

BIOL 256

Nutrition

3 Credits

Community College of Baltimore County Common Course Outline

Description

BIOL 256 – Nutrition: students explore 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 most nearby B.S.N. programs.

Pre-requisites: 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. 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;
8. identify common food sources, deficiency/toxicity symptoms, and associated metabolic disorders for carbohydrates, proteins, fats, water, vitamins, and minerals;
9. 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;
10. explain optimal weight status including Basal Metabolic Index (BMI), body composition and body fat distribution;
11. describe appropriate weight management principles concerning both diet and physical activity;
12. evaluate articles, books, news clips, and/or videos on food and nutrition and product advertising;

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For more information, see your professor's syllabus.

13. discuss the role of media in promoting consumption, body image stereotypes, and common food myths;
14. describe the importance of nutrition in regulating human health throughout the life cycle from growing individuals to adolescents to adults, as well as during pregnancy and lactation;
15. explain the current regulatory oversight of dietary supplements in the US;
16. identify concerns associated with supplement use by various populations and demographics;
17. analyze dietary intake using appropriate diet analysis software; and
18. 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 and Weight Control
- XI. Nutrition, Exercise, and Sports
- XII. Fat-Soluble Vitamins
- XIII. 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 will be determined by the individual faculty member, but shall include the following, at minimum:

- Three exams, comprising a minimum of 50% of the total course grade, with the option of the final exam being comprehensive
- A diet analysis project covering multiple days of recorded food intake with reflection on dietary adequacy
- An 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 popular media

Written assignments and research projects: Students are required to use appropriate academic resources in their research and cite sources according to the style selected by their professor.

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