

Common Course Outline

BIOL 256

Nutrition

3 Credits

The Community College of Baltimore County

Description

BIOL 256 – 3 credits – Nutrition explores the science of foods, nutrients and other substances contained in food as well as the interaction and balance of foods in relation to health throughout the lifecycle and the processes by which the human organism utilizes nutrients. This course provides preparation for a four-year degree in nursing and is transferable to nearby B.S.N. programs.

3 Credits

Prerequisite: BIOL 220 with a grade of C or better.

Overall Course Objectives

Upon completion of this course students will be able to:

1. explain the influence of nutrition on health and disease;
2. identify the types of health problems that arise from poor nutrition throughout the world;
3. read, calculate, and interpret data from food labels in reference to the Dietary Reference Intakes (DRIs) for all nutrient classes and energy intake;
4. describe the benefits and concerns associated with the modern food supply including organic food production, genetic modification, and food processing techniques;
5. identify the effects of common food additives, contaminants and foodborne pathogens on health;
6. apply the physiology of digestion and absorption to carbohydrates, proteins, fats, water vitamins and minerals;
7. list the physiological functions of carbohydrates, proteins, fats, water vitamins and minerals in the human body as well as identify their common food sources, deficiency/toxicity symptoms, and associated metabolic disorders;
8. illustrate how energy is extracted from the caloric macronutrients and alcohol using metabolic pathways including glycolysis, beta-oxidation, the citric acid cycle and the electron transport chain;
9. explain optimal weight status including Basal Metabolic Index (BMI), body composition and body fat distribution and describe appropriate weight management principles concerning both diet and physical activity;
10. evaluate articles, books, news clips, and/or videos on food and nutrition and product advertising as well as discuss the role of media in promoting consumption, body image stereotypes, and common food myths;

11. describe the importance of nutrition in regulating human health throughout the lifecycle from growing individuals to adolescents to adults, as well as during pregnancy and lactation;
12. explain the current regulatory oversight of dietary supplements in the US and identify the potential uses and concerns about supplement use by individuals, athletes, and aging populations; and
13. analyze dietary intake using appropriate diet analysis software and evaluate the adequacy of a diet in relation to the DRIs.

Major Topics

- I. The Science of Nutrition
- II. Tools of a Healthy Diet
- III. The Food Supply
- IV. Human Digestion and Absorption
- V. Carbohydrates
- VI. Lipids
- VII. Proteins
- VIII. Alcohol
- IX. Energy Metabolism
- X. Energy Balance & Weight Control
- XI. Nutrition, Exercise, and Sports
- XII. The Fat-Soluble Vitamins
- XIII. The Water-Soluble Vitamins
- XIV. Water and Major Minerals
- XV. Trace Minerals
- XVI. Pregnancy and Breastfeeding
- XVII. Nutrition during the Growing Years
- XVIII. Nutrition during the Adult Years

Course Requirements

Grading procedures will be determined by the individual faculty member but will include the following:

Grading/exams:

1. A minimum of 3 exams, with the option of the final exam being comprehensive.
2. Overall course grade will be determined by a combination of exams and graded assignments, with exams comprising a minimum of 50% of the total course grade.

Written Assignments: Students are required to utilize appropriate academic resources.

1. A diet analysis project covering multiple days of recorded food intake with reflection on dietary adequacy
2. An in-class presentation (individual or group) on a nutritional topic of relevance
3. A class assignment targeted to read/interpret/analyze a current event (through a book, news clip, video, article, etc.) related to nutrition. This assignment should help students both learn about current nutrition topics, and help them differentiate between the scientific basis of nutrition and its portrayal in pop media.