

This is a SouthArk Master Syllabus. The course syllabus distributed by the instructor may include additional requirements, must be followed by the student in the given term, and is considered to supersede the Master Syllabus.

Course Number

BIOL 2003

Course Title

Nutrition and Diet

Course Description

Study of the fundamental principles of human nutrition and diet with emphasis on carbohydrates, lipids, proteins, vitamins, minerals, and energy in normal nutrition as well as in disease conditions. Three hours lecture.

College Mission

South Arkansas Community College promotes excellence in learning, teaching, and service; provides lifelong educational opportunities; and serves as a cultural, intellectual, and economic resource for the community.

College Wide Student Learner Outcomes

Critical Thinking Responsibility

Communication

ACTS Course **Program Course**

ACTS Outcomes

Program Outcomes

Course Learner Outcomes

CLO #	Course Learner Outcomes	Unit Outcomes/ Competencies	Program Outcomes	Critical Thinking	Communication	Responsibility	Assessment
1-3	Choosing What You Eat and Why; Guidelines for Designing a Healthy Diet; The Human Body: A Nutrition Perspective	Ch.1-1)-7); Ch.2-1)-7); Ch.3-1)-5);		CT4			Exam I
4-6	Carbohydrates, Lipids, Proteins	Ch.4-1)-8); Ch.5-1)-8); Ch.6-1)-8);		CT4			Exam II
4	Carbohydrates Revisited	Ch.4-1)-8);		CT4			Interactive Lecture Test Ch. 4 set up with Bloom's level questioning.
7-9	Energy Balance and Weight Control; Vitamins; Water and Minerals	Ch.7-1)-8); Ch.8-1)-6); Ch.9-1)-6).		CT4			Exam III
8	Vitamins Revisited	Ch.8-1)-6);		CT4			Interactive Lecture Test Ch. 8 set up with Bloom's level questioning.
9	Water and Minerals Revisited	Ch.9-1)-6);		CT4			Interactive Lecture Test Ch. 9 set up with Bloom's level questioning.
10, 11	Pregnancy / Breastfeeding; Infancy and Adolescence	Ch.14-1)-6); Ch.15-1)-6).		CT4			Final Exam

Unit Outcomes/ Competencies/ Objectives

- 1.1 Describe how our food habits are affected by the flavor, texture, and appearance of food; routines and habits; early experiences and customs; advertising; nutrition and health concerns; restaurants; social changes; and economic, as well as physiological processes affected by meal size and composition.
- 1.2 Identify diet and lifestyle factors that contribute to the 15 leading causes of death in North America.
- 1.3 Define the terms nutrition, diet, carbohydrate, protein, lipid (fat), alcohol, vitamin, mineral, water, kilocalorie (kcal), and fiber. Name the six nutrient classes.
- 1.4 Determine the total calories of a food or diet using the weight and calorie content of the energy-yielding nutrients and use the basic units of the metric system to calculate percentages, such as % calories from fat in a diet.
- 1.5 List the major characteristics of the North American diet, the food habits that often need improvement, and the key "Nutrition and Weight Status" objectives of the Healthy People 2020 report.
- 1.6 Describe a basic plan for health promotion and disease prevention and what to expect from good nutrition and a healthy lifestyle.
- 1.7 Identify food and nutrition issues relevant to college students.

2.1 Describe terms that are specific for healthy diets. Develop a healthy eating plan that will provide a healthful nutritious diet. Exemplify a meal that conforms to 'My Plate' recommendations.

2.2 Outline the measurements/ methods used in nutrition assessment: Anthropometric, Biochemical, Clinical, Dietary, and Environmental status (ABCDEs).

2.3 Understand the basis of the scientific method as it is used in developing hypotheses and theories in the field of nutrition, including the determination of nutrient needs.

2.4 Describe what the Recommended Dietary Allowances (RDAs) and other dietary standards represent.

2.5 List the purpose and key recommendations of the Dietary Guidelines and the 2008 Physical Activity Guidelines for Americans.

2.6 Describe the components on a 'food label' that can be trusted: the 'nutrition facts' and the various 'health claims' and label descriptors that are allowed by the FDA [food and drug administration].

2.7 Identify reliable sources of nutrition information: Registered Dietitian.

3.1 What is the energy that is contained in glucose used for? Understand the importance of metabolic reactions: lead to breakdown of nutrients, making of new components and storage of nutrients in the body. Identify some of the energy requiring functions of the nucleus of a cell and common components in the cytoplasm of a cell.

3.2 Define the organization of the human body from cell to tissue, organ, and organ system. Understand some basic roles of nutrients in human physiology and their involvement with all 11 organ systems.

3.3 List the organs of the digestive system. Name the five main functions of the digestive system.

3.4 Describe the overall processes of the digestive system: ingestion, digestion and absorption, assimilation. Focus on mouth, stomach, small intestine, and large intestine as well as roles played by liver, gallbladder & pancreas.

3.5 Understand the importance of effects of nutrients on the genome: nutrigenomics.

4.1 Identify where carbohydrates come from: think photosynthesis. Describe basic structures of carbs: monosaccharides (Ex.: glucose), disaccharides (Ex: lactose), polysaccharides (Ex.: starches), and fiber (Ex: cellulose).

4.2 Describe food sources of carbs and list some alternative sweeteners that prevent the 'empty calories' we get with certain carb-rich foods and will prevent obesity. List the functions of carbohydrate in the body

4.3 Explain how the body makes carbs utilizable: digestion, absorption, assimilation. Discuss consequences of lactose maldigestion (and lactose intolerance).

4.4 List the problems of malnutrition that result from not eating enough carbs (ketosis) and discuss how other nutrients can be converted to blood glucose by conversion to ketones.

4.5 Describe the regulation of blood glucose (hyperglycemia, hypoglycemia) by pancreatic hormones.

4.6 Outline the beneficial effects of fiber on the body and effects of fiber-poor diets (diverticulosis, diverticulitis, colon cancer).

4.7 State the RDA for various carbohydrates and other standards to live by.

4.8 Identify the consequences of continuous hyperglycemia, and explain appropriate dietary measures that will reduce the adverse effects of this health problem known as diabetes mellitus Type I or Type II.

5.1 Name sources of lipids. Understand the common properties of lipids. List food sources for good-for-us fats.

5.2 List four classes of lipids (fats, hydrocarbons) and the role of each in nutritional health.

- 5.3 Distinguish between good-for-us essential fatty acids and bad-for-us fatty acids. Describe trans fatty acids, saturated, monounsaturated, and polyunsaturated fatty acids in terms of structure.
- 5.4 Explain how lipids are digested and absorbed, utilized by the body.
- 5.5 Name the classes of lipoproteins and utilization of cholesterol. Classify chylomicrons, LDL, VLDL, HDL by function.
- 5.6 Characterize the symptoms of cardiovascular disease and highlight some known risk factors. Provide the recommendations for fat and fiber intake. Explain the need for increased fiber intake.
- 5.7 Discuss arteriosclerosis/ atherosclerosis and how these are prevented by intake of various polyunsaturated fats, including omega-3 /-6 essential fatty acids.
- 5.8 Provide a diet that lowers risk factors for development of CVD.

- 6.1 Name sources of protein. List 6 protein classes found in our body.
- 6.2 Distinguish between high-quality and low-quality proteins, identify examples of each, and describe the concept of complementary proteins.
- 6.3 Describe structure of some major proteins and the building blocks of proteins.
- 6.4 Distinguish between essential and nonessential amino acids and explain why adequate amounts of each of the essential amino acids are required for protein synthesis. Explain how protein synthesis works.
- 6.5 Describe how protein is digested and absorbed in the body.
- 6.6 Describe what is meant by positive protein balance, negative protein balance, and protein equilibrium.
- 6.7 List the primary functions of protein in the body. Provide the AMDR for protein.
- 6.8 Describe how protein-calorie malnutrition eventually can lead to disease in the body. Develop vegetarian diet plans that meet the body's nutritional needs.

- 7.1 Discuss the need for controlling input of energy-dense foods. Name the energy yielding nutrient classes. Discuss the need for balancing energy derived from sugars and fats, and, under extreme circumstances, from proteins. Discuss types of energy expenditure – what the energy is needed for and how it is used.
- 7.2 Compare methods to determine energy use by the body.
- 7.3 Discuss methods for assessing body composition and determining whether body weight and composition are healthy.
- 7.4 Outline the risks to health posed by overweight and obesity.
- 7.5 Explain risk factors associated with the development of obesity.
- 7.6 List and discuss characteristics of a sound weight-loss program. Describe why reduced calorie intake and physical activity are the main key to weight loss and weight maintenance later on. Describe why and how behavior modification fits into a weight-loss program.
- 7.7 Outline the benefits and hazards of various weight-loss methods for severe obesity.
- 7.8 Discuss the causes and treatment of underweight.

- 8.1 Define the term vitamin and list three characteristics of vitamins as a group.
- 8.2 Classify the vitamins according to whether they are fat soluble or water soluble.
- 8.3 List the major functions and deficiency symptoms for each vitamin.
- 8.4 List three important food sources for each vitamin.
- 8.5 Describe toxicity symptoms from excess consumption of certain vitamins.
- 8.6 Evaluate the use of vitamin supplements with respect to their potential benefits and hazards to the body.
- 9.1 List the minerals and briefly explain the functions of water in the body.
- 9.2 Discuss healthy water intake and output levels to maintain water balance.
- 9.3 List safety concerns about our water supply.
- 9.4 Classify the minerals as major or trace minerals.
- 9.5 For each mineral, list deficiency or excess symptoms and at least two food sources for each.
- 9.6 Explain the role of nutrition in maintaining a healthy blood pressure. Discuss the DASH diet [Dietary Approach to Stop Hypertension] and its relation to correlated wasting diseases: CVD, diabetes type II.

- 14.1 List major physiological changes that occur in the body during pregnancy and how nutrient needs are altered. Identify the nutrients that may need to be supplemented during pregnancy and explain the reason for each.
- 14.2 List factors that predict a successful pregnancy outcome and some that do not.
- 14.3 Specify the optimal weight gain during pregnancy for a healthy adult woman.
- 14.4 Design an adequate, balanced meal plan for a pregnant or breastfeeding woman based on the Dietary

Guidelines and MyPlate.

- 14.5 Explain the typical discomforts of pregnancy that can be minimized by dietary changes.
 - 14.6 Describe the physiological processes involved in breastfeeding, as well as some advantages of breastfeeding for both the infant and mother.
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- 15.1 Describe the extent to which nutrition affects infant growth and physiological development.
 - 15.2 Identify diet guidelines to meet the basic nutritional needs for normal growth and development for an infant and discuss some do's and don'ts associated with infant feeding.
 - 15.3 List several challenges parents might face in dealing with childhood eating habits.
 - 15.4 List the nutrients often found to be lacking in the diets of infants, toddlers, preschoolers, and teenagers and make recommendations to remedy the problems.
 - 15.5 Describe the long-term effects of childhood obesity and suggest ways to prevent or treat the problem.
 - 15.6 Identify common food allergens and suggest several practices that may reduce the risk of developing a food allergy.

Assessment Description(s)

This course is designed for 150 minutes of lecture per week and covers material over eleven textbook chapters as well as spending one week on a two tiered diet analysis assignment. Each chapter is introduced with a 'What would you choose?' exercise which is assessed using a rubric. There will be a set of interactive lecture tests to widen the learning experience beyond use of lecture PowerPoint files. The material will be tested in four exams consisting of multiple choice, T/F, and matching questions. The diet analysis part I and II gain additional points and are assessed using a rubric.

Materials and Technological Requirements

Smith (2016). Wardlaw's Contemporary Nutrition (10th ed.). McGraw-Hill. ISBN 978-0-07-802137-4
Textbook or e-book and with Access Code for Connect-McGraw Hill.

Class Attendance Policy

Students are expected to attend all classes in which they are enrolled. If a student is absent from a class session, it is the student's responsibility to make arrangements to complete or make up any work missed. No make-up work for missed classes will be allowed without the approval of the instructor. Students who enroll late must assume all responsibility for work missed. Classes not attended as a result of late enrollment may be counted toward excessive absences. Students not attending the entire class period may be counted absent for that period. An instructor may drop students with a grade of "WE" if students have been absent for an excessive number of days. Warning letters will be sent to the students advising them of the consequences of nonattendance and urging them to contact their instructors immediately. Excessive absences are defined as follows:

Regular Semester

Courses which meet once a week	2 absences
Courses that meet twice per week.....	3 absences
Courses that meet four times per week	5 absences

Summer Session

Courses that meet four times per week in a five week session	3 absences
Courses which meet two evenings per week in a 10 week session	3 absences

Students enrolled in special programs or individualized instruction should contact their program director/instructor regarding specific attendance requirements for the program/course. Some of the selective-admission, health-science programs have specific criteria regarding attendance. Students are encouraged to refer to program policies in these matters.

Jury Duty/Military/Official School Function

Scheduled absences are those that occur due to college-related activities or as a result of summons to jury duty or military duty. Classes missed as a result of scheduled absences will not be counted as excessive absences if the instructor is notified and provided documentation prior to the absence(s). Make-up work for scheduled absences will be at the discretion of the instructor.

In all instances, documentation must be provided to the instructor within 24 hours of receipt. Documentation should come from an appropriate party on letterhead or other official stationery with a signature and contact information. Documentation should list the corresponding dates of the leave.

Medical leave

For medical-related absences, documentation must include written notice from the treating medical professional documenting time needed off related to medical reasons and time student may resume classes. The medical reason does not need to be listed on the documentation; the documentation must include only that there is a medical reason, the amount of time the student needs to be absent, and the time the student should be able to return to classes. Students who elect to work at home while on excused leave must meet with their instructors to make arrangements to do so. Working on coursework while on medical leave is not a requirement but can be requested by students. If students request that they be allowed to work at home while on an excused leave, the instructor will make every reasonable effort to ensure that the student is able to do so.

For students who have a medical condition necessitating time off or accommodation:

- 1) They may work at home on assignments if they choose to if on medical leave approved by a medical professional
- 2) Receive appropriate accommodations related to coursework (i.e., excused from labs with potentially harmful chemicals, have a larger desk, etc.)
- 3) Resume their studies where they left off once they return to classes
- 4) Be allowed to make up any missed work related to medical leave
- 5) Receive incompletes on their transcripts until coursework is completed, according to the incomplete grade contract.
- 6) Be given a reasonable time frame in which to complete missed coursework

Academic Honesty Policy

Students enrolled at South Arkansas Community College are expected at all times to uphold standards of integrity. Students are expected to perform honestly and to work in every way possible to eliminate academic dishonesty.

Academic dishonesty includes cheating and plagiarism, which are defined as follows:

- Cheating is an attempt to deceive the instructor in his/her effort to evaluate fairly an academic exercise. Cheating includes copying another student's homework, class work, or required project (in whole or in part) and/or presenting another's work as the student's own. Cheating also includes giving, receiving, offering, and/or soliciting information on a quiz, test, or examination.
- Plagiarism is the copying of any published work such as books, magazines, audiovisual programs, electronic media, and films or copying the theme or manuscript of another student. It is plagiarism when one uses direct quotations without proper credit or when one uses the ideas of another without giving proper credit. When three or more consecutive words are borrowed, the borrowing should be recognized by the use of quotation marks and proper parenthetical and bibliographic notations.

If, upon investigation, the instructor determines that the student is guilty of cheating or plagiarism, the following penalties will apply:

- The student will receive a penalty of no less than a zero on the work in question.
- The instructor will submit a written report of the incident to the Vice President for Learning
- The Vice President for Learning will determine whether further disciplinary action will be taken.
- All decisions may be appealed for review through the college's Academic Appeals procedure.

Equal Opportunity-Affirmative Action Statement

South Arkansas Community College does not discriminate on the basis of age, race, color, creed, gender, religion, marital status, veteran's status, national origin, disability, or sexual orientation in making decisions regarding employment, student admission, or other functions, operations, or activities.

Library Services

Library Homepage: <http://southark.libguides.com/homepage> Library Contact: LibraryStaff@southark.edu or 870.864.7115

Procedures to Accommodate Students with Disabilities:

If you need reasonable accommodations because of a disability, please report this to the Vice President of Student Services with proper documentation. . VPSS Contact: 870.875.7262

The Early Alert System

In an effort to ensure student retention and success, South Arkansas Community College employs an Early Alert System to identify and support at-risk students as soon as possible in a given semester. The intent of Early Alert is to provide this assistance while there is still time to address behaviors or issues that have the potential of preventing students from completing their courses and degree plans. Students referred through the Early Alert System will be required to work on a corrective action plan with their student advising coach and to include attendance accountability and mandatory academic tutoring either in the academic division or in the Testing and Learning Center (TLC).

Once the Student Advising Coach has met with the referred student, and again when the student has met the prescribed corrective actions, the coach will update the Early Alert System so that the instructor is kept informed of the progress in resolving issues.

Behavioral Review Team

At South Arkansas Community College (SouthArk), we are committed to proactive leadership in student wellbeing and campus safety. By focusing on prevention and early intervention with campus situations that involve any person experiencing distress or engaging in harmful or disruptive behaviors, the BRT will serve as the coordinating hub of existing resources to develop intervention and support strategies and offer case management. Students, faculty, staff, and campus guests are encouraged to report any person on campus who is a concern. BRT Contact: 870.875.7262 BRT@southark.edu

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