Regional Model Nutrition Curriculum for Frontline Health Workers
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<tr>
<td>AU</td>
<td>Africa Union</td>
</tr>
<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
</tr>
<tr>
<td>BMS</td>
<td>Breast Milk Substitutes</td>
</tr>
<tr>
<td>CAT</td>
<td>Continuous Assessment Tests</td>
</tr>
<tr>
<td>COMESA</td>
<td>Common Market for Eastern and Southern Africa</td>
</tr>
<tr>
<td>EAC</td>
<td>East Africa Community</td>
</tr>
<tr>
<td>ECSA</td>
<td>East, Central and Southern Africa- Health Community</td>
</tr>
<tr>
<td>HCP</td>
<td>Health Care Providers</td>
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<tr>
<td>HiNi</td>
<td>High impact Nutrition interventions</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>ICN</td>
<td>International Conference on Nutrition</td>
</tr>
<tr>
<td>ICT</td>
<td>Information Communication Technology</td>
</tr>
<tr>
<td>KFNSP</td>
<td>Kenya Food and Nutrition Security Policy</td>
</tr>
<tr>
<td>KHSSP</td>
<td>Kenya Health Sector Strategic and Investment Plan</td>
</tr>
<tr>
<td>KNDI</td>
<td>Kenya Nutrition and Dietetics Institute</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>NEPAD</td>
<td>New Partnership for Africa’s Development</td>
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<tr>
<td>PEP</td>
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<td>PLHIV</td>
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<td>Quality Improvement</td>
</tr>
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<td>SDG</td>
<td>Sustainable Development Goals</td>
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<tr>
<td>SUN</td>
<td>Scaling up Nutrition</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations International Children’s Emergency Fund</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Program</td>
</tr>
<tr>
<td>UNHCR</td>
<td>United Nations High Commissioner for Refugees</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

The pre service model nutrition curriculum for frontline workers has been developed by ECSA Health Community with financial support from the World Bank through project ID P144629. ECSA-HC wishes to convey profound thanks to all officials from various institutions specifically Ministries of Health for their efforts and cooperation in availing data for desk review, participation in various Regional and country consultative meetings, online dialogue, validation of the model curriculum and all the review processes. Without their commitment the development of the pre service nutrition model curriculum would have been difficult. ECSA- HC would like to acknowledge coordination of country stakeholders by the Nutrition focal persons from the Ministries of Health in Kenya - Ms. Gladys Mugambi, Tanzania - Dr. Vincent Assey and Uganda -Dr. Jacent Asiimwe. Sincere gratitude should also go to various Training institutions, Regulatory bodies, Professional councils and other partners who were consulted and contributed to the process.

We appreciate the leadership of Prof. Yoswa Dambisya; the Director General at ECSA-HC and the Non Communicable Diseases, Food Security Nutrition cluster: Ms. Rosemary Mwaisaka (Manager) and Ms. Doreen Marandu (Program Officer) for their tireless efforts and dedication in coordination of this process. We also thank all other ECSA colleagues who played part and supported process of development of this model curriculum.

Finally, ECSA–HC appreciates Dr. Gordon Nguka and Mr. Peter Shikuku who led the development process of the model curriculum.
The East, Central and Southern African Health Community (ECSA-HC) has continued to undertake advocacy and technical assistance to embrace and scale up nutrition interventions as a key strategy to reduce the burden of malnutrition in the region. Among its member states, ECSA-HC promote sharing of experiences and best practices, identifying priorities, building capacity and advocating for improved policies and programmes in the region.

Nutrition training of frontline workers is one of the key actions necessary to facilitate the implementation and scaling up of high impact nutrition interventions in the region. Specifically, trained frontline nutrition workforce will improve the service delivery to the end users at all levels.

Since malnutrition has many different causes and consequences, a multi-sectoral approach is needed to address this issue. This pre-service model curriculum aim to build the knowledge, skills and competences of frontline workers working at health facility in order to improve the nutrition practices and maximize nutritional benefits. This model nutrition curriculum has been developed to provide technical reference resources that cover nutrition specific and sensitive topics necessary for the frontline workers in all contexts.

It is my hope that the use of this model nutrition curriculum will help to strengthen the nutrition practices in our countries in an effort to scale up effective implementation of high impact nutrition interventions in the region.

Professor Yoswa Mbulalina Dambisya
Director General, ESCA-HC

Disclaimer: The content of these pre service model nutrition curriculum can be adapted to suit country specific contexts. In such a case, the content of the resulting document will be the sole responsibility of the organization adapting and will not represent the views of the authors and that of the ECSA-HC. The Use of the content of these model curriculum should be duly acknowledged.
OPERATIONAL DEFINITIONS

**Academic programme** - means the design of learning content, which is multi-dimensional and includes intentions, structure of content, delivery modes, academic resources and assessment modes;

**Curriculum**— a program of learning that specifies the learning outcomes, content and assessment strategy for evaluating learner performance. It consists of a document that describes desired knowledge, skills, performance, the process and content that will be used to achieve the learning outcomes. Detailed curricula may also specify training activities and methods, materials, facilities, and resources required for a specific lesson; any documented programme of study

**Competency**— a specific set of knowledge, skills, behaviors and attitudes required to perform a job; also defined measure of skill or aptitude against which individuals and organizations can be assessed.

**Course** - means a single unit in a programme of study

**Lecture hour** - means a period of time equivalent to one hour and representing one such instructional hour in lecture form, two in a tutorial or open learning session, three in a laboratory practical or practicum and five in farm or similar practice;

**Model** – means a system or thing used as an example to follow or imitate.

“the law became a model for dozens of laws banning non - degradable plastic products synonyms: prototype, stereotype, archetype, type, version; mold, template, framework, pattern, design, blueprint “the Canadian model of health care” prototypical, prototypal, archetypal “model farms”

**Programme of study** - means the prescribed syllabus that students must be taught at each key stage;

**Training package**— a set of materials or tools for training and assessment. In some situations specifically developed to lead to nationally recognized qualifications. A training package outlines the knowledge and skills required, as well as the standard of performance required for an employee to be considered ‘competent’. The package may also set national qualifications and guidelines for assessment.

**Training Institution:** A school that offers health-related courses at all levels of training.

**Skill Gaps:** This refers to underperformance observed in an employee due to inadequate skills.

**Standards** a set of generally accepted levels of performance; also is a standards reference point against which different aspects of the programme are compared or evaluated for quality.

**Syllabus-** Is an academic document that communicates course information and defines expectations and responsibilities it’s descriptive (unlike the prescriptive or specific curriculum)

**Training:** Planned process to modify attitude, knowledge, skill or behavior through learning experience to achieve effective performance in an activity or range of activities.
INTRODUCTION AND BACKGROUND

ECSA Health Community with the support from the World Bank is implementing a capacity development project for frontline workers in Kenya, Tanzania and Uganda. This mandate involves building capacity of health workers at facility and community levels to provide nutrition services. The capacity assessment of the nutrition workforce in Kenya, Tanzania and Uganda conducted by Helen Keller International in partnership with World Bank, UNICEF, and others in 2011 found that insufficient knowledge and practical experience of front line workers is a major barrier to implementing nutrition interventions at both health facility and community level in all three countries. This notwithstanding malnutrition still poses a major challenge in East Africa; all the three countries have very high levels of stunting, 35 percent in Tanzania, 34 percent in Uganda and 26 percent in Kenya (Global Nutrition Report, 2016). There is therefore an urgent need to address chronic malnutrition in these countries.

The Global community also recognises the need to accelerate investment and action to address nutrition challenges; this has been done through the Scaling up Nutrition movement (SUN). Since its inception 57 developing and middle income countries around the world have committed to scale up nutrition interventions (Mucha & Tharaney, 2013). In 2015, the UN Sustainable Development Goals enshrined the objective of “ending all forms of malnutrition,” challenging the world to think and act differently on malnutrition—to focus on all its faces and work to end it, for all people, by 2030 (ibid.) The East African countries (Kenya, Uganda and Tanzania) are part of the SUN initiative. The leaders in these countries have made political commitments and supported development of policies and action plans to operationalize and concretize these commitments. Statutory regulatory bodies to accredit training of nutritionists at different levels have been established; however gaps still exist in standardizing training and ensuring it matches local needs. There is also need to incorporate nutrition competencies in other frontline cadres’ curriculum and train community health workers for a more effective response. ECSA health community is developing a prototype/model pre-service curriculum targeting nurses, midwives, nutritionists and other health workers at facility level to bridge this gap. This curriculum will be adopted and adapted into existing ones to integrate nutrition into frontline workers curriculum.
2 RATIONALE FOR THE MODEL CURRICULUM

The East African region experiences both quantitative and qualitative deficiencies in human resources to deliver basic health, nutrition, and community services despite the challenges in under and over nutrition prevailing in the region. This curriculum seeks to incorporate nutrition and dietetics competencies into frontline health workers’ curricula to build their capacity to respond to these challenges.
It is anticipated that we shall have a broad spectrum of frontline workers providing nutrition services at different levels within the health service delivery system – from the community level to level 4 – 6 facilities. The table below provides a summary of these front line workers and the nutrition tasks they are expected to perform at the different levels. The curriculum seeks to develop content (knowledge, skills and attitudes) to enable them to perform nutrition tasks for these levels.

Table 1: Categories of frontline health workers and levels of health care service delivery and nutrition tasks they perform

<table>
<thead>
<tr>
<th>Level of Facility</th>
<th>Front line worker category</th>
<th>Tasks</th>
<th>Content</th>
</tr>
</thead>
</table>
| Level 1/ community (Dispensary and community facilities) | • Community health worker  
  • Nutrition and Dietetics technicians  
  • Certificate nurses  
  • Public Health/Environmental Health Technicians  
  • Assistant Community Development Officers  
  • Clinical Assistance  
  • Clinical Officers  
  • Nurse Midwife | • Promote nutrition and food security  
  • Support nutrition awareness for orphans and vulnerable children  
  • Refer malnutrition cases | • Communication skills  
  • Basic applications in ICT-  
  • Principles of human nutrition  
  • Basic Food and Nutrition assessment  
  • Ethics and integrity for professional practice  
  • Nutrition and Health promotion |
| Level 2 (Health centers)             | • Nutrition and Dietetics technicians  
  • Nutrition Technologists  
  • Dieticians Technologists  
  • Diploma level clinical officer  
  • Clinical assistant  
  • Enrolled nurse and midwives  
  • Registered Community health nurse/comprehensive nurse  
  • Public Health/Environmental Health Technicians  
  • Community Development Officers | • Promote nutrition and food security  
  • Support nutrition awareness for orphans and vulnerable children  
  • Refer malnutrition cases  
  • Effectively Communicate in delivering services in nutrition  
  • Provide basic Nutritional assessment and counseling  
  • Provide basic Infant and Young Child feeding  
  • Participate in distribution micronutrient supplementation  
  • Provide basic Health education services.  
  • Make referrals to higher level care  
  • Make referrals to community based level care  
  • Provide basic maternal nutrition  
  • Demonstrate effective use of health information system | • Communication skills  
  • Basic applications in ICT-  
  • Principles of human nutrition  
  • Nutrition in the life cycle  
  • Nutrition assessment  
  • Ethics and integrity for professional practice  
  • Nutrition and Health education  
  • Nutrition in disease/conditions management |
<table>
<thead>
<tr>
<th>Level 3 (Sub-county hospitals)</th>
<th>Level 4-6 Hospitals</th>
<th>Specialist nutrition services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nutritionists (Clinical, public health, community, food science)</td>
<td>• Nutritionists (Clinical, public health, community, food science)</td>
<td>• Communication skills</td>
</tr>
<tr>
<td>• Clinical Dieticians (Clinical Dietician, Food Service diet therapy)</td>
<td>• Clinical Dieticians (Clinical Dietician, Food Service diet therapy)</td>
<td>• Basic applications in ICT-</td>
</tr>
<tr>
<td>• Nutrition Technologists</td>
<td>• Nutrition Technologists</td>
<td>• Principles of human nutrition</td>
</tr>
<tr>
<td>• Dieticians Technologists</td>
<td>• Dieticians Technologists</td>
<td>• Nutrition in the life cycle</td>
</tr>
<tr>
<td>• Nutrition and Dietetics technicians</td>
<td>• Nutrition and Dietetics technicians</td>
<td>• Nutrition assessment</td>
</tr>
<tr>
<td>• Degree Nurse</td>
<td>• Degree Nurse</td>
<td>• Ethics and integrity for professional practice</td>
</tr>
<tr>
<td>• Higher National Diploma</td>
<td>• Higher National Diploma</td>
<td>• Health education</td>
</tr>
<tr>
<td>• Diploma</td>
<td>• Diploma</td>
<td>• Nutrition in disease/conditions management</td>
</tr>
<tr>
<td>• Certificate</td>
<td>• Certificate</td>
<td>• Basic Health Information systems management</td>
</tr>
<tr>
<td>• Degree Clinical officers</td>
<td>• Degree Clinical officers</td>
<td>• Basic sociology</td>
</tr>
<tr>
<td>• Higher clinical officers</td>
<td>• Higher clinical officers</td>
<td>• Basic psychology</td>
</tr>
<tr>
<td>• Diploma level clinical officer</td>
<td>• Diploma level clinical officer</td>
<td>• Leadership and management</td>
</tr>
<tr>
<td>• Clinical assistant</td>
<td>• Clinical assistant</td>
<td></td>
</tr>
<tr>
<td>• Medical officers</td>
<td>• Medical officers</td>
<td></td>
</tr>
<tr>
<td>• Public Health/Environmental Health officers</td>
<td>• Public Health/Environmental Health officers</td>
<td></td>
</tr>
<tr>
<td>• Public Health/Environmental Health Technicians</td>
<td>• Public Health/Environmental Health Technicians</td>
<td></td>
</tr>
</tbody>
</table>
This curriculum proposes a modular approach for three levels of education and training, i.e. certificate, diploma and degree to be integrated within existing curricula of the different cadres of frontline health workers. The frontline workers trained at these levels will serve at different levels of health service delivery.

**Purpose of the Model Curriculum**

The purpose of this model curriculum is to build capacity of frontline workers to provide nutrition services. The proposed modules and units will be integrated into already existing curricula of the different cadres of frontline at certificate, diploma or degree levels. The curriculum will therefore not operate in isolation.

**Expected Learning Outcomes for the Programme**

1. Apply communication skills in provision of nutrition and dietetics services
2. Use ICT knowledge and relevant computer software to provide nutrition and dietetics services
3. Conduct basic nutrition and dietetics assessment
4. Provide basic nutrition and dietetics counselling, advice and services based on nutrition sciences
5. Manage basic nutrition programmes and services
6. Provide basic health education on nutrition and dietetics to the public
7. Participate in nutrition and dietetics research
8. Participate in Monitoring and evaluation of project/programmes on nutrition and dietetics.
9. Refer critical cases for higher level nutrition and dietetics care to qualified nutritionists and/dieticians.
This course is organised under three modules, each targeting frontline workers providing nutrition services at different levels of the health system. The modules are equated to certificate, diploma and degree levels for ease in integration into already existing curriculum.

The table below provides a summary of the course content, hours and credits covered at these levels. The following formula has been used for credit allocation: 1 Unit = 1 Lecture Hour = 3 practical hours = 5 clinical or community hours. The total credits units provided per semester/trimester are 24 in the three East African countries. Each unit/course has 3 credit units per semester; this must be apportioned for theory and practical sessions. You need 8 courses per semester to attain the 24 credits units. If a course is purely theoretical and is implemented in 15 weeks, this will translate into 3 contacts hours per week for the period multiplied by 15 which equals 45 hours. If a course has both theoretical and practical sessions and running for 15 weeks, out of the three credit units allocated per semester, 1 credit unit will be for practical sessions, while 2 credit units will be for theory. To convert this into contact hours, the one credit unit of practical is equivalent to 3 contact hours, while two credit units of theory is equivalent to two contact hours per week. The total contact hours for this course are therefore 5 hours per week. For fifteen weeks this will translate to 75 contact hours, 2 hours of theory for 15 week which equals 30 hours and 3 hours of practical which equals 45 hours hence 75 hours.

For a course that theoretical, practical and clinical/community sessions and running for 15 weeks the three credit units will be apportioned as follows: 1 credit unit for theory, 1 credit unit for practicals and 1 credit unit for clinicals or community. This translates to 1 contact hour of theory, 3 contact hours of practical and 5 contact hours of clinical or community, which equals 9 hours per week. The contact hours for semester equals 135 hours.

<table>
<thead>
<tr>
<th>Module 1 – Certificate Level</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory</td>
</tr>
<tr>
<td>Communication skills</td>
<td>45</td>
</tr>
<tr>
<td>Basic applications in ICT-</td>
<td>30</td>
</tr>
<tr>
<td>Principles of human nutrition</td>
<td>30</td>
</tr>
<tr>
<td>Basic assessment in Food and Nutrition</td>
<td>30</td>
</tr>
<tr>
<td>Ethics and integrity for professional practice</td>
<td>45</td>
</tr>
<tr>
<td>Nutrition and Health promotion</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>225</td>
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</table>
## COURSE STRUCTURE

### Module 2 – Diploma Level

<table>
<thead>
<tr>
<th>Units</th>
<th>Theory</th>
<th>Practical</th>
<th>Total Hours</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication skills</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Basic applications in ICT-</td>
<td>30</td>
<td>45</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Principles of human nutrition</td>
<td>30</td>
<td>45</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition in the life cycle</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition assessment</td>
<td>30</td>
<td>45</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Ethics and integrity for professional practice</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Health education</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition in disease/conditions management</td>
<td>30</td>
<td>45</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Basic Health Information systems management</td>
<td>30</td>
<td>45</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Basic sociology</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>375</td>
<td>235</td>
<td>610</td>
<td>30</td>
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</table>

### Module 3 – Degree Level

<table>
<thead>
<tr>
<th>Units</th>
<th>Theory</th>
<th>Practical</th>
<th>Total Hours</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication skills</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Basic applications in ICT-</td>
<td>30</td>
<td>45</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Principles of human nutrition</td>
<td>30</td>
<td>45</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition in the life cycle</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition assessment</td>
<td>30</td>
<td>45</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Ethics and integrity for professional practice</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Health education</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition in disease/conditions management</td>
<td>30</td>
<td>45</td>
<td>75</td>
<td>3</td>
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<tr>
<td>Basic Health Information systems management</td>
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<td>45</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Basic sociology</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Basic psychology</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Leadership and management</td>
<td>45</td>
<td>45</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>465</td>
<td>225</td>
<td>690</td>
<td>36</td>
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PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

The content in the modules and units is organized around competencies necessary to deliver nutrition and dietetics services at different levels by different cadres within the health service delivery system. Module one is certificate level and targets level one health workers.

MODULE 1: CERTIFICATE LEVEL: LEVEL ONE DISPENSARY AND COMMUNITY FACILITIES

<table>
<thead>
<tr>
<th>Module Units</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Skills</td>
<td>45</td>
</tr>
<tr>
<td>Basic Applications in ICT</td>
<td>70</td>
</tr>
<tr>
<td>Principles of Human Nutrition</td>
<td>70</td>
</tr>
<tr>
<td>Basic Assessments in Foods and Nutrition Security</td>
<td>70</td>
</tr>
<tr>
<td>Ethics and Integrity for Professional Practice</td>
<td>45</td>
</tr>
<tr>
<td>Nutrition and Health Promotion</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>360</strong></td>
</tr>
</tbody>
</table>

**Module Purpose**

This module is designed to enable the learner develop competencies in providing nutrition services at level one, dispensary and community facilities. The cadres working at this level are Community health volunteers/workers, CHEWs/VHT; Nutrition and Dietetics technicians, Certificate nurses and Public Health/Environmental Health Technicians.
Module Content

1. Communication Skills

Purpose

The purpose of this course is to train students how to communicate effectively in both oral and written communication in the work environment. Students will also be enabled to know how to access information and use it for their study and research or any other related purpose.

Expected Learning Outcomes

1. Apply skills in behavior change communication in the context of nutrition and dietetics
2. Use communication and interpersonal skills in conduct of nutrition services

Course Content

Behavior change communication: Information Education and Communication (IEC)
Materials, preparation development and distribution
Study skills: planning work, organizing and budgeting time and resources, storing and retrieving information, thinking critically, solving problems, coping with task-oriented learning.
Library skills: Understanding book classification system of Library, collecting and summarizing information, note taking and storage of information.
Listening skills: active listening, understanding lectures; recognizing change of topic, following tutorial discussions, understanding instructions; interpreting information.
Examination skills: understanding examination, preparing and writing examinations;
Community dialogue.

Mode of Delivery

Role play, group discussions, demonstration, field visits, brain storming sessions participatory lectures, Tutorials and practical.

Instructional Materials and Equipment

Chalkboard, charts, computer and accessories, textbooks, posters, DVDs, models, teaching aid and any other relevant teaching materials.
PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

Course Assessment
Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 40%
End of Semester Examination 60%
Total marks 100%
Pass Mark 50%

Core Reference Materials

Recommended Reference Materials
6. Other relevant materials.
2. Basic Applications in ICT

Purpose

This course will enable students to acquire knowledge and skills in the application of ICT resources in nutrition and dietetic service delivery.

Expected Learning Outcomes

1. Use ICT resources in delivery of nutrition services.

Content

**Introduction:** Definition of ICT, basic ICT Hardware and Software; **Software applications relevant to nutrition and dietetics:** Spreadsheets; MS Excel spreadsheet; ODK technique; Ms Windows, Access and PowerPoint. **Internet applications:** electronic mail: remote log-in; searching; moving files; the World Wide Web, Internet Explorer; **Special topics:** Procurement of ICT.

Mode of Delivery

Role play, group discussions, demonstration, field visits, brainstorming sessions participatory lectures, Tutorials and practical.

Instructional Materials and Equipment

Chalkboard, charts, computer and accessories, textbooks, posters, DVDs, models, teaching aid and any other relevant teaching materials.

Course Assessment

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</table>
Core References Materials


Recommended Reference Materials


3. Principles of Human Nutrition

Purpose

Students will attain knowledge on the basics of interaction of nutrients and metabolic nutrient interactions and disorders related to under and over nutrition.

Expected Learning Outcomes

1. Comprehend the composition and variation of nutrients in foods.
2. Comprehend basic interaction of nutrients and their metabolism.
3. Analyze factors influencing nutrient utilization
4. Prescribe a balanced diet, sources of nutrients and intake regulation
5. Accurately diagnose between under and over nutrition and disorders associated with them.
6. Evaluate weight control and Key contemporary nutritional issues.

Content

Definition of foods and their components; Nutrients in foods: types, function, sources and properties, nutrient digestion, absorption and utilization; natural and human-made factors influencing nutrient utilization; balanced diets and disorders related to under and over nutrition, food and diet guides, Nutrition in the life cycle: Nutrition needs for different age groups.

Mode of Delivery

Role play, group discussions, demonstration, field visits, brain storming sessions participatory lectures, Tutorials and practical.

Instructional Materials and Equipment

Chalkboard, charts, computer and accessories, textbooks, posters, DVDs, models, teaching aid and any other relevant teaching materials.
Course Assessment

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 40%

End of Semester Examination 60%

Total marks 100%

Pass Mark 50%

Core References Materials


Recommended Reference Materials

4. Basic Assessments in Foods and Nutrition Security

Purpose

Students will attain knowledge, skills and attitudes on nutritional status assessment.

Expected Learning outcomes

At the end of the course, the students should be able to:

1. Use the principles of nutritional assessment
2. Undertake nutritional assessment
3. Use the criteria for selection of method and determination of method appropriateness for different assessment needs
4. Apply assessment techniques in assessing nutritional status of various groups
5. Undertake accurate household food security assessment

Content

Household food security; principles of nutritional assessment; Basic Nutritional assessment techniques; anthropometry, clinical methods, 24-hour recall; Social economic assessment; WASH assessments, food and environment

Mode of Delivery

Role play, group discussions, demonstration, outreach and field visits, brain storming sessions participatory lectures Tutorials and practical.

Instructional Materials and Equipment

Chalkboard, charts, computer and accessories, textbooks, posters, DVDs, models, teaching aid and any other relevant teaching materials.
PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

Course Assessment

<table>
<thead>
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<th>Assessment Type</th>
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</table>

Core References Materials

4. FSAU (2005), Nutrition guide to data collection, interpretation analysis and use, FSAU for Somalia
6. Uganda Health Systems Assessment 2011
7. Tanzania National Nutrition survey 2014

Recommended Reference Materials

1. Cogill B (2001), Anthropometric indicators measurement guide, FANTA
6. Ethics and Integrity in Professional Practice

Purpose

The purpose of this unit is to cultivate ethical awareness, sensitivity and commitment among learners in a manner that will enable them to conduct themselves with integrity in their professional work.

Expected Learning Outcome

1. Apply the concepts of ethics and integrity in the delivery of nutrition and dietetics services
2. Identify the forms, causes and consequences of corruption and the relevant mitigation and prevention mechanisms
3. Display high integrity and ethics in nutrition and dietetics service delivery
4. Apply constitutional and legal provisions that ground ethics and integrity requirements, institutions and processes,
5. Identify the place of ethics and integrity in individual and national development
6. Apply values that promote integrity
7. Evaluate human conduct using indigenous and contemporary ethical framework

Course Content

Introduction  theories and Concepts in ethics, integrity and professionalism: Code of ethics and conduct in practice; Constitutional and legal provisions on ethics and integrity. Ethics and integrity in individual and national development, integrity and human rights, ethical conscience building and national development, case studies on ethics and integrity. Values that promote; integrity fairness, selfless, humility, courage and autonomy. Social cultural perspectives of ethics.

Mode of Delivery

Role play, group discussions, Case studies, brain storming sessions participatory lectures, Tutorials, visual aids, drama and theatre and practical.
PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

Instructional, Material and Equipment

Chalkboard, charts, computer and accessories, textbooks, posters, DVDs, models, teaching aid and any other relevant teaching materials.

Course Assessment

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 40%
End of Semester Examination 60%
Total marks 100%
Pass Mark 50%

Core Reference Materials


7. Nutrition and Health Promotion

**Purpose**

To apply the theories, skills and methods of health and nutrition education and counseling techniques in health service delivery.

**Expected Learning Outcomes**

By the end of this unit the student should be able to:

1. Develop objectives for individual and group nutrition interventions for different age levels
2. Use the objectives developed to conduct education and counseling interventions
3. Apply the principles of counseling and counseling process.
4. Apply learning theories in clinical and community settings
5. Use counseling skills and theories as they apply to general health and nutrition counseling.
6. Use principles of education in teaching health and nutrition concepts to various populations.

**Content**

Theories, skills, and methods in nutrition and health promotion; Social behavioural change communication and community empowerment. Development of nutrition and health promotion messages for different target population and audience., Communication process and channels; nutrition advocacy. Nutrition health mobilization and sensitization. Water Sanitation and Hygiene (WASH), Water Safety, faecal – oral transmission, construction of wells, water sanitation, food safety, housing, water supply and sanitation. Community Diagnosis; Definition, The community diagnosis process, community analysis, community public health and nutrition indicators

**Mode of Delivery**

Role play, group discussions, demonstration, outreach and field visits, brain storming sessions participatory lectures Tutorials and practical.
Instructional Materials and Equipment

Chalkboard, charts, computer and accessories, textbooks, posters, DVDs, models, teaching aid and any other relevant teaching materials.

Course Assessment

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<th>Test Type</th>
<th>Percentage</th>
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<td>70%</td>
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<tr>
<td>Total marks</td>
<td>100%</td>
</tr>
<tr>
<td>Pass Mark</td>
<td>50%</td>
</tr>
</tbody>
</table>

Core References Materials

5. Strategic and action plan for the prevention and control of None communicable diseases in Tanzania 2016 -2020

Recommended Reference Materials

**Module Purpose**

This module will enable the learner to develop competencies to provide nutrition services at level three hospitals. This level targets the cadres working at this level that will include, nutritionists (Clinical, public health, community, food science) clinical dieticians (Clinical Dietician, Food Service diet therapy), nutrition Technologists, dieticians technologists, nutrition and dietetics technicians, nurses (degree, higher national diploma, diploma, certificate levels), clinical officers (degree, higher national diploma, diploma levels), clinical assistants, medical officers, public health/environmental health officers, public health/environmental health technicians.

<table>
<thead>
<tr>
<th>Module Units</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Communication Skills</td>
<td>45</td>
</tr>
<tr>
<td>Basic Applications in ICT</td>
<td>70</td>
</tr>
<tr>
<td>Principles of Human Nutrition</td>
<td>70</td>
</tr>
<tr>
<td>Nutrition in the Life Cycle</td>
<td>45</td>
</tr>
<tr>
<td>Nutritional Status Assessment</td>
<td>70</td>
</tr>
<tr>
<td>Ethics and Integrity for Professional Practice</td>
<td>45</td>
</tr>
<tr>
<td>Health Education</td>
<td>45</td>
</tr>
<tr>
<td>Nutrition in Disease/Conditions Management</td>
<td>70</td>
</tr>
<tr>
<td>Basic Health Information Systems Management</td>
<td>70</td>
</tr>
<tr>
<td>Basic Sociology</td>
<td>45</td>
</tr>
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<td><strong>Total</strong></td>
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</tr>
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</table>
Module Content

1. Communication Skills

Purpose

The purpose of this course is to train students how to communicate effectively in both oral and written communication in the work environment. Students will also be enabled to know how to access information and use it for their study and research or any other intended purpose.

Expected Learning Outcomes

1. Apply skills in Behavior change communication
2. Demonstrate and apply study skills note/minute taking and Library skills
3. Demonstrate Reading skills
4. Practice Writing and reporting skills

Course Content

Behavior change communication; IEC Materials, preparation development and distribution

Study skills: getting to know the academic environment; planning work, organizing and budgeting time and resources, storing and retrieving information, thinking critically, solving problems, coping with task-oriented learning, dealing with facts and opinions, drawing conclusions. Library skills: Understanding book classification system of Library, collecting and summarizing information, note taking and storage of information. Reading skills: skimming, seaming, inference and prediction; intensive and critical reading; discipline-specific reading skills. Interpretation of non-linear text; constructing and using statistical tables, indices, maps, graphs. Listening skills: active listening, understanding lectures; predicting lecture structure, understanding gist, recognizing change of topic, following tutorial discussions, understanding instructions. Examination skills: understanding examination rubrics, preparing and writing examinations.

Mode of Delivery

Lectures, Tutorials and practicals
PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

Instructional Materials and Equipment

Chalkboard, charts, laptops, textbooks

Course Assessment

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%

End of Semester Examination 70%

Total marks 100%

Pass Mark 50%

Core Reference Materials


Recommended Reference Materials


E-Resources

- [http://webcampus.frexelmed.edu/medethex/index.html](http://webcampus.frexelmed.edu/medethex/index.html)
- Journal of the Association for Communication Administration
2. Basic Applications in ICT

Purpose
To enable students acquire knowledge and skills in the use of computers

Expected Learning Outcomes
1. Recognize the various components of a computer.
2. Operate a computer.
3. Use software relevant to nutrition and dietetics.

Content
Introduction: history, terminology used in computing; Computer hardware and arithmetic; Operating systems; Personal computer environment: major hardware/software components; files & folders; storage devices. Fundamentals of Microsoft windows; Word processors; The Windows MS Word processor; Software applications relevant to nutrition and dietetics: Spreadsheets; Using MS Excel spreadsheet; Using EPI info, SPSS, STATA, SAS, Nutrisurvey, ENA for SMART; Databases and Database Systems; Database evolution and variety; Differences between database and spreadsheets; Using Ms Windows, Access. Computer Networks; Internet applications: electronic mail: remote log-in; searching; moving files; the World Wide Web, Internet Explorer; Special topics: Computers and society- security issues, viruses, use and misuse of computers and society; graphics and multimedia; Computer languages; solving problems and creating applications; Purchasing a PC; Role of Information technology in Nutrition.

Mode of Delivery
Lectures, Tutorials, class discussions, practicals and assignments

Instructional Materials and Equipment
Chalkboard, charts, laptops, textbooks.
## Course Assessment

<table>
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<tr>
<th>Assessment</th>
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<tbody>
<tr>
<td>Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical</td>
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<tr>
<td>End of Semester Examination</td>
<td>70%</td>
</tr>
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<td><strong>Total marks</strong></td>
<td>100%</td>
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</tbody>
</table>

**Pass Mark**: 50%

## Core References Materials


## Recommended Reference Materials


## E-Resources

- *The International Journal of Information and Communication Technology Education (IJICTE)*
3. **Principles of Human Nutrition**

**Purpose**

Students will attain knowledge on the basics of interaction of nutrients and metabolic nutrient interactions and disorders related to under and over nutrition.

**Expected Learning Outcomes**

1. Comprehend the composition and variation of nutrients in foods.
2. Comprehend basic interaction of nutrients and their metabolism.
3. Analyze factors influencing nutrient utilization
4. Prescribe a balanced diet, sources of nutrients and intake regulation
5. Accurately diagnose between under and over nutrition and disorders associated with them.
6. Evaluate weight control and Key contemporary nutritional issues.

**Content**

**Definition of foods and their components; Nutrients in foods:** types, function, sources and properties, **nutrient digestion**, absorption and utilization; natural and human-made factors influencing nutrient utilization; **balanced diets and disorders related to under and over nutrition.** **Nutrition in the life cycle:** Nutrition needs for different age groups. Dietary guidelines; non-nutritive components of food; energy metabolism, weight control and contemporary nutrition issues;

**Mode of Delivery**

Lectures, Tutorials, class discussions, and practical.

**Instructional Materials and Equipment**

Chalkboard, charts, laptops, textbooks, white board and markers
Course Assessment

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%

End of Semester Examination 70%

Total marks 100%

Pass Mark 50%

Core References Materials


Recommended Reference Materials


E-Resources

- Journal of Human Nutrition and Dietetics
4. Nutrition in the Life Cycle

Purpose

To demonstrate understanding of impact of nutrition on quality of life at the various life stages.

Expected Learning Outcomes

At the end of this course the student should:

1. Calculate nutrient requirements in the human life cycle.
2. Accurately guide on food choices to client seeking services.
3. Provide interventions on nutrient related issues affecting each age group in Tanzania, Kenya, Uganda and worldwide.
4. Provide interventions during special needs.

Content

Concepts of growth and development; nutrient requirements in the human life cycle; infancy, childhood, adolescent, adulthood, old age; factors affecting food choice in the human life cycle; nutrient requirements in special physiological states e.g. pregnancy and lactation; nutrient related issues affecting each age group in population; WHO guidelines on infant feeding, breastfeeding code; Nutrition during special needs (vegetarians, allergies, resource poor setting, alcohol abuse, food intolerance).

Mode of delivery

Lectures, Tutorials, class discussions, practical and assignments.

Instructional materials and equipment

Chalkboard, charts, laptops, textbooks.
Course Assessment

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%

End of Semester Examination 70%

Total marks 100%

Pass Mark 50%

Core References Materials


Recommended Reference Materials


E-Resources

- International Journal of Life Cycle Assessment (Int J Life Cycle Assess)
- The Ceylon Journal of Medical Science 2007; 50:19-21
5. Nutritional Status Assessments

Purpose

Students will attain knowledge, skills and attitudes on nutritional assessment.

Expected Learning Outcomes

At the end of the course, the students should be able to:

1. Apply the principles of Nutritional assessments
2. Use techniques in nutritional assessments to diagnose conditions
3. Engage accurate, efficient and effective assessment methods relevant to the conditions

Content

Principles of nutritional assessment; Nutritional assessment techniques; anthropometry, biochemical techniques; clinical methods and dietary history; Energy balance procedures used in identifying individuals and groups at risk; and Planning, implementation, monitoring and evaluation of activities required to institute a successful nutritional intervention programme. Quality assurance requirements, programme implementation. History, Theoretical frameworks, methods, standards of reference and limitations of the different methods. Criteria for selection of method and determination of appropriateness for different assessment needs. Practical experience in application of the methods.

Mode of Delivery

Lectures, Tutorials, class discussions, practical and assignments, demonstrations.

Instructional Materials and Equipment

Chalkboard, charts, laptops, textbooks, assessment tools
PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

**Course Assessment**

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%

End of Semester Examination 70%

Total marks 100%

Pass Mark 50%

**Core References Materials**


4. FSAU (2005), Nutrition guide to data collection, interpretation analysis and use, FSAU for Somalia


6. Uganda Health Systems Assessment 2011

7. Tanzania National Nutrition survey 2014

**Recommended Reference Materials**

1. Cogill B (2001), Anthropometric indicators measurement guide, FANTA


**E-Resources**


- American Journal of Nursing
6. Ethics, Integrity and Professional Practice

Purpose

The purpose of this unit is to cultivate ethical awareness, sensitivity and commitment among learners in a manner that will enable them to conduct themselves with integrity in their professional work.

Expected Learning Outcome

1. Integrate the concepts of ethics and integrity in the delivery of nutrition and dietetics services
2. Identify the forms, courses and consequences of corruption and the relevant mitigation and prevention mechanisms
3. Implement mainstreaming of integrity and ethics in nutrition and dietetics service delivery
4. Apply constitutional and legal provisions that ground ethics and integrity requirements, institutions and processes,
5. Identify the place of ethics and integrity in individual and national development
6. Apply values that promote integrity
7. Evaluate human conduct using indigenous and contemporary ethical framework

Course Content

Concepts in ethics and integrity; ethics, integrity, professionalism, corruption, and their inter-relationships and applications. Corruption Forms, causes and consequences of corruption. Mainstreaming of integrity and ethics; corruption risk assessment and management, corruption prevention, planning and implementation of a corruption prevention plan, Ethics and Integrity; Ethical reasoning and decision making, ethics auditing in organization; ethics and integrity in research and scholarship. Constitutional and legal provisions on ethics and integrity. Ethics and integrity in individual and national development, integrity and human rights, ethical conscience building and national development, case studies on ethics and integrity. Values that promote; integrity fairness, selfless, humility, courage and autonomy. Ethics and integrity in Africa and contemporary contexts.

Mode of Delivery

Lecture, discussion, community of inquiry; simulation and case study, narration of personal experiences, blended learning
Instructional, Material and Equipment

Books relevant local, regional and international current affairs material, excerpts from speeches, cases and reports, audio-visual-LCD projectors, laptop, computers, internet source, server, online platform

Course Assessment:

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<th>Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical</th>
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<tr>
<td>Total marks</td>
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<tr>
<td>Pass Mark</td>
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</tbody>
</table>

Core Reference Materials


7. **Health Nutrition Education & Counseling**

**Purpose**

To apply the theories, skills and methods of health and nutrition education and counseling techniques in health service delivery.

**Expected Learning Outcomes**

1. Develop objectives for individual and group nutrition interventions for different age levels
2. Use the objectives developed to conduct education and counseling interventions
3. Apply the principles of counseling and counseling process.
4. Demonstrate how counseling and learning theories are applied in clinical and community settings
5. Demonstrate counseling skills and theories as they apply to general health and nutrition counseling.
6. Use principles of education in teaching health and nutrition concepts to various populations.

**Content**

Theories, skills, and methods in nutrition and health education; Objectives for nutrition interventions: considerations - individual, groups, age levels; selection of techniques, tools, and resources. Translation of scientific nutrition literature for the lay public; verbal and written communication skills; Principles of counselling; counselling process; nutrition counseling laboratory; dietary and health counselling; nutrition counselling techniques; designs and implementation of nutrition counselling. Nutrition Education Messages, role of a nutrition educator; the problems and potential of nutrition education planning implementation, management of nutrition education programmes. Communication channels: Role of stakeholders in nutrition education, nutrition advocacy. Nutrition health education and community mobilization sensitization. Case studies of successful nutrition education programmes.

**Mode of Delivery**

Lectures, Tutorials, class discussions, practicals and field trips.

**Instructional Materials and Equipment**

Chalkboard, charts, laptops, and textbooks
PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

Course Assessment

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%

End of Semester Examination 70%

Total marks 100%

Pass Mark 50%

Core References Materials


5. Strategic and action plan for the prevention and control of None communicable diseases in Tanzania 2016 -2020


Recommended Reference Materials


E-Resources

• Journal of Clinical Nursing.

• Journal of Patient Education and Counseling
8. Nutrition in Disease Management

Purpose

Students will acquire knowledge and skills in nutritional management of diseases.

Expected Learning Outcomes

1. Apply the principles of diet therapy.
3. Use nutrition in preventing and treating diseases.
4. Accurately use different modes of feeding in patient care.
5. Apply the relationship between Medical nutrition therapy and immunity and genetics.

Content

Interrelationships of physiology, biochemistry and nutrition, medical nutritional therapy (MNT); General nutritional status assessment and diseases/disorders; malnutrition, obesity; disordered eating, anemia, cardiovascular disease chemical dependency, psychiatric disorder; Drug-nutrients interactions. Role of nutrition in preventing and treating disease/disorders: diabetes mellitus, hypoglycemia, renal, biliary, neurological, and dysphagia addresses cancer, upper and lower gastrointestinal(GI) disorder, exocrine pancreas, pulmonary disease, metabolic stress, acquired immune deficiency syndrome(AIDS),rheumatic disorder, transplantation, parenteral and enteral nutrition; The relationship between MNT and immunity and genetics.

Mode of Delivery

Lectures, Tutorials and clinical practice.

Course Assessment

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%
End of Semester Examination 70%
Total marks 100%
Pass Mark 50%
Core References Materials


8. Strategic and action plan for the prevention and control of None communicable diseases in Tanzania 2016 -2020

Recommended Reference Materials


E- Resources

- Journal of the Academy of Nutrition and Dietetics
- Journal of Human Nutrition and Dietetics
9. Basic Health Information Systems Management

Purpose
Enable the learners to accurately collect, record, and retrieve health information in both digitized and hard copy formats and analyze, synthesize and evaluate it to inform nutrition programming.

Expected Learning Outcomes:
1. Apply the concepts, principles and types of management information systems
2. Comprehend the legal and ethical issues in the management of information systems.
3. Use the structural linkages in the management of information systems.
4. Apply the techniques of handling, record keeping retrieving analyzing and dissemination of health information systems.
5. Design, implement and assess a manual and computerized management information system.

Course Contents
Management of Information Systems: Definitions, concepts and principles; types, processes of management information systems
Data on Information Systems: Sources, collection and analysis, storage, retrieval, reporting, dissemination, utilization, classification, of information systems, uses of information.
Health and Management of Information Systems: Development of information systems, types of information systems, personnel, financing, facilities and fixed assets, workload operation, designs of information systems, case mix management, information system.

Linkages: various health institutions, inter and intra-agency, community-based data.
Legal and ethical issues: standards, medical audit, consent, confidentiality.

Organization of Health Information System (HIS): In the Ministry of Health, in other institutions, and in the community. Institutional linkages, among information systems, integrated information systems, Local Area Network (LAN); monitoring and evaluation of health systems.

Computers and Management of Information: Existing state of health information systems, conceptual and practical aspects in analysis, development, and utilization of computer-based information and control with emphasis on application to health care environment.

Current computer based aids: Wide Area Network (WAN) and geographical Information systems, information for health service management, range and quality and reliability of health and health service data; assessment of the costs and benefits of information systems, access, security; information personnel and training; systems compatibility and sustainability.
Mode of Delivery
Lectures, Tutorials, lab practicals class discussions and assignments

Instructional Materials and Equipment
Chalkboard, charts, laptops, textbooks.

Course Assessment
Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%
End of Semester Examination 70%
Total marks 100%
Pass Mark 50%

Core Reference Materials

Recommended Reference Materials
10. Basic Sociology

Purpose
To attain knowledge and skills in sociology of human nutrition.

Expected Learning Outcomes
1. Apply the basic principles of the study of sociology at the health care facility and community level.
2. Use the social structure in front line health care service delivery
3. Relate social sciences to sociology and health care service delivery.
4. Apply basic concepts of anthropology in service delivery

Content
The study of sociology; society methods of sociological study; structure and functions of society; social relationship evolution of human society; social structure; status, role of family group community class value socialization purpose of a social inquiry; tools in sociology and the social science inquiry; relationship between sociology and social sciences; basic concepts of anthropology diet and culture, cultural evolution and change; ethnology and ethnography in the food and nutrition context; field methods in anthropology.

Mode of Delivery
Lectures, Tutorials, Discussions,

Course Assessment
Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%
End of Semester Examination 70%
Total marks 100%
Pass Mark 50%
Core References Materials


Recommended Reference Materials


E-Resources

- Sociology journal
- American Journal of Sociology
PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

MODULE 3:

DEGREE LEVEL 1, 2, 3 & 4

Code:  Hours: 665  Credit: 36

Module Purpose

This module will enable the learner to develop competencies to provide nutrition services at level three hospitals. This level targets the cadres working at this level that will include, nutritionists (clinical, public health, community, food science), clinical dieticians (clinical dietician, food service diet therapy), nutrition technologists, dieticians technologists, nutrition and dietetics technicians, nurses (degree, higher national diploma, diploma, certificate levels), clinical officers (degree, higher national diploma, diploma levels), clinical assistants, medical officers, public health/environmental health officers, public health/environmental health technicians.

<table>
<thead>
<tr>
<th>Module Units</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Communication Skills</td>
<td>45</td>
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<tr>
<td>Basic Applications in ICT-</td>
<td>70</td>
</tr>
<tr>
<td>Principles of Human Nutrition</td>
<td>70</td>
</tr>
<tr>
<td>Nutrition in the Life Cycle</td>
<td>45</td>
</tr>
<tr>
<td>Nutritional Status Assessment</td>
<td>70</td>
</tr>
<tr>
<td>Ethics and Integrity for Professional Practice</td>
<td>45</td>
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<td>Health Education</td>
<td>45</td>
</tr>
<tr>
<td>Nutrition in Disease/Conditions Management</td>
<td>70</td>
</tr>
<tr>
<td>Basic Health Information Systems Management</td>
<td>70</td>
</tr>
<tr>
<td>Basic Sociology</td>
<td>45</td>
</tr>
<tr>
<td>Basic Psychology</td>
<td>45</td>
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<tr>
<td>Leadership and Management</td>
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</tbody>
</table>
Module Content

1. Communication Skills

Purpose

The purpose of this course is to train students how to communicate effectively in both oral and written communication in the work environment. Students will also be enabled to know how to access information and use it for their study and research or any other intended purpose.

Expected Learning outcomes

1. Apply skills in Behavior change communication
2. Demonstrate and apply study skills note/minute taking and Library skills
3. Demonstrate Reading skills
4. Practice Writing and reporting skills

Course Content

Behavior change communication

Study skills: planning work, organizing and budgeting time and resources, storing and retrieving information, thinking critically, solving problems, coping with task-oriented learning. Library skills: Understanding book classification system of Library, collecting and summarizing information, note taking and storage of information. Reading skills: skimming, seaming, inference and prediction; intensive and critical reading; discipline-specific reading skills. Interpretation of non-linear text; constructing and using statistical tables, indices, maps, graphs. Listening skills: active listening, understanding lectures; recognizing change of topic, following tutorial discussions, understanding instructions; interpreting information. Administration communications (Memos, letters, email etc). Examination skills: understanding examination, preparing and writing examinations; Community dialogue.

Mode of Delivery

Lectures, Tutorials and practical

Instructional Materials and Equipment

Chalkboard, charts, laptops, textbooks
PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

Course Assessment

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%
End of Semester Examination 70%
Total marks 100%
Pass Mark 50%

Core Reference Materials


Recommended Reference Materials


E-Resources

• http://webcampus.frexelmed.edu/medethex/index.html
• Journal of the Association for Communication Administration
2. Basic Applications in ICT

**Purpose**
To enable students acquire knowledge and skills in the use of computers

**Expected Learning Outcomes**
1. Recognize the various components of a computer.
2. Operate a computer.
3. Use software relevant to nutrition and dietetics.

**Content**
Introduction to basic ICT Hardware and Software; Software applications relevant to nutrition and dietetics: Spreadsheets; Using MS Excel spreadsheet; ODK technique; Using Ms Windows, Access and PowerPoint. Internet applications: electronic mail; remote log-in; searching; moving files; the World Wide Web, Internet Explorer; Special topics: Procurement of ICT. Software applications relevant to nutrition and dietetics: Spreadsheets; Using MS Excel spreadsheet; Using EPI info, Nutri-survey, ENA for SMART other statistical packages.

**Mode of Delivery**
Lectures, Tutorials, class discussions, practicals and assignments

**Instructional Materials and Equipment**
Chalkboard, charts, laptops, textbooks.

**Course Assessment**

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**Pass Mark** 50%
PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

Core References Materials


Recommended Reference Materials


E-Resources

• The International Journal of Information and Communication Technology Education (IJICTE)
3. Principles of Human Nutrition

Purpose

Students will attain knowledge on the basics of interaction of nutrients and metabolic nutrient interactions and disorders related to under and over nutrition.

Expected Learning Outcomes

1. Comprehend the composition and variation of nutrients in foods.
2. Comprehend basic interaction of nutrients and their metabolism.
3. Analyze factors influencing nutrient utilization.
4. Prescribe a balanced diet, sources of nutrients and intake regulation.
5. Accurately diagnose between under and over nutrition and disorders associated with them.
6. Evaluate weight control and Key contemporary nutritional issues.

Content

Definition of foods and their components; Nutrients in foods: types, function, sources and properties, nutrient digestion, absorption and utilization; natural and human-made factors influencing nutrient utilization; balanced diets and disorders related to under and over nutrition. Nutrition in the life cycle: Nutrition needs for different age groups. Dietary guidelines; non-nutritive components of food; energy metabolism, weight control and contemporary nutrition issues; contemporary nutrition issues.

Mode of Delivery

Lectures, Tutorials, class discussions, and practical.

Instructional Materials and Equipment

Chalkboard, charts, laptops, textbooks, white board and markers.
Course Assessment

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%

End of Semester Examination 70%

Total marks 100%

Pass Mark 50%

Core References Materials


Recommended Reference Materials


E-Resources

• Journal of Human Nutrition and Dietetics
4. Nutrition in the Life Cycle

**Purpose**

To demonstrate understanding of impact of nutrition on quality of life at the various life stages

**Expected Learning Outcomes**

At the end of this course the student should:

1. Calculate nutrient requirements in the human life cycle
2. Accurately guide on food choices to client seeking services
3. Provide interventions on nutrient related issues affecting each age group in Tanzania Kenya Uganda and world wide
4. Provide interventions during special needs

**Content**

Concepts of growth and development; nutrient requirements in the human life cycle; infancy, childhood, adolescent, adulthood, old age; factors affecting food choice in the human life cycle; nutrient requirements in special physiological states e.g. pregnancy and lactation; nutrient related issues affecting each age group in population; WHO guidelines on maternal, infant and young child nutrition, breastfeeding code; Nutrition during special needs (vegetarians, allergies, resource poor setting, alcohol abuse, food intolerance).

**Mode of Delivery**

Lectures, Tutorials, class discussions, practical and assignments

**Instructional Materials and Equipment**

Chalkboard, charts, laptops, textbooks.

**Course Assessment**

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Pass Mark 50%
PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

Core References Materials


Recommended Reference Materials


E-Resources

• International Journal of Life Cycle Assessment (Int J Life Cycle Assess)
• The Ceylon Journal of Medical Science 2007; 50:19-21
5. **Nutritional Status Assessment**

**Purpose**

Students will attain knowledge, skills and attitudes on nutritional assessment.

**Expected Learning Outcomes**

At the end of the course, the students should be able to:

1. Apply the principles of Nutritional assessments
2. Use techniques in nutritional assessments to diagnose conditions
3. Engage accurate, efficient and effective assessment methods relevant to the conditions

**Content**

*Principles of nutritional status assessment; Nutritional assessment techniques; anthropometry, biochemical techniques; clinical methods and dietary assessment techniques (prospective and retrospective techniques); Energy balance procedures used in identifying individuals and groups at risk; and Planning, implementation, monitoring and evaluation of activities required to institute a successful nutritional intervention programme. Criteria for selection of method and determination of appropriateness for different assessment needs, and practical experience in application of the methods.*

**Mode of Delivery**

Lectures, Tutorials, class discussions, practical and assignments, demonstrations.

Practical:

1. Learners pair-up and assess their nutritional status
2. Community/fieldwork visits to survey a nutritional status of 50 randomly chosen members in the community.

**Instructional Materials and Equipment**

Chalkboard, charts, laptops, textbooks, assessment tools

Instruments and aids required:

1. Digital weighing scales
2. Height boards
3. WHO growth reference charts
4. Nutritional Status Assessment
**Course Assessment**

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<td>Total marks</td>
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</table>

**Pass Mark**

50%

**Core References Materials**

4. FSAU (2005), Nutrition guide to data collection, interpretation analysis and use, FSAU for Somalia
6. Uganda Health Systems Assessment 2011
7. Tanzania National Nutrition survey 2014

**Recommended Reference Materials**

1. Cogill B (2001), Anthropometric indicators measurement guide, FANTA

**E-Resources**

- *American Journal of Nursing*
6. Ethics, Integrity and Professional Practice

Purpose

The purpose of this unit is to cultivate ethical awareness, sensitivity and commitment among learners in a manner that will enable them to conduct themselves with integrity in their professional work.

Expected Learning Outcome

1. Integrate the concepts of ethics and integrity in the delivery of nutrition and dietetics services.
2. Identify the forms, courses and consequences of corruption and the relevant mitigation and prevention mechanisms.
3. Implement mainstreaming of integrity and ethics in nutrition and dietetics service delivery.
4. Apply constitutional and legal provisions that ground ethics and integrity requirements, institutions and processes.
5. Identify the place of ethics and integrity in individual and national development.
6. Apply values that promote integrity.
7. Evaluate human conduct using indigenous and contemporary ethical framework.

Course Content

Theories and Concepts in ethics, integrity and professionalism; ethics, integrity, professionalism, corruption, and their inter-relationships and applications; Forms, causes and consequences of ethical malpractices. Ethics and Integrity; Ethical reasoning and decision making. Constitutional and legal provisions on ethics and integrity. Ethics and integrity in individual and national development, integrity and human rights, ethical conscience building and national development, case studies on ethics and integrity. Values that promote; integrity fairness, selfless, humility, courage and autonomy. Ethics and integrity in Africa and contemporary contexts.

Mode of Delivery

Lecture, discussion, community of inquiry, socratic questioning; simulation and case study, narration of personal experiences, blended learning.
Instructional, Material and Equipment

Books relevant local, regional and international current affairs material, excerpts from speeches, cases and reports, audio-visual-LCD projectors, laptop, computers, internet source, server, online platform

Course Assessment:

Continuous Course Assessment Tests (CATs) and Assignments.Term paper/Practical 40%

End of Semester Examination 60%

Total marks 100%

Pass Mark 50%

Core Reference Materials


Nutrition and Health Education

Purpose
To apply the theories, skills and methods of health and nutrition education and counseling techniques in health service delivery.

Expected Learning Outcomes
1. Develop objectives for individual and group nutrition interventions for different age levels
2. Use the objectives developed to conduct education and counseling interventions
3. Apply the principles of counseling and counseling process.
4. Demonstrate how counseling and learning theories are applied in clinical and community settings
5. Demonstrate counseling skills and theories as they apply to general health and nutrition counseling.
6. Use principles of education in teaching health and nutrition concepts to various populations.

Content
Theories, skills, and methods in nutrition and health education: Objectives for nutrition interventions: considerations - individual, groups, age levels; selection of techniques, tools, and resources. Translation and communication of nutrition information for the lay public; verbal and written communication skills; Nutrition Education Message development, role of a nutrition educator; Communication processes and channels; Targeted nutrition advocacy. Community mobilization and sensitization.

Mode of Delivery
Lectures, Tutorials, class discussions, practicals and field trips.

Instructional Materials and Equipment
Chalkboard, charts, laptops, and textbooks
Course Assessment

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical  30%

End of Semester Examination 70%

Total marks 100%

Pass Mark 50%

Core References Materials


Recommended Reference Materials


E-Resources

- Journal of Clinical Nursing.
- Journal of Patient Education and Counseling
7. Nutrition in Disease Management

Purpose
Students will acquire knowledge and skills in nutritional management of diseases.

Expected Learning Outcomes
1. Apply the principles of diet therapy.
3. Use nutrition in preventing and treating diseases.
4. Accurately use different modes of feeding in patient care.
5. Apply the relationship between Medical nutrition therapy and immunity and genetics.

Content
Understanding the general nutritional status assessment, deficiencies, diseases disorders (endocrine and metabolic diseases, cardiovascular and infectious diseases; Types and causes of malnutrition; Eating disorders, Parenteral and enteral nutrition.

Mode of Delivery
Lectures, Tutorials and clinical practice.

Course Assessment
| Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical | 30% |
| End of Semester Examination | 70% |
| Total marks | 100% |
| Pass Mark | 50% |
PROPOSED MODULES AND UNITS FOR THE PROTOTYPE CURRICULUM

Core References Materials


7. Strategic and action plan for the prevention and control of None communicable diseases in Tanzania 2016 -2020


Recommended Reference Materials


E- Resources

- Journal of the Academy of Nutrition and Dietetics
- Journal of Human Nutrition and Dietetics
8. Basic Health Information Systems Management

Purpose:
Enable the learners to accurately collect, record, and retrieve health information in both digitized and hard copy formats and analyze, synthesize and evaluate it to inform nutrition programming.

Expected Learning Outcomes:
1. Apply the concepts, principles and types of management information systems
2. Comprehend the legal and ethical issues in the management of information systems.
3. Use the structural linkages in the management of information systems.
4. Apply the techniques of handling, record keeping retrieving analyzing and dissemination of health information systems.
5. Design, implement and assess a manual and computerized management information system.

Course Content

Management of information systems: Definitions, concepts and principles; types, processes of management information systems

Data on Information Systems: sources, collection and analysis, storage, retrieval, reporting, dissemination, utilization, classification, of information systems, uses of information.

Health and management of Information Systems: Development of information systems, types of information systems, personnel, financing, facilities and fixed assets, workload operation, designs of information systems, case mix management, information system,

Linkages: various health institutions, inter and intra-agency, community-based data.

Legal and ethical issues: standards, medical audit, consent, confidentiality.

Organization of Health Information System (HIS). In the Ministry of Health, in other institutions, and in the community. Institutional linkages, among information systems, integrated information systems, Local Area Network (LAN); monitoring and evaluation of health systems.
Computers and Management of Information: Existing state of health information systems, conceptual and practical aspects in analysis, development, and utilization of computer-based information and control with emphasis on application to health care environment.

Current computer based aids: Wide Area Network (WAN) and geographical Information systems, information for health service management, range and quality and reliability of health and health service data; assessment of the costs and benefits of information systems, access, security; information personnel and training; systems compatibility and sustainability.

Mode of Delivery

Lectures, Tutorials, lab practicals class discussions and assignments

Instructional Materials and Equipment

Chalkboard, charts, laptops, textbooks.

Course Assessment

| Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical | 30% |
| End of Semester Examination | 70% |
| Total marks | 100% |
| Pass Mark | 50% |

Core Reference Materials


Recommended Reference Materials


9. Basic Sociology

Purpose

To attain knowledge and skills in sociology of human nutrition.

Expected Learning Outcomes

1. Apply the basic principles of the study of sociology at the health care facility and community level.
2. Use the social structure in front line health care service delivery.
3. Relate social sciences to sociology and health care service delivery.
4. Apply basic concepts of anthropology in service delivery.

Content

The study of sociology; society methods of sociological study; structure and functions of society; social relationship evolution of human society; social structure; status, role of family group community class value socialization purpose of a social inquiry; tools in sociology and the social science inquiry; relationship between sociology and social sciences; basic concepts of anthropology diet and culture, cultural evolution and change; ethnology and ethnography in the food and nutrition context; field methods in anthropology.

Mode of Delivery

Lectures, Tutorials, Discussions,

Course Assessment

Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%

End of Semester Examination 70%

Total marks 100%

Pass Mark 50%
Core References Materials


Recommended Reference Materials


E-Resources

• Sociology journal

• American Journal of Sociology
10. Basic Psychology

Purpose
Students will attain basic knowledge and skills in psychology

Expected Learning Outcomes
At the end of the course, the students should be able to:

1. Apply the basic principles of human psychology
2. Use the personality theories, structure and disorder in frontline healthcare service provision.
3. Utilize the evolution of behavior and consciousness within the service provision environment and in daily life.
4. Diagnose and manage the various disorders associated with behavior e.g. psychological, anxiety etc.

Content
Basic principles of human psychology, psychosexual development stages, social development:theories of personality; personality structure; personality disorders; evolution of behavior and consciousness; learning and motivation perception and attention; thinking and decision making; abnormal behavior: behaviorisms; classical conditioning; operant conditioning; psychoanalytic factors and health; psychological disorders; anxiety disorders; dissociative and somatoform disorders; mood disorders; schizophrenia and personality disorders.

Mode of Delivery
Lectures, Tutorials, class discussions and assignments

Instructional Materials and Equipment
Chalkboard, charts, laptops, textbooks.

Course Assessment
Continuous Course Assessment Tests (CATs) and Assignments/Term paper/Practical 30%
End of Semester Examination 70%
Total marks 100%
Pass Mark 50%
Core References Materials


Recommended Reference Materials


E- Resources

• Clinical psychology review journal
11. Leadership and Management

Purpose
To enable the learner to understand leadership skills, styles and ethics related to leadership and professional practice.

Expected Learning Outcomes
By the end of this course the student should:

1. Demonstrate the types of leadership styles
2. Apply the competencies and qualities of effective leaders.
3. Comprehend the functions of a leader.
4. Apply the situational and behavioral approaches to leadership and management
5. Demonstrate philosophy and ethics related to leadership

Content
Leadership skills and styles; types leadership; philosophy and ethics related to leadership and professional practice; leadership traits; effective leadership: competencies and qualities of effective leaders; functions of a leader; behavioral, and situational approaches to leadership; management and leadership; alternative leadership styles; action-centered leadership; vision and work life of leaders; leaders and decision-making. Professional competencies needed for career entry and advancement in nutrition and dietetics; an overview of appropriate means of delivery of professional services for a variety of needs; professional behavior: ethics, academic integrity and principles of professional practice; successful professionals: qualities and characteristics.

Mode of Delivery
Lectures, Tutorials, class discussions and assignments

Instructional Materials and Equipment
Chalkboard, charts, laptops, textbooks.
## Course Assessment

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</tbody>
</table>

## Core References Materials


## Recommended Reference Materials


2. The New Glucose Revolution Pocket Guide to Peak Performance


## E-Resources

- *The Journal of the Academy of Nutrition and Dietetics*
- *The Journal of the American Dietetic Association.*

## Core Reference Materials


Recommended Reference Materials

1. Community Health by C.G Wood Vangan and Glauvitte (AMREF)


7.0 REFERENCES


Appendix 1

Facilities and Equipment

- Lecture rooms
- Libraries
- Workshops
- Laboratories (food preparation labs, relevant equipment and supplies, counseling labs)
- Demonstration farms
- Information and Communication Technology labs
- Health care Skills laboratory
- Practicum and attachment sites
Appendix 2


<table>
<thead>
<tr>
<th>Book Title</th>
<th>Year of publication</th>
<th>Author</th>
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<tr>
<td>Nutrition</td>
<td>2010</td>
<td>Paul Insel, Don Ross, Kimberley Editors: McMahon and Melissa Bernstein</td>
</tr>
<tr>
<td>Introduction to Human Nutrition (The Nutrition Society Textbook)</td>
<td>2002</td>
<td>Michael J. Gibney, Hester H. Vorster and Frans J. Kok</td>
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<tr>
<td>Understanding Nutrition</td>
<td>2010</td>
<td>Eleanor Noss Whitney and Sharon Rady Rolfes</td>
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<tr>
<td>Nutrition: Concepts and Controversies</td>
<td>2013</td>
<td>Frances Sizer and Ellie Whitney</td>
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<td>Michael J. Gibney, Susan A. Lanham-New, Aedin Cassidy and Hester H. Vorster</td>
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<td>Nutrition: Science and Applications</td>
<td>2013</td>
<td>Lori A. Smolin and Mary B. Grosvenor</td>
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<td>Contemporary Nutrition</td>
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<td>Gordon M Wardlaw</td>
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<td>Nutrition For Healthy Living</td>
<td>2012</td>
<td>Wendy Schiff</td>
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<tr>
<td>Nutrition for Foodservice and Culinary Professionals</td>
<td>2009</td>
<td>Karen Eich Drummond and Lisa M. Brefere</td>
</tr>
<tr>
<td>Nutrition for Life (2nd Edition)</td>
<td>2009</td>
<td>Janice Thompson and Melinda Manore</td>
</tr>
<tr>
<td>Staying Healthy with Nutrition, rev: The Complete Guide to Diet and Nutritional Medicine</td>
<td>2006</td>
<td>Elson M. Haas and Buck Levin</td>
</tr>
<tr>
<td>Contemporary Nutrition</td>
<td>2010</td>
<td>Gordon Wardlaw and Anne Smith</td>
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<tr>
<td>Discovering Nutrition</td>
<td>2012</td>
<td>Paul Insel, Don Ross, Kimberley McMahon and Melissa Bernstein</td>
</tr>
<tr>
<td>Understanding Normal and Clinical Nutrition</td>
<td>2008</td>
<td>Sharon Rady Rolfes, Kathryn Pinna and Ellie Whitney</td>
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<tr>
<td>The Art of Fermentation: An In-Depth Exploration of Essential Concepts and Processes from around the World</td>
<td>2012</td>
<td>Sandor Elix Katz and Michael Pollan</td>
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<td>Nutrition For Dummies</td>
<td>2011</td>
<td>Carol Ann Rinzler</td>
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<td>Williams’ Basic Nutrition &amp; Diet Therapy,</td>
<td>2012</td>
<td>14e by Staci Nix</td>
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<td>Gordon Wardlaw and Anne Smith</td>
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<td>Wardlaw’s Perspectives in Nutrition</td>
<td>2012</td>
<td>Carol Byrd-Bredbenner, Gaile Moe, Donna Beshgetoor and Jacqueline Berning</td>
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<tr>
<td>Advanced Nutrition and Human Metabolism</td>
<td>2008</td>
<td>Sareen S. Gropper and Jack L. Smith</td>
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<tr>
<td>Krause’s Food &amp; the Nutrition Care Process, 13e (Food, Nutrition &amp; Diet Therapy)</td>
<td>2011</td>
<td>L. Kathleen Mahan, Janice L. Raymond and Sylvia Escott-Stump</td>
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<td>Nutrition Therapy and Pathophysiology</td>
<td>2010</td>
<td>Marcia Nelms, Kathryn P. Sucher, Karen Lacey and Sara Long Roth</td>
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<td>Nutrition: A Lifespan Approach</td>
<td>2013</td>
<td>Simon Langley-Evans</td>
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<tr>
<td>Sports and Exercise Nutrition</td>
<td>2012</td>
<td>William D. McArdle BS, Frank I. Katch and Victor L. Katch</td>
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<tr>
<td>Public Health Nutrition</td>
<td>2004</td>
<td>Michael J. Gibney, Barrie M. Margetts, John M. Kearney and Lenore Arab</td>
</tr>
<tr>
<td>Clinical Nutrition (The Nutrition Society Textbook)</td>
<td>2013</td>
<td>Marinos Elia, Olle Ljungqvist, Rebecca Stratton and Susan A. Lanham-New</td>
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<tr>
<td>Whole: Rethinking the Science of Nutrition</td>
<td>2013</td>
<td>T. Colin Campbell and Howard Jacobson</td>
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<td>Nutrition for Life (3rd Edition)</td>
<td>2012</td>
<td>Janice Thompson and Melinda Manore</td>
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<td>2009</td>
<td>Melvin Williams</td>
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<tr>
<td>Nutrition for Health, Fitness &amp; Sport</td>
<td>2012</td>
<td>Melvin Williams, Dawn Anderson and Eric Rawson</td>
</tr>
<tr>
<td>Nutrition and Diet Therapy for Nurses</td>
<td>2010</td>
<td>Sheila Tucker</td>
</tr>
<tr>
<td>Nutrition in Promoting the Public’s Health: Strategies, Principles, and Practice</td>
<td>2006</td>
<td>Mildred Kaufman</td>
</tr>
<tr>
<td>Nutrition Essentials and Diet Therapy, 11e (Nutrition Essentials and Diet Therapy (Peckenpaugh))</td>
<td>2009</td>
<td>Nancy J. Peckenpaugh</td>
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<tr>
<td>Nutrition &amp; Diet Therapy</td>
<td>2013</td>
<td>Ruth A. Roth</td>
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<tr>
<td>Textbook of Integrative Clinical Nutrition</td>
<td>2013</td>
<td>Jonathan Prousky and John Hoffer</td>
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<td>Integrative Nutrition</td>
<td>2007</td>
<td>Joshua Rosenthal</td>
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<td>Isobel R. Contento</td>
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<tr>
<td>Modern Nutrition in Health and Disease (Modern Nutrition in Health &amp; Disease (Shils))</td>
<td>2012</td>
<td>A. Catharine Ross, Benjamin Caballero, Robert J. Cousins and Katherine L. Tucker</td>
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<td>Marie A. Boyle and David H. Holben</td>
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<td>Michele Grodner EdD CHES, Sara Long Roth PhD RD LD and Bonnie C. Walkingshaw MS RN</td>
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<td>Marcia Nelms and Sara Long</td>
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<td>Gerald F. Combs Jr.</td>
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<td>Essentials of Human Nutrition</td>
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<td>Jim Mann and Stewart Truswell</td>
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## IMPORTANT REFERENCE MATERIAL

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<tr>
<th>Book Title</th>
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<tr>
<td>Handbook of Total Parenteral Nutrition</td>
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<td>John Palmer Grant (Jul 1992)</td>
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