COURSE SYLLABUS

LAST REVIEW	Spring 2021
COURSE TITLE	Nutrition
COURSE NUMBER	BIOL-0145
DIVISION	Math, Science, Business & Technology
DEPARTMENT	Biology
CIP CODE	24.0101
CREDIT HOURS	3
CONTACT HOURS/WEEK	Class: 3
PREREQUISITES	None
COURSE PLACEMENT	Students must meet the correct placement measure for this course. Information may be found at: https://www.kckcc.edu/admissions/information/mandatory-evaluation-placement.html

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.

KANSAS SYSTEMWIDE TRANSFER: HSC 1010
The learning outcomes and competencies detailed in this course outline or syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents.

General Education Learning Outcome
☐ Basic Skills for Communication
☐ Mathematics
☐ Humanities
☒ Natural and Physical Sciences
☐ Social and Behavioral Sciences

Institutional Learning Outcomes
☒ Communication
☒ Computation and Financial Literacy

☒ Critical Reasoning
☒ Technology and Information Literacy
☒ Community and Civic Responsibility
☒ Personal and Interpersonal Skills

TEXTBOOKS
http://kckccbookstore.com/

METHODS 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, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE
I. 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. Asian and Mediterranean Food Plans

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 and the role of proper bacteria in the colon

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 & Sources

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 & Lactation
D. Aging

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

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

A. The student will be able to identify the six classes of nutrients.
1. The student will be able to specify Kcal/gram for each class of nutrient.
2. The student will be able to specify Kcal percentage/day for each class of nutrient.
3. The student will be able to specify which classes of nutrients are organic.

B. The student will be able to demonstrate an understanding of the processes of digestion, absorption, and metabolism of nutrients.
4. The student will be able to specify the functions for the hormones gastrin, CCK, and secretin.
5. The student will be able to specify the digestive organs of the digestive system.
6. The student will be able to specify where each class of nutrient is absorbed.
7. The student will be able to provide a basic understanding of how glucose, lipids, and proteins are converted into ATP.

C. The student will be able to employ available resources to make sound nutritional choices.
8. The student will be able to provide a list of foods and nutritional report from myplate.gov.
9. The student will be able to specify a basic working knowledge of the food label.
10. The student will be able to specify who and what resources offer the best nutritional information.

D. The student will be able to explain energy balance and weight control as it relates to nutrition and wellness.
11. The student will be able to specify the definition of the six diet planning principles.
12. The student will be able to calculate the amount of protein they should have each day.
13. The student will be able to determine how many Kcal they should have each day.
14. The student will be able to calculate their own Body Mass Index.
15. The student will be able to identify what four diseases are caused by high Kcal intake.
16. The student will be able to specify how exercise and nutrition work together to create wellness.

17. The student will be able to identify nutrient dense foods in each food group.

E. The student will be able to describe nutritional needs throughout the lifespan.
   18. The student will be able to identify the best sources of fiber and diseases associated with low fiber for adults and the aged.
   19. The student will be able to identify the best sources and amounts of protein, carbs, and lipids and this changes with aging.
   20. The student will be able to identify the best sources, functions, deficiencies and toxicities for all vitamins and some of these change with aging.
   21. The student will be able to describe the special role of water in the body.
   22. The student will be able to identify best food sources, functions, deficiencies, and toxicities for all minerals and how these may change with aging.

F. The student will recognize global food safety, security, and sustainability issues.
   23. The student will be able to identify what food choices imperil the environment.
   24. The student will be able to identify what microbes cause infections in what foods.
   25. The student will be able to identify global threats to food safety.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES
Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES
Student Handbook
https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf

College Catalog
https://www.kckcc.edu/academics/catalog/index.html

College Policies and Statements
https://www.kckcc.edu/about/policies-statements/index.html

Accessibility and Accommodations
https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html.