GREAT LAKES UNIVERSITY OF KISUMU
(GLUK)

REGULATIONS AND CURRICULUM
FOR THE
POST GRADUATE DIPLOMA
IN
COMMUNITY NUTRITION

P. O. Box 2224 -- 40100, Kisumu, Kenya.
Email: academics@gluk.ac.ke or vc@gluk.ac.ke
Tel: 254 57 2023972/2024871
Fax: 254-57-2024577
Website: www.gluk.ac.ke

February 2012
TABLE OF CONTENTS

1. GENERAL INFORMATION
   1.1. Vision and Mission of the University
   1.2. Philosophy of the University
   1.3. University Admission Requirements
   1.4. Academic Resources
   1.5. Programmes Offered by the University

2. CURRICULUM FOR THE BACHELOR OF SCIENCE IN COMMUNITY NUTRITION
   2.1. Title of the Programme
   2.2. Philosophy of the Programme
   2.3. Rationale of the Programme
   2.4. Goal of the Programme
   2.5. Expected Learning Outcomes of the Programme
   2.6. Mode of Delivery of the Programme
   2.7. Academic Regulations for the Programme
      2.7.1. Admission Requirements for the Programme
      2.7.2. Course Requirements
      2.7.3. Student Assessment Policy
      2.7.4. Grading System
      2.7.5. Examination Regulations
      2.7.6. Moderation of Examinations
      2.7.7. Graduation Requirements
      2.7.8. Classification of the Degree
   2.8. Course Evaluation
   2.9. Management and Administration of the Programme
   2.10. Courses / Units Offered for the Programme
   2.11. Duration and Structure of the Programme
   2.12. Course Outlines
1. GENERAL INFORMATION

Introduction

The Great Lakes University of Kisumu (GLUK) is a product of Tropical Institute of Community Health and Development (TICH) in Africa, a non-profit community-based training, research and development trust which has been operating since 1998. The main aim of GLUK is to develop effective managers of health and development initiatives in the African Region and beyond. This is achieved by bridging training with service delivery programmes, focusing on the needs of the most vulnerable communities in the society. It develops tests and disseminates hands-on innovative and effective models of development through action research. GLUK brings together regional and international academicians, professionals and practitioners in community health and development of diverse background to pool their skills, expertise and experience in addressing issues of livelihood for action and policy development. The educational experience at the University is enriched by the diversity of the student body. The students are a heterogeneous group, from different parts of Africa and beyond. They range in age and experience from recent high school to college graduate to mid-career managers.

1.1. Vision and Mission of the University

1.1.1. Vision: The Great Lakes University of Kisumu (GLUK) is established as a centre of excellence bridging academics with community and institutional based development.

1.1.2. Mission: The Mission of GLUK is to develop effective and concerned managers or leaders with a vision for the transformation of situations in the African context.

1.2. Philosophy of the University: GLUK believes that all people and communities have capacities and are fully engaged in individual, collective and collaborative actions to solve their own problems.

1.3. University Admission Requirements:

1.3.1. An applicant must satisfy any of the following minimum requirements:

1.3.1.1. Be a holder of Bachelor of Science Degree in Food Science, Bachelor of Science Degree in Hotel and Institutional Management, Bachelor of Education in Home Economics, Bachelor of Science in
Home Science and technology or professional certificate in a relevant
discipline from an institution recognized by the Senate of GLUK.

1.3.2. Be a holder of any other qualification accepted by the senate of the
University as equivalent to any of the above.

1.3.3. Procedure for Admission

1.3.3.1. Application for admission to the University shall be made to the
Academic Registrar, Great Lakes University of Kisumu, P.O. Box
2224-40100, Kisumu, Kenya, Email: academics@gluk.ac.ke
Telephone: 254 57 2023972/2024871, Fax: 254-57-2024577,
Website: www.gluk.ac.ke

1.3.3.2. The closing date for receiving applications shall be determined by
the Senate.

1.3.3.3. Application shall be accompanied by two coloured passport photos,
copies of certified academic and professional certificates, a letter of
recommendation and financial assurance from the candidate’s
supervisor, employers, or sponsoring agent.

1.4. Academic Resources

1.4.1. Facilities and Equipments

1.4.1.1. Lecture Rooms: The University has adequate lecture rooms which
are well equipped with chairs, tables and white boards.

1.4.1.2. Library: The Great Lakes University of Kisumu (GLUK) library
is fairly well stocked with relevant and appropriate textbooks,
reference books and journals. GLUK also subscribes to various CD
ROM data bases for research purposes and literature, and other
health and development related abstracts. The library has installed
internet facilities accessible to teaching staff and students.

1.4.1.3. Information and Communication Technology: The University’s
computing service provides services for word processing and
extracting pertinent information from international data bases. The
computing or e-centre also offers training courses for
undergraduate and postgraduate studies.

1.4.1.4. Laboratories: GLUK has computer laboratories for computer
lessons and a well equipped science laboratory for practical.
1.4.1.5. **Workshops and Studios:** The University has standard workshops that are used for practical training of students in various practical courses.

1.4.1.6. **Tuition Farms:** The University holds a farm in the main campus at Kibos, where courses related to farming receive demonstration lessons.

1.4.2. **Academic Staff:** The University has adequate number of employed permanent and part time professional teaching staff who all meets the minimum academic qualifications for teaching in any University in Kenya.

1.5. **Programmes Offered by the University**

1.5.1. **List of Programmes:**

1.5.1.1. Masters in Community Health and Development

1.5.1.2. Masters in Agribusiness

1.5.1.3. Masters in Theology

1.5.1.4. Bachelor of Science in Nursing

1.5.1.5. Bachelor of Science in Agribusiness

1.5.1.6. Bachelor of Theology

1.5.1.7. Bachelors of Science in Community Health and Development

1.5.1.8. Bachelors of Science in Community Nutrition

1.5.1.9. Bachelors in Education (Secondary option)

1.5.1.10. Higher Diploma in Community Health and Development

1.5.1.11. Diploma in Community Health and Development

1.5.1.12. Diploma in Clinical Medicine

1.5.1.13. Diploma in Information Technology

1.5.1.14. Diploma in Pastoral Theology

1.5.1.15. Diploma in Community Nutrition

1.5.2. **Duration of Programmes:**

1.5.2.1. Masters in Community Health and Development, Agribusiness and Theology shall extend over a period of not more than two academic years for full time students or four years for part time students.

1.5.2.2. Bachelor of Science in Nursing shall be four academic years for holders of KCSE or equivalent.
1.5.2.3. Bachelor of Science in Agribusiness shall be four academic years for holders of KCSE or equivalent.

1.5.2.4. Bachelor of Theology shall be four academic years for holders of KCSE or equivalent.

1.5.2.5. Bachelor of Science in Community Health and Development shall be four academic years for holders of KCSE or equivalent.

1.5.2.6. Bachelor of Science in Community Nutrition shall be four academic years for holders of KCSE or equivalent.

1.5.2.7. Bachelor of Education shall be four academic years for holders of KCSE or equivalent.

1.5.2.8. Higher Diploma in Community Health and Development is reserved for those with relevant post-basic training of two years. Therefore, the duration of the Higher Diploma in Community Health and Development shall be one academic year.

1.5.2.9. Diploma in Community Health and Development shall be two academic years.

1.5.2.10. Diploma in Clinical Medicine shall be three academic years.

1.5.2.11. Diploma in Information Technology shall be two academic years.

1.5.2.12. Diploma in Pastoral Theology shall be two academic years.

1.5.2.13. Diploma in Community Nutrition shall be two academic years.

1.5.2.14. Certificate courses shall be one academic year.

1.5.3. General Structure of Programmes:

1.5.3.1. Students shall be offered an approved combination of core, elective and common courses.

1.5.3.2. Core courses must be taken by every student in own discipline in order to qualify for the award of a degree, diploma or certificate.

1.5.3.3. Elective courses for Master’s students cater for students’ professional needs and interests in their areas of specialization.

1.5.3.4. Common courses build student capacity to understand their areas of specialization.

1.5.3.5. Each student shall take not more than seven courses per semester.

1.5.4. Academic Organization of Programmes: An academic year is equivalent to two semesters. A semester is made up of 15 weeks, which constitute 14 weeks of teaching and one week of University examinations. The program
will be in the Tropical Institute of Community Heath and Development offered by the Department of Community Nutrition.

2. CURRICULUM FOR THE POST GRADUATE DIPLOMA IN COMMUNITY NUTRITION

2.1. Title of the Programme: Post Graduate Diploma (PGD) in Community Nutrition

2.2. Philosophy of the Programme: The nutrition status of a population is a measure of well-being and economic progress. The intricate interactions between nutrition and disease, especially HIV/AIDS calls for more concerted effort to position nutrition at the right place, both nationally and globally. There is need to develop more capacity in the area of nutrition and food security in Kenya and Africa as a whole.

2.3. Justification of the Programme: The proposed Post Graduate Diploma programme in Community Nutrition is designed to create a critical mass of individuals with practical skills in the area of community nutrition with specific hands-on abilities in nutritional interventions, nutritional assessments, and current issues in community nutrition, therapeutic nutrition, food safety and hygiene and nutrition-disease interactions.

2.4. Goal of the Programme: The course aims at equipping students with working knowledge of human nutrition, food science and food security at the post graduate level. The programme is designed to enable graduates to practice hands-on nutrition practice in health and research institutions and to be able to solve community-based nutritional problems. The course is further designed to prepare students for higher degrees.

2.5. Expected Learning Outcomes of the Programme: By the end of the programme, the student should be able to:

2.5.1. Demonstrate knowledge in nature and role of food in human nutrition.

2.5.2. Manage human health through the intricate interactions of nutrition and disease.

2.5.3. Create employment and income generation through designing, implementation and monitoring of nutrition projects targeting achievement of Millennium Development Goals.
2.5.4. Increase food production and improving quality of food by creating innovative measures through proposal bids by skills acquired from Food and Nutrition Policy option

2.5.5. Eliminate hunger, malnutrition and ill health in the communities through establishment of partnerships with stakeholders as per skills acquired in Public Health Nutrition option

2.6. Mode of Delivery of the Programme: The mode of delivery of the programme will be:

a) Full time classes: Mondays through Friday
b) Part time classes: Saturdays and Sundays
c) Open Learning Mode: Through distance learning whereby the students will report on the first week and get the modules, they come on last week for tutorials for the modules and sit for written exams. CATS will be offered and submitted through the semester.

2.7. Academic Regulations for the Programme

2.7.1. Admission Requirements for the Programme

2.7.1.1. Be a holder of Bachelor of Science Degree in Food Science, Bachelor of Science Degree in Hotel and Institutional Management, Bachelor of Education in Home Economics, Bachelor of Science in Home Science and technology or professional certificate in a relevant discipline from an institution recognized by the Senate of GLUK.

2.7.1.2. Be a holder of any other qualification accepted by the senate of the University as equivalent to any of the above.

2.7.2. Course Requirements

2.7.2.1. The teaching of the post graduate diploma programme shall extend for two semesters.

2.7.2.2. The above duration of study shall consist of 15 weeks of study per semester.

2.7.2.3. Each student shall take a relevant Community Nutrition field project in the second semester.

2.7.2.4. All candidates shall be required to register and fully participate in 200 hours on chosen and relevant Community Nutrition field project during most of the semesters. The report will be graded out of 100% based on recommendations of the Department and that of
supervisors, where verbal presentation will account for 20% and written report for 80%.

2.7.2.5. All students shall rate a minimum of twelve (6) course units each semester.

2.7.2.6. No candidate shall be allowed to proceed to the second semester unless he/she have obtained a pass mark in the first semester.

2.7.3. Student Assessment Policy

2.7.3.1. Continuous Assessment will be carried out throughout the semester and will constitute 30% of the total marks.

2.7.3.2. Semester Examination: Each student shall be required to take an end of semester examination. This shall constitute 70% of the total mark for each course.

2.7.3.3. Community field project: Each student will be required to conduct research and write a research report.

2.7.3.4. For course units that do not have sit-in examinations, evaluation shall be through oral presentations (20% of the marks) and written well-edited report (80% of the marks).

2.7.4. Grading System: The academic work of the students shall be graded and reported at the end of each semester. The semester grade reports shall list all courses and levels of performance as follows:

<table>
<thead>
<tr>
<th>Marks (%)</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>70%-100%</td>
<td>A</td>
</tr>
<tr>
<td>60% -69%</td>
<td>B</td>
</tr>
<tr>
<td>50% -59%</td>
<td>C</td>
</tr>
<tr>
<td>40% -49%</td>
<td>D</td>
</tr>
<tr>
<td>Below 40%</td>
<td>F</td>
</tr>
</tbody>
</table>

2.7.5. Examination Regulations: There shall be three types of examinations, namely: ordinary, supplementary and special examinations.
2.7.5.1. **Ordinary examinations**: All courses shall be examined at the end of the semester in which they are taken.

2.7.5.2. **Supplementary examinations**: A student who fails end of semester examinations shall re-sit the examination(s) when next on. The highest mark for an exam retake will be 40%. In the student’s final year of study, the dean of faculty may exercise his/her discretion and grant supplementary examinations to finalists.

2.7.5.3. **Special examinations**: Candidates who are unable to do end of semester examinations due to acceptable evidence-based unavoidable circumstances may on the recommendation of Departmental Examination Boards to the Faculty Examination Board and Senate be allowed to take special examinations. Special examinations are marked and graded like ordinary examinations and candidates who fail are eligible to sit for supplementary examinations as outlined under supplementary legibility clause.

2.7.5.4. **Pass Mark**: The pass mark is 40% for all Post Graduate Diploma in Community Nutrition.

2.7.5.5. **Repeating**:

2.7.5.5.1. A candidate who fails in any of the units offered in the ordinary examinations taken in any one year will be required to repeat the failed units before being allowed to continue.

2.7.5.5.2. If a candidate fails supplementary examinations, he or she shall be required to repeat and pass the failed units before being allowed to proceed to the next stage of study.

2.7.5.5.3. Candidate shall only be allowed to repeat courses once a year.

2.7.5.6. **Discontinuing**: This shall apply to students who shall have committed gross misconduct of cheating in examination.

2.7.5.7. **Disciplinary Action**: Students involved in an examination irregularity shall appear before the departmental disciplinary committee for necessary action.
2.7.5.8. **Mode of Appeal** In all examinations, dissatisfied students can apply for a re-mark which shall be done by an independent examiner. Discontinued students and others who are dissatisfied with the decision of the disciplinary committee action can appeal to the senate.

2.7.5.9. **Examination Schedule:**

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>Duration/Method of Examinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NUT 111</td>
<td>Human Nutrition I</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>2. NUT 112</td>
<td>Therapeutic Nutrition and Dietetics I</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>3. NUT 113</td>
<td>Nutrition Care and Assessment through the Life Cycle</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>4. NUT 114</td>
<td>Nutritional Epidemiology</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>5. NUT 115</td>
<td>Applied human nutrition and community surveillance</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>6. NUT 116</td>
<td>Current issues in food and nutrition</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>7. NUT 117</td>
<td>Partnership Practice I (Community Diagnosis)</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>8. NUT 121</td>
<td>Therapeutic Nutrition and Dietetics II</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>9. NUT 122</td>
<td>Human Nutrition II</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>10. NUT 123</td>
<td>Geriatric Nutrition</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>11. NUT 124</td>
<td>Nutrition Education and Intervention in the Community</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>12. NUT 125</td>
<td>Research Project in Nutrition</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>13. NUT 126</td>
<td>Nutritional counselling</td>
<td>Written 1x3hr</td>
</tr>
<tr>
<td>14. NUT 127</td>
<td>Partnership II (Community Nutrition Interventions)</td>
<td>Written 1x3hr</td>
</tr>
</tbody>
</table>

2.7.6. **Moderation of Examinations:**

2.7.6.1. All end-of-semester examinations shall be set by internal examiners and moderated by peers within the department.

2.7.6.2. The University on the advice of the department will appoint the external examiners to moderate the end of semester examinations.

2.7.6.3. The internal examiner shall be the chief invigilator during the examination and must be present at the time of examination.

2.7.6.4. The internal examiners shall be responsible for marking his/ her examination and processing of the marks.

2.7.7. **Graduation Requirements:** In order to be awarded Post Graduate Diploma in Community Nutrition, students will be required to enrol and obtain an average pass or score in all the units taken. Students will be required to:

2.7.7.1. Attend at least two thirds of the contact hours set by the Senate.

2.7.7.2. Do course work and examinations in each course for which the student was registered.
2.7.7.3. Submit all field work and research project reports.

2.7.8. **Classification of the Degree:**

2.7.8.1. The final award of the Post Graduate Diploma in Community Nutrition shall be classified into **Distinction, Credit and Pass**

2.7.8.2. No candidate shall qualify for the award of Distinction provided that he/she repeated the any unit in the course of study.

2.7.8.3. In coming to its decision as to the class of the post graduate diploma to be awarded to a candidate, the Board of Examiners shall have regard to the overall marks obtained by the candidate and shall classify the post graduate diploma as follows:

<table>
<thead>
<tr>
<th>Class</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinction</td>
<td>70% - 100%</td>
</tr>
<tr>
<td>Credit</td>
<td>55% - 69%</td>
</tr>
<tr>
<td>Pass</td>
<td>40% - 54%</td>
</tr>
</tbody>
</table>

2.8. **Course Evaluation:** Students and the Head of Department shall carry out evaluation of teaching. Students shall be given an opportunity to confidentially rate their lecturers close to the end of each semester. Completed course evaluation forms shall be forwarded to the Dean of Faculty for analysis. Other methods of evaluation shall be assessment by students learning, continuous evaluation by students, self evaluation and peer evaluation. Course evaluations shall be conducted on at the end of each semester. In the evaluation process, attention will be given to the content of the course, as well as the equipment and materials used for the learning/teaching process.

2.9. **Management and Administration of the Programme:**

2.9.1. The Post Graduate Diploma in Community Nutrition will be housed in the Tropical Institute of Community Health and Development as a programme within the Department of Community Nutrition. The Institute is headed by a Director, while the Department is headed by a Head of Department of Community Nutrition.

2.9.2. The Director reports to the Deputy Vice-Chancellor for Academic Affairs, who regulates quality of curriculum internally within the University.

2.9.3. There are regular departmental meetings each semester during which lecturers and the Head of Department review the courses and the delivery of the curriculum. The Deans Committee also meets regularly to evaluate
each programme within the University, and make recommendations for improvement, where appropriate. This ensures that quality is both maintained and assured.

2.10. Courses / Units Offered for the Programme

2.10.1. Course Coding System: The general GLUK coding system comprises of abbreviation for the course followed by the following code numbers.

- First year courses 100
- Second year courses 200
- Third year courses 300
- Fourth year courses 400
### 2.11. Duration and Structure of the Programme

<table>
<thead>
<tr>
<th>S/No</th>
<th>Course code</th>
<th>Course title</th>
<th>Total credit Hours</th>
<th>Description of credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Semester 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lectures (1hr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tutorials (2hrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Laboratory (3hrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Field practical (5hrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>First year: Semester 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lectures (1hr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tutorials (2hrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Laboratory (3hrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Field practical (5hrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total hours</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>270</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Practical (Partnership Practice-Community Diagnosis)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NUT 124 Partnership Practice 1 (Field assessment/Community Diagnosis)</td>
<td>45</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Second year: Semester 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lectures (1hr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tutorials (2hrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Laboratory (3hrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Field practical (5hrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td>NUT 211 Biochemistry 2</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>NUT 212 Health Promotion</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>NUT 213 Ethics and Social responsibility</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Course Code</td>
<td>Course Title</td>
<td>Lectures</td>
<td>Tutorials</td>
</tr>
<tr>
<td>---</td>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>----------</td>
<td>-----------</td>
</tr>
<tr>
<td>4.</td>
<td>NUT 214</td>
<td>Therapeutic Nutrition and Dietetics</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>5.</td>
<td>NUT 215</td>
<td>Concepts in Health and Development</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>6.</td>
<td>NUT 216</td>
<td>Human Nutrition 1</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>7.</td>
<td>NUT 217</td>
<td>Principles of Animal Production</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td><strong>Total hours</strong></td>
<td></td>
<td><strong>315</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second year: Semester 2</td>
<td></td>
<td>Lectures (1hr)</td>
<td>Tutorials (2hrs)</td>
</tr>
<tr>
<td>1.</td>
<td>NUT 221</td>
<td>Community Health</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>2.</td>
<td>NUT 222</td>
<td>Epidemiology and Health</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>3.</td>
<td>NUT 223</td>
<td>Therapeutic Nutrition and Dietetics 2</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>4.</td>
<td>NUT 224</td>
<td>Food toxicology</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>5.</td>
<td>NUT 225</td>
<td>Cell biology and genetics</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>6.</td>
<td>NUT 226</td>
<td>Food microbiology</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>7.</td>
<td>NUT 227</td>
<td>Biostatistics</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td><strong>Total hours</strong></td>
<td></td>
<td><strong>315</strong></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>NUT 228</td>
<td>Partnership practice 2 (Community Nutrition Interventions)</td>
<td>45</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Third year: Semester 1</td>
<td></td>
<td>Lectures (1hr)</td>
<td>Tutorials (2hrs)</td>
</tr>
<tr>
<td>1.</td>
<td>NUT 311</td>
<td>Human Nutrition 2</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>2.</td>
<td>NUT 312</td>
<td>Nutrition care and assessment through the life cycle</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>3.</td>
<td>NUT 313</td>
<td>Research methods</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>4.</td>
<td>NUT 314</td>
<td>Entrepreneurship</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>5.</td>
<td>NUT 315</td>
<td>Nutrition anthropology</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>6.</td>
<td>NUT 316</td>
<td>Dairy technology</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td><strong>Total hours</strong></td>
<td></td>
<td><strong>270</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Third year: Semester 2</td>
<td></td>
<td>Lectures (1hr)</td>
<td>Tutorials (2hrs)</td>
</tr>
<tr>
<td>1.</td>
<td>NUT 321</td>
<td>Nutrition education and intervention in the community</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td><strong>Total hours</strong></td>
<td></td>
<td><strong>270</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Course Code</td>
<td>Course Title</td>
<td>Lectures (1hr)</td>
<td>Tutorials (2hrs)</td>
</tr>
<tr>
<td>---</td>
<td>-------------</td>
<td>--------------------------------------</td>
<td>----------------</td>
<td>------------------</td>
</tr>
<tr>
<td>2.</td>
<td>NUT 322</td>
<td>World food problems and food security</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>3.</td>
<td>NUT 323</td>
<td>Dietary supplements and herbal remedies</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>4.</td>
<td>NUT 324</td>
<td>Food service system management</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>5.</td>
<td>NUT 326</td>
<td>Clinical dietetics</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>6.</td>
<td>NUT 327</td>
<td>Geriatric nutrition</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td><strong>Total hours</strong></td>
<td></td>
<td></td>
<td><strong>270</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Third year: Semester 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Food Science Option</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>NUT 311</td>
<td>Human Nutrition 2</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>2.</td>
<td>NUT 313</td>
<td>Research methods</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>3.</td>
<td>NUT 314</td>
<td>Entrepreneurship</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>4.</td>
<td>NUT 315</td>
<td>Nutrition anthropology</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>5.</td>
<td>NUT 316</td>
<td>Dairy technology</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>6.</td>
<td>NUT 317</td>
<td>Food microbiology 2</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td><strong>Total hours</strong></td>
<td></td>
<td></td>
<td><strong>270</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Third year: Semester 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Food Science Option</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>NUT 322</td>
<td>World food problems and food security</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>2.</td>
<td>NUT 323</td>
<td>Dietary supplements and herbal remedies</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>3.</td>
<td>NUT 324</td>
<td>Food service system management</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>4.</td>
<td>NUT 328</td>
<td>Food processing and product development</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>5.</td>
<td>NUT 329</td>
<td>Food quality assurance</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>6.</td>
<td>NUT 331</td>
<td>Food engineering</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td><strong>Total hours</strong></td>
<td></td>
<td></td>
<td><strong>270</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Third year: Semester 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Food and Nutrition Policy Option</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>NUT 311</td>
<td>Human Nutrition 2</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>2.</td>
<td>NUT 313</td>
<td>Research methods</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>3.</td>
<td>NUT 314</td>
<td>Entrepreneurship</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>4.</td>
<td>NUT 315</td>
<td>Nutrition anthropology</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>5.</td>
<td>NUT 316</td>
<td>Dairy technology</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Lectures (1hr)</td>
<td>Tutorials (2hrs)</td>
<td>Laboratory (3hrs)</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>----------------</td>
<td>------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>NUT 318</td>
<td>Food economics and policy</td>
<td>45</td>
<td>31</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td><strong>Total hours</strong></td>
<td><strong>270</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures (1hr)</th>
<th>Tutorials (2hrs)</th>
<th>Laboratory (3hrs)</th>
<th>Field practical (5hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUT 321</td>
<td>Nutrition education and intervention in the community</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 322</td>
<td>World food problems and food security</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 323</td>
<td>Dietary supplements and herbal remedies</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 324</td>
<td>Food service system management</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>NUT 328</td>
<td>Food processing and product development</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>NUT 330</td>
<td>Scientific Analysis and presentation of aquaculture</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td><strong>Total hours</strong></td>
<td><strong>270</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures (1hr)</th>
<th>Tutorials (2hrs)</th>
<th>Laboratory (3hrs)</th>
<th>Field practical (5hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUT 325</td>
<td>Food hygiene and environmental health 1</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 312</td>
<td>Nutrition care and assessment through the life cycle</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>70</td>
</tr>
<tr>
<td>NUT 321</td>
<td>Nutrition education and intervention in the community</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Total hours</strong></td>
<td><strong>270</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures (1hr)</th>
<th>Tutorials (2hrs)</th>
<th>Laboratory (3hrs)</th>
<th>Field practical (5hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUT 411</td>
<td>Current issues in food and Nutrition</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 412</td>
<td>Applied Human Nutrition and community surveillance</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>70</td>
</tr>
<tr>
<td>NUT 413</td>
<td>Seminar and special topics</td>
<td>45</td>
<td>17</td>
<td>56</td>
<td>0</td>
</tr>
<tr>
<td>NUT 414</td>
<td>Food hygiene and environmental health 2</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 415</td>
<td>Research project in Nutrition</td>
<td>45</td>
<td>17</td>
<td>56</td>
<td>0</td>
</tr>
<tr>
<td>NUT 416</td>
<td>Nutritional epidemiology</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 417</td>
<td>Meal management and service</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td><strong>Total hours</strong></td>
<td><strong>315</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures (1hr)</th>
<th>Tutorials (2hrs)</th>
<th>Laboratory (3hrs)</th>
<th>Field practical (5hrs)</th>
</tr>
</thead>
</table>
### Public Health Nutrition Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures</th>
<th>Tutorials</th>
<th>Laboratory</th>
<th>Field practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NUT 421</td>
<td>Nutrition in emergencies</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>2. NUT 422</td>
<td>Program design, monitoring and evaluation</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>3. NUT 424</td>
<td>Leadership</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>4. NUT 426</td>
<td>Food processing and preservation</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>5. NUT 427</td>
<td>Food biotechnology</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>6. NUT 432</td>
<td>Food law</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total hours** 270

### Fourth year: Semester 1

#### Food Science Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures</th>
<th>Tutorials</th>
<th>Laboratory</th>
<th>Field practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NUT 411</td>
<td>Current issues in food and Nutrition</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>2. NUT 412</td>
<td>Applied Human Nutrition and community surveillance</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3. NUT 413</td>
<td>Seminar and special topics</td>
<td>45</td>
<td>17</td>
<td>56</td>
<td>0</td>
</tr>
<tr>
<td>4. NUT 414</td>
<td>Food hygiene and environmental health 2</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>5. NUT 415</td>
<td>Research project in Nutrition</td>
<td>45</td>
<td>17</td>
<td>56</td>
<td>0</td>
</tr>
<tr>
<td>6. NUT 418</td>
<td>Meat technology</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>7. NUT 419</td>
<td>Food analysis</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
</tbody>
</table>

**Total hours** 315

### Fourth year: Semester 2

#### Food Science Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures</th>
<th>Tutorials</th>
<th>Laboratory</th>
<th>Field practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NUT 422</td>
<td>Program design, monitoring and evaluation</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>2. NUT 426</td>
<td>Food processing and preservation</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>3. NUT 427</td>
<td>Food biotechnology</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>4. NUT 428</td>
<td>Fruit and vegetable technology</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>5. NUT 429</td>
<td>Food industry management</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>6. NUT 432</td>
<td>Food law</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total hours** 270

### Practical (Technical attachment)

#### Public Health Nutrition Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures</th>
<th>Tutorials</th>
<th>Laboratory</th>
<th>Field practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NUT 423</td>
<td>Practicum</td>
<td>45</td>
<td>0</td>
<td>0</td>
<td>225</td>
</tr>
</tbody>
</table>

**Total hours** 270

#### Fourth year: Semester 1

#### Food Science Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures</th>
<th>Tutorials</th>
<th>Laboratory</th>
<th>Field practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NUT 411</td>
<td>Current issues in food and Nutrition</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>2. NUT 412</td>
<td>Applied Human Nutrition and community surveillance</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3. NUT 413</td>
<td>Seminar and special topics</td>
<td>45</td>
<td>17</td>
<td>56</td>
<td>0</td>
</tr>
<tr>
<td>4. NUT 414</td>
<td>Food hygiene and environmental health 2</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>5. NUT 415</td>
<td>Research project in Nutrition</td>
<td>45</td>
<td>17</td>
<td>56</td>
<td>0</td>
</tr>
<tr>
<td>6. NUT 418</td>
<td>Meat technology</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>7. NUT 419</td>
<td>Food analysis</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
</tbody>
</table>

**Total hours** 315

#### Fourth year: Semester 2

#### Food Science Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures</th>
<th>Tutorials</th>
<th>Laboratory</th>
<th>Field practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NUT 422</td>
<td>Program design, monitoring and evaluation</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>2. NUT 426</td>
<td>Food processing and preservation</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>3. NUT 427</td>
<td>Food biotechnology</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>4. NUT 428</td>
<td>Fruit and vegetable technology</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>5. NUT 429</td>
<td>Food industry management</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>6. NUT 432</td>
<td>Food law</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total hours** 270

### Practical (Technical attachment)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures (1hr)</th>
<th>Tutorials (2hrs)</th>
<th>Laboratory (3hrs)</th>
<th>Field practical (5hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUT 421</td>
<td>Nutrition in emergencies</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 422</td>
<td>Program design, monitoring and evaluation</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 426</td>
<td>Food processing and preservation</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>NUT 432</td>
<td>Food law</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 433</td>
<td>Agricultural biotechnology</td>
<td>45</td>
<td>31</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>NUT 434</td>
<td>Food and Nutrition Security</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total hours**: 270

### Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures (1hr)</th>
<th>Tutorials (2hrs)</th>
<th>Laboratory (3hrs)</th>
<th>Field practical (5hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUT 421</td>
<td>Nutrition in emergencies</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 432</td>
<td>Food law</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>NUT 411</td>
<td>Current issues in food and Nutrition</td>
<td>45</td>
<td>31</td>
<td>28</td>
<td>0</td>
</tr>
</tbody>
</table>
2.12. Course Outlines

Title of Course: BIT 111: Introduction to Computers - 45 Contact Hours

Purpose of Course:
The purpose of this course is to introduce the student to computer usage and enable them to learn the application of computers in the business area, as well as and interrelate it to issues in Community Nutrition.

Expected Learning Outcomes:
By the end of the course, the learner should be able to:
1. Define the computer terminology and description.
2. Explain the impact of computers on the modern society.
3. Describe the elements of logical reasoning.
4. Explain the aspects of basic programming language.
5. Apply the practical skills of computer systems.

Course Content:
The topics to be covered include: Introduction to the concepts in computer studies; computer history, computer hardware and software; problem solving and algorithms; the utilization of information systems for various business applications; hands-on usage of the computer in using a word processor, a spreadsheet and basic programming; the internet and the world-wide web; and computer crime.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Case studies
4. Work-based assignment

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Assignments
2. Seminar paper and presentation
3. Continuous Assessment Test
4. Final examination

Core Reading Materials for the Course:
Recommended Reference Materials:

Title of Course: EPS 122: Counselling - 45 Contact Hours

Purpose of Course:
The purpose of this course is to equip learners with the basic counselling skills that are required by nutrition students to enable them handle different patients with different forms of food and nutrition needs.

Expected Learning Outcomes:
By the end of the course the students should be able to:
1. Establish rapport with clients.
2. Counsel clients who visit the health institution.
3. Maintain follow-up sessions for the client.

Course Content:
The topics to be covered in this unit includes: Introduction to Counselling in Community Nutrition; key definitions in nutrition counselling; core conditions of counselling; the relationship between nutrition and mental health; theories of counselling in nutrition context (behavioural, gestalt, person centred, self management approach, family therapy and RET); self concept; qualities of a good counsellor; counselling skills and the counselling process; counselling for lactating mothers; and nutrition and HIV; counselling for families, children and adolescents; guide to conducting a nutrition therapy; drawing a food drug time table; and counselling ethics.

Mode of Delivery:
1. lectures
2. group discussions
3. role plays
4. experiential learning

Instructional Materials:
1. overhead projector
2. LCD power-point presentation

Course Assessment:
1. Quizzes and assignments
2. Seminar paper and presentation
3. Continuous Assessment Test
4. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: HNS 107: Communication Skills- 45 Contact Hours

Purpose of Course:
The purpose of this course is to give the learner the skills for effective communication, demonstrate adequate writing skills and to recognize the human behaviour through the lens of communication.

Expected Learning Outcomes:
This course is intended to enable students to:
1. Describe the structure and function of human communication and in the process develop into effective communicators.
2. Develop and employ the skills of critical thinking.
3. Distinguish the communication theories, processes and techniques at organizational, managerial and personal levels.
4. Employ proper writing skills in report preparation and presentation.

Course Content:
The course content includes: verbal and non-verbal messages; business writing; speaking in business contexts (presentations, seminars, meetings, interviews and interviewing); conflict resolution; communication and technology in the work place; mass and group communication; formal report writing; business correspondence; team work; business meetings, negotiations and discussions; active listening.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Role plays
4. Experiential learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Seminar paper and presentation
2. Continuous Assessment Tests (CATS)
3. Final written examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 111: Health Psychology and Sociology - 45 Contact Hours

Purpose of Course:
The students will acquire basic principles and describe the essential aspects of health psychology and sociology.

Expected Learning Outcomes:
By the end of the course the students should be able to:
1. Familiarize themselves with the basic concepts of health psychology and sociology.
2. Apply their learning and understanding of health psychology and sociology to their own opportunities available to them in life.
3. Understand the need of health psychology and sociology in the contemporary world in general and Kenya in particular.
4. Critique and evaluate the various aspects of health psychology and sociology in relation to actual lifestyle at the community level.

Course Content:
The course includes: the meaning, definitions, nature, scope, methods, schools of psychology; branches of sociology; the relationship between health psychology and sociology and other social sciences; behaviour (physiological basis, the study of the nervous system, nature and nurture-meaning, and mechanism of hereditary); environment, relative importance of heredity and environment; sensation and perception (principles of perceptual organization, perception of form, space and movement, illusion and types of illusions); attention and interest (nature, types of attention, factors affecting attention, distraction of attention); interest (nature, definition, types of interest, relationship between
interest and attention, cause of inattention, steps necessary for attention); motivation (difference between psychogenic and sociogenic motives, theories of motivation, states of consciousness); levels of information processing, sleep and dreams; the emergence and development of sociology-pioneers (Auguste Comte, Herbert Spencer, Emile Durkheim-Max Weber); development of sociology in the twentieth century and its position in the contemporary period; society, social stratification and class structure; characteristics of human society and types of human societies; systems of social stratification in modern societies; classes in Western societies today; gender and stratification, social mobility, poverty and inequality; culture and social norms (characteristics of culture, meaning of social norms and functions of culture and importance of culture and social norms).

Mode of Delivery:
1. lectures
2. group discussions
3. case studies
4. individual and work-based assignment

Instructional Materials:
1. overhead projector
2. LCD power-point presentation

Course Assessment:
1. Quizzes
2. Seminar paper and presentation
3. Continuous Assessment Test
4. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 112: Applied Physics- 45 Contact Hours

Purpose of Course:
To enable the student to understand the basic principles, roles and application of Physics in our daily lives.

Expected Learning Outcomes:
By the end of the course, the student should be able to:
1. Define the various types of measurements.
2. Describe the different concepts behind the laws of motion, wave, light, optical instruments.
3. Explain the elements of nuclear physics.
4. Analyse the link between physics and chemistry

Course Content:
The topics to be covered include the system of measurements- basic derived units, conversion factors, and scientific (exponential) notations; motion and conservation of momentum; scalar and vector quantities; acceleration due to gravity; force and motion; Newton’s Laws of motion; momentum; energy and derivation of kinetic energy equation; thermal physics (temperature, temperature scales, heat as a form of energy, specific heat and transfer of heat); wave motion; sound; wave speed, frequency, wavelength and amplitude; sound waves, speed of sound, frequency and wave length-loudness; light (nature of light, source of light, light rays, laws of reflection, images formed by flat mirrors, curved mirrors and lenses).

Mode of Delivery:
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment

Instructional Materials:
1. Overhead projector
2. LCD PowerPoint presentation

Course Assessment:
1. Seminar paper and presentation
2. Continuous Assessment Test
3. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 113: Chemistry -- 60 Contact Hours

Purpose of Course:
To introduce the learner to the constitution and properties of the different classes of organic compounds, with considerable attention to stereochemistry, reaction mechanisms, synthetic organic chemistry, spectroscopy and bio-organic. The laboratory work involves an introduction to the major synthetic and analytical techniques of organic chemistry including the preparation of representative organic compounds and the isolation of compounds from natural sources.

Expected Learning Outcomes:
By the end of the course students should be able to:
1. Predict the synthesis of new organic molecules and polymers.
2. Describe the structure, functionality, and reactivity of organic molecules in the understanding of numerous and disparate phenomena, from biological and biochemical processes (enzyme-substrate interactions), to medicine (pharmaceuticals), to the properties of materials (polymers).
3. Discuss the fundamental principles of organic and inorganic chemistry, allowing the student to begin understanding the language of chemists.
4. Outline the properties and characteristics of molecules, and several key reactions and reaction mechanisms.

Course Content:
The topics to be covered include: Introduction and Review (Lewis structures, the octet rule molecular orbital theory, orbital hybridizations electro negativity, and resonance structures); Introduction to Functional Groups (the most common functional groups, basic nomenclature, alkanes, conformations of cycloalkanes and properties of alkanes); Alkenes, the double bond: nomenclature and stereoisomer, introduction to organic reactions; Introduction to Electron Pushing Mechanisms (oxidation and reduction of organic molecules, radical polymerization and the terpenes); Benzene and Aromaticity (structure of benzenes, aromaticity, electrophilic aromatic substitution reactions, effects of substituents on substitution); Stereochemistry (Stereochemistry and Fischer Projections, Optical Activity); Alcohols, Ethers and Thiols (hydrogen bonding and other properties, reactions of alcohols; substitution and elimination); Details of Nucleophilic Substitution and Beta-Elimination Mechanisms, mechanisms of E₁ and E₂; Introduction to Carbonyls (physical properties and reactions of carbonyls nucleophilic addition reactions); Details of Nucleophilic Addition Reactions; Carbohydrate chemistry; Carboxylic Acids Properties and Acidity; reactions of carboxylic acids reactions of carboxylic acid derivatives, the aldol reaction, the claisen condensation; Amines (properties and basicity).

Mode of Delivery:
1. Lectures
2. Group discussions
3. Role plays
4. Experiential learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Quizzes
2. Seminar paper and presentation
3. CAT
4. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: EEN 113: Critical And Creative Reading - 45 Contact Hours

Purpose of Course:
The purpose of the course is to provide the learner with skills in critical reading and writing for quality reports.

Expected Learning Outcomes:
By the end of the course the students should be able to:
1. Define the principles and concepts in critical thinking.
2. Demonstrate the ability to think clearly, logically, critically and effectively.
3. Demonstrate proficiency in analysis, inference and evaluation.

Course Content:
The topic in the course include: Solving issue oriented problems and making informed decisions; Generating, organizing, and evaluating ideas; Analytical reasoning; Evaluating validity of information; Reading strategies applicable to core content area courses; Library research techniques, both onsite and online.

Mode of Delivery:
1. Lectures
2. Seminars
3. Practical

Instructional Materials:
1. Audiovisuals
2. power point,
3. posters,
4. overhead projector

Course Assessment:
1. Continuous Assessment Tests (CATS)
2. Class assignments
3. Final written examination

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course:** GCC 102: Introduction to Statistics -- 45 Contact Hours

**Purpose of Course:**
The purpose is to introduce the learner to basic statistics and analysis methods of data.

**Expected Learning Outcomes:**
To enable students to:
1. Describe the concepts of statistics.
2. Outline the various types of analysis.
3. Describe the different modes of data presentation.
4. Conduct some data collection, analyse and present in a report.

**Course Content:**
The content of this course will include: the basic ideas of statistics; Mathematical details as calculus; differentiations; integration and problem solutions using equations; an introduction to methods of summarising and presenting data; estimation, confidence intervals and hypothesis testing; a practical introduction to statistical methods; appropriate methods of analysing data; Descriptive statistics, graphical and numerical summarisation of data; introduction to a statistical package; distributions (binomial and normal); sampling distribution of the mean; the t-distribution; confidence intervals; hypothesis testing ideas (single-sample and two-sample problems); t-tests, paired samples; their analysis and importance; estimating and testing for proportions; regression analysis; introduction to Analysis of Variance (ANOVA).

**Mode of Delivery:**
1. Lectures
2. Seminars
3. Practical

**Instructional Materials:**
1. Audiovisuals
2. Power-point
3. Posters
4. Overhead projector

**Course Assessment:**
1. Continuous Assessment Tests (CATS)
2. Class assignments
3. Final written examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: HNS 112: Human Anatomy and Physiology - 60 Contact Hours

Purpose of Course:
The purpose of the course is to provide the learner with skills in the human anatomy and physiology for implementing nutritional care.

Expected Learning Outcomes:
Upon successful completion of this course the student should be able to:
1. Identify the basic structures of a human cell and describe the function of each.
2. Recognize the systemic approach to body organization and use this approach to organize human structures.
3. Identify histological and gross structures associated with each body system.
4. Describe functions of organs and organ systems.
5. Demonstrate laboratory techniques and procedures required for study and assessment of the human body.
6. Recognize anomalies and common pathological conditions of human organ systems.

Course Content:
The content of this course includes: basic knowledge on human structures and their function; the relationship of structures to function in the organ systems of the human body; the identification of the anatomical features and their functions; Definitions; man as a mammal/primate; the cell smallest unit of living; body tissues (epithelial tissues, connective tissues- adipose, cartilage, bones, muscular tissues, nervous tissues, neuron); fluid tissues (connective tissues, blood and lymph); organs systems, skeletal and connective systems (skeletal joints); muscular systems; respiratory systems; circulatory system (blood, spleen-lymph, heart, veins, arteries, capillaries); digestive and glandular systems (food chain, digestion); excretory system (metabolism, liver, pancreases, excretion, regulation of body fluids, skin, kidney, bladder); regulation of body heat and
temperature; nervous system (spinal cord/nerves, brain); reproductive systems; organs of special tissues (eyes, ears, dustless glands- thyroid, parathyroid, thymus, adrenal/glands, pituitary).

**Mode of Delivery:**
1. Lectures
2. Seminars
3. Practical

**Instructional Materials:**
1. Audiovisuals
2. power point
3. posters
4. overhead projector

**Course Assessment:**
1. Continuous Assessment Tests (CATS)
2. Class assignments
3. Final written examination

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course: HNS 113: Biochemistry I -- 60 Contact Hours**

**Purpose of Course:**
The course gives a deeper understanding of nutrition of cellular mechanisms and metabolic events governing health. The insight and perspective requires increased knowledge of the chemical actions occurring deep in the human body - the domain of biochemistry.

**Expected Learning Outcomes:**
By the end of the course the students should be able to:
1. Compare and contrast structures of prokaryotic and eukaryotic cells and understand the significance of these differences in patterns of evolution and treatment of disease.
2. Recognize major classes of bio-molecules, their structure/function relationships and their characterisation.

**Course Content:**
The topics covered in this course include: Introduction to biochemistry; chemical composition of bio-molecules; the cell and organelles; Carbohydrates (monosaccharide, disaccharides, polysaccharides); glycolysis; TCA (Krebs) cycle; Vitamins; water and fat soluble vitamins; Disorders arising due to nutritional deficiencies; Proteins (amino acids, biosynthesis of proteins, essential amino acids and non-essential amino acids, biosynthesis of amino acids); the urea cycle and de-amination process; Water and its unique properties; Henderson-Hasselbalch equation (pH, pKa and pKw); and buffers and buffer preparation.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Role plays
4. Experiential learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 121: Nutrition and HIV/AIDS -- 45 Contact Hours

Purpose of Course:
The purpose of the course is to equip the students with skills of nutritionally managing HIV/AIDS in the communities.

Expected Learning Outcomes:
By the end of the course, the students will be able to:
1. Describe the interventions for Nutritional Care and Support for PLWHA…
2. Explain the processes of planning for Nutrition action for PLWHA
3. Design interventions for food security and food quality in the context of HIV/AIDS
4. Conduct and analyze nutritional surveys using both qualitative and quantitative
techniques in care and support of PLWHA.

Course Content:
The course topics will include: Basics of HIV/AIDS in Africa; Introduction to Current Nutrition; Link between Nutrition and HIV/AIDS; Nutrition Actions for PLWHA; Household food security and HIV/AIDS; Nutritional management of HIV/AIDS-related symptoms; Nutritional care & support of pregnant/lactating women/ adolescent girls infected with HIV/AIDS; Issues and challenges in providing optimum nutrition.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment

Instructional Materials:
1. Use of audiovisuals e.g. pictures, posters, overhead projector, etc.
2. Community partnership sites

Course Assessment:
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 122: General Microbiology -- 45 Contact Hours

Purpose of Course:
The purpose of this course is to provide the learner with skills on the identification and management of disease that affect the human health.

Expected Learning Outcomes:
By the end of the course the student should be able to:

1. State the aetiology of common communicable and non-communicable diseases and state the methods of prevention.
2. Demonstrate the application of appropriate strategies to elaborate responsive health plans to contain non-communicable and communicable diseases.
3. Recognize the common non-communicable and communicable diseases in their area of coverage.
4. Develop surveillance systems for non communicable and communicable diseases.

Course Content:
Topics in this course will include: infectious diseases nutrition; reproductive health; child and adolescent health; aetiology; health and wellness; sexuality; reproductive choices and pregnancy; nutrition and weight; alcohol, tobacco and caffeine; heart, health and disease; cancer and non-infectious conditions; communicable diseases and sexually transmitted infections; aging and nutrition; as well as genetics and genetic disease.

Mode of Delivery:
1. Lectures
2. Seminars
3. Practical

Instructional Materials:
1. power point
2. posters
3. overhead projector

Course Assessment
1. Continuous Assessment Tests (CATS)
2. Class assignments
3. Final written examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 123: Partnership Practice I - 300 Contact HOURS

Purpose of Course:
The purpose of the course is to equip the students with skills for conducting community diagnosis within the partnership practice programme.

**Expected Learning Outcomes:**
By the end of this module students will be able to:
1. Discuss the concept of partnership in health and development.
2. Apply the concepts of health and development to their day-to-day work challenges through engagement in partnership practice programme.
3. Recognize and describe the common health and development problems in the partnership community.
4. Conduct a community diagnosis in health and development.
5. Facilitate a feedback workshop.
6. Recommend on the best way forward after the community diagnosis

**Course Content:**
The topics will include: Introduction to partnerships in health and development; principles and levels of partnership; participatory methods; TICH partnership model; general management of health situations; the working of the health system and various public health programmes and activities carried out by the various special units within the Ministry of Health (Malaria Control, HIV/AIDS and TB control, Nutrition, EPI, Health Promotion); elements of epidemiological studies on diseases prevalent in the catchments area of the health centre of practice; special attention on respiratory diseases, diarrhoeal diseases and diseases related to nutrition, and how the development context influences these.

**Mode of Delivery:**
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work based assignment
5. Assignment of mentors for follow-up, support and assessment in partnership practice

**Instructional Materials:**
1. Community and service partnership site
2. Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

**Course Assessment:**
1. A feedback workshop (20 marks).
2. A seminar presentation (10 marks).
3. Immediate supervisor assessment (10 marks).
4. Partnership Practice I report (40 marks).

**Core Reading Materials for the Course:**
Recommended Reference Materials:

Title of Course: NUT 211: Biochemistry II -- 60 Contact Hours

Purpose of Course:
To study the relationship between cell structure and cell function. The structure/function of the cell membrane and most organelles are covered in detail.

Expected Learning Outcomes:
By the end of the course students should be able to:
1. Describe the major classes of bio-molecules, their structure/function relationships and their characterization.
2. Discuss the metabolism of proteins, nucleic acid and proteins.
3. Demonstrate operation of biochemical equipment.

Course Content:
Enzymology (enzyme kinetics, saturation kinetics, competitive, uncompetitive and non-competitive enzymatic inhibition); fatty acids (nomenclature of fatty acids, synthesis, metabolism, transportation and mobilization mechanisms, sterols synthesis, LDL, HDL, and triglycerides, lipid disorders and bile pigments); nucleic acids (nucleotides, nucleosides, definition of basic terms in molecular biology, base pairing, translation mechanisms, translation of proteins, purine and pyrimidine synthesis and metabolism and HMP shunt); Polymerase Chain Reaction (PCR) and its application in biochemistry; application of enzymatic kinetics in medical sciences; biochemical pathways and diseases/disorders resulting due to defects; and pharmacological rationale in their treatment and/or management.

Mode of Delivery:
1. Lecture
2. Practical
3. Group work

Instructional Materials:
1. Power-point
2. Posters
3. overhead projector

Course Assessment:
1. Continuous assessment tests
2. Final written examination
Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 212: Meal Management and Service -- 45 Contact Hours

Purpose of Course:
The purpose of this course is to equip the learner with the principles of management for quality food production.

Expected Learning Outcomes:
By the end of the course, the student should be able to:
1. Describe the concepts, principles and techniques of quantity food management
2. Explain the roles and responsibilities of food service manager
3. Apply the quantitative and qualitative standards in quantity food production
4. Develop menus which meets staffing, equipment and nutritional constrains
5. Describe the principles of purchasing and production in food service systems management

Course Content:
Topics to be covered will include: quantity food planning and management; definitions; classical principles of an organization chart; self appraisal on managerial know-how; pre test and tools of management; theories of management; strategic management; functions of management; skills of managers; management activities and roles; principles of producing menu; functions and use of food service equipment; aspects of quantity food management; food safety and HACCP; cleaning, sanitation and safety; production; distribution in food service; labour control; facilities planning and design; and receiving storage and inventory.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Experiential learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation
Course Assessment:
1. Seminar paper and presentation
2. CAT
3. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 213: Ethics and Social Responsibilities - 45 Contact Hours

Purpose of Course:
The purpose is to introduce the learner to the concepts of ethics and social responsibilities in the context of managing the communities.

Expected Learning Outcomes:
By the end of the course, learners should be able to:
1. Describe the history and evolution of values and ethics in the work profession.
2. Demonstrate skills in applying relevant ethics, concepts and theories of ethics to work practice.
3. Recognize the professional, legal and ethical standards of practice, their role in competent, ethical social work and times at which legal and professional standards may conflict.
4. Define the interplay of personal values and professional behaviour.
5. Recognize ethical issues and to apply ethical decision-making frameworks and protocols through enhanced use of critical thinking skills.

Course Content:
The core content areas include: History and evolution of values and ethics in social work; ethical theories (Abramson, Gilligan, Levy, Keith-Lucas, Loewenberg, and Reamer); professional standards of social work practice; ethical codes social workers; legal requirements and other considerations for registration, certification and licensing; professional values and self-awareness about ethical professional behaviour; ethical decision making processes and dilemma examples.

Mode of Delivery:
1. Lecture
2. Practical
3. Group work
Instructional Materials:
1. Power-point
2. Posters
3. overhead projector

Course Assessment:
1. Continuous assessment tests
2. Final written examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 214: Concepts in Health and Development - 45 Contact Hours

Purpose of Course:
The purpose is to introduce the learner to the concepts, issues, contextual factors and strategies in health and development.

Expected Learning Outcomes:
By the end of the course students should be able to:
1. Describe the concepts of health and development and apply them to the national and international trends in health and development.
2. Identify factors, policies and strategies at national and international levels and their impact on health status of populations as well as health care delivery systems.
3. Describe the social and economic development contexts that influence health care needs and health systems.

**Course Content:**
The topics in the course will include: an analysis of health care and development within the context of the challenges of a developing country; concepts, issues, trends and debates in health and development at the local, national and global levels; theories and practice of managing health systems; concepts of health and development; definitions of public health and sustainable development; social concepts of disease and illness; social determinants of health status; international trends in health and development; mortality and morbidity trends; as well as policies influencing mortality and morbidity trends.

**Mode of Delivery:**
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment.
5. Partnership exercises: community entry and situation analysis.
6. Assignment of mentors for follow-up, support and assessment in partnership practice.

**Instructional Materials:**
1. Use of audiovisuals e.g. pictures, posters, overhead projector, etc.
2. Community partnership sites.

**Course Assessment:**
The students are assessed through:
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).
4. Continuous assessment of partnership practice, based on direct supervision.

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**
Title of Course: NUT 215: Human Nutrition I -- 45 Contact Hours

Purpose of Course:
The purpose of this course is to introduce the student to the basic principles of human nutrition, and the effect of food on humans as living organisms, as well as to provide students with a comprehensive ability to analyse world food situations and the problem of hunger, using an ecologically/food system approach.

Expected Learning Outcomes:
This course is intended to enable student to:
1. Describe the relationship of nutrition to health.
2. Identify the major functions of the various nutrients and their major food sources.
3. Recognize deficiency and toxicity symptoms of the various nutrients.
4. Describe the social, physiological, psychological, and cultural factors that influence food choices through out the life cycle.
5. Compare nutrition information from a scientific perspective to distinguish scientific findings from untested claims.
6. Identify food patterns that increase the risk of chronic health problems and recommend modifications to the diet to reduce the risk of developing these health problems.
7. Identify the causes of hunger in developing and industrialized countries.

Course Content:
The topics will include: an overview of nutrition, the aspects of food choices and how to develop a diet planning guide; the process of digestion absorption and transport of nutrients in the body including their functions; the synthesis metabolism and function of micronutrients and their food sources (water soluble vitamins, fat soluble vitamins, and major and minor minerals); the relationship between alcohol and nutrition (the process of alcohol breakdown/metabolism in the body, effects of alcohol on health and effect of alcohol on nutrition); energy balance and weight control; fitness and nutrition; food choices as affected by religious beliefs, economics, family traditions, political, social and historical factors; meanings of food and food-related behaviours of cultures and the way these patterns influence food consumption patterns among each other; global perspectives in a comparative context on food ways, beliefs, habits and cultural practice models; globalization of eating patterns and the resistance to homogenizing forces; international frames on long-standing and newly emerging issues focusing on causes and effects of famine; exploding populations and enhanced food production on current and future food supplies; nutritional value of diet; food system approach components of food production, distribution and cultural aspects; analysis of factors of food production (land, soil and technology); price of imports; and case studies.

Mode of Delivery:
1. lectures
2. group discussions
3. case studies
4. individual and work-based assignment

Instructional Materials:
1. overhead projector
2. LCD power-point presentation
Course Assessment:
1. Quizzes
2. Seminar paper and presentation
3. Continuous Assessment Test
4. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 216: Principles of Animal Production - 45 Contact Hours

Purpose of Course:
The purpose of this course is to develop general skills and knowledge of the principles of efficient production including, feeding practices, breeds, management, housing, marketing, diseases and sanitation under tropical conditions.

Expected Learning Outcomes:
At the end of the course, the students will able to:
1. Identify and describe breeds of cattle, sheep, swine, and goats.
2. Demonstrate the ability to select breeding stock by using performance records, visual evaluation, and other tools used in selecting livestock.
3. Demonstrate husbandry abilities such as castrating, dehorning, medicating, palpating, ear tattooing, and tagging.
4. Demonstrate the ability to calculate performance data.
5. List the major diseases of livestock and explain the methods of disease control.
6. Discuss the environmental impact of livestock production and ways of controlling all types of livestock pollution.

Course Content:
The topics to be covered include: animal contribution to human needs; overview of livestock industry; red meat products; poultry and egg products; milk and milk products; visual evaluation of slaughter; red meat animals; market classes and grades of livestock; animal reproduction and genetics; artificial insemination; nutrition of farm animals; animal health; feeding of poultry, swine, goats, dairy cattle, and beef cattle; careers in animal science, animal welfare and rights.

**Mode of Delivery:**
1. lectures
2. group discussions
3. experiential learning

**Instructional Materials:**
1. overhead projector
2. LCD power-point presentation

**Course Assessment:**
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. Continuous Assessment Tests 10%
4. Final examination 50%

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course: NUT 221: Community Health - 45 Contact Hours**

**Purpose of Course:**
The purpose of the course is to equip the learner with skills on management of the community's health status.

**Expected Learning Outcomes:**
By the end of the course the student should be able to:
1. Outline the history of health services in Kenya.
2. Describe the principles of communicable disease control and public health importance.
3. Describe the district health systems and it’s strategies in relation to community health.
4. Explain the concept of disease in terms of environmental causes
5. Describe the community based health care approach.
6. Explain principles, methods and techniques of community and public health.

Course Content:
Topics to be covered include: the concepts of community and public health, historical development of community health in Europe, America, Kenya; methods of community health; strategies for implementing primary health care and the roles of various cadres; community based health care; health centre practice; management prevention and control of communicable diseases and chronic disease conditions; Provision of MCH/FP services for various age groups; immunization; mobilization and organization of groups for specific programmes; contributors to basic public health; history of health services in Kenya; diseases of public health importance in Kenya; environmental health; food hygiene; housing and public health; personal hygiene; primary health care; school health programme; disasters and epidemics.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment
5. Role plays
6. Demonstration

Instructional Materials:
1. A audiovisuals e.g. film shows
2. Posters,
3. Overhead projector,
4. LCD PowerPoint projector

Course Assessment:
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

Core Reading Materials for the Course:

Recommended Reference Materials:

**Title of Course: NUT 222: Therapeutic Nutrition and Dietetics 1 - 45 Contact Hours**

**Purpose of Course:**
This course has been tailored to enable the student have hands on skills and the knowledge on how to modify various diets on depending on individual needs and conditions as a means of restoring health.

**Expected Learning Outcomes:**
This course is intended to enable students to:
1. Define the basic concepts in therapeutic nutrition and understand the principles involved.
2. Assess the nutrition status of an individual or group.
3. Apply the principles of therapeutic nutrition in feeding the sick.
4. Identify the symptoms of various diseases and their dietary consideration.
5. Describe the principles involved in food preparation and menu writing of various diseases.

**Course Content:**
This course will cover: the concept of health and diseases; definitions in therapeutic nutrition; the reasons and purposes of dietary treatments; the relationship between nutrition assessments and dietary therapy in patient care; nutrition counselling and the types of therapeutic diets; different disease conditions and their specific ways of management (fevers, diabetes mellitus, cardiovascular disorder and hypertension-coronary prone individuals, congestive heart failure; and gastrointestinal disorders, diverticulosis, and ulcers).

**Mode of Delivery:**
1. Lecture
2. Practical
3. Group work

**Instructional Materials:**
- Use of audiovisuals e.g. power-point, posters, overhead projector, etc

**Course Assessment:**
1. Continuous assessment tests
2. Final written examination

**Core Reading Materials for the Course:**


**Title of Course: NUT 223: Food Toxicology - 45 Contact Hours**

**Purpose of Course:**
The course provides students with concepts of the toxic substances occurring in food, either naturally or formed during processing, and the toxic effects of these substances on the biological systems.

**Expected Learning Outcomes:**
By the end of the course, the learner should be able to:
1. Describe the biological and chemical aspects of toxicology, microbial aspects of food borne infections and intoxications, food additives, toxic substances occurring in food.
2. Discuss the mechanisms of action of specific food toxicants.
3. Discuss food allergies versus food toxicants.
4. Analyze data regarding potentially toxic food components by applying logic, statistical, chemical-analytical and other appropriate methods.
5. Define major modes of toxicity of key food borne toxicants, based on chemical nature, metabolism, and sites of action and toxicity mechanisms.
6. Design remediation and detoxification strategies for key food borne toxicants.
7. Appropriately assess human risk from food borne toxicants of current interest and major health significance.
8. Assess and modify HACCP plans to optimize prevention of food borne toxicities.

**Course Content:**
The topics to be covered in the course include: biological and chemical aspects of toxicology; microbial aspects of food borne infections and intoxications; food additives; toxic substances occurring in food naturally and during processing; the toxic effects of these substances on the biological systems; safety of genetically engineered foods; risk assessment and food safety policy; sources, pathways, receptors, and controls of target chemicals in the human food chain and human disease manifestation; chemical, natural or synthetic, fate and transport in the food system; toxicomechanics, toxicodynamics, toxicological endpoints in animals and humans; and the natural, engineered, or regulatory controls that aid in the mitigation of the exposure.

**Mode of Delivery:**
1. Lectures
2. Group Discussions
3. Role Plays
4. Experiential Learning

**Instructional Materials:**
1. Overhead projector
2. LCD power-point presentation
Course Assessment:
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 224: Cell Biology and Genetics - 45 Contact Hours

Purpose of Course:
This course facilitates a survey of fundamental biological principles to students.

Expected Learning Outcomes:
Upon the successful completion of this course, you should be able to:
1. Demonstrate knowledge of the similarities and differences among cells, how they are organized and work together.
2. Compare and contrast structures of prokaryotic and eukaryotic cells and understand the Significance of these differences in patterns of evolution and treatment of disease.
4. Demonstrate knowledge of the biological processes involved in the transmission of characteristics of an organism to its offspring.
5. Demonstrate knowledge of the principles of the theory of evolution.
6. Demonstrate knowledge of the structure and function of plant and animal cells, tissues, organs and organ systems.
7. Develop laboratory skills related to cell biology techniques, equipment, instruments and projects.

Course Content:
Topics to be covered include: introduction to cell genetics and biology; cell types and cell components (DNA to RNA, the nucleus, RNA to proteins, endoplasmic reticulum, golgi apparatus, lysosomes, mitochondria, chloroplasts, Cytoskeleton, and Peroxisomes); cell membranes (membrane lipids, membrane proteins, membrane transport, axonal transport ion channels, axonal transport and electrical activity); DNA replication, genetics, heredity, evolution, the cell cycle, intercellular contacts and communication; Tissues, extra cellular matrix, muscle, stem cells, cancer; tissue culture of mammalian cells; Western, Northern and Southern blotting; in situ hybridization; PCR amplification; DNA sequencing; polyclonal and monoclonal antibody production and testing.
Mode of Delivery:
1. Lecture
2. Practical
3. Group work

Instructional Materials:
Use of audiovisuals e.g. power-point, posters, overhead projector, etc

Course Assessment:
1. Continuous assessment tests
2. Final written examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 225: Food Microbiology I- 60 Contact Hours

Purpose of Course:
To allow students review current issues in food microbiology.

Expected Learning Outcomes:
By the end of the course students should be able to:
1. Discuss the key events in the history of food microbiology.
2. To recognize how extrinsic and intrinsic factors influence microbial growth and survival in foods.
3. To enumerate micro-organisms, and to evaluate the strengths and weaknesses of various methods to enumeration based on the food analyzed and the expected microbial population and load.
4. Describe how food-borne disease has evolved and how regulatory systems have developed to control risks in the food supply.
5. To develop specific knowledge of the tools, approaches, and considerations required to develop a HACCP plan for industry application as part of a quality assurance programme.
6. To utilize the concept of indicator organisms and understand the implication of their presence in food systems. Students will also have a working knowledge of MPN techniques and the principles behind the new technologies used for detection of food-borne micro-organisms.
Course Content:
The topics to be covered include: classification of bacteria and fungi; morphology and structure, nutrition, metabolism and growth of bacteria and fungi; staining techniques used in microbiology; bacterial pathogenicity; analysis of the bacterial cell; key events in the history of food microbiology; food as a substrate for microbial growth; habitats, taxonomy and factors affecting microbial growth; Hurdle concept; microbial growth and counts (meaning, determination, media, differential counts, total counts and indicator organisms); the calculation and application of MPN’s and introduction to rapid methods; diagnostic laboratory techniques; biotechnology in the diagnosis and epidemiology of microbial diseases; sterilization and disinfection; safety in microbiology laboratory; quality control procedures in microbiology; principles of vaccine production; standardization of biological products by microbiological and serological methods; microbial genetics, gene transfer and recombinant DNA technology; virology (viral morphology and characteristics, morphological grouping of viruses, viral proteins/glycoprotein, genetic differences between viruses, growth and purification).

Mode of Delivery:
1. Lectures
2. Group Discussions
3. Role Plays
4. Experiential Learning

Instructional Materials:
1. Overhead projector
2. LCD PowerPoint presentation

Course Assessment:
1. Quizzes
2. Seminar paper and presentation
3. CAT
4. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:
Title of Course: NUT 226: Biostatistics -- 45 Contact Hours

Purpose of Course:
The course aims at using statistical techniques to analyse real datasets. This involves identifying the most appropriate statistical techniques; applying those techniques using the statistical computing package SPSS, and interpreting the resulting output.

Expected Learning Outcomes:
By the end of the course the learner should be able to:
1. Use exploratory data analysis techniques to investigate the main feature of dataset.
2. Explain the assumptions underlying simple linear regression, recognise situations where data transformation is appropriate, and perform appropriate transformation using SPSS.
3. Fit multiple linear regression and logistic regression models in SPSS and interpret the results.
4. Explaining statistical concepts and reasoning behind the techniques to be applied using computer labs.
5. Analyse datasets.

Course Content:
The course topics will include: the relationship between a response variable and a predictor variable; using simple linear regression; transformations of the response and /or predictor; advanced regression modelling techniques, including multiple regression and logistic regression to the analysis of a real dataset.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Experiential learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Seminar paper and presentation
2. Continuous Assessment Tests
3. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

**Title of Course: NUT 228: Partnership II -- 300 Contact Hours**

**Purpose of Course:**
The purpose of the course is to equip the students with skills on intervening on community nutrition management based on the community diagnosis results.

**Expected Learning Outcomes:**
By the end of this module students will be able to:
1. Demonstrate the process of community and /or institutional diagnosis.
2. Develop an action plan for improvement based on the community diagnosis findings.
3. Implement the action plan.
4. Monitor and evaluate the implementation of the action plan.

**Course Content:**
Topics will include: Introduction to partnerships in health and development (principles, levels and methods); participatory methods; TICH Partnership Model; conducting a community diagnosis; designing of interventions and participatory implement the action plan.

**Mode of Delivery:**
1. Group discussions
2. Case studies
3. Individual and work based assignment
4. Assignment of mentors for follow-up, support and assessment in partnership practice

**Instructional Materials:**
1. Community and service partnership site
2. Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

**Course Assessment:**
1. Practical assessment in the community of practice (20mks)
2. Immediate supervisor assessment (20mks)
3. Partnership Practice II report (60mks)

**Core Reading Materials for the Course:**
Recommended Reference Materials:

Title of Course: NUT 311: Therapeutic Nutrition and Dietetics 11-45 Contact Hours

Purpose of Course:
This course has been tailored to enable the student have hands on skills and the knowledge on how to modify various diets on depending on individual needs and conditions as a means of restoring health.

Expected Learning Outcomes:
By the end of the course, the student should be able to:
1. Explain the principles of therapeutic nutrition in feeding the sick such as patients with liver disorders, renal disorders, surgical conditions, nutrition and cancer, nutrition and HIV.
2. Identify the symptoms of various diseases and their dietary consideration.
3. Apply the principles involved in food preparation and menu writing of various diseases e.g. low calorie, regular; soft liquid or restriction of pre-operative diets.

Course Content:
The topics to be covered in the course include: various conditions and their dietary considerations including the disease aetiology; liver disorders (function of the liver, aetiology of disorders and malnutrition considerations); aetiology, symptoms and dietary modification of cirrhosis, hepatitis and hepatic coma; renal disorders (renal functions, aetiology symptom and dietary modification of acute and chronic glomelonephritis and renal failure); surgical conditions (nutritional considerations, tube feeding and parenteral feeding, diet following surgery on mouth-throat-oesophagus, Diets following gastrectomy i.e. burns); nutrition and cancer; nutrition and HIV.

Mode of Delivery:
1. Lecture
2. Practical
3. Group work

Instructional Materials:
1. Use of audiovisuals e.g. power-point, posters, overhead projector, etc

Course Assessment:
1. Continuous assessment tests
2. Final written examination
Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 312: Epidemiology and Health -- 45 Contact Hours

Purpose of Course:
The main purpose of this course is to provide the students with the skills and knowledge in epidemiology that would enable the tackle the various aspects of public health.

Expected Learning Outcomes:
This course has been designed to enable the student to
1. Learn the basic principles and methodologies in epidemiology.
2. Apply the skill in epidemiological researches.
3. Plan and design health promotion and education programmes in the community.

Course Content:
The topics to be covered include: Definition of epidemiology and related terms; history and evolution of epidemiology; the scope and work field and limitations of the discipline of epidemiology; the importance of a 'population at risk'; disease control; concepts of disease and health; epidemiological concepts; concepts of disease control-screening; the basic principles of screening and surveillance; sensitivity, specificity and predictive values of tests; simple calculations of test indices; the role of prevalence in the performance of a test; scope of health promotion and preventive medicine intervention; classification of disease/health and medical conditions; developing health indicators and measurements of health and related issues to assess effects and impacts of interventions.

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation
Course Assessment:
1. Quizzes
2. Seminar paper and presentation
3. Continuous Assessment Test
4. Final examination

Mode of Delivery:
1. Didactic lectures
2. Interactive discussions
3. Group work
4. Home study

Core Reading Materials for the Course:
1. Charles H. and Julie B. Epidemiology in Medicine.
3. Arnold, G. J. Modern Infectious Disease Epidemiology.

Recommended Reference Materials:

Title of Course: NUT 313: Food Preparation and Nutrition -- 45 Contact Hours

Purpose of Course:
Students will have a strong understanding of food preparation as well as safe food handling practices.

Expected Learning Outcomes:
By the end of the course, the learner should be able to:
1. Demonstrate nutrition and wellness practices that enhance individual and family well-being.
2. Analyze factors that influence dietary and wellness practices across the life span.
3. Evaluate the nutritional needs of individuals and families in relation to health and wellness across the life span.
4. Evaluate factors that affect food safety, from production through consumption.
5. Integrate knowledge, skills, and practices required for careers in food production, food distribution, food services, food science, nutrition, dietetics, and hospitality, tourism and Recreation.
6. Demonstrate the principles of nutrition and food preparation to meet customer/client needs.
7. Demonstrate the use of current technology as it relates to the food and hospitality industries.
8. Demonstrate procedures applied to safety, sanitation, security, and environmental issues.

Course Content:
The topics to be covered will include: the role of food in the body (review of essentials nutrients and dietary guidelines, the digestion of food); nutrition and physical fitness
(influences of food selection, ideal body weight, food-related illnesses, malnutrition, anorexia, bulimia); exercise and fitness, weight loss, weight gain and weight maintenance plans; food facts and fallacies (controlling fats, salts and sugar, vitamin supplements); skills and techniques of food preparations (review laboratory procedures, kitchen equipment - microwaves, cut tools, portable electrical appliances); purchasing food (marketing strategies, advertising and coupons, shopping lists, selecting a store, consumer rights and responsibilities); foundations of nutritious food preparation (soups, stocks, and sauces, salads and salad dressing, eggs, poultry, fish, the basics of baking, functions of ingredients, baking equipment and storage, preparations of nutritious bakery items); careers in food and nutrition, career exploration and career suitability.

**Mode of Delivery:**
1. Lectures
2. Group Discussions
3. Case Studies
4. Work-Based Assignment

**Instructional Materials:**
1. Overhead projector
2. LCD power-point presentation

**Course Assessment:**
1. Assignments
2. Seminar Paper And Presentation
3. Continuous Assessment Test
4. Final Examination

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course: NUT 314: Entrepreneurship -- 45 Contact Hours**

**Purpose of Course:**
The purpose of the course is to equip the students with skills in entrepreneurship for managing the prevailing economic situations for optimal nutritional care.
Expected Learning Outcomes:
By the end of the course, the students will be expected to:
1. Define entrepreneurship within the context of society, organizations and individuals.
2. Demonstrate an understanding of the impact of entrepreneurship on the economy, entrepreneurial attitudes and behaviours within him/herself and others.
3. Distinguish between an entrepreneurial and a conventional approach to management.
4. Recognize and overcome obstacles to creative problem-solving.
5. Describe the elements of an effective business model/plan.
6. Develop a concept for an innovative product or service in his or her own area of interest.

Course Content:
The topics to be covered will include: the concept of sustainable entrepreneurship; the history of entrepreneurship, the role of entrepreneurs and entrepreneurs in the 21st century global economy; and the identification of entrepreneurial opportunities; elements of creative problem-solving; the development of a business concept/model; the examination of feasibility studies; and the social/moral/ethical implications of entrepreneurship; overcoming obstacles; selling your idea to others; the entrepreneurial management process; opportunity and the entrepreneur; recognizing and testing opportunity; developing and testing the business concept; building a team; analyzing and testing opportunity (industry, customer, product/service, financial and legal risks); preparing for future growth; business concepts/models.

Mode of Delivery:
1. Lectures
2. Seminars
3. Practical

Instructional Material:
1. Use of Audiovisuals such as power point, posters, overhead projector etc

Course Assessment:
1. Continuous Assessment Tests (CATS)
2. Class assignments
3. Final written examination

Core Reading Materials for the Course:

Recommended Reference Materials:

**Title of Course: NUT 315: Nutrition Care and Assessment through the Life Cycle -- 45 Contact Hours**

**Purpose of Course:**
A critical survey of the methods used in the assessment of food and nutrients intakes and nutritional status of communities, groups and individuals, in both health and disease, including some of the breastfeeding policies.

**Expected Learning Outcomes:**
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. Gain knowledge in nutritional needs throughout stages of the life cycle including pregnancy and lactation, infancy, adolescence and aging, socioeconomics, cultural and psychological influences of food and nutrition behaviour.
5. Develop practical skills, critical thinking, and team work and communication skills.

**Course Content:**
This covers: the concepts of malnutrition in relation to the stages of life; nutrition assessment; definition, purpose, types, components, ABCD findings, medical history, characteristics of the ideal nutrition; assessment method, nutrition screening and risk assessment; scored PG-SGA and nutrition interview; clinical and physical examination with a nutrition focus; anthropometry and body composition; dietary assessment; laboratory assessment; the nutritional and dietary assessment in diverse cultures and communities (vegetarians, Jewish, Hispanic, Aboriginal); nutritional assessment across the lifecycle (pregnancy, lactation, infants, children, adolescents, adults, elderly); socioeconomic, cultural and psychological influences of food and nutrition behaviour; breastfeeding practice and policy.

**Mode of Delivery:**
1. lectures
2. group discussions
3. experiential learning

**Instructional Materials:**
1. overhead projector
2. LCD power-point presentation
Course Assessment:
1. Quizzes
2. Seminar paper and presentation
3. Continuous Assessment Test
4. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 316: Research Methods -- 45 Contact Hours

Purpose of Course:
This course introduces the process of scientific inquiry and the application of appropriate research methods to address questions relevant to public health. It equips students with the basic knowledge and skills required to critically appraise and practice health research.

Expected Learning Outcomes:
By the end of this course, the learner should be able to:
1. Provide the basic knowledge; skills and competencies required to design, conduct, and report and evaluate public health research.
2. Describe critical examination of the scientific research process, the philosophical and ethical aspects of health research, elements of research design, the collection, compilation and management of health data.
3. Discuss the roles of qualitative and quantitative methods in health research.
4. Provide the basis for critically appraising research proposals and reports.

Course Content:
The content of this course will include the following topics: introduction to public health research methods; overview of the scientific research process; identifying research topics and reviewing the literature; introduction to epidemiology; designing and implementing data collection; compiling and managing data; quantitative methods- data analysis and statistical computing; qualitative research designs; critically appraising research; philosophical and ethical issues in health research and indigenous research methods.
Mode of Delivery:
1. lectures
2. group discussions
3. computer labs

Instructional Materials:
1. overhead projector
2. LCD power-point presentation

Course Assessment:
1. Development of a research proposal 25%
2. Development of a research instrument and data collection 25%
3. Analysis and report on research survey 50%

Core Reading Materials for the Course:

Recommended Reference Materials:
Title of Course: Nut 317: Human Nutrition II -- 45 Contact Hours

Purpose of Course:
The purpose of this course is to enable student have the knowledge on the metabolism, transformation and interaction of nutrients within the cell of a living human organism.

Expected Learning Outcomes:
By the end of this course, the student should be able to:
1. Describe the structure, function, digestion, transport, storage, and metabolism of the nutrients.
2. Identify the key metabolic pathways in the utilization of macronutrients as well as the interrelationships among nutrients in metabolism.
3. Describe the basis of human nutrient deficiencies and excesses.
4. Evaluate current and recommended nutritional practices.
5. Explain the complementary and alternative nutrition, herbals, and dietary supplements.

Course Content:
The topics to be covered in this course include: an overview of the cell; strategy of metabolic oxidation; ATP regeneration (riboflavin, niacin); carbohydrate metabolism and intermediary metabolism; fuel use during exercise; fibre; lipids (lipoproteins and cholesterol, lipids oxidation and synthesis); diet and heart disease; protein and amino acids (protein metabolism (B-6), nutrigenomics, protein quality and requirements); interpreting nutrition research; integration and regulation of metabolism; aetiology of obesity; alcohol metabolism; water-soluble vitamins (C, folic acid, B-12); fat-soluble vitamins and minerals.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Experiential learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Seminar paper and presentation
2. Continuous Assessment Tests
3. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:
Title of Course: NUT 318: Food Microbiology II -- 60 Contact Hours

Purpose of Course:
The students will learn the interrelationships of micro-organisms with foods and their role in food manufacture, food spoilage, and food safety. As a result of studying either of these courses, students will be able to predict the impact of food processing and food handling on the microbiology of food.

Expected Learning Outcomes:
By the end of the course students should be able to:
1. To integrate knowledge to predict the spoilage and safety of meat and meat products, and milk and milk products.
2. To predict the spoilage and safety of egg and egg products, and fruits and vegetables.
3. Apply the principles underlying pre and probiotics in the food industry.
4. To describe the principles of microbial death and know how to apply these processes in the control of micro-organisms in foods. Students will be able to do all relevant calculations, including D- and Z-values, and be able to apply them to practical situations.
5. Describe methods to control micro-organisms in foods.

Course Content:
The topics to be covered in this course: current issues on food spoilage, food-borne microbial disease; food and beverage fermentations; the use of micro-organisms as processing aids; sources of food ingredients and additives; commodity groups, industry structure, food properties and processing operations; commodities such as dairy products, fruit and vegetables, meat products, and alcoholic beverages; advanced concepts of microbial taxonomy, biochemistry, physiology, detection and enumeration; the use of micro-organisms as sources of colours, flavours, polysaccharides, vitamins, amino acids and probiotics and biocontrol agents; microbial death; heat processing of foods (pasteurization, sterilization, injury and heat shock); food preservation (irradiation, chemical preservatives and bio-preservation of foods); food preservation and the emergence of resistant bacteria.

Mode of Delivery:
1. Lectures
2. Group Discussions
3. Role Plays
4. Experiential Learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Quizzes
2. Seminar paper and presentation
3. CAT
4. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 319: Food Processing and Product Development I -- 45 Contact Hours

Purpose of Course:
To enable student evaluate product through a range of chemical, sensory and mechanical analyses. It will also provide an opportunity for students to develop a food product, using their training in Food Science and related disciplines. The course will establish effects of food processing on the nutritional quality of foods. It will also provide an opportunity for students to develop a food product, using their training in food science and related disciplines.

Expected Learning Outcomes:
By the end of the course students should be able to:
1. Illustrate the nature of foods and their interaction with natural & synthetic food additives. Evaluate the chemical reactions and energy transformations in food processing.
2. Outline the basic principles underlying the methods used in food processing.
3. Analyze major emerging issues facing food production and the trends in processing science and technology being developed to solve emerging problems.
4. To establish effects of food processing on the nutritional quality of foods.
5. To determine the effects in of refining, heat processing, preservation, fermentation, radiation and packaging.
7. Outline the roles of effective food packaging and material structures play in the safety, distribution, selling, storage and consumption of food products.
8. Analyze a market and develop an appropriate new food product.

Course Content:
Principles of various food processing techniques: Evolution of food processing from traditional culinary techniques, popular commercial food processing methods , such as
thermal processing, cryogenic methods & concentration methods will be discussed, recent advancement such as irradiation, microwave heating & modified atmosphere will also be discussed.

Basic Food chemistry: Chemistry concepts, structure of matter, chemical reactions, and energy transformations, chemical versus physical changes, laboratory, the chemical detective matter in motion, lab-boiling point of mixtures, lab-enzymes.

The important relationship between food processing and nutrition; the stability of nutrients and their physiological functions in foods; nutritional quality of different food resources; as well as the effect of harvesting and storage.

Introduction to aspects of product development: processes and organizations; business modelling; product planning; identifying customer needs; product specifications; concept generation, selection and testing; product architecture; design for manufacturing; prototyping; robust design; intellectual property; product development economics; and managing projects.

Mode of Delivery:
1. Lectures
2. Group Discussions
3. Experiential Learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Practical
2. CAT
3. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

**Title of Course: NUT 321: Clinical Nutrition -- 45 Contact Hours**

**Purpose of Course:**
Introduce students to therapeutic nutritional care/service, modifications of normal diet to meet special nutritional needs, menu planning; documentation of nutritional care.

**Expected Learning Outcomes:**
At the end of the course, the students will be able to:
1. Demonstrate an understanding of the role of the Foods and Nutrition Services in nutrition management of patients/clients.
2. Demonstrate nutritional interviewing and counselling skills. Identify the nutritional implications of age, economics, physiological and socio-cultural characteristics of patients/clients.
3. Assess the quantity and quality of food available to individuals in hospitals, as well as develop an understanding of normal and therapeutic/modified diets.
4. Assess and monitor the nutritional status and needs that hospitalized patients have using appropriate tools and pertinent medical terminology. Be aware of the nutritional implications of drug-nutrient interactions.
5. Use the principles involved in planning and implementing nutrition care, including those necessary for the interpretation of nutrition data, the recommendation of appropriate diet orders and the implementation of physicians’ orders.
6. Recognize the principles involved in menu planning for optimum nutrition of individuals in the disease state, including the use of a software programme in menu analysis and control.
7. Interpret nutritional prescriptions and translate standard therapeutic diet guidelines into daily food selections.
8. Exhibit knowledge about commercial supplements.

**Course Content:**
The topics to be covered will include: overview of clinical nutrition departments; role of the registered dietician; role of the dietetic technician; explanation of the case study assignment; food in the hospital; regular and modified diets; nutrition care process; nutrition care plan; medical record; multidisciplinary health care team; charting; nutrition interview; nutrition assessment; dietary assessment; estimation of dietary needs; nutrition education and counselling; code of ethics; quality of health care; clear liquid diet; blended liquid diet; oral nutritional supplements and formulas; mechanically altered diet; factors affecting food intake; diets for dysphasia; high-energy, high-protein diet, and eating disorders; obesity and weight management; nutrition management of diabetes mellitus; hands-on carbohydrate counting and menu planning; nutrition management of hyper-

**Instructional Materials:**
1. overhead projector
2. LCD power-point presentation

**Course Assessment:**
1. Three hours of lecture per week, plus supplementary readings and exercises assigned.
2. Students will be graded on written assignments (e.g. case study), two exams, and class participation.
3. An interactive approach to learning will include individual and group work, patient case studies requiring menu revisions, class discussions, and role-playing.
4. Emphasis will be placed on the mechanics involved and skills required to put theory into practice. Please bring a calculator to every lecture.
5. Final written examination.

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**
Title of Course: NUT 322: Geriatric Nutrition- 45 Contact Hours

Purpose of Course:
The purpose of the course is to equip the students with knowledge on geriatric nutrition among the population.

Expected Learning Outcomes:
By the end of the course, the students should be able to:
1. Describe the historical and current studies on aging.
2. Identify the services available for the elderly.
3. Describe the food habits and nutrient needs of aging and aged people.
4. Explain the relationships between diet and other therapies for chronic disease among aged individuals.

Course Content:
The course topics will cover: demographic facts about elders, physiological, sociological, and psychological changes associated with aging; nutritional status in elders; food habits, nutritional assessment, nutrient requirements, dietary and nutritional status of elders; diseases or conditions common in elders; exercise for elders; the aging population; the oldest-old; newer information on under nutrition; nutrition screening; the aging and aged body; physiological, psychological and sociological changes; food habits; macro nutrients, micro nutrients and water; nutrition-related anemia; vitamin b12, folacin, vitamin b6, and iron; dementias of old age; liver function; diet-drug interactions.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment

Instructional Materials:
Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

Course Assessment:
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

Core Reading Materials for the Course:

Recommended Reference Materials:
Title of Course: NUT 323: Nutrition Anthropology -- 45 Contact Hours

Purpose of Course:
The purpose of this course is to equip the learner with knowledge on various aspects of nutrition anthropology for management of diseases.

Expected Learning Outcomes:
By the end of the course, the learner should be able to:
1. Describe the origins of human biological variations and adaptations.
2. Analyse the human responses towards adapting to the environment.
3. Identify the bio-behavioural variations among human beings.
4. Describe the nutritional implications towards the human responses to the environment.

Course Content:
The course topics will include: life-span approach to diseases of aging; fertility variation during warfare; incremental growth; reproductive ecology in females and males; specialized diets in non-western populations; energetics of breastfeeding; lactase deficiency and human evolution; genetic adaptation and hypoxia; emerging infectious diseases and human variation; modernization and morbidity in non-western populations.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment

Instructional Materials:
Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

Course Assessment:
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

Core Reading Materials for the Course:
Recommended Reference Materials:

Title of Course: NUT 324: Dietary Supplements & Herbal Remedies -- 45 Contact Hours

Purpose of Course:
The purpose of the course is to enable the students identify and use the dietary supplements and herbal remedies.

Expected Learning Outcomes:
By the end of the course, the students should be able to:
1. Describe the use of herbal preparations and supplements as alternative therapies.
2. Explain the risks of herbal preparations and supplements.
3. Describe the difference between useful herbs and harmful herbs.
4. Counsel patients on the sensible way to use herbs and supplements.
5. Explain the impact of herbs, supplements and other phyto-medicinals on the practice of pharmaceutical care.

Course Content:
The course will deal only with natural products as purified therapeutic agents, such as the antibiotics and the anticancer natural products; it will not include crude drugs such as herbal preparations and phyto-medicinals (teas, tinctures, and extracts). The course content will entail: terminology and definitions; historical background; differences between herbs and other drugs; herbal and dietary supplements quality and dosage forms; rational herbalism and dietary supplements; herbal medicine and homeopathy; naturopathy and aromatherapy; herbs and the FDA; the harmful potential of herbs and other phyto-medicinals; the therapeutic use of phyto-medicinals; role of pharmacist.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment
5. Partnership exercises: community entry and situation analysis
6. Assignment of mentors for follow-up, support and assessment in partnership practice

**Instructional Materials:**
Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

**Course Assessment:**
1. A term paper (30 marks.)
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course:** NUT 325: Food Service System Management -- 45 Contact Hours

**Purpose of Course:**
The purpose of this course is to equip the learner with the principles of management for quality food production.

**Expected Learning Outcomes:**
By the end of the course, the student should be able to:
1. Describe the concepts, principles and techniques of quantity food management.
2. Explain the roles and responsibilities of food service manager.
3. Apply the quantitative and qualitative standards in quantity food production.
4. Develop menus which meets staffing, equipment and nutritional constrains.
5. Describe the principles of purchasing and production in food service systems management.
**Course Content:**
The course content will include: quantity food planning and management; definitions; classical principles of an organization chart; self appraisal on managerial know-how; pre-test and tools of management; theories of management; strategic management; functions of management; skills of managers; management activities and roles; principles of producing menu; functions and use of food service equipment; aspects of quantity food management; food safety and HACCP; cleaning, sanitation and safety; production; distribution in food service; labour control; facilities planning and design; and receiving storage and inventory.

**Mode of Delivery:**
1. Lectures
2. Group discussions
3. Experiential learning

**Instructional Materials:**
1. Overhead projector
2. LCD power-point presentation

**Course Assessment:**
1. Seminar paper and presentation
2. CAT
3. Final examination

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course: NUT 326: Food Hygiene and Environmental Health  I -- 45**

**Contact Hours**

**Purpose of Course:**
The aim is to develop a level of understanding of the principles of food hygiene and environmental health.

**Expected Learning Outcomes:**
By the end of the course students should be able to:

1. Discuss the effects of food poisoning and contamination.
2. Describe the symptoms of food poisoning.
3. Discuss the effective methods of preventing food poisoning.

**Course Content:**
The topics to be covered in this course will include: food poisoning micro-organisms types and sources; simple microbiology; toxins, spores, growth and death; premises and equipment; common food hazards (physical, chemical, microbiological); personal hygiene (basic rules and responsibilities); preventing food contamination and poisoning; treating the symptoms and controlling the causes; cleaning and disinfection; effective temperature control of food (storage, thawing, reheating and cooking); waste disposal; cleaning and disinfection (materials, methods and storage); aspects of pest control; legal obligations.

**Mode of Delivery:**
1. Lectures
2. Group discussions
3. Experiential learning

**Instructional Materials:**
1. Overhead projector
2. LCD power-point presentation

**Course Assessment:**
1. Practical
2. CAT
3. Final examination

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course:** NUT 327: Nutrition Education and Intervention in the Community -- 45 Contact Hours

**Purpose of Course:**
The purpose of the course is to equip the learner with nutrition education concepts for health promotion.
Expected Learning Outcomes:
By the need of the course, the student should be able to:
1. Describe the concepts in nutrition education and promotion.
2. Explain the roles of community nutrition in preventing disease, promoting health and controlling health care costs.
3. Analyze individual and environmental determinants shaping nutrition behaviours.
4. Design nutrition education programmes.
5. Describe the importance of policy in community nutrition.

Course Content:
The course will include descriptions of communities and nutrition: African Context for Community Nutrition, population health and health promotion and demographic and health trends. It will also include introduction to Programme Planning, Community Nutrition and Situational Assessment

Mode of Delivery:
1. Lecture
2. Discussion

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Seminar paper and presentation
2. CAT
3. Final examination

Core Reading Materials for the Course:
Recommended Reference Materials:

Title of Course: NUT 328: Food Quality Assurance -- 45 Contact Hours

Purpose of Course:
Enables students integrate the latest principles, practices, and terminology of food safety systems with those of quality management systems.

Expected Learning Outcomes:
1. Describe Verification used of methods, procedures, or tests.
2. Determine whether the HACCP plan is operating as intended.
3. Discuss Validation as a scientific and technical process for determining critical control points and associated critical limits.
4. Describe how quality food production meets and exceed customer expectations.
5. Design an appropriate quality assurance programme enabling the food company to seek and maintain quality accreditation through process control, product evaluation and continuous quality improvement.

Course Content:
The topics to be covered in this course will include: Vocabulary of food quality assurance; introduction, definitions and explanation of terms; recognized experts in the quality field; food quality and food safety; enforcement of food laws and regulations; food standards, quality, and safety; good manufacturing practices; food safety and hazards in foods; food safety hazards and health risk; biological, chemical and physical hazards in foods; quality programmes and quality systems for the food industry; the HACCP system for food safety.

Mode of Delivery:
1. Lectures
2. Group Discussions
3. Role Plays
4. Experiential Learning

Instructional Materials:
1. Overhead projector
2. LCD power point presentation

Course Assessment:
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 329: Food Processing and Product Development II -- 45 Contact Hours

Purpose of Course:
The course will establish effects of food processing on the nutritional quality of foods. It will also provide an opportunity for students to develop a food product, using their training in food science and related disciplines.

Expected Learning Outcomes:
By the end of the course, the learner should be able to:
1. Establish effects of food processing on the nutritional quality of foods.
2. Determine the effects in of refining, heat processing, preservation, fermentation, radiation and packaging.
3. Discuss the aspects of product development.

Course Content:
The topics to be covered include: the important relationship of food processing and nutrition; the stability of nutrients and their physiological functions in foods; nutritional quality of different food resources; effect of harvesting and storage; effect of refining on the nutritional quality of foods; heat processing, freeze--preservation, moisture removal, fermentation, additives, ionizing radiation, and packaging; processing on the physiological functions of foods; advanced aspects of product development; processes and organizations; business modelling; product planning; identifying customer needs; product specifications; concept generation, selection and testing; product architecture, design for manufacturing and prototyping; robust design, intellectual property and product development economics; managing projects.

Mode of Delivery:
1. Lectures
2. Group Discussions
3. Role Plays
4. Experiential Learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

**Course Assessment:**
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course: NUT 330: Dairy Technology -- 45 Contact Hours**

**Purpose of Course:**
To introduce the student on the concepts of Processing and technologies of fluid milk plant operation from milk receiving to various finished products. Fluid milk, yogurt, cheese, and frozen dairy desserts; physical, microbiological, and chemical properties of fluid milk and milk components; milk quality supply; good manufacturing practices (GMPs); Hazards Critical Control Point (HACCP), and basic concepts of quality assurance and quality control.

**Expected Learning Outcomes:**
By the end of the course, the learner should be able to:
1. Discuss dairy processing unit operations and production of dairy products.
2. Integrate concepts in chemistry, biochemistry, physics, engineering, mathematics with dairy processing operations and understand their role in processing of dairy products.
3. Gain the ability to think critically about problems and issues in food processing.
4. Describe the food processing industry’s role in society.

**Course Content:**
Introduction; Milk History, Composition, Production and Consumption, and Trends. Milk Production and Biosynthesis. Dairy Chemistry and Physics; Dairy Microbiology.

Dairy Processing Unit Operations: Clarification, Separation, Standardization, Pasteurization, UHT treatment. Homogenization, Membrane Processing, Evaporation and Dehydration, Utilities-Steam and Refrigeration.


Hygiene in Manufacturing Milk Products: Microorganisms of concern, HACCP, Pasteurization, Cleaning of Dairy Equipment and Dairy Processing Plant Sanitation.
Mode of Delivery:
1. Lecture
2. Movies
3. Field Trips

Instructional Materials:
1. Textbook
2. Power-point presentations
3. Handouts on relevant topics

Course Assessment:
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

Core Reading Materials for the Course:

Recommended Reference Materials:
1. Dairy Science and Technology. An educational site focused on milk, dairy products, and dairy technology from the University of Guelph in Canada. http://www.foodsci.uoguelph.ca/dairvedu/home.html

Title of Course: NUT 331: Food Chemistry -- 60 Contact Hours

Purpose of Course:
This course gives the student an understanding of the major components of foods: carbohydrates, lipids, protein, water and acids and the chemical changes of food composition which occur during the preparation of food. As well as the functional properties and chemical reactions of food components

Expected Learning Outcomes:
By the end of the course, students will be able to:
1. Integrate the principles of chemistry and biochemistry into real-world food science and nutritional issues.
2. Identify the chemical structure of food components including fats, proteins, amino acids, carbohydrates and vitamins to understand how structure determines functional behaviour of these food components with respect to food quality, nutrition and safety.
3. Reproduce chemical interactions and reactions with food components; differentiate their effects on the sensory, nutritional and functional properties of foods.
4. Explain how temperature, pH, ionic strength, type of bonds, aw affect chemical changes in food systems and how to adjust these conditions to improve or minimize chemical and biochemical deterioration of food systems.

5. Compare and contrast food processing operations on the chemical changes of food components as they relate to food quality, nutrient composition and safety.

Course Content:
The topics to be covered include: Introduction to food chemistry; water and colloids and their importance in foods; major food components with respect to classification, structure, occurrence and function; changes in food due to handling, storing, preservation and processing; minor natural food components such as enzymes, flavours, food texture, colorants, additives and leavening agents; chemistry of carbohydrates (properties, structures, and functions); food applications (sweeteners and alternative starches); modified starches; protein chemistry (composition and structure, denaturation, coagulation, functional roles); milk and milk products (components, processing, physical and chemical effects on milk products); lipids (structure, properties, chemical degradation); fats and oils in food products (chemical modifications, functional roles of fat, fat replacements).

Mode of Delivery:
1. Lectures
2. Group Discussions
3. Case Studies
4. Work-based assignment

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Assignments
2. Seminar Paper And Presentation
3. Continuous Assessment Test
4. Final Examination

Core Reading Materials for the Course:

Recommended Reference Materials:
Title of Course: NUT 332: Food Economics and Policy -- 45 Contact Hours

Purpose of Course:
This course introduces students to policy issues arising from the operation of food and agricultural markets as well as to some analytical tools which can be used to study these issues.

Expected Learning Outcomes:
By the end of the course, students will be able to:
1. Discuss Food and agricultural markets as an excellent laboratory application of microeconomic principles because of the prevalence of market failures and government intervention.
2. Describe the rationale for public intervention in agricultural and food markets.
3. Explore the functioning of the EU’s Common Agricultural Policy, examines the consequences of price and income support both for the domestic economy and for world food markets.
4. Evaluate the attempts to regulate agricultural policy interventions through rule-making by the World Trade Organisation.
5. Discuss regulating agriculture’s impact on the environment, the economics of bio fuels, rural development, market power in food markets, and the economics of food safety.
6. Describe European economics, public policy analysis, and international trade or development issues.

Course Content:
The topics in this course will include: Motivation and context: Agricultural and food markets, an introduction the global food situation. Agricultural policy objectives: The farm problem; the truth about farm incomes; Multifunctional: a new rationale for support, Measurement of agricultural supported agricultural policy: The cap: origins and institutions; Cap reform: from MacSharry through agenda 2000 and to the mid-term review, the Luxembourg agreement 2003: decoupling and the cap health check and EU budget review: further reform? The economics of price support policies: Price policy analysis: closed economy; Price policy analysis: open economy; Transfer efficiency of price support and the cost of the cap.

Rural development and bio fuels policies: Cap pillar 2 policies: from structural policy to rural development; Critique of rural development interventions; Bio fuels policies and the economics of bio fuels.

Managing agriculture’s impact on the environment: Integrating environment concerns into agricultural policy; regulating negative impacts on the environment; Agriculture and public goods provision and Irish agric-environment policies. Regulating agricultural trade: Impact of agricultural support on world market prices; The Uruguay round agreement on agriculture; Doha round negotiations on agriculture – the issues and Doha round negotiations on agriculture – the positions.

Impacts of agricultural trade liberalisation: Measuring trade liberalisation effect; Impact of a Doha agreement on the cap and Ireland; Developing countries and WTO agricultural negotiations and Impact of agricultural protectionism and trade liberalisation on developing countries. Market power in the food chain: Structural changes in the food chain – the evidence; measuring market power; controlling market power in the food industry and the groceries order. Food law and food safety: food safety – an introduction; the economics of food safety; international trade and food standards and case studies: beef hormones and GMOS.

Mode of Delivery:
1. lectures
2. group discussions
3. experiential learning

Instructional Materials:
1. overhead projector
2. LCD power-point presentation

Course Assessment:
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 333: Food Marketing- 45 Contact Hours

Purpose of Course:
To introduce students to the essentials of marketing (key concepts, methods of analysis, strategies and tactics) critical to managing profitable customer relationships in today’s dynamic and connected environment.

Expected Learning Outcomes:
By the end of the course, students will be able to:
1. Describe marketing strategy and the elements of marketing analysis: customer analysis, company analysis and competitor analysis.
2. Discuss the elements of the marketing mix (product, pricing, promotion, and distribution strategies).
3. Discuss problem solving and decision making abilities by learning how to leverage strategic marketing analysis to inform tactical marketing mix decisions while providing comprehensive framework to evaluate marketing decisions and to create successful marketing initiatives.
4. Demonstrate knowledge of marketing industry while increasing students awareness of strategic and tactical decisions behind today’s top performing brands.

Course Content:
The topics to be covered include: Introduction to food marketing: Marketing Process and Company Analysis

Team Project: Create a marketing plan, description of the existing situation including target market (highlighting key customer learning’s), company objectives and existing competitors in the marketplace. Identify the customers for the specific product or service and describe these consumers in relevant ways (demographics, lifestyles, knowledge of product). Explain why the new product/service would be appropriate for your target market. Market research (one-on-one interviewing of a small group of potential users of the product of service and/or a survey of a larger sample of potential users).

Outline a marketing strategy for the new product/service. Discussing a description of the product/service and its benefits, pricing and
positioning strategy, advertising and promotional plans, and a consideration of distribution channel(s).


Mode of Delivery:
1. Lectures
2. Group Discussions
3. Case Studies
4. Work-based assignment

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Assignments
2. Seminar Paper And Presentation
3. Continuous Assessment Test
4. Final Examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 334: Agricultural Biotechnology -- 45 Contact Hours

Purpose of Course:
The Purpose of Course of the course is to equip the students with skills on biotechnology focussing on agriculture.
Expected Learning Outcomes:
By the end of the course, the students will be able to:
1. Describe the scientific principles and techniques of biotechnology.
2. Design biotechnological products.
3. Explain the implementation of the use of biotechnological products in community settings.

Course Content:
The course topics will include: Introduction to biotechnology (Genetic Counselling, Concept of gene, Patterns of inheritance, Relating genes to DNA, Structure of DNA, Mutations, DNA replication, Human genetic diseases (patterns of inheritance)), Methods of DNA analysis (Technology: Restriction enzymes, RFLP's, PCR, Applications - Forensics applications, Simulation - DNA fingerprinting), Pharmaceutical Products (From DNA to protein, Transcription, Translation, Foundations of DNA technology, Tools of genetic engineering, Recombinant DNA experiments, Methods of DNA technology, Tools of genetic engineering, Recombinant DNA experiments, DNA transformation simulation, Products/Applications (Drugs, Vaccines, Antisense products), Agriculture and Food Products (Animal health products, Vaccines, Diagnostic techniques, Transgenic Plants: DNA insertion methods, Herbicide resistant plants, Disease resistant plants, ELSI, Transgenic Animals: Putting DNA in mammalian cells, Animal bioreactors, Replacement parts for humans, Animal models for human diseases, ELSI, Gene therapy: Technology, Potential uses, Germ cell vs. somatic cell therapy.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment

Instructional Materials:
Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

Course Assessment:
1. A term paper (30 marks)
2. A seminar presentation on key concepts and their application in local contexts (10 marks)
3. An end of semester written University Examination (60 marks)

Core Reading Materials for the Course:

Recommended Reference Materials:

**Title of Course: NUT 335: World Food Problems and Food Security -- 45 Contact Hours**

**Purpose of Course:**
The purpose of the course is to enable the learner understand the prevailing world food problems and challenges in food security.

**Expected Learning Outcomes:**
By the end of the course, the students should be able to:
1. Describe and apply the use of economic concepts to analyze global food problems.
2. Explain the world food problems and their relationship to agricultural production, development, and policies.
3. Demonstrate basic food policy analysis skills.

**Course Content:**
The topics to be covered include: Food is the universal commodity and our most direct link to the natural environment. Today this link is increasingly mediated by multi-national corporations, which control much of the production process from the patenting of seeds to the transcontinental shipment of agricultural commodities to the delivery of ready-to-eat products to our tables. This course explores how the spatial organization of the global food system is critical to our understanding of the development of the world economy. Ranging in scale from the level of the individual to national and global levels, the course will examine issues of food security, trade, and environmental sustainability. We will trace the historical development of food production and distribution on a global scale, marking important developments such as the petrochemical revolution, the Green Revolution, genetic modification, and fast food marketing. This course provides a multi-disciplinary look at problems (and some of the possible solutions) affecting food production, storage, and utilization. Presentations and discussions cover sometimes conflicting views on population control, use of technology, as well as the ethical and cultural values of the people in various countries of the world. Emphasis is placed on the need for governments, international assistance agencies, international research and extension centres, as well as the private business sector to assist in solving these complex problems.

food problems, Role of Science and Technology in Addressing World Hunger, Biotechnology and the Green Revolution.

**Mode of Delivery:**
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment

**Instructional Material:**
Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

**Course Assessment:**
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course: NUT 336: Scientific Analysis and Presentation of Aquaculture -- 45 Contact Hours**

**Purpose of Course:**
The course aims at equipping the students with skills on scientific analysis and aquaculture.

**Expected Learning Outcomes:**
By the end of the course, the students should be able to:
1. Describe the process of conducting research related to aquaculture.
2. Analyze data and critically evaluate the findings.
3. Develop a research manuscript.

**Course Content:**
This is a course which provides an intensive learning opportunity through the undertaking of an applied research project related to the aquaculture industry. Completion of a literature review and research project will form the basis for a final report and oral presentation to be made to a 'Special Project Committee'. The special project will provide hands-on research experience with live animals, either in a laboratory or commercial setting. The tasks in this course will include: Select an area of interest, Presentation of the project, Development of a timeline, methodology and resource requirements for the project, Submit a written project proposal which includes: a brief literature review; statement of project objectives; a working hypothesis or question to be resolved; a summary of the suggested methods to test the hypothesis (with method of data collection and analysis included); a time-line for project completion, Carry out the planned project: Prepare a final report on the completed project and deliver a maximum 30 minute oral presentation and complete an oral examination.

**Mode of Delivery:**
1. Group discussions
2. Case studies
3. Individual and work-based assignment

**Instructional Materials:**
1. Use of audiovisuals e.g. pictures, posters, overhead projector, etc.
2. Community partnership sites

**Course Assessment:**
The students are assessed through:
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

**Core Reading Materials for the Course:**
3. Other tutorial notes on SPSS and STATA (available in research libraries e.g. KESREF, KARI).

**Recommended Reference Materials:**


**Title of Course: NUT 437: Food Law -- 45 Contact Hours**

**Purpose of Course:**
To enable students apply principles of food law to food industry. Emphasize the practical importance of food law to the food professional. Discuss with reference to the role of politics, societal issues, logic, ethics, statistics and scientific principles.

**Expected Learning Outcomes:**
At the end of the course, the student will be able to:

1. Apply regulations that contribute to a safe, nutritious, and wholesome food supply. Describe how technological, social and political forces interact in the development of food law and regulation.
2. Discuss the law and legal system: in Kenya, the EU, and the US.
3. Enumerate the differences and similarities between international and domestic food law and regulation.
4. Discuss global perspectives on the challenges and opportunities in the international food trade, including the steps being taken towards international harmonization, key international players and potential outcomes.
5. Be aware of food law issues as they appear on reliable Internet sources and to be able to discuss them.
6. Have access to the most recent changes in food law.
7. Critique domestic and international regulatory issues and their impact on food laws as illustrated by case studies.

**Course Content:**
Introduction to food law and safety, general principles of food: risk analysis, Precautionary principle, Consumer protection, Transparency, Presentation, and Responsibilities such as Traceability and Trade obligations. Rapid alert system and emergency measures for food and feed.

Factors affecting food law developments: Overview of how technological, social, economic and political forces interact in the development of food law and regulation.

Law and legal system: in Kenya - Case studies from court reports, Adulteration case studies from court reports. Overview of the laws, regulations, history and policies that govern food regulation in the Kenya.

The guiding principles of food regulations: focusing on global economy and International food trade.

Problem solving and discussion related to definitions and food standards, product labelling and misbranding, food additives and food colouring.

**Mode of Delivery:**
1. Lecture  
2. Handouts  
3. Homework exercises  
4. Student Presentations  

**Instructional Materials:**  
1. PowerPoint presentations  
2. Overhead transparencies  
3. Handouts  

**Core Reading Materials for the Course:**  

**Recommended Reference Materials:**  

**Title of Course:** NUT 338: Food Engineering -- 60 Contact Hours  

**Purpose of Course:**  
In this course, students will study the principles and measurement of various physical properties of foods that measure the overall quality of fresh and prepared foods. These are properties that are important in handling, preparing, processing, preserving, packaging, storing, and distribution of foods, also the principles and limitations of instrumental methods that are currently used to determine physical properties of foods.  

**Expected Learning Outcomes:**  
At the end of the course, the student will be able to:  
1. Describe the student with basic engineering principles and mathematical methods applicable to a wide range of food engineering and food processes situations.  
2. Discuss advanced food processing and preservation courses.  
3. Illustrate the uses of engineering concepts in industrial food processing applications.  
4. Apply the fundamentals and applications of rheological properties, behaviour, and fluid transportation in food processing systems.  
5. Discuss the controlling factors of the process in order to suggest new or improved techniques in process design and development.  

**Course Content:**  


Mode of Delivery:
1. Lectures
2. Group Discussions
3. Role Plays
4. Experiential Learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 339: Introduction to Unit Operations -- 45 Contact Hours

Purpose of Course
The principles introduced in this course are used in studying some of the more important unit operations in the food industry. The procedure used for each unit operation is to firstly describe the process, its applications, effects on the food product and requirements,
appropriate process diagrams, mass and heat balances and flows, solving unit operation problems. Unit operations covered are refrigeration, dehydration, evaporation, extrusion, physical separation and comminution

**Expected Learning Outcomes:**
At the end of the course, the student will be able to:
1. Describe basic unit processes and unit operations
2. Learn about distillation principles
3. To utilize distillation theory and apply it directly to real and practical problems.
4. Critical design aspects and analysis of various types of Distillation, column types and internals.
5. Troubleshoot distillation processes.
6. Learn about the instrumentation and control commonly deployed with the equipment
7. Develop the understanding of distillation problems including thermodynamics and VLE, process design and hardware consideration.
8. Describe the attendees guidelines for the selection of hardware

**Course Content:**
Introduction to process and equipment engineering Unit Processes & Unit Operations. Phase Equilibria, Ideal and non-ideal systems. Azeotropes Various types of distillation operations: Rectification, significance and role of reflux, Reflux, minimum, optimum, Reboiler and Condenser heat loads, Stage Concepts, Number of theoretical and actual stages. Overall tray efficiency, Multi component systems.

Extractive distillation: Crude Distillation Unit (ADU / CDU), Vacuum Distillation Unit [VDU], Azeotropic distillation, Tray / Plate columns, bubble cap, sieve, valve, weir, down comer,
Flow patterns, pressure drop, plate stability, Packed Columns, packing’s – random, regular, structured, packing, Supports, liquid distributors, other accessories, Column (Tower) sizing, general outline. Column Operation: significant operating parameters, Height of liquid on plate, vapour phase pressure drop.

Poor efficiency of contact (weeping, flooding), remedial measures, Typical Capacity graphs for bubble cap and sieve trays, Vacuum devices and tower vacuum, Operating objectives and control strategies, Distillation column control configurations

**Mode of Delivery:**
1. Lectures
2. Group Discussions
3. Case Studies
4. Work-based assignment

**Instructional Materials:**
1. Overhead projector
2. LCD power-point presentation

**Course Assessment:**
1. Assignments
2. Seminar Paper And Presentation
3. Continuous Assessment Test
4. Final Examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 340: Food Safety -- 45 Contact Hours

Purpose of Course:
This course is designed to provide students food safety knowledge and skills required to successfully oversee the food safety operations of food service.

Expected Learning Outcomes:
On completion of this unit students should be able to:
1. Demonstrate knowledge sufficient to identify food safety hazards and to take preventative measures.
2. Identify responsibilities of food handlers in a school food service facility.
3. Demonstrate knowledge sufficient to ensure safe and hygienic practice in a food service facility.
4. Demonstrate correct use of equipment used to ensure food is prepared safely and suitable for human consumption.
5. Demonstrate ability to implement a food safety programme in a food service facility.

Course Content:
The roles of microorganisms in the food industry, positive and negative. Types of microorganisms in foods (yeast, bacteria, molds, viruses) and their possible roles (fermentation, bioreactors, disease, spoilage). Basic bacterial characteristics: Gram negative/Gram positive, morphology.

Microbial growth in foods: intrinsic parameters. Microbial growth in food: extrinsic parameters and means of control (food formulations, cooking, preservatives, Hurdle Concept). Food-borne disease: infections, poisoning, toxico-infections. Sources and transmission of bacteria in foods: human, animal, and environmental reservoirs; cross-contamination; food associations.


Government Agency and Food Safety Policy: Government Branches (FDA, CDC, USDA

Mode of Delivery:
1. lectures
2. group discussions
3. case studies
4. work-based assignment

Instructional Materials:
1. overhead projector
2. LCD power-point presentation

Course Assessment:
1. Assignments
2. Seminar Paper And Presentation
3. Continuous Assessment Test
4. Final Examination

Core Reading Materials for the Course:

Recommended Reference Materials:
1. Wayne, J., Jean-Christophe, B., and Stephan, M. *Food Safety: Protection or protectionism?* In OECD Observer.

Title of Course: NUT 341: Physical Properties of Food -- 45 Contact Hours

Purpose of Course:
The students will study the chemical and physical properties of foods and the principles of food selection, storage, preparation and evaluation. The preservation of nutrients, colour, texture, and flavour will be applied through food laboratory work and demonstrations. The students will develop the ability to recognize and produce safe quality food items.

Expected Learning Outcomes:
Upon completion of this course, students should/will:
1. Understand how physical and chemical properties of food are affected by food preparation and production.
2. Understand and apply safe food handling techniques and know their application in various food production systems.
3. Interpret recipe terminology correctly.
4. Demonstrate basic food preparation techniques with respect to preservation of nutrients, colour, texture, and flavour of foods.
5. Have an awareness of product standards as they are applied to the evaluation of foods and used in quality control food production.
6. Evaluate food products against quality standards.
7. Understand rational for dress/work codes and follow these codes.

**Course Content:**
Heat - sources of heat, the use of heat in food preparation, changes in food caused by heat.

Vegetables, salad greens and herbs - classifications, changes that occur in texture, colour, flavour and nutrients when preparation techniques are applied. Salads & Salad Dressings - what ingredients are used, emulsions, how dressings are used, classification of salads.

Fruits - composition, changes during ripening, enzymatic browning, the effects of adding sugar, cooking and/or freezing fruits, dried fruits, canned fruits.

Food Fats - sources, hydrogenation, uses in food preparation. Starches - types of starches used in food preparation, the effects of heat, acids, sugar and stirring has on starches, use of dry heat (dextrinization), use of moist heat (gelatinization), prevention of lumping, weeping, skin formation, sauces. Cereals - classification of cereals, ratio of water to different types of cereal, preparation techniques. Rice & Pasta - origin, varieties, cooking and serving techniques.

Eggs - structure, composition, changes as the egg ages, grading, storage, use of eggs as thickening agents, gelling agents, structural ingredients, leavening agent, source of liquid, coagulation, factors affecting egg white foams. Milk and Dairy Products - composition, processing milk, storage, effects of heat, acid and enzymes on milk. Cheese - classification, cooking with moist and dry heat.


**Mode of Delivery:**
1. Lectures
2. Group Discussions
3. Case Studies
4. Work-based assignment

**Instructional Materials:**
1. Overhead projector
2. LCD power-point presentation
Course Assessment:
1. Assignments
2. Seminar Paper And Presentation
3. Continuous Assessment Test
4. Final Examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 411: Maternal and Child Health -- 45 Contact Hours

Purpose of Course:
The course Purpose of Course is to facilitate the development of knowledge and skills related to the review, assessment, in the field of maternal and child health targeting the care, especially preventive and health promotion care, related to children and women of childbearing age.

Expected Learning Outcomes:
At the completion of the course, the student should be able to:
1. Explain the nursing process (assessment, diagnosing, planning, implementing and evaluating) as the foundation for maternal-child nursing.
2. Prioritize the self-care needs of maternal and child clients using Maslow’s hierarchy of needs.
3. Apply principles of therapeutic communication with maternal-child clients, co-worker and instructors.
4. Identify health care information needs of maternal and child clients utilizing the nursing process.
5. Responsibly manage nursing care for the maternal-child client using available resources.
6. Practice nursing for the maternal and child client with in an ethical and legal framework and is accountable for those nursing practices.

Course Content:
The topics to be covered will include: methods of determining the nursing actions needed to meet the universal, development and therapeutic self-care needs of child bearing families; the normal processes of childbearing and child development; common child health problems; related pharmacology; skill attainment through clinical laboratory experience with maternal and child patients.

**Mode of Delivery:**
1. Lectures
2. Group Discussions
3. Case Studies
4. Work-based assignment

**Instructional Materials:**
1. Overhead projector
2. LCD power-point presentation

**Course Assessment:**
1. Assignments
2. Seminar Paper And Presentation
3. Continuous Assessment Test
4. Final Examination

**Core Reading Materials for the Course:**
5. http://the point.lww.com/Ricci-Kyle


**Recommended Reference Materials:**
Title of Course: NUT 412: Nutritional Epidemiology -- 45 Contact Hours

Purpose of Course:
The overall objective of this course is to provide you with an understanding of the theoretical and practical considerations in the conduct of epidemiologic studies related to nutrition. More specifically, the course focuses on the conduct of epidemiologic studies of diet, nutrition, and chronic disease.

Expected Learning Outcomes:
By the conclusion of this course students will be able to:
1. Select the most appropriate dietary intake assessment method for a given research question, epidemiologic study design, and study population.
2. Identify the strengths and limitations of each dietary intake assessment methodology currently available, and understand the implications of the limitations of each method on study results.
3. Describe the various methods available for assessing physical activity in epidemiologic studies, and identify the major strengths and limitations of each method.
4. Select the most appropriate epidemiologic study designs for various nutrition-related research questions by taking into account the strengths and limitations of various designs in relation to specific nutrition research questions.
5. Describe the data analysis and interpretation issues of special importance in nutritional epidemiology studies.

Course Content:
General design considerations; Nature of variation in diet; Exposure assessment I: Recalls, Records; Exposure assessment II: FFQs and Exposure assessment III: Biomarkers; Physical activity assessment.

Data analysis & interpretation issues; Cross sectional, ecologic and migrant studies; Case control studies; Cohort studies; Controlled trials and behavioural intervention studies; Special topics I: Food group analysis; Dietary supplements and nutraceutical and Special topics II: Influence of special interests in nutrition research.

Mode of Delivery:
1. Lectures
2. Group Discussions
3. Experiential learning

Instructional Materials:
1. overhead projector
2. LCD power-point presentation

Course Assessment:
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%
Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 413: Food Hygiene and Environmental Health II -- 45

Contact Hours

Purpose of Courses:
To enable students relate aspects of food hygiene and safety to those of environment.

Expected Learning Outcomes:
Students who have completed this course should have acquired:
1. Detailed knowledge of scientific principles underpinning the conversion of raw agricultural products into safe, nutritious and interesting food.
2. An ability to discuss food production from different perspectives, including: the regulatory environment governing the supply of safe and high quality food; international trade; agricultural production and supply chain management; biotechnological innovation and food production.
3. To employ environmental issues relevant to food production and the technology needed to address these issues across the production chain.

Course Content:
Fundamental aspects of food hygiene, sanitation technology, water and environmental microbiology, water treatment microbiology and epidemiology of food and waterborne pathogens will be taught. Current issues in public health in relation to the safety of our water and food supply will also be covered. Total food supply chain & environmental impact: How each area of the supply chain can potentially affect the environment and Methods of minimizing negative environmental impact.
Mode of Delivery:
1. Lectures
2. Group Discussions
3. Experiential Learning

Instructional Materials:
1. overhead projector
2. LCD power-point presentation

Course Assessment:
1. Practical 10%
2. CAT 20%
3. Final examination 70%

Core Reading Materials for the Course:

Recommended Reference Materials:
1. Food Science, the National Council of Agricultural Education

Title of Course: NUT 414: Seminar and Special Topics -- 45 Contact Hours

Purpose of Courses:
To orientate student to reports and discussions of current topics in food science and nutrition, as well as oral reports of thesis and dissertation research topics in progress.

Expected Learning Outcomes:
1. To analyze the features and rhetorical devices used in different types of non-fiction: essays, speeches, editorials, scientific reports and historical documents.
2. To develop their ability to relate prior knowledge to new information and make connections to related topics of information.
3. To demonstrate an ability to articulate a clear thesis on a topic, and identify, evaluate and use evidence to support their thesis.
4. To learn to effectively summarize ideas contained in a text.
5. Students will develop skill in writing short answer response essays, including, timed essays.
6. To improve their oral communication skills through a variety of means, including presentation, debate, and Socratic Seminar.
Course Content:
Seminar: analysis, interpretation and synthesis of food systems and technology principles through a written paper and oral seminars following 320 hours of field work in an approved position. The course integrates synergistic principles/activities from programme courses.

Students will be required to do the following on an ongoing basis: Take Cornell notes, write summaries, develop dialectical journals, and write critical essays. In the essays students will analyze various historical, social, cultural issues related to food science.

Mode of Delivery:
1. Lecture
2. Collaborative group work
3. Readings
4. Library and Internet research
5. Seminars

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Papers, essays, writing and oral language rubrics
2. Journals
3. Learning logs
4. Exams, quizzes
5. Participation
6. Observation
7. Conferencing
8. Final project

Core Reading Materials for the Course:

Recommended Reference Materials:
Title of Course: NUT 415: Research Project in Nutrition -- 60 Contact Hours

Purpose of Course:
The Purpose of Course of the course is to enlighten the students with skills on developing nutrition projects.

Expected Learning Outcomes:
By the end of the course, the students will be able to:
1. Explain the role of the preschool as a laboratory for nutrition education.
2. Describe the interaction between child development and nutrition.
3. Explain the link between food and nutrition concepts with the learning environment.
4. Evaluate the role of parents in raising healthy eaters and in preschool programme.
5. Identify and evaluate social programmes in nutrition.

Course Content:
To evaluate the role of the media on children and consumers Development of eating habits and energy intake patterns of young children in the context of family factors and community outreach. The project areas will include: Preschools as laboratories for nutrition education, Preschool development and nutrition, Nutrition and the schools: Breakfast and lunch programmes, Home-to-school nutrition relationships, Preschool nutrition education, Parental styles/maternal control, Involving parents in the preschool nutrition programme, Media, commercials, and the toxic food environment, Creation of parent nutrition education newsletter, Consumer awareness and label reading.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment

Instructional Materials:
Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

Course Assessment:
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

Core Reading Materials for the Course:


**Recommended Reference Materials:**


**Title of Course: NUT 416: Applied Human Nutrition and Community Surveillance -- 45 Contact Hours**

**Purpose of Course:**
The Purpose of Course of the course is to provide the learners with applied human nutrition and skills for conducting community surveillance.

**Expected Learning Outcomes:**
By the end of the course, the students will be able to:
1. Design nutrition surveys in the community.
2. Conduct nutrition surveys.
3. Develop reports on findings.
4. Describe appropriate recommendations for the analysis done

**Course Content:**
The course will entail hypotheses definition, and selection and combination of appropriate methods drawn from nutrition, epidemiology, anthropology, economics, psychology, sociology, education and political science. Students will also learn how to develop research designs, samples and analysis plans, as well as how to construct and pre-test the types of instruments commonly used in nutrition research and evaluation. The course will cover interviewer training, quality control, site operations, and data base management.

**Mode of Delivery:**
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment
5. Instructional material
6. Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

Course Assessment:
The students are assessed through:
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 417: Current Issues in Food and Nutrition -- 45 Contact Hours

Purpose of Course:
The Purpose of Course of the course is to equip the learner with prevailing challenges in food and nutrition security. Students will also gain skills of providing guidance on nutritional care of sports men and women.

Expected Learning Outcomes:
At the end of the course, the students will be able to:
1. Discuss the metabolic and physiological alterations in selected diseases as a basis for diet modification for therapeutic purposes.
2. Explain the relationships between nutrition, illness, and immunity.
3. Identify the current issues on the nutritional management of selected diseases and clinical conditions.
4. Explain the formulation strategy of basic nutrition care plan, with patient-centred and measurable nutrition goals.
5. Explain the principles of fitness and nutrition. Identify the social and cultural influences on food habits and exercise/activity patterns.
6. Describe the different exercise responses and nutritional requirements of women compared with those of men.
7. Evaluate current nutritional information with regard to its contribution to physical fitness. Explain the advantages/disadvantages of food formulations.

**Course Content:**
The course will include the principles and practice of nutritional support in clinical conditions, metabolic and physiological alterations in selected diseases as a basis for the implementation of dietary modifications.


Integration and application of principles of sound nutrition and physical activities to optimize the physiological, psychological, and social lifelong development of the individual and use of scientific principles and current technological advances to help assess and evaluate physical fitness, body composition, dietary patterns, energy expenditure, and their interrelationships.

**Mode of Delivery:**
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment

**Instructional Materials:**
1. Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

**Course Assessment:**
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course: NUT 418: Food Industry Management - 45 Contact Hours**

**Purpose of Course:**
Enable the students to improve all aspects of the operational performance of a business or any other type of organization. It focuses on meeting the needs and expectations of customers/clients by moving the focus of quality to other functional areas as well.

**Expected Learning Outcomes:**
At the end of the course, the students will be able to:
1. Describe the methods and techniques for the improvement of quality and overall operational performance.
2. Discuss the Total Quality Management (TQM) Model in order to understand the human components of, the tools and techniques for TQM, International organization of standardization (ISO) quality management system standard, and the management of change for TQM.
3. Enable students to analyze, organize and critically evaluate information and manage themselves in such a way that they can become more effective and efficient "quality" employees.

**Course Content:**
The human components of the tools and techniques for TQM: Introduction to quality and total quality management, Leadership, quality culture and self-management for life excellence, Involving people in the quality process, Quality of work life (QWL) Measurement and the systems, tools and techniques for quality improvement.

Concepts and principles of systems for quality: Quality management system (QMS) standard, Strategies for implementing change, Managing change and implementing TQM, Sustaining continuous improvement.

**Mode of Delivery:**
1. Lectures
2. Group discussions
3. Role plays
4. Experiential learning

**Instructional Materials:**
1. Overhead projector
2. LCD power-point presentation

**Course Assessment:**
1. CAT 30%
2. Final examination 70%
Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 419: Meat Technology -- 45 Contact Hours

Purpose of Courses:
To enable the student to become acquainted with the scientific principles involved in the conversion of muscle to meat. A review of the anatomical, physiological, developmental, and biochemical aspects of muscle and its conversion to meat will be taught. An introduction to aspects of fresh and processed meat technology, meat preservation, and meat microbiology, as well as discuss current issues in meat science.

Expected Learning Outcomes:
By the end of this course, the learner should be able to:
1. Describe of muscle biology, muscle conversion to meat, meat quality and factors affecting meat quality.
2. Define, meats, equipment, additives and legislation associated with meat processing.
3. Discuss traditional meat processing.
4. Predict major problems that can occur in meat products and potential solutions.
5. Define advanced technologies for meat processing.
6. Development of personal and transferable skills (especially practical and report writing skills).

Course Content:

Traditional meat processing: Common meat products on the market, Comminuting technology, Fundamentals of meat curing technology, Battering and breading technology, Meat additives (NaCl, binders, fillers, colorants, flavouring agents, spices, smoking agents, antioxidants), Surimi technology, Meat packaging and Meat microbiology.

Advanced technologies for meat processing: Application of high hydrostatic pressure to meat and meat processing, Functional properties of bioactive peptides derived from meat proteins, New approaches for the development of functional meat products, Meat decontamination by irradiation, Perspectives for the active packaging of meat products and Extraction of valuable compounds from meat by-products. Discuss current issues in meat science.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Role plays
4. Experiential learning

**Instructional Materials:**
1. Overhead projector
2. LCD power-point presentation

**Course Assessment:**
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course: NUT 421: Experimental Foods -- 45 Contact Hours**

**Purpose of Courses:**
Students will be equipped with basic skills on scientific principles involved in the preparation of foods such as milk, vegetables and fat families. It also deals with food changes under different conditions such as preservation, storage and fermentation. The acquired skills will be used to improve the existing recipes for local acceptability.

**Expected Learning Outcomes:**
By the end of this course students should be able to:
1. Gain some understanding of the scientific concepts involved in food preparation.
2. Apply the concepts learned to prepare foods of high nutritional and aesthetic quality and value.
3. Describe the chemical, biochemical and physical nature of foods when subjected to different conditions.
4. Formulate and standardize a recipe using locally available foods (traditional dishes).

**Course Content:**
This course will begin with an introduction to food experimentation which will include the Purpose of Course of food experimentation and the various ways of evaluating food: the use of sensory and objective methods and discuss the factors that affect food acceptance.

The food groups to be used for experimentation will include proteins: the sources of proteins with specific reference to meat, fish, poultry, dairy products and eggs; the effects of heat on them; the effects of acid alkaline and salt on protein, fruits and vegetables including legumes and the effect of heat, salt, bicarbonate of soda, fat and water on the proteins. Carbohydrates: this will include a brief discussion of cereals and flour; the types of cereals; caramelisation, and gelatinization effect which involves heat. Fats and oils: this will include the chemical and physical changes in various types of fats and oil with reference to their processing.

Leavening agents: which will include the types and both the chemical and physical changes; yeast breads and quick breads including cakes and pastries. Finally, the course will touch on the issues of food preservation: food spoilage, food poisoning, food safety, food additives and food acceptance.

Mode of Delivery:
1. lectures
2. group discussions
3. experiments

Instructional Materials:
1. overhead projector
2. LCD power-point presentation

Course Assessment:
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

Recommended Reference Materials:

Recommended Reference Materials:

Title of Course: NUT 422: Nutrition Counselling- 45 Contact Hours
Purpose of Course:
This course provides a strong grounding in basic skills needed to advise or counsel people in this area.

Expected Learning Outcomes:
1. Explain the processes involved in the training of counsellors in micro skills.
2. Demonstrate the skills involved in commencing the counselling process and evaluation of non-verbal responses and minimal responses.
3. Demonstrate reflection of content, feeling, both content and feeling and its appropriateness to the counselling process.
4. Develop different questioning techniques and to understand risks involved with some types of questioning.
5. Show how to use various micro-skills including summarizing, confirmation, and reframing.
6. Explaining the importance of different types of non-verbal response in the counselling procedure.
8. Demonstrate self-destructive beliefs and show methods of challenging them, including normalizing.
9. Explain any negative aspects of dependency in a case study.

Course Content:
Learning Specific Skills - Learning methods; listening and Bonding - Meeting and greeting; helping the client relax; listening with intent.

Reflection: Paraphrasing- reflection of feeling; client response to reflection of content and feeling. Questioning-open and closed questions; other types of question and goals questioning.

Interview technique- summarizing; confrontation and reframing. Changing Beliefs and Normalizing - Changing self-destructive beliefs; irrational beliefs and normalizing.

Finding Solutions - Making choices; facilitating actions; gestalt awareness and psychological blocks. Ending the Counselling-terminating the session; closure; further meetings; dependency and comforting dependency.

Mode of Delivery:
1. Lectures
2. Group Discussions
3. Case Studies
4. Work-based assignment

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Assignments
2. Seminar Paper And Presentation
3. Continuous Assessment Test
4. Final Examination
Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 423: Health Promotion- 45 Contact Hours

Purpose of Course:
The Purpose of Course of the course is to equip the learner with skills on “how to do” health promotion and the conceptual, ideological, and political issues which underlie health promotion practice.

Expected Learning Outcomes:
By the end of the course, students will be able to:
1. Describe the meanings and determinants of health and their implications.
2. Explain the historical context of current approaches to health promotion.
3. Describe the health promotion activities in terms of underlying assumptions and ideology.
4. Describe the main strategies, theories and principles of health promotion.

Course Content:
The course will include: review of the concept of health and its determinants, history of health promotion, models of health promotion, concepts & principles empowerment, theory and it’s use, components of change, ecological models of health; theories of health behaviour, Health Belief Model, Theory of Reasoned Action and planned behaviour.

Mode of Delivery:
1. Lecture
2. Discussion

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Seminar paper and presentation
2. CAT
3. Final examination

Core Reading Materials for the Course:


**Recommended Reference Materials:**


**Title of Course: NUT 424: Sports Nutrition- 45 Contact Hours**

**Purpose of Course:**
The Purpose of Course of the course is to equip the students with skills of providing guidance on nutritional care of sports men and women

**Expected Learning Outcomes:**
By the end of the course, the students should be able to:
1. Explain the principles of fitness and nutrition
2. Identify the social and cultural influences on food habits and exercise/activity patterns.
3. Discuss the fitness and nutrition considerations during various stages of the life cycle
4. Describe the different exercise responses and nutritional requirements of women compared with those of men.
5. Evaluate current nutritional information with regard to its contribution to physical fitness.
6. Explain the advantages/disadvantages of food formulations

**Course Content:**
Integration and application of principles of sound nutrition and physical activities to optimize the physiological, psychological, and social lifelong development of the individual and use of scientific principles and current technological advances to help assess and evaluate physical fitness, body composition, dietary patterns, energy expenditure, and their interrelationships.

**Mode of Delivery:**
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment
5. Partnership exercises: community entry and situation analysis
6. Assignment of mentors for follow-up, support and assessment in partnership practice

**Instructional Materials:**
Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

**Course Assessment:**
1. A term paper (30 marks)
2. A seminar presentation on key concepts and their application in local contexts (10 marks)
3. An end of semester written University Examination (60 marks)

**Core Reading Materials for the Course:**

**Title of Course: NUT 425: Practicum -- 45 Contact Hours**

Technical attachment

**Title of Course: NUT 426: Programme Design, Monitoring and Evaluation -- 45 Contact Hours**

**Purpose of Course:**
The Purpose of Course of this course is to provide the procedures in designing, monitoring and evaluation of programmes.

**Expected Learning Outcomes:**
By the end of the course, the students will be able to:
1. Describe the process of project planning.
2. Identify the steps in development of problem trees
3. Describe log frames.

**Course Content:**
The topics to be covered include: the planning process, history of planning, planning approaches, methods and strategies, steps and techniques in planning, health planning and primary health care, community involvement in planning and planning matrix. It will also include rapid assessment procedures, problem tress, SWOT analysis, application for funds, log-frame: objectives and outputs; inputs and activities, budgets; risk and analysis and monitoring and evaluation frameworks.
Mode of Delivery:
1. Lectures
2. Group discussions
3. Experiential learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment
1. Seminar paper and presentation
2. CAT
3. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 427: Nutrition in Emergencies -- 45 Contact Hours

Purpose of Course:
The Purpose of Course of this course is to equip the learner with skills for managing nutrition deficiencies in emergencies situations.

Expected Learning Outcomes:
By the end of the course, the students should be able to:
1. Explain the relationship of health, safety, and nutrition.
2. Identify practices which will assess, appraise and promote "good" health and nutrition in emergencies.
3. Discuss the principles of implementing and managing a safe early childhood education environment.

Course Content:
The course will include: Health and the Young Child: this involves the relationship between health, safety and nutrition, factors causing malnutrition in children, common forms of malnutrition and interventions. The effects of safety for children and the benefits of health and learning and their relationships, Safety of the Young Child: this involves
creating a health and safety environment for children, the Purpose of Course of licensing, handling issues of negligence and how it affects child health and development.

Offering first aid in emergencies, handing accidents in children, distinguishing between abuse and neglect, and basic instruction methods for children, Foods and Nutrients: this basically involves the diet for children and the related recommended allowance for sustainable growth and development and nutrition and the Young Child: involve health eating habits in children including food handling and safety precautions during food preparation and feeding. Storage and ways of preventing food contamination and developing of food borne illness.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Experiential learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Seminar paper and presentation
2. CAT
3. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 428: Food Analysis- 60 Contact Hours

Purpose of Courses:
Laboratory analysis will provide students with experience of analytical techniques and instrumentation used in food analysis. Sampling techniques and theory and practice of chemical and physical methods of food analysis help in determination of food composition.

Expected Learning Outcomes:
1. To demonstrate gravimetric, colorimetric, titrimetric, chromatographic and spectrometric analyses as applied to foods.
2. To recognize food constituents and characteristics important in quality control and research laboratories.
3. To perform a range of chemical analyses of food components.
4. To search the literature, evaluate data, solve problem and write scientific reports related to food composition and analysis.

Course Content:
Introduction to food analysis: Sampling and sample preparation, Evaluation of analytical data. Lab overview: guidelines, safety, and report writing.

Gravimetric analysis of major food components: analysis of phytosterols in foods, diets, and dietary supplements, analysis of folate, in particular, 5-methyltetrahydrofolate, in foods and diets and nutrient analyses including fatty acids (including *trans* fatty acids), cholesterol, vitamin C, sugars, starch, dietary fibre, minerals and proximate.

Chemical analysis of major food components: nutrient value analysis (e.g. water, ash, fat, protein, fibre), fibre (e.g. soluble, insoluble, insulin), sugar spectrum (e.g. glucose, fructose, saccharose, lactose), preservatives (e.g. sorbic acid, benzoic acid, propionic acid, phB ester), minerals and trace elements (e.g. calcium, magnesium, iodine), Vitamins and their derivatives (e.g. vitamin B12, vitamin D3, vitamin K), contaminants and all types of residue, identification of foreign bodies and preparative gravimetric determination.

Laboratory equipment operation: Spectroscopy; Analysis of pigments by UV/Vis infrared spectroscopy and Chromatography. Problem solving in food analysis – Team project. Review & Oral presentation of the team project.

Mode of Delivery:
1. Lectures
2. Group Discussions
3. Role Plays
4. Experiential Learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

Core Reading Materials for the Course:

**Recommended Reference Materials:**

**Title of Course: NUT 429: Fruit and Vegetable Technology -- 45 Contact Hours**

**Purpose of Courses:**
In this course students will again concepts on raw material handling, storage and preparation; processing and preservation of fruits and vegetables; production of fermented food products from vegetables; application of HACCP to fruit and vegetable processing; post-harvest changes in fruits and vegetables.

**Expected Learning Outcomes:**
1. Demonstrate an understanding of the biochemistry and physiology of harvested fruits and vegetables.
2. Describe the basic steps involved in the production of processed fruits and vegetables.
3. Describe the principles and practices employed to maintain the quality of fruits and vegetables.

**Course Content:**
Physiology of fruits and vegetables: Structure, Cellular Components and Composition of Fruits and Vegetables; Harvesting, Post harvest Handling and Physiology of Fruits and Vegetables; Principles and Methods of Preservation of Fruits and Vegetables and Food Additives.


**Mode of Delivery:**
1. Lectures
2. Group Discussions
3. Role Plays
4. Experiential Learning

**Instructional Materials:**
1. Overhead projector
2. LCD power-point presentation
Course Assessment:
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 430: Food Biotechnology- 45 Contact Hours

Purpose of Courses:
This course will enable students to acquire outline principles used in production of genetic modified foods.

Expected Learning Outcomes:
1. Describe enzymes currently used in food bioprocess.
2. Discuss potential use of recombinant DNA technology in the production of novel food ingredients or new food products.
3. Recognize biotechnology in fats & oils, flavour and food industry.

Course Content:


Mode of Delivery:
1. Lecture
2. Practical
3. Group work

Instructional Materials:
4. Use of audiovisuals e.g. power-point, posters, overhead projector, etc

Course Assessment:
1. Pharmaceuticals. CRC press. Continuous assessment tests
2. Final written examination
3. Practical work

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 431: Food Processing and Preservation -- 45 Contact Hours

Purpose of Course:
The students will learn the principles and operations of food processing and preservation.

Expected Learning Outcomes:
By the end of the course, the learner should be able to:
1. Define food science, magnitude, division and interdependent activities of the food industry, food and man).
2. Discuss the constituents of foods, properties and significance Water, Carbohydrates, Proteins, Fats, Other Constituents.
3. Discuss the importance of enzymes in food processing. Effect of processing and preservation on nutritive aspects of food constituents (vitamins, minerals, enzymes, other.)
4. Describe the factors that influence microbial activity in foods (moisture, water activity, oxidation-reduction ppotential, temperature, acidity, inhibitors) temperature in microbial activity in foods and food spoilage.

Course Content:
General characteristics of food raw materials; harvesting, assembling and receiving of raw materials, methods of food preservation; processing objectives including factors influencing food acceptability and preferences; packaging; water, waste disposal and sanitation.

Mode of Delivery:
1. Lecture
2. Practical
3. Group work

Instructional Materials:
5. Use of audiovisuals e.g. power point, posters, overhead projector, etc

Course Assessment:
1. Continuous assessment tests
2. Final written examination
3. Practical work

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 432: Agricultural Economics -- 45 Contact Hours

Purpose of Course:
The Purpose of Course of the course is to equip the students with the current occurrences that affect the community's agricultural economy.

Expected Learning Outcomes:
By the end of the course, the student will be able to:
1. Describe the economic theory.
2. Apply the economic theory in the community practice.
3. Describe the economy in relation to peasant production.
4. Design and implement agriculture interventions in improving the peasant production.

Course Content:
This course deals with the impact of social and economic change on peasant farming. The term “peasants” is defined here as family farmers only partially integrated into incomplete or imperfect markets. The peasant farmer can also, more familiarly be termed a subsistence or semi-subistence farmer. However, the term peasant denotes a more complete socio-economic perception which is more suited to the Purpose of Courses of this course.

The topics will include: Contributions of the agricultural sector to development, Peasants, economics and political economy, Neoclassical theory of farm production, Farm size and factor productivity, Elements of peasant political economy, The Theory of the Optimizing Peasant economy, Types of peasants (Risk adverse, drudgery adverse, farm household, share cropping peasant), Peasants and environment agriculture and international trade, Agriculture marketing.

**Mode of Delivery:**
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment

**Instructional Materials:**
Use of audiovisuals e.g. pictures, posters, overhead projector, etc.

**Course Assessment:**
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course: NUT 433: Agriculture Extension and Rural Sociology -- 45 Contact Hours**

**Purpose of Course:**
A review of contemporary theory and research associated with the sociology of agriculture and food systems. This course will give students an opportunity to learn about changes in the agricultural and food system.

**Expected Learning Outcomes:**
When the course is completed, the learner will demonstrate the ability to:

1. Describe the major theoretical perspectives for interpreting agricultural change of the last 30 years.
2. Describe what is meant by the structure of agriculture and explain some of the changes and consequences of change in the structure of agriculture.
3. Explain the role of agricultural science and the role of regulations in influencing the structure of agriculture.
4. Describe key features of the alternative food system movement and evaluate its meanings and strategies.
5. Begin to explain the role of culture in the evolution of the agro-food system, with a focus on consumers, farmers, and farm workers.
6. Familiar with a wide range of theoretical concepts and approaches, in order to be able to understand the complexity of rural and regional development.
7. Use a variety of methodological issues enabling them to study and analyze the multiple facets of rural and regional development.

**Course Content:**
The course can be divided into three major sections, with the first focuses on some of the overarching theoretical perspectives for studying the sociology of agriculture, the second focuses on specific actors in the agro-food system and their experience of change, the third focuses on the emergence of alternative structures of agriculture and the growing role of consumers in reshaping the structure of production.

The course begins by exploring the “New” Sociology of Agriculture, reviewing literature related to the political economy of agriculture, agricultural industrialization and the Göldschmidt Hypothesis, globalization of agro-food production, commodity chain analysis, and views of regulation and the application of human ecology to the study of agriculture in urbanized areas.
The focus then shifts to an in depth look at two distinct sets of actors in the agro-food system, the family farms of central Illinois and farm workers in California.

The final section shifts to look at the emergence of alternative agricultural structures, such as the sustainable agriculture movement, organic agriculture, and the rise of local food systems. Both the characters of these alternatives as well as the reasons for their emergence will be considered.
This section will conclude with a closer look at the role of consumers in reshaping the agro-food system as well as the relevance and legacy of agrarian thought in an increasingly urban society.

**Mode of Delivery:**
1. lectures
2. group discussions
3. experiential learning

**Instructional Materials:**
1. overhead projector
2. LCD power-point presentation

**Course Assessment:**
1. Quizzes 10%
2. Seminar paper and presentation 30%
3. CAT 10%
4. Final examination 50%

**Core Reading Materials for the Course:**

**Recommended Reference Materials:**

**Title of Course: NUT 434: Cultural Aspects of Food -- 45 Contact Hours**

**Purpose of Courses:**
This course is designed to provide students with a comprehensive ability to analyse world food situations and the problem of hunger, using an ecologically/food system approach. Various components of the food system will be analyzed to identify causes of hunger. Three faces of hunger-acute, chronic, and hidden hunger will be examined and existing and proposed strategies will be evaluated using scientific measures as well as through the voices of people.

**Expected Learning Outcomes:**
Upon successful completion of the course and based on lectures, readings, assignments, videos, guest speakers, and class discussions the student will be able to:
1. Describe the social, physiological, psychological, and cultural factors that influence food choices throughout the life cycle.
2. Compare nutrition information from a scientific perspective to distinguish scientific findings from untested claims.
3. Identify food patterns that increase the risk of chronic health problems and recommend modifications to the diet to reduce the risk of developing these health problems.
4. Assess his/her diet based on the recommendations from scientific health related organizations.
5. Identify the potential causes of food borne illness and procedures to prevent food borne illness.
6. Identify the causes of hunger in developing and industrialized countries.

**Course Content:**
Food choices as affected by religious beliefs, economics, family traditions, political, social and historical factors. Meanings of food and food-related behaviours of cultures and the way these patterns influence food consumption patterns among each other.

Global perspectives in a comparative context on food ways, beliefs, habits and cultural practices models. Globalization of eating patterns and the resistance to homogenizing forces.

Familiarize with relevant research and latest findings regarding food practices and nutrition related health problems of various cultural groups.

International frames on long-standing and newly emerging issues focusing on causes and effects of famine, exploding populations and enhanced food production on current and future food supplies, and nutritional value of diet.

Food System Approach Components of Food System, Food Production, food distribution and cultural aspects. Analysis of factors of food production: land, soil technology, price of imports and case studies.

**Mode of Delivery:**
1. Lectures
2. Group Discussions
3. Case Studies
4. Individual And Work-Based Assignment
Instructional Materials:
1. Overhead projector
2. LCD power point presentation

Course Assessment:
1. Quizzes
2. Seminar paper and presentation
3. CAT
4. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 435: Food and Nutrition Security -- 45 Contact Hours

Purpose of Course:
The Purpose of Course of the course is to equip the students with skills of improving the food and nutrition security status in the communities of practice.

Expected Learning Outcomes:
By the end of the course, the students should be able to:
9. Describe the factors that affect attitudes and decisions about food.
10. Explain the current issues of body image and food marketing.
11. Apply the various food preparation methods
12. Investigate the food heritage and food industries.

Course Content:
The topics will include: The concept of food and nutrition security: Levels and dimensions, The link to Poverty and attainment of MDGs, Project Cycle, Triple A, Assessing situation of Food and nutrition security, Actions to improve food and nutrition security. How to integrate food and nutrition consideration in working contexts.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Case studies
4. Individual and work-based assignment
Instructional Materials:
1. Use of audiovisuals e.g. pictures, posters, overhead projector, etc.
2. Community partnership sites

Course Assessment:
1. A term paper (30 marks).
2. A seminar presentation on key concepts and their application in local contexts (10 marks).
3. An end of semester written University Examination (60 marks).

Core Reading Materials for the Course:

Title of Course: NUT 436: Leadership -- 45 Contact Hours

Purpose of Course:
To ensure students get leadership skills that identify and meet team needs in order to achieve project objectives. In this course, they will be transition to a leader who can inspire a diverse team to work together and deliver customer success.

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

1. Describe leadership skills that build and sustain high-performing project teams.
2. Discuss effective team performance through the Leadership Services Model (LSM).
3. Identity through vision, Purpose of Course and commitment of strong teams.
4. Foster positive and productive team communication and define ground rules.
5. Protect the team and convert conflicts into advantages that promote high performance.
6. Demonstrate leadership abilities.

Course Content:
Introduction: harnessing the power of collaboration to deliver successful projects. Delivering quality leadership throughout the project life cycle and matching rewards to the person and the team.

Applying the Leadership Services Model Shifting toward a service leadership approach: Setting standards, Building team identity, optimizing work, communicating clearly and developing productive relationships and protecting the team, redefining the role of the project leader, moving toward the team as customer, Changing your priorities and perceptions.

Building your best practice leadership toolkit: Creating a customized project leadership framework and generating a personal action plan, defining the team development framework, the start-up actions of effective leadership, documenting objectives and constraints in a team charter, Structuring team responsibility, fostering a team state of mind, the power of common Purpose of Course and what project leaders really manage.
Enhancing productive teamwork: building team collaboration skills, establishing team-owned ground rules, planning for a Team-Driven Project, unleashing the power of participation, organizing effective work design, Encouraging team responsibility, Managing people proactively, Implementing a participative approach to key planning tasks, kick-off meeting, project milestones, re-sourcing and complementing team expertise.

Mode of Delivery:
1. Lectures
2. Group discussions
3. Role plays
4. Experiential learning

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Quizzes
2. Seminar paper and presentation
3. CAT
4. Final examination

Core Reading Materials for the Course:

Recommended Reference Materials:

Title of Course: NUT 437: Food and Nutrition Policy and Planning- 45 Contact Hours

Purpose of Course:
This course aims to provide an understanding of the relation between global modernization and processes of the exclusion of people, places and societies. The course pays special attention to the role that sociologists can play in analyzing and addressing these relations.
Expected Learning Outcomes:
1. Assess and review food and nutrition plans and policies;
2. Develop effective and sustainable food and nutrition plans and policies
3. Promote implementation of inter-sectoral food and nutrition programmes at national or local level.

Course Content:
The course sets out to discuss critically the concepts of modernity and modernization by focusing on what the sociologist Zygmunt Bauman calls the production of ‘human waste’ or ‘wasted lives’: the ‘superfluous’ populations of migrants, refugees and other outcasts. Bauman sees redundancy and waste as inevitable outcomes of modernization related to its rational with the never ending quest for (re)ordering and economic progress as coinciding drivers (rationalization).

As long as large parts of the world remained wholly or partly unaffected by modernization, they were related by modernizing societies as lands that were able to absorb the excess of population in the ‘developed countries’. Global solutions were sought to, and temporarily found, to locally produced overpopulation problems. But as modernization has finally reached the furthest lands of the planet, ‘redundant populations’ are produced everywhere and all localities have to bear the consequences of modernity’s global triumph, i.e. redundancy and waste and a world wide exclusion of categories of people from progress. This urges for new solutions, what in turns appears to be the need to find – in vain, it seems – local solutions to globally produced problems. The global spread of modernity has given rise to growing quantities of human beings, or sometimes even complete regions, which are deprived of adequate means of survival, but the planet is running out of places to put them. This leads to destabilization and undermines the very logic of modernization. Furthermore in highly modernized and so far thus privileged (mainly western) parts of the world new anxieties arise around ‘refugees’, ‘economic immigrants’ and ‘asylum seekers’ and ‘security fears’ dominate the contemporary political agenda.

Mode of Delivery:
1. Lectures
2. Group Discussions
3. Case Studies
4. Work-based assignment

Instructional Materials:
1. Overhead projector
2. LCD power-point presentation

Course Assessment:
1. Assignments
2. Seminar Paper And Presentation
3. Continuous Assessment Test
4. Final Examination

Core Reading Materials for the Course:

**Recommended Reference Materials:**
1. Willem, S. and Sako, M. *Amsterdam Human Capital*
2. Barrie, N. *One Hundred Years of Public Land Leasing in the Netherlands*