareness on the importance of research in building nursing knowledge and guiding practice. - Discuss the research process and each of its steps. - Describe the characteristics of a researchable problem. - Recognize how to state research aim, questions and hypotheses. - Recognize the different types of research design. - Identify different methods of data collection. - Recognize sampling technique. **Cognitive skills (thinking and analysis).**

	- Explain how to write review of literature - Identify the elements of research proposal. **Communication skills (personal and academic).** - Conceptualize ethics of conducting nursing research. **Practical and subject specific skills (Transferable Skills).**
Topics	**Introduction:** - Definition of scientific research - Types of research
	Research Methodology: -Definition and identification of the problem. - Ethical issues in research - Formulation of the hypothesis - Sample & Sampling - Collection of information - Presentation of the results - Interpretation of the results - Conclusion and recommendations
	Research Methods: - Scientific observation. - Questionnaire. - Interview.
	Writing the thesis report: Title Acknowledgement Table of content

	• Summary • Introduction • Aim of the study • Material and Methods • Results and Discussion • Conclusion • Recommendations • Appendices • References

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	1	Lectures
2	Final Exam 70%	2	PPT Slides
3	Total 100%	3	Exercises Practical

Reference:

1. Bryman, Alan & Bell, Emma (2011). Business Research Methods (Third Edition), Oxford University Press.
2. Kerlinger, F.N., & Lee, H.B. (2000). Foundations of Behavioural Research (Fourth Edition), Harcourt Inc.
3. Rubin, Allen & Babbie, Earl (2009). Essential Research Methods for Social Work, Cengage Learning Inc., USA

Course Title:	**Community Nutrition**
Course Code	**TN415**
Credit Hours:	3
Study Level:	4^{th} year – 1^{st} term
Course description:	This module introduces an evidence-based approach to the relationship between diet, nutritional status and health in populations. The module will start with the main concepts of nutritional epidemiology using national and international data. Some important problems in food policy will be explored by external speakers representing the range of interests that influence what we eat.
Objectives:	To provide students with the basic knowledge and understanding of the following: 1. Responsibilities of the community nutritionist 2. Nutrition program planning and evaluation strategies 3. Methods of nutritional assessment and intervention 4. Identification of nutrition programs and policies for various stages of the life cycle 5. Tools needed to solve nutritional and health problems in a community setting
Learning Outcomes:	By the End of this Course Students should be able to: 1) Understand basics of epidemiology and Nutritional epidemiology and evidence-based nutrition. 2) Determine the Role of food supply and nutrition in population health. 3) Understand dietary requirements and reference values. 4) Nutritional supplementation.

	5) Developmental origins of adult disease. 6) Infant feeding – breast and bottle. 7) History of food policy. 8) Food labelling and retailing. 9) Marketing food to children. 10) Dental health and food.
Topics	**A) Working in the Community:** 1) Opportunities in Community Nutrition 2) Assessing Community Resources 3) Assessing the Target Population's Nutritional Status 4) Principles of Epidemiology 5) Food Insecurity and the Food Assistances Programs 6) A National Nutrition Agenda for the Public's Health 7) The Art and the Science of Policy Making 8) Addressing the Obesity Epidemic: An Issue for Public Health Policy 9) Health Care Systems and Policy **B) Delivering Programs:** 10) Mothers and Infants: Nutrition Assessment, Services, and Programs 11) Children and Adolescents: Nutrition Issues, Services, and Programs 12) Growing Older: Nutrition Assessment, Services, and Programs 13) World Hunger and Food Insecurity: Challenges and Opportunities

	C)Planning Nutrition Interventions: 14) Program Planning for Success 15) Designing Community Nutrition Interventions 16) Gaining Cultural Competence in Community Nutrition 17) Principles of Nutrition Education 18) Marketing Nutrition and Health Promotion 19) Managing Community Nutrition Programs 20) Building Grantsmanship Skills

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical

Reference:

1. Academy of Nutrition and Dietetics. Position of the Academy of Nutrition and Dietetic: The role of nutrition in health promotion and chronic disease. Journal of the Academy of Nutrition and Dietetics, 2013; 113: 972-979.

2. Katamay S, Johnston J, Sirois I and Bush M.. Eating Well with Canada's Food Guide (2007): Development of the Food Intake Pattern. Nutrition Reviews, 2007; 65(7): 155-166

Course title	**Food and drug interaction**
Course Code	**TN416**
Level/ Semester	L4 /s1
Credit hours	2
Course Description	This course is the study of metabolic interactions between nutrients and drugs. Drug –induced alterations in absorption, metabolism, distribution and excretion of nutrients are discussed. The pharmacology and pharmokinetics of various drugs are examined. The student is expected to have a basic understanding of human nutrition and knowledge of physiological and biochemical principals as they apply to nutrition, fundamental knowledge of nutrient metabolism, including carbohydrate, protein, fat, vitamin, and mineral metabolism.
Objectives	Upon completion of this course students would be able to: (1) Describe the routes of drug administration. (2) Describe factors that might alter the absorption and bioavailability of drugs. (3) Describe the effects of various drugs on action,metabolism and elimination of nutrients (4) Identify the risk factors for drug-nutrient interaction; (5) demonstrate an appropriate nutrition counseling ability to aid client/patient with dietary side effects caused by nutrient-drug interactions. (6) Identify and explain adverse herb-drug interactions.

learning outcomes:	a- Knowledge and Understanding: a-1 Definitions, types of drug interactions with food. a-2 Various mechanisms underlying drug interactions a-3 Examples of drug interactions
Topics	-Introduction to the course 1- Introduction 2- How Drugs Act on Living Organisms 3- How Drugs Reach Their Site of Action 4- How the Action of Drugs is terminated 5- Dose-Response Relationships 6- Drug-Nutrient Interactions A - Grapefruit juice B - Tyramine and MAO Inhibitors C - Tetracycline and milk; Anticoagulants and vitamin K D - Alcohol, effect and drug action E - Ginseng; Ginkgo Balboa Garlic; Ginger F - St John's Wort; Echinacea G - Vitamin B6 and Isoniazid; Levodopa and vitamin B6 H - Orlistat and fat soluble vitamins; Lithium and sodium I - Licorice; Ephedra Pharmacogenomics

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical
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Reference:

1. Handbook of Food-Drug Interaction, edited by Beverly J. McCabe, Eric H. Frankel, Jonathan J. Wolfe. CRC Press, 2003.
2. Drug-Nutrient Resource, 5th ed. Roche Dietitians, L.L.C., Riverside, IL. 2003.
3. Genser, D. "Food and drug interaction: Consequences for the nutrition/health status." Annals of Nutrition & Metabolism. 52(suppl 1):29-32, 2008.
4. McCabe, B.J. Prevention of food-drug interactions with special emphasis on older adults. Current Opinion in Clinical Nutrition and Metabolic Care, 7:21-26, 2004.

SYLLBUS OF

SECOND SEMESTER-

FOURTH YEAR

Course Title:	**Nutrition Counseling**
Course Code	**TN421**
Credit Hours:	2 Hours
Study Level:	4^{th} year – 2^{nd} term
Objectives:	At the conclusion of the course, students will be able to: 1. Describe the components of effective communication in the practice of dietetics 2. Demonstrate the ability to interview clients/patients 3. Demonstrate effective counseling skills for individuals and groups 4. Utilize learning theory, behavior change theory counseling theory, and theories of human development in nutrition education plans 5.Develop effective nutrition education sessions, including appropriate materials 6. Evaluate effectiveness of counseling and education in patients/clients
Learning Outcomes:	1. Because collaborative methods will be used in class, attendance is mandatory! If you know you are going to be absent, call or email me a nd your class partner(s). 2. You are responsible for staying abreast of the reading in the text and coming to class prepared to participate in class discussions of the day's topics and in small group assignments. 3.During lecture you are expected to keep talking (personal comments t o fellow students) to a minimum. 4.You are expected to come to class on time. If you have to leave class

	early please inform me before class and sit near the door so you can make a quiet exit. 5. You are expected to make all deadlines for projects and assignments. L ate assignments will be deducted 25% of the assignment score for each class day an assignment is late. Assignments must be turned in in class. Electronic assignments will not be accepted. 6. There will be no make-up exams. 7. You areto treat all members of the class (myself and classmates) with respect. 8.Any violation of the university's academic honesty policy will result i n an automatic F in the course and a report to Judicial Affairs
Topics	**A) Preparing to Meet Your Client:** 1) Definition of Counseling 2) Nutrition Counseling Goals 3) Theoretical Approaches for Lifestyle (Awareness and Management) 4) Overview of Behavior Change Models and Approaches 5) Understanding an Effective Counseling Relationship **B) Building a Relationship, Basic Counseling Responses:** 6) Stages of Skill Development 7) Model of Communication 8) Intercultural Influence on Communication 9) Guidelines for Enhancing Counseling Communication Effectiveness 10) Basic Counseling Responses

C) Meeting Your Client: The Counseling Interview:

11) Nutrition Counseling Models
12) Motivational Algorithm for a Nutrition Counseling Intervention
13) Assessing Readiness to Change
14) Nutrition Counseling Protocols: Analysis and Flow of a Counseling Interview/ Counseling Session
15) Intercultural Counseling Skills

D) Developing a Nutrition Care Plan: Putting it all Together

16) Goal Setting
17) Design a Plan of Action
18) Dietary Assessment
19) Energy Determination
20) Physical Assessment and Healthy Weight Standards
21) Documentation/Charting

E) Promoting Changes to Facilitate Self-Management

22) Strategies to Promote Change
23) Components of Effective Interventions
24) Supporting Self-Management
25) Behavior Change Strategies

F) Making Behavior Change Last

26) Social Support
27) Cognitive Restructuring
28) Stress Management
29) Relapse Prevention

G) Physical Activity

30) Role of a Nutrition Counselor in Physical Activity Counseling
31) Physical Activity and Fitness
32) Physical Activity Goals
33) Barriers to Become Physically Active
34) Assessment of Activity Level and Readiness to Increase Physical Activity
35) Assessment Feedback
36) Physical Activity Counseling Protocols
37) Issues Pertinent to Physical Activity Goal Setting and Action Plan Development
38) Walking Basics

H) Professionalism and Final Issues

39) Ending the Counseling Relationship
40) Evaluation
41) Professionalism in the Helping Relationship
42) Selected Counseling Issues
43) Group Counseling

I) Guided Counseling Experience

44) Developing a Counseling Style
45) Finding Volunteer Clients
46) Goals of the Guided Counseling Experience
47) The Four Counseling Sessions.

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical

Course title	**Professional Training**
Course Code	**TN422**
Level/ Semester	L4 / S2
Credit hours	6 Hours
Course Description	The training must be related to any of the fields of medical laboratory sciencse. During this training, the students will have the opportunity to apply the knowledge gained at the classroom to a practical experience. Training is designed to prepare students for both academic achievement and successful employment in the applied fields of laboratory. Through the training period, the students are requested to be sincere and self-motivated, thoroughly committed to the goals and objectives of this training, and respectful of the ethical issues related to dealing with colleagues, trainers and costumers. Students must consult with the course coordinator before registering the module

Course title	**Research Project**
Course Code	**TN423**
Level/ Semester	**L4 / S2**
Credit hours	**6 hours**
Course Description	Training on project establishment and methodology of execution including literature reviewed and use scientific information resource
Objectives:	To apply research skills into a research study, undertake fieldwork and present a dissertation. ٢. Summarizes and provides a final integration of knowledge, skills and attitudes developed during the four years in subjects related to medical laboratories. ٣. Each student carries out a project relevant to current medical laboratories. development and practice in the hospital, community and different industry and/or research laboratory, and writes a critical report of relevant knowledge, novel observations and findings.
learning Outcomes:	**A- KNOWLEDGE & UNDERSTANDING:** 1-Define the Principles of research planning and design 2- Describe principles of basics of experimental design and analysis. **B- INTELLECTUAL SKILLS** 1- Identify suitable research topics.

	2- Undertake independent research. 3- Be able to do Critical review and analysis of related literature. **C-PROFESSIONAL AND PRACTICAL SKILLS** 1- Design research study 2- Perform method validation and presentation of research report. 3- Write the research proposal and theses. **D- GENERAL AND TRANSFERABLE SKILLS** 1-Demonstrate appropriate communication skills. 2- Present clearly and effectively scientific topic in a tutorial or a staff meeting. 3- Work separately or in a team to research and prepare a scientific topic.
Topics	• Development of a research protocol • Fieldwork and data analysis • This research project course involves the generation of new scientific information and a review and understanding of the scientific literature. • The research may be conducted in a laboratory, hospital, community laboratories, different company, etc., depending on the project and the supervisor. • Students are divided into groups and each group is working together. • Will include working in the laboratory, etc., reading or searching literature, and writing up the research project.

	Food Product development
	TN323
	L3 / S2
	3 hour
	This course is a capstone course and is designed to integrate learning from previous semesters. It consists of two lectures/discussion and one laboratory session per week. Students will utilize their knowledge and skills to develop food products for consumer acceptability and current food trends, ease of quality assurance, regulatory compliance, ease of manufacturing, good sensory and nutritional qualities and marketability
	1. analyzed and practiced problemsolving and critical thinking skills related to illdefined problems, **2. practiced using the scientific method and read and analyzed scientific papers and discussed anomalies in class discussion,** **3. Make informal and formal oral presentations to the class.** **4. comprehended the fundamental principles, generalizations, and theories of product development,** **5. experienced the process of food product development and to have prepared a new food product prototype related to a current food trend,** **6. used new food product ingredient technology, functionality**

	(flavor, texture, shelflife, **safety,** **and processing), regulatory aspects, and ingredient suppliers,** **7. learned about the different groups within a food company responsible for bring new products** **to market: R&D, marketing, packaging,** **operations/production, regulatory, quality assurance, purchasing, etc.**
	1. Each student, as an individual or part of a group, will design and write experimental laboratory protocol, search library and scientific literature on the internet for appropriate articles for, carry out food experiments, write reports, and make oral presentations. **2. Each student will:** **1) read and understand appropriate sections in the text and other reference materials,** **2) come to class with written answers/proposals/suggestions on the assignments and** **3) be prepared to share and discuss this information with class or group members,** **4) Write journal entries and laboratory reports, and make oral presentations.**

	3. Students are responsible for their own performance on takehome examinations and are responsible for all written and oral assignments.
	1. Students must participate in group and class discussions and in each scheduled laboratory. **Because most of the laboratory experiments will involve group work, there will be no way for an individual to make up laboratory work. If you are not in class or the laboratory, you have not participated, and therefore, you will be marked absent.** **2. No journals will be accepted after the due date (except under extenuating circumstances).** **3. Your laboratory work area must be clean after you have left for the day. Not doing so will result in 2% being taken off your final group report grade for each time you leave a dirty work area.** **4. All students are required to wear a lab coat, closedtoe shoes, and a hat or hairnet while in the food preparation laboratory – for health and safety reasons. No coat, shoes, or hat, no admittance to lab.** **5. All cellular phones and pagers must be turned off during class and laboratory periods. No**

	exceptions. **Assignments, guidelines, expectations, and requirements:** **1. Each group member must come to class prepared with typewritten** **answers (with reference** **2. citations) to discuss the topic of the day (usually an experimental design, solution to the problem, the results of their experiment, or sensory evaluation form), etc. Your contributions to the group will be collected at the beginning of the class period. If you need a copy for your group discussion, bring one to turn in and a copy for yourself**

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 30 %.	1	Lectures
2	Final Exam 70%	2	PPT Slides
3	Total 100%	3	Exercises Practical
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Reference:

1. Required. Fuller, G.W. 2005. New Food Product development, 2nd Edition. CRC Press, Boca, Ralton
2. Developing New Food Products for a Changing Marketplace. Edited by AL Brody and JB Lord. CRC Press. 2000.

Course title	**Food Quality Control**
Course Code	**TN412**
Level/ Semester	L4 / S1
Credit hours	2 Houre
Course Description	The course provides comprehensive definitions of food quality control and quality assurance. It also describes the quality control procedures and objectives in the production of food to satisfy the customers' desire for quality and safe foods and legal requirements.
Objectives:	1. Introduce students to the concept of food quality control and quality assurance 2. To acquire knowledge of food quality, safety, and legislation 3. To understand the importance of statistics in food quality control.
learning Outcomes:	After participating in the course, students would be able to: 1. Differentiate between quality assurance and quality control. 2. Evaluate the importance of food quality control systems in satisfying the requirements of boththe consumer and legislation. 3. Determine the quality of food by scientific methods such as: instrumentation, microbiological, chemical, and sensory evaluation.

	4. Identify food adulteration, detection and prevention.
Topics	1. Introduction to Food Quality Evaluation and Control. 2. Quality factors in foods: Appearance and Textural factors. 3. Quality Factors in Foods: Flavor and Additional Quality. 4. Methods of Determining FoodQuality. 5. Sensory Evaluation. 6. Statistical Quality Control. 7. Food Adulteration. 8. Specification and Food standards. 9. Legislation and Food Laws.

No	EVALUATION	No	TEACHING METHODS
1	Continuous periodic assessment + Midterm exam 20 %.	1	Lectures
2	Final Exam 40%	2	PPT Slides
3	Practical 40%		
4	Total 100%	3	Exercises Practical
	___	4	Group projects

Reference:

1. Sanni, L.O. 2005.Quality Assurance System in the Food Industry.Jedidiah publishers, Nigeria. ISBN 978-2951-60-9.Pp 10-18.
2. Ihekoronye, A.I., Ngoddy, P.O. (1985). Integrated Food Science and Technology for the Tropics. Macmillian Publishers Ltd, London.386p.

3. Akinjayeju, O. (2002): Statistical Quality Control: A Food Science and Technology Approach. Concept Publications (Press Division), Lagos.Pp120-170. ISBN 978-2309-87-7

Course title	**Nutrition Education and Health Promotion**
Course code	**TN216**
Level/ Semester	L2/s1
Credit hour	2 hours
Course Description	The science-based application of learning, motivation and behavioral change theories and strategies to nutrition education and counseling to facilitate student learning of how to support clients' nutrition and activity behavioral Changes.
Objectives	Knowledge By the end of the course you will: 1. When provided with ethics case studies, be able to state the group affected by the ethics issue 2. When given a client profile, be able to give at least one reason for using a specific learning or behavior change theory during the assessment of the client's nutrition problem 3. Be able to name the steps in the Nutrition Care Process 4. When given the step in the Nutrition Care Process, be able to state two to three activities the dietitian/nutritionist does in that step 5. Explain the value to your career of developing your ability to skillfully exhibit the following processes or situations

	□ Cooperative learning □ Positive interdependence □ Face-to-face interaction □ Individual and group accountability □ Interpersonal and small group skills □ Group Processing
learning outcomes:	At the completion of the course, you will be able to: 1. Write a productive agenda with a measurable objective for each team meeting 2. Use a rubric to assess team productivity to name an area for improvement in the team process 3. Designate one way to improve team productivity at the end of each class 4. Build SMART learning objectives into lesson and counseling plans 5. Develop a nutrition presentation that meets the health literacy level of your audience 6. With your team, present a 20 minute nutrition education class to a case study population 7. Follow a step-by-step process to determine an adult learner's readiness to change 8. Given a profile, conduct a patient-centered nutrition counseling session to assess the nutrition problem 9. Apply the nutrition care process to a nutrition case study with measurable outcomes.

Topics	
	Individual Counseling Session – Skill Building
	1. Script (Form)
	2. Digital Video of Counseling Session (Draft: 8 – 10 minutes)
	3. Peer Reviews of Counseling Sessions (Form: 4 sessions @25 points each)
	4. Digital Video of Counseling Session (Final: 8 minutes)
	5. Self-Reflection on Counseling Session (Complete Form)
	SUB-TOTAL
	Nutrition Education Class – Skill Building
	1. Lesson Plan – Individually Written (Form)
	2. Lesson Plan – Team Written (Form)
	3. Team Presentation of a Nutrition Education Class Using Team Lesson Plan
	4. Peer-Evaluations of Nutrition Education Class (Form: 2 sessions @ 50 points each)
	SUB-TOTAL
	Collaborative Learning Team Skills – Skill Building – Weekly Action Form and Process Assessment
	1. Productive Interdependence
	2. Face-to-Face Interaction (Includes Skype)
	3. Interpersonal and Small Group Skills
	4. Individual and Group Accountability
	5. Group Processing
	6. Self Reflection on Collaborative Learning

No	**EVALUATION**	**No**	**TEACHING METHODS**
1	Continuous periodic assessment + Midterm exam 30 %.	**1**	Lectures
2	Final Exam 70%	**2**	PPT Slides
3	Total 100%	**3**	Exercises Practical

Reference:

Glanz K, Rimer BK, Lewis FM (Eds). Health Behavior and Health Education: Theory, Research, and Practice (3rd Ed). San Franscisco: Jossey-Bass, 2002