COURSE TITLE: Food and Nutrition Biochemistry

COURSE CODE: BCH 306

SEMESTER/SESSION: Second; 2017/2018

COURSE LECTURER: Akpovona, E. Ambrose

COURSE SUMMARY:

Food and Nutritional Biochemistry is the branch of biochemistry that explains the meaning and composition of food. It examines food from the point they are obtained from their sources (crops and animals) to the point where they are processed (converted to other forms). The course also examines the methods of food storage especially of our local harvests (Nigeria and West Africa in extension) and what ways these can be processed to increase storage life. It examines food at macro and micro level, and how the constituents of food could be determined proximately using standard approved methods, analysis that are done to identify adulteration of food substances. Other branches of the course include nutritive value of foods, nutritional requirement for various ages and energy demands, nutritional disorders, nutritional status, food poisoning, intoxication and treatment.

OBJECTIVES

The objectives of this course are to:

i. explain to students what substances are regarded as food;
ii. introduce students to nutritional aspects of the various classes of food;
iii. provide students with the nutritional requirement of the classes of food;
iv. inculcate in the students the basic analytical techniques for determining the constituents of food;
v. enumerate and explain the different techniques of food processing;
vi. explain and differentiate between food quality control and assurance;
vii. acquaint the students with nutritive value of food and different nutritional disorders;
COURSE OUTLINE:

1. What is food and the basis for their classification?
2. Classes of foods - carbohydrates, fats, proteins, vitamins, mineral elements and water.
3. Physical and chemical methods for determining the constituents of food.
4. Food processing; preservation and storage of traditional foods – root and stem tubers, fruits and fruit drinks, seeds and grains, green and vegetables.
5. Food quality assurance and control;
6. Food regulatory and analysis agencies;
7. Food nutrients; energy values of foods and energy expenditure by mammals.
8. Recommended dietary allowances.
9. Nutritional status and nutritional requirements.
10. Assessment of nutritional status. Nutrient requirements in relation to physical activity and ageing, diet and disease, obesity and under nutrition.
11. Nutritional disorders, prevention and therapy.
12. Food poisoning and intoxication; prevention and cure.

LEARNING OUTCOME

At the end of this course, students will be able to:

i. explain what food is all about;
ii. identify the different classes of food and their sources;
iii. understand the reason for proximate analysis of food and the various methods of analysis;
iv. perform analysis on the classes of food;
v. understand simple calculations based on the analysis;
vi. determine the best methods to apply for various food storage and processing;
vii. understand the various quality assurance and control observed in food industries;
viii. have knowledge of the recommended dietary allowance for energy intake.
ix. understand the implications of nutritional status and nutritional disorder;
x. identify people living with different forms of disorders;
xii. understanding the limitations of nutritional assessment;
xii. understand food poisoning and intoxication, prevention and cure;
xiii. understand the attributes of a healthy living.

LECTURE ARRANGEMENT (BY WEEKS)

Week One

Period One: Introduction to Food and Nutrition Biochemistry.

Period Two: Basis for the classification of food.


Week Two

Period One: Lipids and Vitamins: composition, sources and symptoms of deficiencies.

Period Three: Class Quiz.

Week Three
Period One: Proximate Analysis of Food I.
Period Two: Proximate Analysis of Food II.
Period Three: Calculations based on Proximate Analysis.

Week Four
Period One: Food processing, Preservation and Storage.
Period Two: Process Techniques to Reduce Toxicity and Antinutrients.
Period Three: Class Quiz

Week Five
Period One: Quality Assurance in Food Processing.
Period Two: Food Quality Control.
Period Three: Food Standard and Analysis Regulatory Agencies: FAO, NAFDAC, SON, FDA, IPAN and IOAC.

Week Six
Period One: Tutorials
Period Two: First C. A. Test
Period Three: Revision

Week Seven
Period One: Nutritional Value of Different Food.
Period Three: Dietary Recommendations of Major Health Organizations.

**Week Eight**
Period One: Recommended dietary allowances in Nigeria and in other Countries.
Period Two: Nutritional status and nutritional disorder.
Period Three: Class Quiz

**Week Nine**
Period One: Nutritional disorder: prevention and therapy.
Period Two: Epidemiology of Malnutrition.
Period Three: Limitations of Nutritional Assessment.

**Week Ten**
Period One: Food Poisoning I.
Period Two: Food Poisoning II.
Period Three: Prevention and Cure of Food Poisoning.

**Week Eleven**
Period One: Intoxication and effects.
Period Two: Addiction, societal effect and Rehabilitation.
Period Three: Attributes of a healthy living.

**Week Twelve**
Period One: Open class discussion on Assignments.

Period Two: Tutorials

Period Three: Second C. A. Test

Week Thirteen & Fourteen

Period One: Revision
Period Two: Revision
Period Three: Revision

Week Fifteen & Sixteen

Second Semester Examination

MODE OF ASSESSMENT

Students offering the course shall be assessed as follows
i. Test 1 10 %
ii. Test 2 10 %
iii. Assignment 5 %
iv. Class Attendance 5 %
v. Sessional Examination 70 %
vi. Total 100 %

CLASSROOM ETHICS

1. Students are not expected to come into the lecture hall with cell phones.
2. Students are to focus on lecturer during lectures
3. No browsing or consultation of extra-course materials during lectures.
4. Chewing of bubble gums, drinking or eating (main or snacks) is not allowed.
5. Students are to be seated before lecture commences.
6. Late submission of class work and assignments are not allowed.

SOME RELEVANT BOOKS FOR FURTHER READING


SOME ARTICLES AND JOURNALS FOR CONSULTATION


