



Course Descriptor

AHND 262 Nutritional Biochemistry

ACADEMIC YEAR	2020-2021	SEMESTER	Fall
Course Code & Title	AHND 262 Nutritional Biochemistry		
Credit hours	3 (3+0)	Level of study	Undergraduate
College / Centre	CAHS/FSHN		
Co-requisites	NIL	Pre-requisites	AHND 101, CHEM 201, CHEM 281

1. COURSE OUTLINE

The course provides basic information about micro and macro nutrients and their role in metabolism and link this information to the role of nutrition in long-term health and prevention of disease. It will provide information about the biochemical mechanisms of digestion and absorption of macro, micronutrients. The course will also deal with chemistry, biochemistry of both fat and water soluble vitamins, role of macro minerals and trace elements.

2. AIMS

On successful completion of the course, the students will be able to understand better the following topics:

- Chemistry, Biochemistry of nutrients
- Metabolism of macro- and micronutrients
- Role of vitamins and minerals in the wellbeing of body
- How food is digested, absorbed and metabolized
- Role of enzymes in the overall metabolism of nutrients.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS (Indicative)

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
1. Identify the chemical structure and chemical properties of macro- and micronutrients	Lectures and tutorials	In-class tests, quizzes
2. Explain how nutrients are delivered to the body	Lectures and tutorials	Quizzes, written examination
3. Understand the concept of digestion and absorption of nutrients	Lectures and tutorials	Written examination, quizzes



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4.	Discuss the major pathways for metabolism of nutrients and the key regulating mechanisms of these pathways	Lectures and tutorials	Written examination, quizzes
5.	Discuss the essential functions of nutrients in human cells and tissues	Lectures and tutorials	Quizzes, written examination
6.	Determine the pathologies associated with nutrient deficiencies, nutrient toxicities, or with common metabolic disorders	Lectures and tutorials	Written examination, assignment, quizzes

4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Quizzes	20%
Assignment	10%
Mid-Term Exam	30%
Final Exam	40%
TOTAL	100%

5. ACHIEVING A PASS

Students will achieve **03** credit hours for this course by passing **ALL** of the course assessments (*quizzes , Midterm examinations and final examinations*) and achieving a **minimum overall score of 50%**

COURSE CONTENT (Indicative)	
LECTURE TOPIC	TIME (HOURS)
Intro to Nutritional Biochemistry	3
Review of Glycolysis, β -oxidation	3
Digestion and Absorption	3
Protein Metabolism (Amino Acid Metabolism)	3
Lipid Synthesis and Metabolism	3
Cholesterol Synthesis and Metabolism	3
Energy Balance	3
Water-Soluble Vitamins - Niacin, Riboflavin, Choline, Thiamin	3
Midterm	
Water-Soluble Vitamins - Folate, B12, B6, Biotin, Pantothenic Acid, F19 Vitamin C	3
Fat-Soluble Vitamins - Vitamin A, D, E, K	3
Mineral Metabolism - Calcium, Magnesium and Phosphate	3
Mineral Metabolism - Sodium, Potassium, and Chloride	3
Mineral Metabolism - Iron, Zinc, Iodine, Copper, Manganese, Selenium and Fluoride	3
Trace Elements	3
Alcohol Metabolism	3
Plant Sterols	3
Phytoestrogen	3
Polyphenolic Compounds	3
Lectins	3

Alkoloids	3
FINAL EXAM	
RECOMMENDED STUDY HOURS 1-10	10
TOTAL HOURS	70

6. RECOMMENDED READING

1. Stipanuck, Martha H., Caudill, Marie A. Biochemical, Physiological, and Molecular Aspects of Human Nutrition (3rd Edition, 2013).

Library + online resources:

<http://www.wiley.com/college/boyer/0470003790/animations/animations.htm>

<http://themedicalbiochemistrypage.org/>

<http://www.journals.elsevier.com/the-journal-of-nutritional-biochemistry/>