ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD

(Department of Home & Health Sciences)

Course: An Introduction to Human Nutrition (7501) **Credit Hours 3(2+1)**
Level: Post Graduate **Semester: Autumn, 2012**

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Note: If any one item of the above mentioned content list is missing from your study pack, kindly contact;

Mailing Officer
Mailing Section
Services & Operational Block No.28
Allama Iqbal Open University
Sector H-8, Islamabad.
***051-9057611*-12**

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WARNING

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT/S WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN, WILL BE PENALIZED AS DEFINED IN ''AIOU PLAGIARISM POLICY''.**

Course & Code: An introduction to Human Nutrition (7501) **Credit Hours 3(2+1)**
Level: Post Graduate **Semester: Autumn, 2012**
Total Marks: 100 **Pass marks: 40**

ASSIGNMENT No. 1

(Units: 1-7)

Note: All questions are compulsory.

Q. 1 What is meant by Global Malnutrition? Discuss its impact on health of the people. (16)

Q. 2 Which different techniques are used for studying body composition? Draw your conclusions on the basis of accuracy and reliability of the data. (16)

Q. 3 Classify the amino acids on the basis of their Indispensability and Dispensability. Also explain urea cycle with the help of a diagram. (16)

Q. 4 Differentiate between Glycemic index and Glycemic load. Discuss in detail the role of Glycemic carbohydrates in the body. (16)

Q. 5 Define Lipids. Discuss digestion, absorption and transport of dietary fat. (16

Q. 6 What are major Fat soluble vitamins? Discuss principal functions, metabolism and deficiency symptoms of any two important fat soluble vitamins. (20)

ASSIGNMENT No. 2

Total Marks: 100 **Pass Marks: 40**

LAB PRACTICAL

Instructions:

Note: This assignment relates to lab work. You have to conduct the practical under close supervision of your tutor. All the methods/ procedures and results are to be entered in a practical file. The practical will be carried out in the Food Science Laboratories at AIOU

or biochemistry or Food & Nutrition departments of National Institute of Health (NIH), Agricultural Universities, PCSIR laboratories, NARC and Nutrition labs at colleges of Home Economics or any other institution where required facilities are available.
The practical work will be done during the workshop. The workshop schedule will be communicated to you by the Regional office. This component is compulsory for all students. The tutor/resource person will mark the practical copy during the workshop and the marks obtained will be included in the final result. Practical copies will be submitted to the Home and Health Sciences Department of the University for record.

List of Practicals

1. Quantitative determination of carbohydrates.
2. Analysis of vitamin A in Banaspati Ghee by spectrophotometer.
3. Estimation of fat content in a given food sample.
4. Estimation of Protein by Kjeldahl method.
5. Biochemical analysis of powdered and fresh milk.
6. Estimation of iodine in iodized salt by field test kit, prepared by National Institute of Health Islamabad.
7. Estimation of the pH, moisture and ash contents in the wheat flour.
8. Vitamin C analysis in a given food sample.
9. Estimation of iodine in iodized salt by titration method.
10. Measurement of pH of orange juice.

STUDENT GUIDE

Course: An Introduction to Human Nutrition (7501) **Semester: Autumn, 2012**
Level: Post Graduate **Credit hours: 3(2+1)**

Dear Student,

Assalam-o-Alaikum.

We welcome you to this postgraduate level course of "An Introduction to Human Nutrition". This course is a part of the postgraduate Diploma in Dietetics and PGD Nutrition leading to M.Sc Programme.

In order to understand the course content it is vital to know its aims and objectives properly. Therefore, let us know about its aims and objectives first. The main aim of introducing this course at postgraduate level is to give the students thorough knowledge about various nutrients, their role in the body and importance in the diet. Further more information about effect of deficient diet on the body and signs and symptoms of various deficiency diseases will also be given.

1. Course Objectives

The specific objectives of this course are as follow:

1. To understand and apply the basic principles of nutrition.
2. To study the digestive and metabolic process of human body.
3. To impart an awareness about global Nutritional challenges.

2. Details of course

2.1 Study Book

An Introduction to Human Nutrition is a half credit course comprising of 9 units. Its credit hour weightage is 3(2+1). Efforts have been made to recommend latest books available. You are also expected to search the study topics in related research papers /articles in research journals/magazines available at your local libraries and resource centers.

Brief course outline has been attached in the beginning of the study book. It is expected from the postgraduate students to search and study the extra material given in the text. It will help you to improve your knowledge and information about a specific topic.

2.2 Workshop/ Practical

This course is supported with lab-based practical. In order to cover this component 2nd assignment is based on such practicals. These practicals will be performed in the Food Science Laboratories of AIOU, Nutrition Department of PCSIR Laboratories, National Institute of Health, NARC, Agriculture Universities, Colleges of Home Economics or Institutions where required laboratory facilities are available. These practical will be conducted during the workshop at the end of the semester under the supervision of your workshop tutor. In order to record these practicals, you will have to purchase a practical notebook. Workshop is a compulsory component of the course. Marks obtained will be included in the final result.

2.3 Part Time Tutors

You are allocated a part time tutor. The name and address of your tutor will be provided later. The tutor will help and guide you in studying the books and conducting activities related to study units. You are expected to take full advantage of the tutor's knowledge and experience. These tutors are also responsible for marking your assignments. Make all efforts to complete your written assignments in time according to the prescribed schedule. Try your best to attend all the study sessions according to the timetable provided to you.

2.4 Correspondence Tutor

Sometimes you are allocated a correspondence tutor which means that you probably will not be able to attend the study center due to its far-off location but on the other hand you will have an opportunity to get the guidance through correspondence from you tutor. The name and address of your correspondence tutor will be provided later. The same tutor will be responsible for monitoring of assignments.

2.5 Assignments

The course includes 02 assignments which are compulsory for successful completion of the whole course i.e. each assignment is of 100 marks, out of these students obtaining at least 40% marks will be declared pass. Therefore it is important to submit the assignments in time. The schedule of submitting the assignments is being provided separately. Please follow the schedule. The tutor will send marked assignments back to you within fifteen days. If you do not receive the marked assignments within 15 days please contact your tutor or your local Regional Office of AIOU.

Never forget to attach the prescribed forms duly filled along with the complete assignments. The study units on which each assignment is based are identified. However for your convenience we are providing the related information for follow up:

Assignment No.	Units
1	1-7
2	Practical file

2.6 Method of Study

A study period of ***sixteen*** weeks has been allocated for studying this course through distance learning whereas ***seventeenth and eighteenth weeks*** are kept for general assessment and for final examination. You are expected to spend four weeks on studying first three units of the book. This will help to improve your reading speed and get familiar with the contents of the units.

Sr.No.	Unit No.	Assignment No.	Study Period
1.	1-2		Four weeks
2.	3-5		Four weeks
3.	6-8	1st 2nd	Four weeks
4.	9		Four weeks
5.	Preparation for Exams		Two weeks

The next three units i.e. 3-5 will be easier for you and you will be able to study them in comparatively less time. You can spend three weeks on studying these three units. During the eighth week you can complete your 1st assignment and dispatch it to your tutor.

Unit 6, 7 & 8 can be studied during 9th, 10th, 11th and 12th week and the last unit i.e. unit 9 can be studied in the 13th week and the 2nd assignment can be completed along with 14th, 15th and 16th week. Assignment No: 2 i.e. practical file, which students have to complete in the final workshop, should be partially completed before the workshop in the end of the semester.

It is therefore necessary to study the units completely before starting work on assignments. Try to complete the practical activities in time according to the schedule.

2.7 Workshop

Workshop will be arranged for three days. Schedule of the workshop and venue will be sent to the student during the study period. Workshop will cover some of the lectures by the specialists on important topics. Practicals will also be completed in this workshop. The tutor will provide guidance and check the practical file in this workshop. Attendance in the workshop is compulsory for all the students.

2.8 Final Examination

At the end of the course there will be a final examination. All the students will be expected to take this examination in the examination halls specially established for this purpose.

2.9 Schedule for Tutorial Meetings

The tutorial meetings are arranged on fortnightly bases. The specific dates in the form of tutorial schedule are being provided separately. Try to attend these meetings regularly to get proper guidance from your tutor.

Course Coordinator

ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
Deptt. of Home and Health Sciences

Course: AN INTRODUCTION TO HUMAN NUTRITION
Level: M.Sc. **Credit Hours: 3(2+1)**

UNIT 1: INTRODUCTION TO HUMAN NUTRITION: A GLOBAL PERSPECTIVE ON FOOD AND NUTRITION

- Orientation to Human Nutrition: An Integrated Approach
- A Conceptional Framework for the Study of Nutrition
- Relationship between Nutrition and Health
- Nutrients: The Basics
- Global Malnutrition
- Relationship between Nutrition Science and Practice
- Nutrition Milestones; the Development of Nutrition as a Science
- Future Challenges for Nutrition Research and Practice

UNIT 2: BODY COMPOSITION

- Introduction
- Levels of Body Composition
- Relationships between Different Levels of Body Composition
- Body Composition Techniques (Direct & Indirect Methods)

UNIT 3: ENERGY METABOLISM

- Introduction
- Energy Intake and Expenditure
- Factors that Influence Energy Expenditure
- Energy Requirements
- Energy Balance in Various Conditions
- Obesity

UNIT 4: NUTRITION AND METABOLISM OF PROTEINS AND AMINO ACIDS

- Introduction
- A Historical Perspective
- Structure and Chemistry of Amino Acids
- Classification of Amino Acids
- Biology of Protein and Amino Acid Requirements
- Estimation of Protein and Amino Acid Requirements
- Meeting Protein and Amino Acid Needs
- Factors other than Diet Affecting Protein and Amino Acid Requirements

UNIT 5: DIGESTION AND METABOLISM OF CARBOHYDRATES

- Introduction; Carbohydrates in Foods
- Digestive fate of Dietary Carbohydrates
- Glycemic Carbohydrates
- Non-Glycemic Carbohydrates
- Carbohydrates and Dental Caries

UNIT 6: NUTRITION AND METABOLISM OF LIPIDS

- Introduction; the History of Lipids in Human Nutrition
- Lipid Components of the Diet
- Digestion, Absorption and Transport of Dietary Fat
- Circulating Lipids; Lipoprotein Structures and Metabolism
- Body Lipid Pools
- Long-Chain Fatty Acid Metabolism
- Nutritional Regulation of Long-Chain Fatty Acid Profiles and Metabolism
- Nutritional and Metabolic Effects of Dietary Fatty Acids
- Cholesterol Synthesis and Regulation
- Effect of Diet on Serum Lipids and Lipoproteins

UNIT 7: THE VITAMINS

- Introduction
- Vitamin A,Vitamin D,Vitamin E, Vitamin K,Vitamin B^1 (Thiamin), Vitamin B^2 (Riboflavin), Vitamin B6, Vitamin B^{12}, Folic Acid, Biotin, Pantothenic Acid, Vitamin C (Ascorbic Acid)

UNIT 8: MINERALS AND TRACE ELEMENTS

- Introduction
- Calcium, Magnesium, Phosphorus, Sodium and Chloride, Potassium, Iron, Zinc, Copper, Selenium, Iodine, Manganese, Molybdenum, Fluoride, Chromium, Other Elements.

UNIT 9: FOOD AND NUTRITION: THE GLOBAL CHALLENGE

- Introduction
- Malnutrition Through the Life Cycle
- Hidden Hunger: the Global Problem of Micronutrient Deficiency
- Food, Nutrition and the Emerging Burden of Obesity and Chronic Diseases
- Food and Nutrition and the Promotion of Public Health

Recommended Books:

1. "Introduction to Human Nutrition: Michael, J Gibney, Hester. H. Vorster and Frans J Kok (2007) Blackwell Sciences
2. Human Nutrition (Course Code 863) AIOU publication
3. Jim Mann & A. Stewart Trustwell. Essentials of Human Nutrition (2007), Oxford University Press.

4. Martin Eastwood, Principles of Human Nutrition (2003), Blackwell Publishers.

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