

**University of Houston-Downtown
Life & Physical Sciences Foundational Component Area**

Course Prefix, Number, and Title: BIOL 2306-Fundamentals of Nutrition

Credits/Lecture/Lab Hours: 3/3/0

Prerequisites: Credit for BIOL 1310 - Human Biology or credit for or concurrent enrollment in BIOL 1303-Human Anatomy & Physiology

Co-requisites: None

Course Description: Food, nutrients, and their digestion, absorption, and metabolism in humans are studied. Nutritional assessment procedures are performed.

Expanded Description: This course is designed for science and pre-health professions majors that focuses on the chemistry and physiological uses and effects of nutrients, and includes digestion, absorption, and metabolism in humans. Dietary recommendations, plans, guidelines, patterns and associated diseases and disorders will be studied. Regional and cultural diet patterns are discussed. Changes in nutritional needs through the lifespan will be reviewed.

Demonstration of Core Objectives and Foundational Component Area Learning Outcomes within the Course:

Assigned Core Objective	FAC Learning Outcome Students will be able to:	Instructional strategy or content used to achieve the learning outcome	Method(s) of outcome will be evaluated
<p>Critical Thinking</p> <p>Empirical & Quantitative Reasoning</p>	<p>Utilize scientific processes to identify questions pertaining to natural phenomena.</p>	<p>Students will receive didactic and interactive instructions on topics such as macronutrients, micronutrients, metabolism, and energy balance. Students will complete higher-order Blooms application questions and engage in discussions on issues related to nutrition.</p> <p>Students will complete homework assignments for each module. Students will read primary literature articles related to food and nutrition.</p>	<p>Students will be assessed by a quiz/ mini-exam for each module. Questions will be designed to test their ability to recall, understand, apply, analyze, evaluate and synthesize the information on various topics listed in content section.</p> <p>Students will be graded on their ability to give correct answers to both multiple choice and free response questions.</p>

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<p>Critical Thinking</p> <p>Empirical & Quantitative Reasoning</p>	<p>Utilize scientific processes to develop hypotheses, collect and analyze data using quantitative and qualitative measures.</p>	<p>Scientific method is discussed and included with didactic instruction. Students will select a journal article review for analysis using the scientific method as a metric of quality. Strengths and weakness based on the metric will be identified and a final report outlining the level of quality of the article constructed.</p> <p>Students will interpret figures from the article and draw conclusions based on the data presented.</p>	<p>Students will submit a summary including evidence from the article of the presence or absence of components making up the scientific method as applied in a journal article.</p> <p>Students will summarize their article in written form. Students will also present their article in a short VoiceThread post, and comment on the posts of other students to discuss interpretations of results.</p>
<p>Critical Thinking</p> <p>Empirical & Quantitative Reasoning</p> <p>Communication</p>	<p>Utilize scientific processes to effectively communicate the analysis and results using written, oral and visual communication.</p>	<p>Students will conduct a thorough dietary, lifestyle, and fitness assessment on themselves in a semester-long project that includes problem solving and interpretation of course material as it relates to their own diet, lifestyle choices and health.</p> <p>Students will perform diet analyses and calculate kilocalories per macronutrient, total energy expenditure and basal metabolic rate values for fictional cases during the semester. Then, as part of their nutritional report, students will calculate these values for their own diets and bodies.</p> <p>Communication skills will be discussed and addressed as part of the didactic instruction. Students will present their general report findings and reflections in an oral presentation to the class.</p>	<p>Students will write a report with reflection on their nutritional analysis. Assessment involves evaluating analyses and interpretations for accuracy.</p> <p>Students will submit the calculations and related questions, graphs, and manipulations as their QR signature assignment.</p> <p>The report and oral presentations will be evaluated using a rubric for scientific information and oral communication skills.</p>

Assigned Core Objective	Foundational Component Areal Learning Outcome Students will be able to:	Describe the Instructional strategy or content used to achieve the learning outcome	Describe the method by which students' mastery of this outcome will be evaluated
Teamwork	Collaborate in the evaluation of the quality of scientific evidence from multiple perspectives toward the goal of reaching a shared objective.	At the beginning of the semester, students will form groups and establish group protocols and norms. Students will work in groups on multiple occasions, for example to solve problems, discuss nutrition topics, and to write and solve case studies.	Informal reflections and mid-term check-ins will be encouraged. For their signature assignment, students will conduct a numerical peer evaluation and a numerical self-evaluation with written reflection on teamwork skills.

Additional Course Outcomes:

Upon successful completion of this course, students will be able to:

1. Describe and discuss (in writing and orally) the major terms, principles, and concepts of the science of human nutrition, especially as they apply to physiological uses of nutrients and human health.
2. Critically review nutritional information for validity of content.
3. Perform basic nutritional, anthropometric, and fitness assessment on themselves.
4. Design an experiment to test a hypothesis related to human nutrition; critically read and analyze primary papers on the topic of human nutrition and diseases related to diet.

Grading/Course Content That Demonstrates Student Achievement of Core Objectives:

Course Grade A: 90-100 B: 80-89 C: 70-79 D: 60-69 F: 0-59

Summary of Course Exams, Quizzes, Activities, and Final	
Assignments/Activities	% of Grade
Quantitative & Empirical Reasoning Signature Assignment	10
Teamwork Signature Assignment	5
Module Learning Activities	20
Homework	10
Exams	40
Final Project	15
Total	100%

Course Schedule:

Week	Topic	Related Assignments
1	Introduction to Nutrition	Homework; Discussion on the importance of nutrition; discussion on 'Healthy People 2020'
2	Evaluating Nutrition Information & Basis of a Healthy Diet	Homework; Food label analysis; primary literature search and summary
3	Digestion & Absorption	Homework; concept map on digestive system; mini-presentation on paper from week 2
4	Carbohydrates	Homework; discussion questions on carbohydrates
5	Lipids	Homework; discussion questions on lipids
6	Proteins	Homework; 'Dollar Menu' discussion and evaluating the cost of macromolecules
7	Metabolism	Homework; data analysis on metabolism experiments
8	Vitamin Overview & Fat-soluble Vitamins	Homework; case study writing and analysis
9	Water-soluble vitamins	Homework; case study writing and analysis
10	Water & Minerals	Homework; case study writing and analysis
11	Energy Balance and Eating Disorders & Disordered Eating	Homework; energy calculations
12	Nutrition for Fitness & Sport and Pregnancy & Lactation	Homework; fitness assessment and reflection
13	Nutrition for Infants to Older Adults	Homework; discussion questions on nutrient changes over time
14	Food & water Safety; TG this week	Homework; discussion on food safety
15	Global Nutrition & Food Supply	Homework; discussion on genetic engineering
16	Final Project Presentations	Semester-long project; presentation