SYLLABUS

DATE OF LAST REVIEW: 02/2013

CIP CODE: 24.0101

SEMESTER: DEPARTMENTAL SYLLABUS

COURSE TITLE: Nutrition

COURSE NUMBER: BIOL-0145

CREDIT HOURS: Three (3)

INSTRUCTOR: DEPARTMENTAL SYLLABUS

OFFICE LOCATION: DEPARTMENTAL SYLLABUS

OFFICE HOURS: DEPARTMENTAL SYLLABUS

TELEPHONE: DEPARTMENTAL SYLLABUS

EMAIL: DEPARTMENTAL SYLLABUS

KCKCC issued email accounts are the official means for electronically communicating with our students.

PREREQUISITES: MUST HAVE A MINIMUM SCORE OF 75 ON ACCUPLACER READING EXAM

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, http://www.kckccbookstore.com/, for the required texts for your particular class.

COURSE DESCRIPTION:
Nutrition is a general biology course for building knowledge about the six classes of nutrients in food. Students study how nutrients are used by the body, their relation to the myplate.gov, and how to read a food label. The social, economic, and environmental impact of our food selections, and production, is a highlight of this class (food sustainability). Proper nutrition for each stage of the human life cycle will be examined, as well as good nutrition for exercise. The focus is on how to reduce the risk for heart disease, stroke, cancer and diabetes.

METHOD OF INSTRUCTION: A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:
1. Overview of Nutrition
   A. Six Classes of Nutrients
      1. Carbohydrates
      2. Lipids
      3. Proteins
      4. Vitamins
5. Minerals
6. Water
B. How to calculate energy intake.
C. How do we choose our foods?
D. Key mathematical conversions
E. Setting the RDA, AI, and EER
F. How to read food labels – the Daily Values (DV)
G. Performing a nutritional assessment.
H. The 10 Leading Causes of Death in the U.S.A.
I. Two approaches to health problems.
   1. Medical
   2. Preventative
J. Sources of Reliable Information

II. Nutrition and the Environment – Sustainability
   A. The Triple Bottom Line: Social, Economic and Environmental

III. Planning a Healthy Diet
   A. Diet Planning Principles
      1. Adequacy
      2. Balance
      3. Calorie Control
      4. Nutrient Density
      5. Moderation
      6. Variety
   B. Diet Planning Guides
      1. The USDA Food Guide: myplate.gov
      2. The Exchange System
      3. Vegetarian Plans

IV. Digestion, Absorption and Transport
   A. Digestive System
      1. Three hormones that regulate digestion

V. Carbohydrates
   A. Chemistry
      1. monosaccharides
      2. disaccharides
      3. polysaccharides
      4. sugar catabolism
   B. Sugar and disease
   C. Blood Glucose Homeostasis
   D. Fiber

VI. Lipids
   A. Chemistry
      1. Triglycerides
      2. Phospholipids
      3. Essential PUFA
   B. Lipid Digestion
   C. Transport lipoproteins
   D. Health Aspects of Fat
   E. How to Reduce Fat Intake

VII. Proteins
   A. Amino acids
   B. How to calculate your RDA for protein
   C. Protein Digestion
D. Protein Quality  
E. Protein Malnutrition  

VIII. Energy Metabolism  
A. ATP  
B. Cellular Respiration  
   1. Glycolysis  
   2. Fermentation  
   3. Transition Reaction  
   4. Krebs Cycle  
   5. Electron Transport Chain  
C. How Fats and Proteins Enter Metabolism  
D. Alcohol  

IX. Energy Balance and Weight and Control  
A. Bariatrics  
   1. Obesity  
   2. Anorexia  
   3. Bulimia  
   4. Binge Eating Disorder  
B. Basal Metabolic Rate  
C. Weight Loss Rates  

X. Vitamin Function, Source, Deficiency and Toxicity  
A. Water Soluble  
   1. thiamin  
   2. riboflavin  
   3. niacin  
   4. pyridoxal  
   5. folate  
   6. cyanocobalamin  
   7. pantothenic acid  
   8. biotin  
   9. Vitamin C  
B. Fat Soluble  
   1. Vitamin A  
   2. Vitamin E  
   3. Vitamin D  
   4. Vitamin K  

XI. Water, Major, and Minor Minerals  
A. Water  
   1. Sources  
   2. Excretion  
   3. Homeostasis  
B. Sodium/Chloride  
C. Calcium  
D. Phosphorus/Potassium  
E. Magnesium  
F. Sulfur  
G. Iron  
H. Zinc  
I. Iodide  
J. Fluoride  

XII. Exercise and Nutrition  
A. What You Get With Fitness
B. Caffeine

XIII. Life Cycle Nutrition
   A. Infants
   B. Adolescence
   C. Pregnancy
   D. Aging Lactation

XIV. Consumer Concerns
   A. 2-40-140 Rule
   B. Gastroenteritis
   C. Supplements
   D. Herbal Medicine

EXPECTED LEARNER OUTCOMES:
   A. The student will be able to describe characteristics of the six classes of nutrients.
   B. The student will be able to relate how food and water choices impact sustainability.
   C. The student will be able to determine what foods comprise a healthy diet.
   D. The student will be able to describe how three hormones regulate digestion.
   E. The student will be able to identify how sugar and fiber are related to disease.
   F. The student will be able to identify how excess fat intake is related to disease.
   G. The student will be able to identify how excessive protein is related to disease.
   H. The student will be able to summarize the key steps in energy metabolism.
   I. The student will be able to explain how to safely correct the four eating disorders.
   J. The student will be able to chart properties of all the Vitamins.
   K. The student will be able to chart properties of Water, all Major, and Minor minerals.
   L. The student will be able to assess the benefits of exercise in relation to nutrition.
   M. The student will be able to distinguish unique life cycle dietary requirements.
   N. The student will be able to specify the pros and cons of supplements, herbs, and bacteria.

COURSE COMPETENCIES:

   The student will be able to describe characteristics of the six classes of nutrients.
   1. The student will be able to specify Kcal/gram for each energy nutrient.
   2. The student will be able to specify Kcal percentage/day for each energy nutrient.
   3. The student will be able to identify how the top three items on the food label cause death.

   The student will be able to relate how food and water choices impact sustainability.
   4. The student will be able to identify what food choices imperil the environment.

   The student will be able to determine what foods comprise a healthy diet.
   5. The student will be able to define the purposes of the RDA, AI, & EER.
   6. The student will be able to identify nutrient dense foods in each of the food groups.
   7. The student will be able to explain the six diet planning principles.
   8. The student will be able to analyze their diet with the aid of the website
      mpyramid.gov.
   9. The student will be able to distinguish reliable and unreliable nutrition information.
   10. The student will be able to interpret data found on food labels.

   The student will be able to describe how three hormones regulate digestion
   11. The student will be able to list the functions for the hormones gastrin, CCK, and secretin.

   The student will be able to identify how sugar and fiber are related to disease
   12. The student will be able to summarize what diseases are caused by high sugar intake.
   13. The student will be able to recognize what diseases are caused by low fiber intake.
The student will be able to identify how excess fat intake is related to disease.
14. The student will be able to identify what type of fat is related to leading causes of death.
15. The student will be able to identify what are the best sources and quantities of fat.

The student will be able to identify how excessive protein is related to disease.
16. The student will be able to identify sources and ideal daily intake of protein.

The student will be able to summarize the key steps in energy metabolism.
17. The student will be able to summarize how ATP is made from glucose in the cell.

The student will be able to explain how to safely correct the four eating disorders
18. The student will be able to describe healthy techniques for weight loss and control.

The student will be able to chart properties of all the Vitamins.
19. The student will be able to identify the best sources for the B vitamins and Vitamin C.
20. The student will be able to identify the functions of the B vitamins and Vitamin C.
21. The student will be able to identify deficiencies and toxicities for the B and C vitamins.
22. The student will be able to identify the best sources for Vitamins A, D, E, and K.
23. The student will be able to identify the functions of Vitamins A, D, E, and K.
24. The student will be able to identify deficiencies and toxicities of Vitamins A, D, E, & K.

The student will be able to chart properties of Water, all Major, and Minor minerals.
25. The student will be able to describe the special role of water in the body.
26. The student will be able to identify best food sources and functions for all minerals.
27. The student will be able to identify deficiencies and toxicities for all minerals.

The student will be able to assess the benefits of exercise in relation to nutrition.
28. The student will be able to describe the benefits of exercise and good nutrition.

The student will be able to distinguish unique life cycle dietary requirements
29. The student will be able to identify key changes in nutrient intakes in the elderly.

The student will be able to specify the pros and cons of supplements, herbs, and bacteria for the human body.
30. The student will be able to describe the special circumstances for taking supplements.

ASSESSMENT OF LEARNER OUTCOMES:
Student progress is evaluated by means of exams, written assignments, and class participation.

SPECIAL NOTES:
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college’s policy on non-discrimination be administered without regard to
race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact the Academic Resource Center, Room 3354, or call 913-288-7670.

**LEARNING OUTCOMES**

Discipline knowledge and content mastery is expected of all graduates. More specifically, KCKCC is committed to the Learning Outcomes listed below. We believe that competence in the Learning Outcomes is essential for the success of graduates and will enhance their ability to become contributing members of our increasingly complex world. These areas of knowledge and skills are equally valid for all KCKCC graduates, whether they transfer to a four-year college or pursue a career after leaving college.